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*Studies on the Value of Cultural Heritage*

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## Il capitale culturale

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# Indice

3	Indice
7	Editoriale Pietro Petrarola
	Museum, culture and digital innovations
15	Introduction Luciana Lazzeretti, Mara Cerquetti
23	Ludovico Solima, Mario Tani, Pasquale Sasso Social innovation and accessibility in museum: the case of <i>SoStare al MANN</i> social inclusion project
57	Luna Leoni, Matteo Cristofaro Technology adoption in small Italian museums: an empirical investigation
89	Giovanna Segre, Andrea Morelli Culture and the youngest. Insights for the future of cultural consumption from an Italian sample
111	Alfredo Del Monte, Sara Moccia, Luca Pennacchio Cultural environment, entrepreneurship and innovation in Europe. The importance of history

## Saggi

- 143 Federico Saccoccio, Luigi Di Cosmo, Nicodemo Abate  
La ceramica dal casale in località Céscole a Itri (LT): nuove fonti archeologiche per lo studio della società bassomedievale tra la contea di Fondi ed il porto di Gaeta
- 181 Gaia Pignocchi  
La maiolica castellana “a coroncina” come testimonianza di cultura materiale nella ricostruzione di contesti postmedievali marchigiani: il caso del sito nella proprietà dei Carmelitani Scalzi sul Monte Conero (Ancona, frazione Massignano)
- 211 Tamara Dominici  
Dipinti neerlandesi tra chiese e piccoli musei nel sud delle Marche: un patrimonio da non dimenticare
- 249 Gianpaolo Angelini  
La *Lista delli libri* di frate Domenico Paganelli: la biblioteca di un architetto tra Roma e le Legazioni pontificie agli esordi del Barocco
- 277 Lauro Magnani  
Giovanni Battista Carlone, martirii e “osservanza della natura” nella cappella di San Clemente all’Annunziata del Vastato
- 309 Chiara Mannoni  
Tutela del patrimonio in età barocca. Tra Svezia e Stato Pontificio, il *Placat* per la protezione delle antichità scandinave
- 333 Sharon Palumbo  
Sul confine tra il paradiso e il secolo. La decorazione del parlatorio nel monastero di Santa Chiara a Sulmona
- 369 Andrea Penso  
An admirable war of Art and Nature. The first flights of the aerostatic balloon in the poems by Alfieri, Monti and Parini
- 389 Nicola Albergo  
*Patrias artes renovare conatus*: riproduzione e applicazione industriale delle miniature cassinesi. Il caso di Oderisio Piscicelli Taeggi

- 409 Alice Devecchi  
La progettazione per l'alabastro a *Volterra '73*. Piccola storia quasi dimenticata
- 429 Giulia Beatrice  
«Eine italienische Angelegenheit»: il viaggio di Carl Einstein nell'arte italiana dal futurismo al rinascimento
- 449 William Cortes Casarrubios  
La Cy Twombly Gallery di Houston
- 493 Tiziano Casola  
Le origini della British Academy of Arts di Roma: alcune precisazioni storiche, nuove fonti documentarie, una nuova ipotesi
- 529 Roberta Tucci  
I beni culturali etnografici nella Commissione Franceschini: una presenza marginale
- 553 Stefano De Falco  
Interesse verso i beni culturali mediante fruizione digitale. Un'analisi geografica all'area di Napoli in utenti a basso tasso di scolarizzazione
- 575 Giovanni Messina  
Stones, maps and cities
- 591 Selene Frascella  
Participatory Museums: lo stato dell'arte dei musei archeologici italiani
- Recensioni
- 615 Umberto Moscatelli  
Carlo Birrozzi, a cura di (2018), *Riscoperte. Un anno di archeologia nelle Marche, Atti della Giornata di studi (Ancona, 6 giugno 2017)*
- 619 Patrizia Dragoni  
Nezzo M., Tomasella G. (2020), *Dire l'arte. Percorsi critici dall'Antichità al primo Novecento*

- 621 Patrizia Dragoni  
Coen P. (2020), *Il recupero del Rinascimento. Arte, politica e mercato nei primi decenni di Roma Capitale (1870-1911)*  
  
Classico
- 627 Giacomo Becattini  
La città d'arte, bene economico e sociale. Introduzione

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# Museum, culture and digital innovations



# Museum, culture and digital innovations. Introduction

Luciana Lazzeretti\*, Mara Cerquetti\*\*

## *Abstract*

The section on “Museum, culture and digital innovations” gathers a selection of papers presented at the international workshop entitled *Rethinking Culture and Creativity in the Technological Era* (Florence, 20-21 February 2020). It contains four articles.

La sezione su “Museum, culture and digital innovations” raccoglie una selezione di contributi presentati in occasione del workshop internazionale *Rethinking Culture and Creativity in the Technological Era* (Firenze, 20-21 febbraio 2020). La sezione contiene quattro articoli.

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## 1. *Introduction*

Over the last decades, a stream of the literature on the cultural and creative economy has been devoted to investigating its role for local development, economic growth and innovation. Culture and creativity have been studied as resources for the regeneration of products, sectors and places and elements to favour the transformation of the economic structure of cities and regions<sup>1</sup>. However, the relationship between culture and economy is facing a new phase based on an increasing connection between culture, creativity and technological innovations. We are beginning a New Era where cultural organisations should afford different challenges that emerged in relation to the diffusion of digital technologies<sup>2</sup>.

This rapid revolution leads cultural institutions to rethink their role in the contemporary economic context. Productive forms change and new intangible added values are generated based on symbolic value and identity where creativity, technology transfer and craftsmanship are crucial components. The combination of craftsmanship and new technologies stimulates a new ecosystem for innovation, capable of creating value and different typologies of entrepreneurship. The digital revolution requires responding to a new demand for cultural contents derived by the public of the digital communities and social networks.

Given these considerations, we ask: how may the digital revolution affect the cultural and creative sectors and cultural organisations? What are the new challenges for the management of cultural heritage in the technological era?

With this section, we are involved in this debate. We have selected four papers<sup>3</sup> presented during the workshop *Rethinking Culture and Creativity in the Technological Era*, held at the University of Florence on 20-21 February 2020, focused on the issue of “Museum, culture and digital innovations”. We have also added as a “classic contribution” a short text by Giacomo Becattini published in 1986 on the art city (*Città d'arte*).

## 2. *Rethinking Culture and Creativity in the Technological Era as an opportunity for «Il capitale culturale»*

For «Il capitale culturale», cooperation with the workshop held in Florence in 2020 was a great scientific opportunity for at least two reasons: on the one hand, for disseminating the journal's activity to a wide international community,

<sup>1</sup> Florida 2002; Cooke, Lazzeretti 2008; Pratt 2008; Scott 2008; Potts 2016.

<sup>2</sup> Sacco *et al.* 2018; Lazzeretti 2020, 2021.

<sup>3</sup> The four articles were selected after a double blind peer review.

on the other, for attracting best papers in the field of cultural economics and management.

As specified in the journal's mission, «Il capitale culturale» «brings together different disciplinary skills [...], with the common goal of implementing studies, research and planning activities for enhancing cultural heritage»<sup>4</sup>. However, achieving multidisciplinary is still a challenge for the journal. Since its foundation, the journal has had to contend with national and international evaluation systems and criteria that differ from one discipline or disciplinary area to another. In Italy, whereas Art History soon came to rank «Il capitale culturale» as an A journal, and would later be joined in this by “Antiquity, Philology and Literature, and Art History” Area, and by Geography, Management Studies have included no Italian journals in their list of A journals. Over time, in a «Legoland model of scholarship, in which façades matter more than substance»<sup>5</sup>, the different methods used for evaluating scientific journals and research has attracted articles from some fields rather than others<sup>6</sup>, leading to an increasing number of papers from the humanities.

Ten years after its birth, one of the risks that the journal should avoid is becoming a “journal solely of art history”, despite the original scope and idea promoted by its founder, Massimo Montella, who strongly believed in cross-fertilisation among disciplines and the effective contribution of management studies to cultural heritage conservation and enhancement. “Getting things done” was the motto that inspired Montella's approach<sup>7</sup>. Over the years, with the aim of countering any disciplinary drift, the journal has embarked on many initiatives to improve its visibility and positioning among scholars in different fields internationally. Its indexing in several well-known international scientific databases (Web of Science – Emerging Sources Citation Index by Thomson Reuters since 2015 and Scopus by Elsevier since 2018) was just the beginning. The cooperation with the international workshop entitled *Rethinking Culture and Creativity in the Technological Era* is another step that adds a valuable piece to this process, because it provides a fruitful field of discussion between scholars in cultural economics and management, maybe the first initiative of this kind in Italy.

When examining the papers presented during the workshop, it is interesting to note that those focused on cultural heritage management, especially museums, are written by Italian scholars. Undoubtedly, the fact that the

<sup>4</sup> <<http://riviste.unimc.it/index.php/cap-cult/about/editorialPolicies>>, 23.03.2021.

<sup>5</sup> Tourish 2019, p. 66.

<sup>6</sup> The twisted logic of national evaluation systems was the object of a lively scientific debate promoted by the journal in issue no. 17 (2018), in which were published the proceedings from the conference entitled “La sostenibilità e la valutazione delle riviste scientifiche italiane in ambito SSH” [Sustainability and evaluation of Italian scientific journals in the field of SSHs], <<http://riviste.unimc.it/index.php/cap-cult/issue/view/88/showToc>>, 23.03.2021.

<sup>7</sup> Montella 2010.

workshop was held in Florence may have attracted more scholars from Italy than other countries. However, it should not be neglected that museums are gaining interest among management scholars. Moreover, Italy is the country that Chastel called a “threefold natural museum”, where the collection, the historical building where it is preserved, and the town where it is located are mutually linked in an exemplary manner as three different aspects of the same museum<sup>8</sup>. The first two papers presented in this section deal with museums and highlight both the changes and challenges that Italian institutions are currently facing (Solima *et al.*) and their different approach to digital transformations depending on their typology and features (Leoni and Cristofaro). The other two papers published in the section provide «Il capitale culturale» with the opportunity to present cultural economics research, an area that is quite new for the journal. These papers explore the characteristics of young cultural consumers (Segre and Morelli) and the historical relationship between the cultural environment, entrepreneurship and innovation (Del Monte *et al.*).

### 3. *Structure of the section*

Looking closely at the presentation of this section, the first paper, by Ludovico Solima, Mario Tani and Pasquale Sasso – *Social innovation and accessibility in museums: some evidence from the SoStare al MANN project* –, focuses on ways of improving museum accessibility as a form of social innovation. The authors investigate the new extended mission of museums as institutions called on to reach out to a wider audience and contribute to cultural and social development. The paper aims to investigate how museums can address the specific requirements of people with special needs by effectively engaging local stakeholders and leveraging their competencies. In the second part of the paper, they discuss a project carried out by the National Archaeological Museum of Naples (*SoStare al MANN*) with some of its stakeholders. The case study shows how museums can introduce novel ways of approaching their collections and become more inclusive and welcoming for people with behavioural and/or cognitive disorders.

In their *Technology adoption in small Italian museums: an empirical investigation*, Luna Leoni and Matteo Cristofaro focus on the impact on museums of digital transformation. After analysing how museums have adopted technologies to meet visitors’ needs, the authors highlight that scientific literature has not identified the most widely adopted technologies in museums and whether different types of museum have different approaches to their application. In order to fill this gap, they discuss the results of a survey that

<sup>8</sup> Chastel 1980.

addressed the directors/curators of 88 small museums (SMs) in Italy. The data were analysed in quantitative terms through the ANOVA and Chi-squared tests. The results show that natural science and technology SMs have a significantly greater level of technology adoption than other SM typologies. In particular, these two SM typologies implement, more than others, mobile websites, multilingual websites, online ticketing, social media, e-commerce, forums, newsletters, targeted newsletters, and mobile applications. The authors argue that, in general, the technology most widely adopted by SMs is the website, which is now viewed as the first condition for enhancing visitor awareness and offering pre- and post-visit services.

The third article, by Giovanna Segre and Andrea Morelli – *Culture and the youngest. Insights for the future of cultural consumption from an Italian sample* –, explores the cultural consumption of teenagers, seen as consumers who are not yet financially independent, but are already independent in terms of their choices and tastes. The authors discuss the results of a survey involving a sample of about 350 students living in the province of Cuneo, in the north-west of Italy. A cluster analysis is used in which young consumers are segmented into four homogeneous groups according to levels of consumption in five cultural sectors (music, cinema, museums, performing art, books) and degree of direct engagement in cultural practices. The research results show significant differences in cultural consumption, family and individual cultural capital, school results and sports engagement. Cultural expenditure is differentiated accordingly. The authors argue that the existence of different clusters among the young consumers highlights the need, both for policy-makers and cultural industries, to better understand the desires and weaknesses of the different groups within the teenage category, and to target policies and strategies accordingly. The research also suggests the importance of starting proper data collection at the national level.

The last article, *Cultural environment, entrepreneurship and innovation in Europe. The importance of history*, by Alfredo Del Monte, Sara Moccia and Luca Pennacchio, proposes a conceptual framework in which the cultural environment is shaped by historical factors and, in turn, affects entrepreneurship and innovation in the long term. To support this idea, the authors focus on the scientific revolution that took place in Europe at the end of the Renaissance period and continued until the late 18th century. They develop a descriptive analysis suggesting that the level of social and religious tolerance, the power of the church and the attitude of elite groups towards scientific discoveries gave rise to different cultural environments across European regions. These different environments affected attitudes towards science. Moreover, using historical data at NUTS-3 geographical level in Europe, the authors estimate an econometric model to explore the long-term impact of regional knowledge base and creativity, two important aspects of the cultural environment, on actual economic drivers. Their results suggest that the presence of universities in the

past, the proxy for a historical knowledge base, and the number of scientists and inventors in the past, the proxy for historical creativity, have a positive effect on current rates of regional entrepreneurship and innovation. The effects of creativity depend on the scientific field of the scientists and inventors.

The *Classic* that is included at the end of this issue could also be related to the section's topic. We decided to republish a short text by Giacomo Becattini, which introduced the third section of a workshop held in Florence in 1986 on the art city (*Città d'arte*). The author analyses the art city as an economic and social good, highlighting the delay and difficulties of economic studies in understanding something as complex and mysterious as the art city. Later, encountering even more difficulties, management studies have addressed culture and cultural heritage. Thirty-five years later, Becattini's reasoning reminds us of the need to go beyond research barriers and explore new research fields and understand the specific features and structure of the object of our study. His words on the concept of production have something to teach scholars, too. As stated by Becattini, «the concept of production developed by economists [...] is fruitful as it applies to processes in which the material element is fundamental, and the aspect of novelty, innovation and creativity is only an accessory. In fact, when it appears, it poses a problem for economists»<sup>9</sup>. When applied to “scientific production”, which is a mandate or even a mantra in the today's context, this is an invitation to scholars to look for real innovation.

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<sup>9</sup> Becattini 1988, p. 88 (own translation).

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# Social innovation and accessibility in museum: some evidence from the *SoStare al MANN* project

Ludovico Solima\*, Mario Tani\*\*,  
Pasquale Sasso\*\*\*

## *Abstract*

In recent years, the function of museums has changed from focusing on protecting cultural heritage to reach out to a wider audience and proposing a series of new methods to promote and display its collections and contribute towards collective cultural and social development. In this new vision, accessibility acquires a central role, asking to enable people who otherwise would have been excluded, be it because of physical disabilities or because suffering from behavioural and/or cognitive disorders, to enjoy the benefits of culture. Accordingly, some museums have developed a number of new approaches for people with special needs affected by autism spectrum disorder. At the same time these new activities are designed leveraging new competences and knowledge that museums only rarely own, but they can get access to them engaging local stakeholders in a process that starts from

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analysing the local area' needs to develop new ways to visit the collections that can be seen as a social innovation. This work is concerned with analysing a project undertaken by the Museo Archeologico Nazionale di Napoli (National Archaeological Museum of Naples) with some of its stakeholders, aiming to understand whether, by altering the perspective of analysis, museums can introduce totally novel ways to approach their collections, so that they are more inclusive and welcoming for people affected by behavioural and/or cognitive disorders.

Negli ultimi anni, la funzione del museo è cambiata, passando dalla mera tutela del patrimonio culturale alla sua valorizzazione, tramite diversi e nuovi servizi rivolti a un più ampio pubblico, con il fine di essere un soggetto attivo per la crescita culturale e sociale della collettività. Al centro di questa funzione vi è l'accessibilità, che richiede di ampliare la fruizione del servizio alle persone affette da disabilità motorie e a quelle che presentano disordini comportamentali e/o cognitivi, tanto che alcuni musei hanno sviluppato nuovi approcci rivolti alle necessità delle persone affette da disordini dello spettro autistico. Allo stesso tempo queste nuove iniziative necessitano di competenze e conoscenze che solo raramente i musei hanno internamente, ma che possono essere ottenute coinvolgendo attivamente i portatori di interesse dell'organizzazione museale in un processo che parta dall'analisi delle necessità del contesto per sviluppare nuove modalità di fruizione che possono essere ritenute una forma di innovazione sociale. In questo lavoro si analizza un progetto che il Museo Archeologico Nazionale di Napoli ha avviato insieme ad alcuni stakeholder per comprendere come sia possibile sviluppare nuove modalità per valorizzare le proprie collezioni, rendendole più inclusive nei confronti delle persone affette da disordini comportamentali e/o cognitivi.

## 1. *Introduction*

According to the International Council of Museums (ICOM), a museum is «a non-profit, 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 for the purposes of education, study and enjoyment»<sup>1</sup>.

This statement explains that modern museums should set out to attract and welcome everyone<sup>2</sup>, as the means to contribute to cultural and social development within its local area and, in a wider sense, to that of society as a whole<sup>3</sup>. In order to attain this goal, museums should become attractive to a broader set of visitors<sup>4</sup> and they should be able to overcome the barriers limiting the visitors from enjoying, appreciating and learning from the museum's collections.

The need for museums to be more open towards their community was emphasized by the Council of Europe in its *Convention on the Value of*

<sup>1</sup> <<https://icom.museum/en/resources/standards-guidelines/museum-definition/>>, 22.03.2021.

<sup>2</sup> Martins 2012.

<sup>3</sup> Solima 2004.

<sup>4</sup> Hein 2006.

*Cultural Heritage for Society* (Faro Convention), adopted in Faro (Portugal) in 2005. This framework convention opened a new season in cultural policies, promoting more democratic participation in cultural heritage and a new scheme for its accessibility. The first article of the Faro Convention underlines the importance of involving all individuals and communities in safeguarding and enhancing cultural heritage, the responsibility of all towards cultural heritage and the need for synergy between private and public actors in the sector. Within the new function of cultural heritage, museums have the social responsibility of becoming a centre of cultural production and ensuring that everyone has the *right* to participate. In this way, museums must promote, through their work, the processes of creating value for their local territory and help that part of the community which, for various reasons, is detached from the museums' traditional reach, to become active parts of the society<sup>5</sup>.

As shown by Suchy<sup>6</sup>, when museums are able to create, and nurture, their relationship with the key stakeholders in their community, they are able to create the emotional bonds that link a museum tightly to its territory and help to make it a central actor within the complex system in which it belongs<sup>7</sup>. In this perspective, communities should not be seen as homogeneous, but as multi-faceted and ever-shifting entities in constant evolution. The changes within a community may drive museums to redefine their own actions to accommodate the new environmental request.

At the same time, museums should be able to leverage their stakeholders' networks<sup>8</sup> in order to access the broad set of competencies needed to address the various types of accessibility. Drawing on their network of relationships, museums can create new visiting experiences, whereby they communicate the value of their permanent collections more effectively and succeed in their social function of being able to entertain their audiences, to fulfil their function of becoming a testing ground for new forms of cultural citizenship, and support social relations and the sense of belonging to the local territory, promoting the value of accessibility.

Therefore, the main focus in this paper is to investigate how museums can effectively engage other social actors to get two different effects: on one side, these relationships should be able to leverage the competences of the other actors in the local community to expand their professional resources and to define new solutions to address the specific requirements of people with special needs; at the same time these relationships should be able to strengthen their relationship with the local community. At the same time, as a second research

<sup>5</sup> De Luca 2007; Walters 2009; Rappolt-Schlichtmann, Daley 2013; Brown, Mairesse 2018.

<sup>6</sup> Suchy 2006.

<sup>7</sup> Onciul 2013; Phillips *et al.* 2015.

<sup>8</sup> Sciarelli, Tani 2013.

question, we want to investigate if these new solutions can be extended to other visitors, reducing the distance among the various audiences.

In this paper, we present a study on a specific example of a project developed by the Museo Archeologico Nazionale di Napoli (MANN), leveraging its network of relationships with a local association to design new services to answer the needs of a well-defined group of visitors, people affected by autism syndrome disorder, the *SoStare al MANN* project. We show how the project has helped in making the MANN more accessible, mostly in the cognitive dimension, to help these visitors fully enjoy their visit. At the same time, it has helped to design services that could be used even by other types of visitors.

The paper is structured as follows. The first part is dedicated to the analysis of the literature on the issues of social innovation, and we then present the literature on accessibility in museums. The third part covers the methodological approach of the work, to define the research questions and justify the case study selection; then, in the fourth part, we present the case, highlighting the actors involved and the various phases of the project. After describing the case, we discuss the main findings of this paper, giving some theoretical and managerial implications and, in the conclusions, we set out the main limitations of this study, together with suggestions for further research.

## 2. Literature review

### 2.1 Social innovation

Social innovation is generically defined as «the creation and implementation of new solutions to social problems, with the benefits of these solutions shared beyond the confines of the innovators»<sup>9</sup>, although, according to some scholars<sup>10</sup>, it still lacks a commonly accepted and comprehensive definition.

Van der Have and Rubalcaba<sup>11</sup> see social innovation as a multi-faceted phenomenon with four possible levels. The first is the level of grassroots social innovation, i.e. responding to pressing social demands which usually cannot be satisfied through more traditional market-based solutions. The second level consists of novel products and services produced by private, public, and third sector organizations (or a combination thereof). The third level is composed of the new combinations of social practices, attitudes and values, and the fourth

<sup>9</sup> Tracey, Stott 2017, p. 51.

<sup>10</sup> Pol, Ville 2009; Lawrence *et al.* 2014; Edwards-Schachter, Wallace 2017.

<sup>11</sup> Van der Have, Rubalcaba 2016.

and last level is that of systemic innovations, involving fundamental changes in strategies and policies, organizational structures and institutional frameworks.

Mumford defined social innovation as «the generation and implementation of new ideas about social relationships and social organization»<sup>12</sup>. Within the same stream, several scholars<sup>13</sup> have perceived it as the capability of society, or some of its parts, to see socio-environmental issues and solve them through processes of change. These new solutions mostly deal with issues linked to the environment, social services or culture and education. This is a broad vision of social innovation, and can encompass many different processes, starting from new ideas to address social issues and/or solve unsatisfied needs in a local area<sup>14</sup>.

According to other scholars<sup>15</sup>, the diffusion of social innovation within social sciences is a consequence of rising interest on the part of private companies, public organizations and community groups, which are actively pursuing more efficient solutions to existing social problems or, trying to anticipate potential new solutions before the problems escalate, with the contribution of, and the coordination with, institutions, business and other individuals.

Social innovation can still be considered as an emerging field of research<sup>16</sup>, with several studies<sup>17</sup> seeing it as a way to improve quality of life, while some scholars<sup>18</sup> examined the outcomes of the processes of social innovation. According to them, these innovations are more about creating value and less about creating profit and, in most cases, they may lead to successful new enterprises and business models that may be seen as partially profit-oriented and partially not-profit oriented. At the same time, according to other academics, an innovation is only a social one when the new way to solve the problem is more effective, efficient, sustainable and fair than the existing solution<sup>19</sup>. Likewise, as these innovations are not developed for the purposes of profit only, the new beneficial effects must be able to create value for society as a whole, instead of being limited to only some individuals<sup>20</sup>. In a similar perspective, as highlighted by Ziegler<sup>21</sup>, other studies see social innovation as a subdomain of normal studies into innovation<sup>22</sup>.

<sup>12</sup> Mumford 2002, p. 253.

<sup>13</sup> Mulgan *et al.* 2007.

<sup>14</sup> Mulgan *et al.* 2007; Murray *et al.* 2010.

<sup>15</sup> Lettice, Parekh 2010; Lawrence *et al.* 2014; Phillips *et al.* 2015; van Wijk *et al.* 2018.

<sup>16</sup> Dacin *et al.* 2010.

<sup>17</sup> Harrison *et al.* 2012; McKelvey, Zaring 2018.

<sup>18</sup> Bessant, Tidd 2007; Bhatt, Ahmad 2017; Tracey, Stott 2017.

<sup>19</sup> Phills *et al.* 2008.

<sup>20</sup> Bessant, Tidd 2007; Phills *et al.* 2008; Bhatt, Ahmad 2017.

<sup>21</sup> Ziegler 2017.

<sup>22</sup> Ziegler highlights even a third stream in the social innovation literature. This less enthusiastic and more sceptical stream sees social innovation as a case for a switch to other concepts, such as social inequality and social justice that are less favourably accepted. See Ziegler 2017, p. 400.

Another group of scholars has focused more on the implementation of social innovation. For example, for Howaldt and Schwarz<sup>23</sup>, this means the actions of actors, or a group of actors, ultimately create a new combination or new configuration of social practices that were intentionally designed to solve a given social need or issue better than existing established practices. Similarly, Cajaiba-Santana<sup>24</sup> identifies social innovations as new social practices created by one or more social actors that intentionally seek to induce social change by reconfiguring how these very same social goals are accomplished.

At the same time, according to Ruiz and Parra<sup>25</sup>, social innovation is only really accomplished when the social actors can disseminate it to other parts of society that may need the new practices and related policies. Equally, Pol and Ville<sup>26</sup> claim that social innovation is only fully accomplished if it can have a permanent impact on the perceptions and behaviours of people in certain areas. More recently, Purtik and Arenas (2019) found that social actors can effectively leverage the process of social innovation to change societal norms, spreading other, more sustainable behaviour among the other actors in their environment, themselves leveraging their example<sup>27</sup>. In the same stream of research, several scholars see the processes of social innovation as system-changing practices that could alter perceptions and act as an instrument for social change<sup>28</sup>.

Social innovations are usually more complex and more ambiguous than conventional business innovation<sup>29</sup>. This is because social innovators tend to have to satisfy a wider range of stakeholders, each with different priorities and potentially conflicting interests and viewpoints, and such social innovation may require fundamental and systemic transformations or change that challenge the status quo<sup>30</sup>.

According to some scholars, social innovation is the direct consequence of the experiences and learning processes undergone by social actors, such as social enterprises and NGOs<sup>31</sup>. Mulgan<sup>32</sup>, on the contrary, claims that social innovation is not limited to the actions taken by third sector actors, as its effectiveness is linked to how engaged the different social actors are throughout the various phases from design to dissemination. Papaluca and Tani<sup>33</sup> linked the third sector's effectiveness in implementing social innovation to their ability to involve a broader set of stakeholders in their processes, in that the third

<sup>23</sup> Howaldt, Schwarz 2010.

<sup>24</sup> Cajaiba-Santana 2014.

<sup>25</sup> Ruiz, Parra 2013.

<sup>26</sup> Pol, Ville 2009.

<sup>27</sup> Purtik, Arenas 2019.

<sup>28</sup> McKelvey, Zaring 2018; Westley, Antadze 2010.

<sup>29</sup> Hall, Vredenburg 2003.

<sup>30</sup> Gladwin *et al.* 1995; Noci, Verganti 1999; Mulgan *et al.* 2007; van Wijk *et al.* 2018.

<sup>31</sup> Dees 1998; Paton 2003; Harding 2004.

<sup>32</sup> Mulgan 2006.

<sup>33</sup> Papaluca, Tani 2010.

sector players can overcome their structural lack of resources by exploiting their social capital and gaining new perspectives on the different needs arising in their environment<sup>34</sup>.

Mulgan<sup>35</sup> holds that social innovation is only rarely completely new innovation, and usually derives from the ability to observe and adapt solutions that have been applied to similar problems in different contexts. It follows that the value of social innovation is the outcome of a transparent and collaborative value co-creation process built upon a multi-stakeholder engagement<sup>36</sup>. Social innovation opens the door onto seeing innovation as a multi-disciplinary and multi-stakeholder collaboration, where various actors are able to participate in changing the behaviours of other actors in the same system<sup>37</sup>.

In general, according to several scholars<sup>38</sup>, social innovation is most effective when it is the result of a collective process initiated by individuals, or single social movements, that are able to engage other public and private social actors, in order to become more effective at capitalizing on the different resources accessed by the entire network of actors. Several scholars<sup>39</sup> speak about the need to identify a *social innovation system* composed of the various communities in which social innovation processes are developed, with the participation of a range of stakeholders, including those in the public and third sector and consumers.

Lusch and Vargo<sup>40</sup> argue that social innovation should be analysed by placing emphasis on the actor-to-actor networks and resource integration processes needed for enabling a co-creation of value that can potentially succeed in sustaining social innovation over time. According to Huq<sup>41</sup>, social innovation may be a third path to designing and implementing new social services. The author suggests that organizations intending to design new, innovative social services, especially if these services are to be deployed in tightly regulated fields, should adopt a three-step process, involving professional organizations and individuals in the development of the new solutions. In the first step, defined by Huq as *entwining problems*, the organization should stop seeing the issues that it is tackling as separate problems and, instead, try to engage with the local communities and adopt a more systemic approach. The second step is known as *reconfiguring arrangements*, undertaken so that the various organizations are ready to accept the needed changes. The third step is *active waiting*, whereby

<sup>34</sup> Lipparini 2002; Papaluca, Tani 2010.

<sup>35</sup> Mulgan 2006.

<sup>36</sup> Brodie *et al.* 2019; Rahman *et al.* 2019.

<sup>37</sup> Ziegler 2017.

<sup>38</sup> Mulgan 2006; Salim Saji, Ellingstad 2016.

<sup>39</sup> Phillips *et al.* 2015; Carberry *et al.* 2019.

<sup>40</sup> Lusch, Vargo 2014.

<sup>41</sup> Huq 2019.

innovation is encouraged but not actively pursued in local settings, letting the various professionals drive the process of innovation.

In museums social innovation can be linked to the various activities designed, with the help of external stakeholders, to better fulfil their new social function.

## *2.2 Accessibility as a driving factor of the social function of the museum*

According to the spirit of the Faro Convention, the *new museum* shifts from being a mere container to an institution where the cultural wealth of its permanent collections are assets to be shared and promoted<sup>42</sup>. The static vision has prevailed over the dynamic one for a long time, making it difficult for museums to engage with other than their traditional audiences, and totally excluding those whose knowledge does not meet the museum's lofty expectations<sup>43</sup>. One of the main criticisms of the traditional concept of museum is that it focuses overly on the protection and conservation side, paying too little attention to that of making its collections engaging and exciting<sup>44</sup>. The result is that the visitor experience is often overlooked or oversimplified<sup>45</sup>. The habit of not dwelling too much on the needs of users, or else considering the public to be an amorphous cluster of passive and uncritical consumers, replicates the positions taken for most of the twentieth century, and which had also applied to the entertainment and advertising sector, and has equally evolved. The primary mission of the museum has become the transmission of cultural heritage to future generations, helping to cultivate the community's own identity. The museum is now seen as the means by which society presents and acknowledges its relationship with its own history and that of other cultures.

In 2020, Taylor<sup>46</sup> found that even the image of art museums, traditionally perceived as repositories of fine art for audiences to observe at a distance, is no longer valid. Museums are considered to be places where people engage with the arts, and arenas for cooperation with audiences and neighbouring communities. Barnes and McPherson<sup>47</sup> found that one way for a museum to expand its accessibility is for it to engage with parts of its community in redefining museum services, or at least how artwork can be experienced by its visitors, transforming it into a hybrid institution that is able to educate and entertain its audiences at the same time.

In 2009, the Commission for Education at ICOM Italy classified museum visitors into adults, children, young people, the elderly, the physically and

<sup>42</sup> Besozzi 2007.

<sup>43</sup> Solima *et al.* 2019.

<sup>44</sup> Ferraro 2011.

<sup>45</sup> Rodari 2005.

<sup>46</sup> Taylor 2020.

<sup>47</sup> Barnes, McPherson 2019.



mentally disabled, citizens of other cultures, tourists, professionals in training, family groups and participants in social reintegration programmes, because the educational purposes of museums are the development and promotion of knowledge, skills and behaviours that manifest themselves throughout the life of each individual. The Commission emphasized the fact that museums have a social responsibility towards their local communities. Museums must necessarily place themselves in an open and *listening* position towards their communities, question their role and rethink their function, in order to interact effectively with current events characterized by elements of complexity and dynamism.

Museums can be the bearers of major social benefits<sup>48</sup>. Alongside the cultural value of knowledge built and disseminated by museums, is the value of social relations which they can potentially promote<sup>49</sup>. Without the relationship between cultural heritage and individuals, the museum would return to taking the simple role of container. By emphasizing the relationship between the museum, the various stakeholders and the community, museums are referred to as places where different cultures are put into contact, rather than as institutions that impart knowledge to visitors<sup>50</sup>. It should be noted that museums are themselves communities with their own values and conventions, and they differ from each other in the way they evolve in relation to the context in which they are inserted.

The museum has the purpose of supporting critical learning and the process whereby people internalize cultural heritage so that it becomes a value for each individual. This idea goes in parallel with the principle of leveraging continuous learning to help develop a democratic and active citizenship<sup>51</sup>. The social function of a museum is apparently even recognized by the medical sector; in Canada, doctors have recently been prescribing museum visits as a therapy in conjunction with taking medicines. It can be said then that the museum is *good for health*.

In order to exercise its new social functions, as explicitly requested by the international community, the modern museum must open itself to the needs of the community, offer itself as a testing ground for new forms of cultural citizenship, promote and support social relations and the sense of belonging to the local territory, and oppose phenomena of social exclusion by promoting the value of accessibility<sup>52</sup>. As highlighted by Cerquetti<sup>53</sup>, as a museum's organization must create value for all its stakeholders, it should not limit itself to protecting cultural heritage but should be able to promote and enhance it. The museum's

<sup>48</sup> ICOM 2009.

<sup>49</sup> Clifford 1997.

<sup>50</sup> Singer 2007.

<sup>51</sup> Pinna 2000.

<sup>52</sup> Solima 2012.

<sup>53</sup> Cerquetti 2010.



publics should be able to participate in the processes of value creation, and other actors should be brought in to improve the management skills held within museums. In other words, museums must activate practices that allow them to involve their community more closely. Engagement, according to Onciul<sup>54</sup>, has the great potential of benefiting not only the museums but their communities as well. The outcome of these practices is to engender a closer bond between the two sets of actors, and more, the two groups can share their activities, and the interaction of a museum with new actors can create new narratives and new perspectives that can increase the value of the museum's offer. At the same time, the various organizations should be wary of the distribution of power within the engagement process as, even during the process itself, the different roles will be continuously changing, not according to some pre-defined plan, but because of the role that each actor effectively has in every single part of the process<sup>55</sup>. Community engagement, in museum literature, has been defined as «museum programs that usually involve individuals or groups who do not or cannot use museums, and that may take place both in museums and in a range of community spaces»<sup>56</sup>. In community engagement processes, art collections are relevant and meaningful, but they are clearly not central<sup>57</sup>; they are the means to create new connections, and how new interests are sparked. These processes may require people to break down the wall between visitor and works of art, so that the visitor can touch them, or a close replica, or interact with them through other media, arts, crafts or photography<sup>58</sup>.

The only way for museums to be more open and involve their communities more closely is to promote the value of accessibility. The theme of accessibility in the museum sector is certainly a distinctly current topic, as it is still able to offer various possibilities for multi-disciplinary comparisons, open to the contribution of the widest spectrum of professionals operating in the various fields dealing with culture. There is an increasingly large and diverse section of population that, through temporary or permanent circumstances determined by physiological or pathological causes, has limited possibilities of freely accessing and using the museum spaces, or of joining in cultural and educational initiatives. In this perspective, the State and the bodies responsible for ensuring equal rights for all are expected and required to know the citizens' needs, and to provide suitable services. Therefore, both at central and local level, it is essential to pursue policies for equal opportunity and, above all, equal access, which increase dissemination and sharing a culture of accessibility among professionals and citizens, promoting the paradigm of culture open to all and for all.

<sup>54</sup> Onciul 2013.

<sup>55</sup> *Ibidem*.

<sup>56</sup> Morse, Munro 2018, p. 358.

<sup>57</sup> Morse, Munro 2018.

<sup>58</sup> Solima, Tani 2016.

This new model, set out by the United Nations *Convention on the Rights of Persons with Disabilities*<sup>59</sup>, is inspired by the full compliance and application of the right to *accessible culture*, understood as both ensuring physical access to places of culture and cognitive access to the contents they produce and promote<sup>60</sup>. From this perspective, museums can be considered as effective tools against the bane of social exclusion, as they are not mere repositories of artwork, but suppliers of free knowledge able to reach everyone. It follows that, by pursuing their institutional purposes, museums can become instruments of social cohesion capable of fully interpreting the paradigm of open culture. The new vision of the museum focuses on its educational nature and its natural orientation towards the public, both being vocations that lead museums to be *of all and for all*.

The goal of becoming a space that all can access should not be interpreted as simply removing architectural or physical barriers, but rather as ensuring that everyone can fully enjoy the museums' collections. Only by promoting a dialogue devoid of any form of discrimination with the outside world will museums be able to take on a role of primary importance within contemporary society. The relationship between a museum and its communities is not new<sup>61</sup> and, according to Morse and Munro<sup>62</sup>, is defined in several policies where museums are asked to engage with specific *target communities*, such as people from minority ethnic groups, socio-economically deprived areas and disability groups. In these undertakings, museum staff should provide a welcoming, inclusive and safe environment and, most importantly, a space where visitors feel that they will not be judged.

The term accessibility indicates, first of all, that all users can move around in complete safety and autonomy; therefore, accessibility is an indispensable requirement for liveability and is often associated with the concept of *environmental comfort*, alongside the removal of access barriers in buildings.

At a first glance, accessibility can be understood as the set of spatial, distributive and organizational characteristics in buildings designed to be used by anyone and everyone.

Accessibility is an essential prerogative for cultural places, as they are used by the community to carry out activities mostly associated with cultural heritage. As a consequence, a fundamental feature in the protection and enhancement of heritage is the fact that the spaces intended for this purpose must be accessible and welcoming in order to be adequately used. The issue of accessibility has always been associated with that of disability, but in recent years something

<sup>59</sup> United Nations 2007.

<sup>60</sup> Moussouri (2007) defined a social model of accessibility using three dimensions, i.e. economic, environmental, and cultural barriers; several years later, Solima (2012) added a fourth dimension to the social model, that of digital accessibility.

<sup>61</sup> Watson 2007.

<sup>62</sup> Morse, Munro 2018.

has been changing on this front. Because of a renewed attention on the various categories that make up the cultural demand, there seems to be a stronger interest in ensuring the right to access places of culture, and thus of providing an autonomous, easy and safe cultural experience to an extended audience, including all people with any physical, motor, sensory or cognitive special needs, whether permanent or temporary.

There are four main dimensions to accessibility, which can be economic, physical, cognitive or digital<sup>63</sup>. The economic dimension has its origin in the need to ensure that all citizens have the same opportunity to satisfy their need for culture regardless of their financial situation. In most cases, however, the entrance ticket is only one of the costs that users must incur to use the cultural service. There are clearly the direct costs linked to transport to reach the site, and the evaluation of the economic dimension of accessibility must also take into account the costs relating to the time spent on making an adequate use of the cultural service, and those associated with how and where to access information. It is clear that merely evaluating the costs a visitor incurs to access the service is only a small part of that person's overall investment to derive the maximum benefit from services in the cultural sector.

The second dimension of accessibility is equally important and concerns the museum's physical accessibility. According to this dimension, the service can be said to be accessible only when the museum is equipped with adequate infrastructures. Physical accessibility also takes on a double perspective. Within the structure, being accessible means having taken the necessary steps to eliminate all physical barriers that make it difficult, if not impossible, for even a relatively small segment of users to navigate around the museum's collections. Shifting the attention to outside the museum, it must be possible to evaluate how easily the museum can be reached without facing overly many logistics difficulties, assessing public transport and relative connections, car parks and, more generally, access roads. Another dimension of accessibility is that linked to the cognitive profile. It can often be the case that, even when a museum is easy to access physically, its information systems are difficult to understand.

Making a museum cognitively accessible has three positive effects. It makes up for any inadequacy on the part of the visitors, it creates more loyal visitors and it becomes a more active player within the local community.

When cultural enterprises manage to eliminate this type of barrier, they significantly reduce any sense of *cultural inadequacy* in the user. This feeling is a major psychological obstacle that can help to explain why some people belong to the group of *non-public*<sup>64</sup>.

From this point of view, the categories of disadvantaged users deserve particular attention. These are people with motor or sensory problems, and

<sup>63</sup> Solima 2012, 2017; Da Milano, Sciacchitano 2015; Cetorelli, Guido 2017.

<sup>64</sup> Presta 2010.

who may not be encouraged to use the museum's services. Taking into account the growing diffusion of digital technologies, it is necessary to acknowledge the existence of an accessibility dimension specific to this area.

Museums must learn to manage their presence on the internet not by limiting themselves to a simple website, where they merely replicate information contained in their catalogues. They must try to initiate processes of user engagement, setting in motion faster content creation mechanisms that have themselves become the basis for creating a stable relationship with users, with the added benefit of increased user loyalty<sup>65</sup>. Through this relationship, a museum will have access to a varied set of resources, including videos and photographs of the museum's interior and of individual events, and will benefit from all the flows of information deriving from the interaction between users.

All museums recognize the importance of being more accessible to visitors and potential visitors, but today there are still many barriers to accessibility. For this reason, museums must find solutions to become more accessible and respond fully to their mission, including by resorting to external skills. Among the various types of accessibility, sensorial perception is one of the most important<sup>66</sup>. It, therefore, seems necessary to define the perimeter of the term multi-sensory, as it indicates more than one sense<sup>67</sup>.

Taste comes into play least but still in a residual manner in a museum visit. The many possible relationships between the world of food and wine and that of art are easily appreciated. It is no coincidence that most major museums choose to sell edible products in their shops, often connected to their collections or temporary exhibitions. The sense of smell comes next, seemingly stimulated in a fairly simple and economic way, through the use of natural fragrances or electronic fragrance diffusers that can increase the experiential perception of the visit. In the third place is touch, as the tactile dimension can be affected both by the visitors' relationship with the objects on display and by the information presented. Museums can prepare tactile routes, identifying the works that can be touched by visually impaired visitors, and information can be written in Braille. The two senses most used by museum visitors are sight and hearing. In particular, sight is used by visitors to find their way around the often-unknown exhibition spaces, as well as to look at the exhibits and access the museum's various information media.

Over the past twenty years, the sense of sight has been strongly affected by technological progress. The extent to which museums can provide information on portable devices (through smartphones, tablets and wearables) via apps is now ubiquitous, paving the way for automatic orientation solutions (way-finding) as well as infinite possibilities for customizing the contents, i.e.

<sup>65</sup> Solima 2018.

<sup>66</sup> Dodd *et al.* 1998.

<sup>67</sup> Howes 1991; Levent, Pascual-Leone 2014.

presenting information flows according to the visitors' wishes, interests or more simply the time they have to visit<sup>68</sup>.

People affected with the autism spectrum disorder are among the new audiences that can particularly benefit from a multi-sensorial approach to the exhibitions.

### 2.3 *Museum and autism*

According to the Diagnostic and Statistical Manual of Mental Disorders, a handbook produced by the American Psychiatric Association, autism spectrum disorder (ASD) is a developmental disorder that affects communication and behaviour. Although autism can be diagnosed at any age, it is said to be a developmental disorder because symptoms generally appear in the first two years of life. Autism is often seen as one of the most complex and pervasive disorders of the developmental age, as its effects are permanent and the sufferer is impaired for life. Autism is considered to be a syndrome affecting a person's whole personality; therefore, it is referred to as a generalized and pervasive developmental disorder<sup>69</sup>. Autism spectrum disorder is a serious disability and, while physical appearance is normal, it may affect several brain functions.

Autistic people are physically healthy and develop like their peers, moreover the effects may be rather uneven; autism manifests itself through a vast series of symptoms, so it is usually referred to as autistic spectrum disorder (ASD)<sup>70</sup>.

According to Cottini and Vivanti<sup>71</sup>, the most affected areas are:

- mutual social interaction: inability to establish social, emotional and/or empathetic relationships with others;
- impairment in communication: inability to communicate ideas and feelings plus language-related impairments;
- behaviour, restricted, repetitive and stereotyped activities and interests: constantly focusing on a few interests or habits, limiting the autistic child's ability to carry out other tasks.

Classic examples of the behaviour of people with ASD are sudden mood swings, with inappropriate laughter or crying, hyperactivity or passivity, self-aggressive behaviour, often joined by phobias and sleep and eating disorders. Some patients are particularly sensitive to sound, touch, sight and smell, and when their senses are stimulated, they can be driven to extreme reactions, such as panic attacks<sup>72</sup>. The three characteristic symptoms of autistic disorder (impaired social interaction, communication problems and abnormal behaviour) can vary

<sup>68</sup> Alunno 2017.

<sup>69</sup> Cottini 2009, 2016.

<sup>70</sup> Cattelan 2010.

<sup>71</sup> Cottini, Vivanti 2016.

<sup>72</sup> Ianes, Cramerotti 2002; Ianes, Zappella 2009.

widely in intensity and incisiveness. With such disparity in level of severity and appearance of symptoms, it can be difficult to understand the related behaviours and set in place suitable interventions<sup>73</sup>.

Today, the focus of the debate seems to have increasingly shifted from the individual's disability to features in the environment, which can take the form of barriers and create an impairment or act as enabling mechanisms that can eliminate limitations and encourage full social participation. Every environmental context can be configured as a barrier or a facilitator; in the case of museums, many young people with ASD and families with autistic children find them a barrier<sup>74</sup>.

One consideration concerns the fairly widespread practice of distinguishing between physical accessibility to the museum's buildings and accessibility to the museum's collections and symbolic meaning of exhibitions, as well as to the various educational programmes. While the first type of accessibility relates mainly, but not exclusively, to architectural and physical barriers, the second type presents a much broader perspective and, despite it being generally linked to sensory and psycho-cognitive disabilities, its topics and reasonings can potentially be applied to most users<sup>75</sup>. For a museum to be truly accessible and inclusive towards people with autism spectrum disorder, its work must necessarily involve these people, their families and experts in the field who often have no place in the museum's organizational chart<sup>76</sup>.

### 3. *Method and research design*

The literature review on social innovation has highlighted that, for organizations to be effective social innovators, they must be able to set up a co-operative process, bringing in different stakeholders to create a wider viewpoint and increase the effectiveness of these processes<sup>77</sup>.

In order to become active actors within these processes of innovation, museums should create a network of relationships to broaden their perspective<sup>78</sup> and transform their reality into a *social innovation system*<sup>79</sup>. Designing new social innovation processes may help museums to leverage the competencies of the various stakeholders in the community with whom the museum is able

<sup>73</sup> Anaby *et al.* 2013.

<sup>74</sup> Askari *et al.* 2015.

<sup>75</sup> Kulik, Fletcher 2016; Coffey 2018.

<sup>76</sup> Caldin *et al.* 2018.

<sup>77</sup> Onciul 2013; Carberry *et al.* 2019; Taylor 2020.

<sup>78</sup> Howaldt, Schwarz 2010; Lawrence *et al.* 2014; van Wijk *et al.* 2018.

<sup>79</sup> Phillips *et al.* 2015; Carberry *et al.* 2019.

to engage<sup>80</sup>. Moreover, according to Huq's model of social innovation<sup>81</sup>, the actors should let the various professionals deal with the innovation process by tapping into their own pool of expertise.

In this perspective, museums that intend to include people with ASD among their audiences, to educate them in becoming an active part of the community, should be able to bring together the needs of these people, those of their families and those of the experts who deal with these issues. Museums should be able to create a system that includes expertise that is often not found within their own organization<sup>82</sup>.

On the contrary, social innovation processes provide a link between the museum and its community and strengthen the museum's relationship with a number of stakeholders, which may be in the public or third sector, or be consumers. Local communities may also benefit from this stakeholder engagement process<sup>83</sup>. The two sets of actors are hence more connected and, additionally, they can share their undertakings and, through their interaction, the new actors can create new narratives and new perspectives, which, in turn, can increase the value of the museum's offer.

In the light of these considerations, we set out our first research question as follows:

*RQ1*: How may museums engage social actors within the local community to improve their activities?

- RQ1a: May museums engage with the social actors in the local community to expand their professional resources and to get access to specific skill and competences?
- RQ1b: May museums engage with social actors within the local community to strengthen their relationship with the territory?

As social actors and cultural institutions, museums have the social function of providing access to their cultural resources in an inclusive way to all their audiences<sup>84</sup>.

Among the four different dimensions of museum accessibility<sup>85</sup>, cognitive accessibility is particularly interesting because, by becoming more inclusive and breaking down barriers, museums may become more attractive to a broader group of audiences.

Some of the cognitive barriers to being an accessible museum, such as those related to ASD, demand the creation of new social services, which make use

<sup>80</sup> Morse, Munro 2018.

<sup>81</sup> Huq 2019.

<sup>82</sup> Caldin *et al.* 2018.

<sup>83</sup> Onciul 2013.

<sup>84</sup> Cerquetti 2010; Solima 2015.

<sup>85</sup> Solima 2012, 2017; Da Milano, Sciacchitano 2015; Cetorelli, Guido 2017.



of specific health-related professional services. While these areas are often in need of social innovation, they are usually unable to change easily, as they must comply with specific protocols<sup>86</sup>. At the same time, museums designing new services must interpret their cultural resources in a new light, proposing them in a new, multi-sensorial way and so create a broader range of options<sup>87</sup>.

According to some scholars<sup>88</sup>, these new multi-sensorial perspective approaches touch upon topics and thought processes that can potentially be valid for most users.

*RQ2: May the solutions developed for people with special needs also be extended to other audiences?*

In order to find an answer to these research questions, we decided to study the process of creating and implementing a museum service designed for people with ASD as part of a wider framework to study how to insert these people within the wider visitor set.

We used a case study, as this method can be used to analyse the items identified in our literature review within a real-life context<sup>89</sup>, considering this approach as functional for the explorative purposes of this study, consistent with a *constructivist, qualitative and inductive* logic<sup>90</sup>.

We focused our case on a specific project carried out by the Naples-based MANN museum, entitled *SoStare al Mann*. This name is a play on the words *sostare*, to pause/take a short time-out while in the museum, and *so stare*, knowing how to be/ behave there.

We chose the MANN's project for our study as the museum is influential within the Italian landscape and it is a unique environment that was the first Italian museum to prepare a Strategic Plan and so become more transparent in the eyes of the local and not-so-local communities<sup>91</sup> and it has started several projects to re-define its social function<sup>92</sup>. It is one of the most visited museums in Italy (according to MiBACT, the Ministry for Cultural Heritage and Tourism, it attracted more than 670,000 visitors in 2019, and is the 10<sup>th</sup> most visited of all Italian museums and heritage sites).

Moreover, the museum had no previous experience in working with this specific group of visitors, meaning that it was easier to follow the progress of how the various sections of the involved community interacted with the museum's organization. The MANN was chosen despite it being possibly a

<sup>86</sup> Adler *et al.* 2008; Zietsma *et al.* 2017.

<sup>87</sup> Alunno 2017.

<sup>88</sup> Kulik, Fletcher 2016; Coffey 2018.

<sup>89</sup> Lazzeretti *et al.* 2015; Yin 2017.

<sup>90</sup> Hennink *et al.* 2011.

<sup>91</sup> Solima, Giulierini 2018.

<sup>92</sup> Seawright, Gerring 2008; Mariotto *et al.* 2014.



worst-case scenario for creating new services for people affected by ASD, with its wide galleries, mostly permanent collections and general lack of support material for visitors. As a consequence, the *SoStare al MANN* project could not draw on existing resources and/or practices when creating the new services, and the professionals were constrained by the actual collections, but nobody had to deal with internal resistance.

#### 4. *Case study: the SoStare al MANN project*

The project ran from January 2017 to June 2018, at the behest the MANN's management, which has recognized the need for the museum to be accessible to people living under conditions of disability, especially people with ASD. *SoStare al MANN* is an experimental path aimed at widening the museum's community, engaging the community more closely in the museum's life and helping to carry out one of the museum's main social functions, that of spreading art and culture.

The challenge faced by MANN and its main partner, the FOQUS Foundation (mostly represented in the project by the FOQUS director, Renato Quaglia), was in changing the way to address cultural services for people affected by cognitive disorders. The museum created a new cultural experience by introducing targeted educational tours, exploiting new visual aids and special communication strategies particularly suited to autistic visitors, but open to all types of audiences, i.e. the museum had become more inclusive.

The common thread running through the project is the effectiveness of the communication tools used to spread the museum's cultural message.

##### 4.1 *The actors involved in the project*

###### 4.1.1 *The Museo Archeologico Nazionale di Napoli (MANN)*

The Museo Archeologico Nazionale di Napoli – MANN (National Archaeological Museum of Naples) was simultaneously the promoter and the place where the project was implemented. The museum is among the oldest and most important in the world for the wealth and uniqueness of its heritage and its contribution to the European cultural panorama. The origin of the collections can be traced to Charles III, who ruled Naples as Charles of Bourbon from 1734 to 1759, and his cultural policies. The king was behind the excavations of the cities buried by the eruption of Mount Vesuvius in 79 CE (with digs starting at Herculaneum in 1738 and at Pompeii in 1748) and he oversaw the construction of the Museo Farnese in the city, where he transferred part of the

rich collection inherited from his mother Elisabetta Farnese from her residences in Rome and Parma.

The museum acquired national status in 1860, and its collections were enriched with finds from excavations in archaeological sites in Campania and Southern Italy and with acquisitions from private collections. The Pinacoteca (Picture Gallery) was moved to Capodimonte in 1957, determining the museum's current embodiment as an Archaeological Museum. In 2016, with the arrival of its new director, Paolo Giulierini, the museum presented its inaugural Strategic Plan (the first of all museums in Italy to do so), which set out its various strategic objectives, among which the specific aim of improving the museum's accessibility for particular sections of public, including people with physical and cognitive disabilities.

#### 4.1.2 FOQUS Foundation

FOQUS (Fondazione Quartieri Spagnoli) is an urban regeneration project operating in the heart of Naples' old city centre since 2014. The FOQUS Foundation is located in an old building in the upper part of Naples (so-called: Spanish Quarter). The Foundation has renovated parts of the building, providing spaces for young entrepreneurs and so creating new jobs and new businesses. It has hosted several independent public and private companies, to help build an economically productive community of cultural and creative industries, working in personal care, training and education. In 2016, with the help of private partners, the FOQUS Foundation inaugurated Argo, a centre providing assistance to people with cognitive disabilities. Argo helps children, teenagers and young adults with disabilities to discover their own value and pursue their goals through concrete objectives. The project claims to give each individual the basic skills to improve their life and their psycho-physical well-being autonomously, helping them to be better at school, at work, and so on.

#### 4.2 The *SoStare al MANN* project

The project was intended for a group of ten young people who were already going to the Argo Centre, plus other pupils from a nearby school, *Dalla parte dei bambini*. The meetings were arranged in various ways, with the children attending the centre visiting the museum sometimes alone and sometimes with the other schoolchildren. The choice behind the Argo children visiting the museum with the children from the school was based upon two very specific reasons. Firstly, *Dalla parte dei bambini* has policies in place to be as inclusive as possible. Secondly, we wanted to see what would happen in a museum when schoolchildren were visiting the galleries and artwork.

### 4.3 *The project phases*

The project started in January 2017, with practical tests being carried out between September 2017 and June 2018. The phases of the project can be summarized as follows:

- First phase: meetings between the management of the MANN and the FOQUS Foundation, from January 2017;
- Second phase: study of international models of museum accessibility for people with cognitive disabilities, from April 2017 to September 2017;
- Third phase: direct testing and field experience with disabled young people and primary school pupils, from September 2017 to June 2018.

#### 4.3.1 *First phase: understanding*

The project partners studied the cultural, territorial and experiential context on accessibility and cognitive and/or psychic impairments, as the project focused on understanding how a person visiting the MANN could relate to an artwork and discover the related meanings, the main opportunities and the consequences of this connection.

The first phase concentrated on identifying, for each different type of disability, the tools and/or devices best suited to help the visitors with cognitive or behavioural disabilities find interest and value in visiting a museum.

The project partners needed to define the museum's objectives, how to engage with the museum's employees and identify the room for manoeuvre in terms of breaking down sensory, communicative, architectural and financial barriers. The driving principles of this phase were both being accessible and let the children be an active part of the visitors' community, in order to consider the lack of accessibility as the problem, not the visitor.

In general, the group tried to identify new practices to be inclusive and accessible, not just for people with disabilities, but for anyone.

#### 4.3.2 *Second phase: research*

In April 2017, FOQUS launched a research in partnership with volunteers from the International Napoli Network (a for-benefit company) to identify, classify and understand the accessibility models used in the main international museums for people with disabilities, specifically examining people with ASD or Down's syndrome. According to the American Alliance of Museums, over thirty museums in the United States have implemented proposals for these audiences, focused on creating spaces, visiting hours and conditions within the museum relating to noise factors and the non-excessive presence of other members of the

public. The answer as to whether a museum can become accessible to people with cognitive and physical disabilities is somewhat ambiguous. It depends on the people, their interests, what the museum is offering, its spaces and involvement.

When implementing accessible itineraries, the classic approach is to promote tranquillity during a visit or create short and highly structured visits, with the pre-defined use of photographs and short stories. The FOQUS Foundation's research involved a sample of one hundred international museums, with the objective of surveying what the museum was offering in terms of events and accessibility services. They were able to interview sixty-two museums, selecting eighteen museums for deeper analysis, as their inclusive and accessible activities were offered as mainstream museum services.

The results of the analysis pointed out that museums were able to change their point of view and adapt to their visitors' characteristics. Considering that museums are places with high sensorial and cultural stimulation, reducing the number of visitors and adjusting stimuli designed for able-bodied subjects, lowering sounds, lights and suchlike all together create a comfortable and welcoming environment for these visitors.

#### 4.3.4 *Third phase: experimentation*

The third phase was carried out in three main sub-phases:

- in September 2017, a first meeting was held between the MANN's educational services, FOQUS Foundation managers, Argo operators and experts in teaching students with cognitive disorders from the Panta Rei Cooperative in Reggio Emilia;
- in October, the children visited the museum with the help of Argo operators;
- between October and November, the children visited the museum several times, in some cases they were alone, while in others, they visited the MANN with children from a primary school, *Dalla parte dei bambini*, guided by Argo operators and the school's teachers.

The operators (experts, educators, teachers, pedagogists, therapists and cultural professionals) visited the MANN to study how the museum's internal spaces are arranged and see how people organized their visits (how they entered, where they went and what they looked for). The experts focused on the changes in how the museum welcomed its visitors to see if the new reception methods could benefit all visitors, not only people with cognitive and behavioural disorders. They discussed the experimentation process and selected two galleries containing the Farnese Collection and the Villa of the Papyri for their test purpose.

The experts studied the galleries' features, the visitors' behaviour, the lights, visitor flows and any places where the visitors could potentially stop and stay aside for a short time. The Farnese Collection inspired a series of new stories evoking the shadows of the statues on the white walls, while the Villa of the Papyri in Herculaneum was chosen for the dynamism and expressions of the dancers and runners in the room.

#### 4.3.5 *Meeting in the museum*

The direct experience of the children with disabilities (known as *Argonauts*) in the field was documented by transcribing reports on the actions carried out by the children and the operators observing them. The notes were used to understand the conversations between the operators and the children inside and outside the MANN. The first extract describes how a young girl, Donatella, suggests imitating the statues.

The operators follow her proposal and are corrected by Donatella, who gives precise indications. Donatella then welcomes an operator's suggestion to involve other children. The museum is seen as an evocative space in itself, which can stimulate imagination, curiosity and amazement. Play can make a visit more dynamic and more attractive. It can help people with disabilities overcome their personal limitations and create a new idea of the museum being a place where, always in the respect of artwork and other visitors, children can enjoy themselves in new ways.

The second extract describes the experience of children (in this case, Maria Francesca) in selecting a subject to photograph. Following her personal logic, Maria Francesca independently adds other works to her initial subject, giving a meaning to the whole. Photography is recognized as a tool used by children to choose, express, communicate and observe; cameras can stimulate their curiosity, with more possibilities arising from potential post-production services.

Another extract describes Alessia's experience. She wants to listen to music in order to relax and focus on the Toro Farnese (the largest single sculpture from antiquity so far discovered) and has even chosen a song. The operators follow her movements around the sculpture on the notes of her chosen song, seeing her touching the statue, feeling it as if it was the first time. The experience is used to create empathy with the statue, the music helps in creating a synaesthesia of senses, little by little involving the senses of all present.

Several children decided to use their smartphones to photograph the art. After an initial visit, they started to play at finding the works they had photographed, using the details captured in each photograph. This micro to macro research helped all the participants to join an active process of value co-creation, as operators, children and teachers were able to help each other.

This game was considered so important that the operators' note stated that the «visitors' involvement in this game was extraordinary».

#### 4.4 *The new activities designed during the SoStare al MANN project*

The *SoStare al MANN* project has shown the importance of changing perspective in analysing the role played by a museum to cater for new audiences. Art has to be seen from a new, previously unapplied angle, and the interaction between visitors and art redefined; for example, mirrors of different shapes and sizes can be used to change the appearance of works of art, *fragmenting* them and letting the children reinterpret them.

At the same time, the project highlighted the opportunity to view how art interacts with its environment; for example, projecting the light of the torch on statues creates new shapes in the form of shadows. The children were able to re-interpret the statues using light to create new shapes. They were also asked to re-interpret various artefacts, including statues, through the medium of drawings, photographs and videos.

The museum was able to define six different activities for its new audiences:

1. *Change point of view;*
2. *If art is made of shadows;*
3. *From micro to macro;*
4. *Touch, move, see yourself;*
5. *Imagine the music;*
6. *SoStare* (as mentioned, a play on “pausing” and “I know how to be/ behave”).

*Change point of view* involves asking visitors, with and without ASD, to alter their own visual perception of the work of art using distorting mirrors to fragment and rebuild them with different meanings, producing different ways of interacting with them.

*If art is made of shadows* involves re-reading artworks starting with their shadows and, by changing the source of light, re-invent how the item is perceived.

*From micro to macro* used photos of details of artwork to inspire people to search for these details within the collections, linking and connecting the various pieces together.

*Touch, move, see yourself* was designed to create an experience where visitors were asked to *discover* the museum using all their senses, even touching selected exhibits.

*Imagine the music* uses music or voices to change the perspective of the various collections.

*SoStare* is where the museum can identify areas where people can *stay* and interact with the other visitors, observing them from outside the visitor flows, slowing down their whole experience.

The children exposed to the new idea of a museum were able to develop their own perceptions, using all their senses; they were able to touch the works of art, use the background music to change their impression of the exhibitions and, sometimes, these new stimuli directed them towards proposing new stories.

## 5. Discussion

In this paper, we studied the *SoStare al MANN* project, examining the progress of its development and implementation with the engagement of various actors in the local community, and highlighting the main results of the project in terms of letting people with autism be an active part of the museum's audience, increasing the museum accessibility for people with cognitive disabilities.

Regarding *RQ1a*, we found that the museum's management was able to locate a third sector organization (FOQUS) within the local area and tapped into its competencies and into its relationships to identify, and later engage with a number of stakeholders, in the form of professionals, cooperatives, schools, children with and without a disability.

This broad approach later proved to be really useful in creating the services aimed for in the *SoStare al MANN* project, as highlighted by Mulgan<sup>93</sup>.

Moreover, this approach is consistent with previous research<sup>94</sup> into leveraging external relationships to expand a project's portfolio of expertise beyond those of museum staff.

At the same time, as the changing role of FOQUS highlights, their relationship with the museum is a way for third sector organizations to become more legitimate actors in the local and national environment. Non-local stakeholders become engaged in its work<sup>95</sup> and, looking at how the various steps of the project were conducted, the project could be considered as a *social innovation system*<sup>96</sup>, giving support to *RQ1b*.

The project can be represented through Huq's<sup>97</sup> model. During the first phase of the project (the multi-stakeholders' meetings), the various stakeholders were able to understand the problem from different perspectives; this can be considered similar to Huq's first phase of *entwining problems*, as museum management entered the forum with no pre-defined agenda but as a way to obtain

<sup>93</sup> Mulgan 2006.

<sup>94</sup> Papaluca, Tani 2010; Salim Saji, Ellingstad 2016.

<sup>95</sup> Morse, Munro 2018.

<sup>96</sup> Phillips *et al.* 2015; Carberry *et al.* 2019.

<sup>97</sup> Huq 2019.



information, gain a broader perspective and to hear from other stakeholders how to deal with these issues, giving further support to both *RQ1a* and *RQ1b*.

The project then conducted a desk study to understand how other museums had solved the same issues in order to gain an even broader perspective. The results of this approach are similar to those Huq describes in the second phase of his model, as the various stakeholders were studying international solutions as a way to gain an understanding of how the various skills and expertise could be combined into the social innovation system that the MANN intended to create with this project. Similarly, the first two phases of the project are aligned with previous findings in literature on stakeholder management and engagement as a way to increase stakeholder legitimacy<sup>98</sup>.

The MANN was able to create a stable and flexible forum where various stakeholders were able to mediate their different approaches in order to create a more flexible set of solutions, which could satisfy not only the targeted audience of people affected by ASD, but also other audiences as well. The conclusions of the project, «each visitor is different from the others, since all visitors are bearers of a different diversity», give support to *RQ2*.

The MANN's lack of previous experience on this topic in its recent history proved useful, as the museum's organization was able to define new norms for being more accessible. In particular, the process diverged from Huq's model in its third phase. In the *SoStare al MANN* project, the third phase was left in the hands of the stakeholders but, as we can see from the interviews, the professionals were not really driving the process, but were observing the other stakeholders' behaviour and became mediators in the creation of a more engaging service. They were in charge of arousing the Argonauts' interest and making their visits more memorable. In this way, they were able to live the museum from a different angle, rather than being mere spectators passively looking at art; this is similar to the new perspective described in museum and community engagement literature<sup>99</sup>.

In the *SoStare al MANN* project, it was the children who said how they would like to spend their time at the MANN and, in doing so, they came up with intriguing strategies and ideas that could apply to many different audiences. The new goal, defined during the project, was to interpret the works of art through the language of people with cognitive disabilities. FOQUS chose to engage with a heterogeneous group so as not to become entrenched in common prejudices whereby children with cognitive disabilities come to be excluded from discovering the arts. As a consequence, together they were able to define a tight group of activities that were valid for everyone, not only people affected

<sup>98</sup> Orr, Scott 2008; Vurro, Perrini 2013.

<sup>99</sup> Solima, Tani 2016; Morse, Munro 2018.



by ASD, and were able to use their different cognitive abilities to re-read the collections in a new light.

The children developed the new activities, while the operators tried to understand the children's real perspective, changing the way they interacted with them over time. The operators observed how the children touched the works, how they asked for background music and how they gave new identities to the statues. This experience was critical in discovering how to introduce people with cognitive and behavioural disorders to art, and how these new publics can become *real* visitors. The project was truly able to lower the barriers to cognitive accessibility<sup>100</sup>.

This case study has several managerial implications as well, as it highlighted the need to factor in accessibility from the start of a project in order to take into account the specific needs of the new audiences in all the museum new activities encompassing the curatorship of the new exhibitions, interpretation, education and the necessary processes of communication.

The new services developed during the *SoStare al MANN* project helped to define a new vision of the museum where the exhibitions become a social place where the audience can develop their own vision, using all their senses, not just sight, as the new trends in museum management advise<sup>101</sup>.

At the same time, the *SoStare al MANN* project highlights the need and the difficulties of making a museum accessible to everyone. The process needs to become part of the routine of every member of staff and, at the same time, it highlights the need to create partnerships with external actors, both practitioners and experts. The project also highlights the possibility that, in the future, people with autism spectrum disorder could themselves be part of the museum operators or they could work as guides in some areas or galleries. In the past, it was felt that museums were closed to disabled people a priori; with this project, we can affirm the exact opposite.

Moreover, the project highlights an opportunity that only rarely has been caught in previous international experiences, that of making the new audiences an active part of the broader local community. Normally, museums try to address the needs of publics with cognitive and behavioural disorders by reducing the stimuli provided, or they introduce events that keep one public apart from another, such as the various *nights at the museum*, generally designed for younger visitors. The initiatives created and developed at MANN during the project have highlighted the possibility of the various publics visiting the museum at the same time, but seeing it differently, a far more ambitious project. The effects ensuing from the interaction between these publics will have to be

<sup>100</sup> Presta 2010; Solima 2012.

<sup>101</sup> Taylor 2020.

studied to comprehend if and how this interaction can change the museum experience and how it is perceived, by linking it to a specific moment in time.

## 6. *Conclusions and further research*

Over the years, museums have changed their role in society, going from a place of conservation to a place of continuous learning, open to everyone, with an emphasis on their social role. Accessibility becomes a *conditio sine qua non* for these organizations, even beyond their legal requirements. In addition, modern museums are meeting places, encouraging the inclusive participation of all visitors. The *SoStare al MANN* project flung open the museum's doors to a new public, for the first-time welcoming people with cognitive and behavioural disabilities. The transition was not immediate, the museum had to work properly to break down its physical, economic, methodological and communication barriers. The *SoStare al MANN* project has shown the importance of engaging with the local community to change perspectives and become more accessible to some audiences.

The project helped the various stakeholders to go beyond the mere role of bystanders, to redefine the very essence of several works of art, as the children focused on the micro-level, the detail, to link different items in new ways, at the macro-level. Consequently, they were able to create a new identity, new processes of knowledge, their eyes seeing more and finding innumerable similarities not usually seen and, accordingly, they become the source of a new vision of the potential experiences that visitors, both normal ones and those with cognitive disorders, may share among themselves.

This paper has several limitations. Because the study was built around an influential case selection process, these results cannot be generalized, as they are deeply embedded in the resources that the various stakeholders, MANN included, were able to deploy, and most are not available to smaller organizations. The two main results of this paper, to reiterate, are showing how to engage with other stakeholders to become more accessible and how to overcome the limitations linked to social care professionals defining the new services, with their role changing from decision makers to mediators. These results should be tested on a broader sample; or another museum more representative of a *normal* museum organization in Italy could use this project as a beacon to help smaller organizations create effective social innovation processes by engaging with their community.

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# Technology adoption in small Italian museums: an empirical investigation

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## *Abstract*

The last digital revolution of this century has shaped every industry, including the cultural one, which has also had a tremendous impact on museums. In this vein, museums have adopted technologies to meet the new needs of visitors. However, literature has not identified the most adopted technologies in museums and if there is a difference according to the museum's typology. In order to fill this gap, directors/curators of 88 small Italian museums (SMs) were asked to identify the technologies they adopted, through a questionnaire. Data were analysed in quantitative terms through the ANOVA and Chi-squared tests. Results show that natural science and technology museums have a greater level of technology adoption than other museum typologies and that the most implemented technologies are: mobile website, multi-language website, online ticketing, social media, e-commerce, forum, newsletter, targeted newsletter, and mobile application. Findings provide useful implications for scholars and practitioners as well as interesting suggestions for future research.

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L'ultima rivoluzione digitale di questo secolo ha ridefinito ogni settore, incluso quello culturale e con un enorme impatto anche sui musei. In questa ottica, i musei hanno adottato le più recenti tecnologie per soddisfare le nuove esigenze dei visitatori. Tuttavia, non è stato ancora studiato quali sono le tecnologie maggiormente adottate nei musei e se esistono differenze d'adozione in base alla tipologia degli stessi. A tal proposito, uno specifico questionario è stato somministrato ai direttori/curatori di 88 piccoli musei italiani, i quali sono più diffusi rispetto a quelli di grandi dimensioni. I dati raccolti sono stati analizzati in termini quantitativi attraverso analisi della varianza (ANOVA) e test Chi-quadrato. I risultati mostrano come i piccoli musei di scienze naturali e quelli tecnologici registrano un livello di adozione della tecnologia significativamente maggiore rispetto ad altre tipologie di museo. Tra le tecnologie maggiormente utilizzate vi sono: sito web, sito web mobile, sito web multilingue, biglietti online, *social media*, *e-commerce*, forum, *newsletter* generica, *newsletter* rivolta a specifici pubblici e applicazioni *mobile*. I risultati, inoltre, forniscono utili implicazioni per studiosi e professionisti del settore, nonché interessanti suggerimenti per le ricerche future sul tema.

## 1. Introduction

The last digital revolution of this century has shaped every industry and the adoption of technological innovations has demonstrated to be essential for firms to remain at the cutting edge of the competition<sup>1</sup>. This is also true in the cultural heritage industry, where the actual competition is about addressing and meeting new visitors' needs<sup>2</sup>. In fact, the profound transformations generated by the introduction of new technologies, such as social media and mobile apps, are now at the basis of the paradigm shift occurring in the cultural industry. These are able to enrich visitors' experiences and create new business models<sup>3</sup> – such as pure digital museums (e.g., the Kremer Museum, the Tokyo MORI Building Digital Art Museum: teamLab Borderless).

Thanks to the adoption of these technologies, museums have progressed from being considered a place in which objects of cultural interest are collected, preserved, stored, and exhibited to a place in which visitors are emotionally stimulated and can live memorable experiences<sup>4</sup>. Curatorship literature has already demonstrated how the implementation of technologies in museums is beneficial for increasing their accessibility, engagement and attraction<sup>5</sup>. In this

<sup>1</sup> Sundbo, Darmer 2008.

<sup>2</sup> Bagdadli 1997; Kotler, Kotler 1998; Montella 2003; Zan 2003; Baldassarre 2009; Cerquetti 2010; Cristofaro *et al.* 2019; Panicia *et al.* 2018; Panicia, Leoni 2019.

<sup>3</sup> Fletcher, Lee 2012; Lewis 2012; Bertacchini, Morando 2013; Fitzgerald *et al.* 2014; Minguzzi, Solima 2015; Porter, Heppelmann 2014, 2015; Nambisian 2017; Autio *et al.* 2018; Teece 2018; Errichiello *et al.* 2019; Mezghani, Aloulou 2019.

<sup>4</sup> Pine, Gilmore 1998; Tufts, Milne 1999; Ferraro 2011; Wu 2012; D'Orazio 2017; Cristofaro 2020b.

<sup>5</sup> Davies 2001; Carmen, José 2008; Sacco 2012; Lazzeretti *et al.* 2015; Lazzeretti, Sartori 2016;

vein, new departments within museums were set up to manage and develop technological tools; some examples are the MediaLab of the Metropolitan Museum of Art in New York and the Digital Media Department of the Imperial War Museum in London<sup>6</sup>.

However, to the best of the authors' knowledge, scholars interested in the adoption of technologies in museums have neither quantitatively investigated the level of technology adoption in museums, nor if there are differences in the single technology adoption according to the typology of museums. Filling this gap is not a minor problem; indeed, a series of contributions have highlighted how it is fundamental to know *if* and *how* museums adopt technologies<sup>7</sup>; this will help identifying how they can better exploit their value creation and co-creation towards and with visitors. So, the following research questions emerge: "*Is there a difference according to the small museums' (SMs) typology in the adoption of technologies? If yes, what are the most adopted technologies?*". In order to answer to these questions, a questionnaire has been designed and sent to directors and curators of small Italian museums that operate in the five regions with the highest concentration of museums (2,512 in total; 28%). The focus on SMs is justified by the fact that SMs are, in a lot of countries such as Italy<sup>8</sup>, the cultural entities that hold the greater amount of heritage than large museums. At the end of the data collection process, 88 answers provided by museums' directors or curators have been received. They were investigated in quantitative terms according to an Analysis of Variance (ANOVA) and Chi-squared tests. Results show that natural science and technology museums have a greater level of technology adoption than others and that the most implemented technologies are mobile website, multi-language website, online ticketing, social media, e-commerce, forum, newsletter, targeted newsletter, and mobile application.

Thanks to the results provided by this work, scholars interested in the management of cultural heritage gain knowledge on the level of technology adoption by museums according to their typology. Moreover, the provided methodology for the investigation of technology adoption in SMs can be replicated to generalise the insights. Yet, scholars can advance these insights looking at the enablers and inhibitors of this technology adoption – which is fundamental to be discovered to identify how to improve technology adoption for meeting new visitors' needs. Directors and curators of museums, instead, can benefit from the results of this work that point out the most and least implemented technologies according to the typology of a museum, facilitating the understanding of the strengths and weaknesses of their own organisation.

Solima 2016, 2017, 2018, 2019; Alunno 2017; Izzo 2017; Sacco *et al.* 2018; Sumer 2018; Vaz *et al.* 2018; Hilton *et al.* 2019.

<sup>6</sup> Royston, Delafond 2014.

<sup>7</sup> Hume 2015; Kirova 2020.

<sup>8</sup> Cellini *et al.* 2019; Istat 2019a, 2019b.

Furthermore, they can benefit from the normative implications for practice that are given at the end of this work.

The contribution is structured as follows: first, literature on the adoption of technology in museums is presented to the readers of «Il capitale culturale. *Studies on the Value of Cultural Heritage*». Second, the methodology – comprehensive research design, data collection, and data analysis – is shown. Third, results of ANOVA and Chi-squared tests are reported. Fourth, discussion of the results in light of prior literature is presented. Fifth and lastly, theoretical and managerial implications as well as future research and limitations conclude the work.

## 2. Literature background

Society's and industries' advancement as well as the proliferation of information and communication technologies (ICTs) have profoundly transformed the tourism industry, giving rise to the “smart tourism” concept<sup>9</sup>. This term refers to the use of smart technologies (e.g., Internet-based technologies, social networking tools and mobile technologies) by tourism firms as a way to get more relevant information, make better and informed decisions, improve mobility, and enhance the tourism experience<sup>10</sup>. Thus, embracing ICTs and implementing smart technology solutions is fundamental for tourism firms in order to satisfy customers' needs and to achieve and maintain a competitive advantage over time<sup>11</sup>. This is particularly true for cultural institutions – such as museums. In fact, museums' directors and curators have always faced two main challenges: *i*) enticing people into the museum, and *ii*) keeping people within it<sup>12</sup>. These two challenges have become even more difficult to accomplish due to the change in visitors' needs, which require museums to make a paradigm shift from a passive view (i.e., visitors are satisfied by only looking at exhibits and reading the labels) to an interactive view (i.e., visitors create, share, and connect with each other and with exhibitions) of the museum-visitor relationship<sup>13</sup>.

In this vein, as smart technologies are an enabler of visitors' attraction and retention<sup>14</sup>, their application in museums has become necessary to improve communication, accessibility, and understanding of collections. Thus, establishing a dialogue between the museum's structure, exhibits, and visitors<sup>15</sup>

<sup>9</sup> Gretzel *et al.* 2015; Neuhofer *et al.* 2015.

<sup>10</sup> Gretzel 2011; Wang *et al.* 2012; Sigala, Chalkiti 2014.

<sup>11</sup> Neuhofer *et al.* 2015.

<sup>12</sup> Welsh 2005; Taheri *et al.* 2014; Mitchell *et al.* 2019.

<sup>13</sup> Simon 2010; Bonacini 2012; Holdgaard, Klastrup 2014; Falk, Dierking 2016.

<sup>14</sup> Werthner, Klein 1999

<sup>15</sup> Feliciati, Natale 2009; Bonacini 2011; Solima 2018.

allows converting standardised services into personalised experiences<sup>16</sup>, customising the museum experience<sup>17</sup>. In fact, smart technologies are able to create new (personalised) experiences<sup>18</sup>, enhance visitors' on-site experience (by offering rich information and interactive services), and enable them also to share (and thus reinforce) the experience itself<sup>19</sup>.

In practice, museums have been pushed to adopt an entrepreneurial orientation where the focus is less on collections and more on audiences<sup>20</sup>. In order to do so, museums need to develop «activities in which visitors can directly participate [...], environments in which visitors can immerse themselves rather than behave merely as spectators, and out-of-the-ordinary stimuli and effects that make museum visits unique and memorable»<sup>21</sup>. In this respect, different technological solutions have been incorporated within museums, but still sometimes maintaining the traditional communication devices (display panels, captions, paper guides, etc.)<sup>22</sup>. In this regard – between the 70s and 80s – the first typology of museums that decided to adopt technologies were the science and technology museums with the introduction of interactive hands-on workstations<sup>23</sup>. From the 70s-80s till now, a series of new technologies emerged, such as touch screens, portable devices (e.g., PDAs or tablets), virtual visits, interactive installations, Rfid, QRCode, iBeacon, virtual and augmented reality systems, and other technologies able to simulate touch through a system of cameras or laser pointers capable of recognising objects<sup>24</sup>. In brief, museum visits have been completely reinvented and modelled through modern, dynamic, and highly involving tools, both for on-site use and off-site use<sup>25</sup>. In fact, according to Mandarano<sup>26</sup>, two museum communication models can be distinguished: *inside* and *outside*. In the first case, we mean the tools that allow a better interaction and understanding of the work of art and its context (for example, illustrative panels, captions, audio guides, and multimedia stations). The communication tools linked to these technologies can also be used in museums to facilitate their didactic functions and for the creation of the catalogue database of the objects preserved in the museum. Among the tools for on-site use that can also be considered are smartphones, tablets, and PDAs, on which *ad hoc* apps and software can be downloaded, as well as visual technological applications that consist of virtual three-dimensional reconstructions and installations, or,

<sup>16</sup> Piccoli *et al.* 2003; van Limburg 2011; Neuhofer *et al.* 2014; Pencarelli *et al.* 2017.

<sup>17</sup> Cerquetti 2018.

<sup>18</sup> Gretzel, Jamal 2009; Neuhofer *et al.* 2015.

<sup>19</sup> Gretzel *et al.* 2015; Hughes, Moscardo 2017.

<sup>20</sup> Kotler, Kotler 2000; Ferraro 2011.

<sup>21</sup> Kotler, Kotler 2000, p. 276.

<sup>22</sup> Alunno 2017.

<sup>23</sup> Cataldo, Paraventi 2007; Bonacini 2011.

<sup>24</sup> Canina *et al.* 2008; Bonacini 2014; Zane 2017.

<sup>25</sup> Bonacini 2016; D'Orazio 2017.

<sup>26</sup> Mandarano 2019.

more simply, video projections or musical backgrounds. In the second case, we refer to off-site tools, namely technologies related with the promotion of the exhibitions that take place outside the museum remotely. In this case, we think of a catalogue, a computer brochure, or as far as technologies are concerned, a multimedia product or, more commonly, a website. On this last point, it is worth noticing also that communication through museum websites has changed, moving on from tools devoted to present the museum as “digital brochures” to more and more advanced applications, designed to meet the cognitive needs of the different types of visitors<sup>27</sup>.

In summary, visitors’ experience and knowledge expand thanks to the adoption of technologies by museums, even in the absence of contact with real objects<sup>28</sup>. In order to achieve this, the Internet is the main channel used to distribute, communicate, and promote the value of the museum<sup>29</sup> as well as a means with the hugest effect to increase the visitors’ awareness<sup>30</sup>.

In terms of outcomes, it has been already demonstrated that the adoption of these technologies provides benefits for many large museums in the world (e.g., the Louvre, the Israel Museum, the MANN, and New York’s Metropolitan Museum)<sup>31</sup>. In this vein, a number of studies have already shown how technologies allow museums to become more accessible and attractive to the general public, engage their visitors, enhance exhibitions, and better manage their collections<sup>32</sup>. In essence, through these technologies, museums make visitors live an active visiting experience, feel a certain emotion, and facilitate their involvement and interaction with the exhibits<sup>33</sup>.

However, it is also true that the adoption of technologies has not only positive implications for museums, generating a huge debate among academics and practitioners (e.g., museum directors, managers, and curators)<sup>34</sup>. In general, as emphasised by Neuhofer<sup>35</sup>, technology may contribute to create but also to co-destroy value. In this vein, different scholars have emphasised the numerous problems that may arise from the technology. In her recent study, Cerquetti<sup>36</sup> reports 12 different problems associated with museum technology adoption; from the problems related to the costs of implementing, adopting, and maintaining these technologies<sup>37</sup>, to the multiple negative effects of technologies on visitors’ satisfaction. Concerning the latter, numerous studies emphasise,

<sup>27</sup> Bonacasa 2011.

<sup>28</sup> Chiuppesi 2016.

<sup>29</sup> Lagrosen 2003; Pop, Borza 2016.

<sup>30</sup> Davies 2001; Marty 2008.

<sup>31</sup> Hazan 2011; Gül, Akmehmet 2015; Solima *et al.* 2019.

<sup>32</sup> Tufts, Milne 1999; Davies 2001; Parry 2013; Camarero *et al.* 2015; Pop, Borza 2016.

<sup>33</sup> Black, Skinner 2016.

<sup>34</sup> Hume 2015.

<sup>35</sup> Neuhofer 2016.

<sup>36</sup> Cerquetti 2018.

<sup>37</sup> Vom Lehn, Heath 2005; Yeh, Lin 2005; Hume 2015.

in particular, the risk related to the spectacularisation, trivialisation, and Disneyfication of the museums' offerings<sup>38</sup>. In other cases, museum visitors also consider technological tools as obstacles, because they are misallocated within the museum, they distract/isolate visitors or they limit human interactions and communication<sup>39</sup>. Lastly, a research stream also focuses on how technologies may increase the digital divide<sup>40</sup>. In fact, the generational differences alter visitors' technology expectations when visiting museums, as well as the visitors' ability to use the available technological tools properly<sup>41</sup>. In light of these possible negative outcomes, museums need to engage in some critical reflections concerning technology, and become aware of the fact that there is not a one-best-way but a multiple-best-way in its adoption, according to the museum's typology<sup>42</sup>.

### 3. Methodology

#### 3.1 Research context<sup>43</sup>

Italy's cultural heritage comprises 4,908 public and private units divided into: museums (3,882), archaeological areas and parks (327), monuments and monumental complexes (630), and eco-museums (69). What is worth noticing and relevant for this study, it is that 46.1% of museums are located in municipalities with less than 10,000 inhabitants, whilst maxi-exhibition structures represent less than 1% of the total. As a consequence, and according to Beretta *et al.*<sup>44</sup>, the crucial role of storing and communicating Italian cultural heritage of local communities is demanded of SMs. From their link with the territory as well as their social role and topic specificity, SMs are not, in this case, treated as a reduced version of the big ones – as reported by the President of the Italian Association of Small Museums<sup>45</sup>. They, as declared by the same President, are not asked to imitate big museums; on the contrary, they should recognise their limits, due to their smaller size, and focus on a different management culture, more oriented to building emotional links with visitors by offering a unique narration of the local territory. From that, SMs define

<sup>38</sup> Balloffet *et al.* 2014; Cerquetti 2016; Bello, Mohamed 2018.

<sup>39</sup> McIntyre 2009; Pujol-Tost 2011; Kirova 2020.

<sup>40</sup> Minghetti, Buhalis 2010; Gretzel *et al.* 2015.

<sup>41</sup> Paternò, Mancini 2000; Chung *et al.* 2010; Solima 2018.

<sup>42</sup> Antinucci 2007; Kéfi, Pallud 2011; Hume 2015; Cerquetti 2018.

<sup>43</sup> Unless otherwise specified, all the information and data contained in this section are derived from the Italian National Institute of Statistics (Istat 2019a, 2019b).

<sup>44</sup> Beretta *et al.* 2019.

<sup>45</sup> Dall'Ara 2020.



themselves as a different cluster of analysis from big museums, eliciting different challenges and problems – among them, the relationship with technology.

In terms of the relationship between Italian museums and technology, data has shown that, despite the majority of visitors (63.4 million in total) being foreigners, only 73.1% of museums make available printed information materials translated into various languages and only 73.4% offer multilingual audio guides<sup>46</sup>. With reference to the staff employed in Italian museums, only 63.7% are able to provide foreign visitors with information in English. The problem of the museums' communication, unfortunately, does not regard only the on-site communication but also the on-line one. Indeed, only 51.1% have a museum website and a social media account. Yet, according to *Osservatorio Innovazione Digitale nei Beni e Attività Culturali*<sup>47</sup>, 69% of museums are present on at least one social channel (57% in 2018), especially on Facebook (from 54% to the current 67%), and Instagram (rising from 23% to 26%). Apart from their presence on these channels, museums are opening up to collaboration with other players in the digital world: 76% of museums are present on Tripadvisor (+1% compared to 2018) even though the exploitation of other channels, such as online travel agencies (OTAs) or online tour operators, is not so diffused.

### 3.2. Data collection and data analysis

The aim of this work is to investigate the level of technology adoption among SMs as well as whether there are differences according to it considering SMs' typologies. To this aim, a survey method<sup>48</sup> has been utilised, which has already been implemented in similar investigations<sup>49</sup>. In terms of methodological fit, this method is suggested the most when approaching research areas that have an intermediate-mature stage of development<sup>50</sup> – as has emerged from the published empirical investigations about the implementation of technology in museums<sup>51</sup>, as well as reviews<sup>52</sup>. These reported studies, however, ask for more empirical investigations to fill the addressed gap<sup>53</sup>.

Respondents of the questionnaire, i.e. SMs' directors and curators, received an e-mail that included a hyperlink from which they could access a web questionnaire for self-completion. The questionnaire, launched on 1<sup>st</sup> September 2019 and open to responses to 31<sup>st</sup> January 2020, has been aimed

<sup>46</sup> Istat 2019a.

<sup>47</sup> Osservatorio Innovazione Digitale nei Beni e Attività Culturali 2019.

<sup>48</sup> Babbie 1990; Groves *et al.* 2011; Fowler 2013.

<sup>49</sup> Pencarelli *et al.* 2016.

<sup>50</sup> Edmondson, McManus 2007.

<sup>51</sup> Kassahun *et al.* 2018.

<sup>52</sup> Hertzum 1999; Damala *et al.* 2019.

<sup>53</sup> Anderson *et al.* 2010; Giannini, Bowen 2019.

and built towards answering the two research questions at the basis of this work: “*Is there a difference according to the small museums’ (SMs) typology in the adoption of technologies? If yes, what are the most adopted technologies?*”. In this regard, the start of the questionnaire asked respondents to provide information on the museum’s general information: public or private ownership, year of foundation, typology, number of exposed pieces, number of employees, and number of volunteers. With regard to the typology, SM directors and curators were asked to identify the “main” and “secondary” typology of their SMs, choosing from a few categories and, at the same time, had the possibility to identify new ones that could better describe their SM. The typologies provided, derived from the work of Corsane<sup>54</sup>, were: archaeology (focused on the display of archaeological artefacts), ethnography and anthropology (focused on the relation between people and things to study their culture), the period from the Middle Ages to the XIX century, and from the XIX century until now (collections focused on a specific period of time), history (focused on collections with objects of different periods of time, presented to give a chronological perspective), industrial heritage (displays physical remains of the history of technology and industry), natural science (displays natural history collections of animals, plants, etc.), religion (focused on religious artefacts), technology (focused on applied science and technological developments), and specific themes (focused on single social or natural events, people, or other peculiarities of a local territory). The questionnaire continued asking which technologies were adopted by the museum (respondents could choose from a list of reported technologies and a free space option to state if there were other adopted technologies not present in the list). The list of technologies to be included and the way in which respondents were asked to express their adoption or not (tick/not tick the box), directly derives from the work of Kassahun *et al.*<sup>55</sup>, who were interested in investigating the adoption of augmented reality and virtual reality technologies in museums. Other technologies included in the list presented to respondents have been derived from the work of Damala and colleagues – who recently proposed a comprehensive evaluation framework for museum technology<sup>56</sup>. Finally, there were sections for additional information to be provided by respondents and the data processing authorisation.

SMs were selected from the museums’ list provided by CulturaItalia, the most comprehensive database on Italian cultural resources<sup>57</sup>. From the overall list containing 8,917 records, only SMs present in the Emilia Romagna, Lazio, Lombardy, Piedmont, and Veneto regions have been considered; this was

<sup>54</sup> Corsane 2004.

<sup>55</sup> Kassahun *et al.* 2018.

<sup>56</sup> Damala *et al.* 2019.

<sup>57</sup> Curaltalia is a web-portal managed by the Ministry of Cultural Heritage and Activities (MiBAC).

because these regions, according to Istat<sup>58</sup>, have a higher concentration of museums (2,512 in total; 28%). From this residual list, the following have been excluded: *i*) museums that no longer operate, and *ii*) museums without an email address. The final number of SMs to which the questionnaire was administered amounts to 1,571; among them, 95 answered the questionnaire, but 7 of these did not complete all the necessary parts. A final sample of 88 SMs was collected. The overall response rate was 5.6% (in line with similar investigations<sup>59</sup>).

All the 88 museums that answered the questionnaire fully could be considered as SMs due to the fact that they have a small number of paid operating staff (less than 6 persons), and make use of volunteers to carry out key museum functions. These two criteria, out of three, are those suggested by the American Association for State and Local History's (AASLH)<sup>60</sup> small museum committee – they emerged from the survey they conducted in 2007 with 455 SMs, to give a definition of themselves. These criteria are also confirmed by the American Alliance of Museums<sup>61</sup> (“the vast majority of the nation’s museums are small, with fewer than five staff”) and by the work of Katz<sup>62</sup>, citing the 1992 Institute of Museum Services’ report (“full-time paid or unpaid staff of five or fewer members”). The third criterion is “having an annual budget of less than \$250,000”; however, despite asking the respondents in this work: “What is the amount of the annual budget of your SM?”, the curators and directors’ answers did not arrive at 5% (maybe for privacy or regulatory reasons). So, it has not been possible to verify this third criterion.

The questionnaires have been approached in quantitative terms for the analysis. Initially, in order to search for the level of adoption of technologies in SMs, some descriptive statistics have been executed. Following Cristofaro<sup>63</sup>, each adopted technology was counted as +1 and a cumulated value, defined as “technology score”, has been computed for each museum. To consider the technology’s score, an Analysis of Variance (ANOVA) and the Tukey post-hoc analysis were implemented to investigate whether there are significant differences in technology adoption among the typologies of museums. To have a deeper view of the phenomena, a series of ANOVAs has been conducted with a number of employees and volunteers to investigate whether there are significant differences in technology adoption according to these other variables. Finally, a series of Chi-squared tests was conducted in order to see whether there are significant differences in the adoption of single technologies according to their typology.

<sup>58</sup> Istat 2019a.

<sup>59</sup> Saunders *et al.* 2016.

<sup>60</sup> AASLH 2020.

<sup>61</sup> American Alliance of Museums 2020.

<sup>62</sup> Katz 1995, p. 16.

<sup>63</sup> Cristofaro 2020a.

## 4. Results

### 4.1 Descriptive statistics

The sample of 88 SMs is composed of 75 (79%) public and 13 (21%) private museums. This disproportion impeded the investigation of significant differences among public and private SMs. The descriptive statistics of the sample are shown in Table 1.

	No.	Average Year	Average No. Exposed Pieces	Average No. of Employees	Average No. of Volunteers
Total	88	1980	689	4.2	6.9

Tab. 1. Descriptive statistics of museums' generic information (Source: own elaboration on dataset)

The average year of foundation of a museum is around 1980, while the average number of exposed pieces is 689. As already stated, the average number of employees is low (4.2) and SMs massively rely on volunteers (6.9 per museum on average) to carry out the different museum activities. The responding SMs are, therefore, in line with the definition of the American Association for State and Local History's (AASLH)<sup>64</sup> small museum committee.

Directors and curators of SMs were also asked to identify the primary and thematic areas of the museum (Tab. 2). Among the 88 SMs, the majority has as a primary area, "From the Middle Ages to XIX century" (15%), "Technology" (15%), or are focused on a specific theme (15%) usually connected with a local phenomenon/event/important person.

Museum typology	Main type	Secondary type	Not applicable
Archaeology	10%	8%	82%
Ethnography and anthropology	10%	8%	82%
From Middle Ages to XIX century	15%	12%	68%
From XIX century to date	5%	13%	82%
History	7%	5%	88%
Industrial heritage	3%	7%	90%
Natural science	7%	5%	88%
Religion	9%	13%	78%
Specific theme	15%	5%	70%
Technology	15%	5%	75%
Other	4%	6%	91%

Tab. 2. Descriptive statistics of museums' typologies (Source: own elaboration on dataset)

<sup>64</sup> AASLH 2020.

According to SMs typologies, the descriptive statistics of technology adoption are reported in Table 3.

In general terms, the most implemented features are mobile website (31.0%), while the least is the augmented reality (5.6%). These technologies, on average, have been adopted around the end of 2017. From a descriptive point of view, it seems to be that natural science and technology SMs have, for some technologies, a higher score than others SMs' typologies. This result will be more deeply investigated in the next sub-section.

	<i>Website</i>	<i>Mobile website</i>	<i>Multi-language website</i>	<i>Virtual catalogue</i>	<i>Tablet</i>	<i>Online ticketing</i>	<i>Free-print ticketing</i>	<i>Online virtual tour</i>
<i>Archaeology</i>	35.2%	33.2%	21.6%	18.1%	25.1%	22.8%	12.8%	7.5%
<i>Ethnography and anthropology</i>	26.3%	21.9%	13.1%	42.7%	24.0%	21.7%	3.0%	6.5%
<i>From Middle Ages to XIX century</i>	15.0%	20.0%	12.5%	11.0%	12.5%	15.0%	25.0%	15.0%
<i>From XIX century to date</i>	35.9%	20.0%	18.6%	27.3%	29.4%	23.5%	18.1%	27.5%
<i>History</i>	34.1%	30.0%	22.4%	19.1%	30.2%	24.5%	11.9%	22.5%
<i>Industrial heritage</i>	7.1%	9.5%	19.3%	28.5%	21.9%	11.7%	21.3%	33.5%
<i>Natural science</i>	85.2%	17.1%	67.6%	11.5%	11.6%	75.4%	13.4%	11.3%
<i>Religion</i>	25.1%	14.7%	17.5%	7.2%	11.4%	8.3%	8.6%	3.2%
<i>Specific theme</i>	23.4%	21.4%	24.0%	14.0%	30.1%	9.3%	9.6%	5.3%
<i>Technology</i>	76.3%	21.9%	76.1%	22.7%	14.0%	73.7%	22.0%	12.5%
<i>Other</i>	8.6%	3.1%	9.5%	11.4%	20.1%	14.6%	25.4%	14.8%
	<i>Proximity systems</i>	<i>Virtual re-construction</i>	<i>Social media</i>	<i>Online presence</i>	<i>E-commerce</i>	<i>Forum</i>	<i>Newsletter</i>	<i>Targetted newsletter</i>
<i>Archaeology</i>	20.2%	21.2%	16.6%	23.1%	3.1%	12.8%	12.8%	11.5%
<i>Ethnography and anthropology</i>	16.3%	1.9%	26.1%	32.7%	13.0%	24.7%	22.0%	26.5%
<i>From Middle Ages to XIX century</i>	25.0%	20.0%	22.5%	5.0%	12.5%	15.0%	25.0%	22.0%
<i>From XIX century to date</i>	21.9%	18.0%	18.6%	7.3%	29.4%	21.5%	18.1%	17.5%
<i>History</i>	4.1%	22.0%	21.4%	12.7%	16.6%	26.5%	13.9%	15.5%
<i>Industrial heritage</i>	12.1%	7.5%	19.3%	28.5%	22.9%	21.7%	11.3%	13.5%
<i>Natural science</i>	1.2%	27.1%	88.6%	22.5%	60.6%	73.4%	73.4%	80.3%
<i>Religion</i>	14.1%	12.7%	38.6%	16.2%	13.4%	20.3%	28.6%	16.2%
<i>Specific theme</i>	8.4%	2.4%	24.0%	18.0%	31.1%	20.3%	9.6%	11.3%
<i>Technology</i>	26.3%	21.9%	76.1%	21.7%	73.0%	69.7%	82.0%	76.5%
<i>Other</i>	7.6%	15.1%	19.5%	21.4%	17.0%	24.6%	7.4%	21.8%

	<i>Digital positioning</i>	<i>Post-visit monitoring</i>	<i>Virtual reality</i>	<i>Augmented reality</i>	<i>Gamification</i>	<i>Mobile apps</i>	<i>Other services</i>
<i>Archaeology</i>	21.2%	4.7%	13.6%	8.1%	5.1%	33.2%	21.2%
<i>Ethnography and anthropology</i>	16.3%	24.9%	26.1%	3.7%	4.0%	21.9%	1.9%
<i>From Middle Ages to XIX century</i>	18.0%	20.0%	22.5%	5.0%	5.5%	20.0%	20.0%
<i>From XIX century to date</i>	25.9%	10.0%	18.6%	7.3%	5.4%	20.0%	18.0%
<i>History</i>	25.1%	16.0%	5.4%	2.7%	6.6%	30.0%	22.0%
<i>Industrial heritage</i>	7.1%	37.5%	9.3%	8.5%	3.9%	9.5%	7.5%
<i>Natural science</i>	31.2%	17.1%	8.6%	6.5%	8.6%	17.1%	27.1%
<i>Religion</i>	22.1%	2.7%	17.5%	6.2%	3.4%	14.7%	12.7%
<i>Specific theme</i>	12.4%	22.4%	14.0%	4.0%	6.5%	21.4%	2.4%
<i>Technology</i>	26.3%	21.9%	16.1%	1.7%	8.0%	21.9%	21.9%
<i>Other</i>	18.6%	15.1%	29.5%	9.4%	6.3%	3.1%	15.1%

Tab. 3. Descriptive statistics of technology adoption in SMs according to their typologies (Source: own elaboration on dataset)

#### *4.2 Small museums' technology adoptions and differences according to their typology*

As pointed out in the prior section, a “technology score” has been calculated and Table 4 shows the descriptive statistics for this variable according to the SMs' typologies. Technology (5.7) and natural science (5.5) SMs are the ones with the higher values for the technology score, according to a descriptive point of view, with respect to the others. In other words, it seems to be (only by looking at the descriptive statistics) that technology and natural science SM's adopt more technological features than other SMs – as taken from the list of reported technologies within the questionnaire, and others mentioned by the respondents. So, they have a stronger technological connotation than other SM typologies. Of course, the significance of this relationship must be tested by recurring to inferential statistics.

<i>Museums' typology</i>	<i>Technology score mean</i>	<i>Std. Dev.</i>
<i>Archeology</i>	1.1	0.93
<i>Ethnography and anthropology</i>	1.1	1.12
<i>From Middle Ages to XIX century</i>	2.1	0.35
<i>From XIX century to date</i>	2.2	0.22
<i>History</i>	3.5	0.88
<i>Industrial heritage</i>	1.3	1.34
<i>Natural science</i>	5.5	0.76
<i>Religion</i>	1.1	0.78
<i>Specific theme</i>	3.4	0.65
<i>Technology</i>	5.7	0.99
<i>Other</i>	1.2	0.42

Tab. 4. Technology score statistics (Source: own elaboration on dataset)

In this regard, an ANOVA has then been conducted, taking into consideration the computed technology scores and SMS' typologies.

	<i>Sum of squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig</i>
<i>Between groups</i>	81.788	10	8.179	1.091	.001
<i>Within groups</i>	547.201	73	7.496		
<i>Total</i>	628.988	83			

Tab. 5. ANOVA (Source: own elaboration on dataset)

Results of the ANOVA, reported in Table 5, show that there is significant difference, in terms of technology score, among SMS' typologies ( $F_{(10,73)} = 1.091$ ;  $p = .001$ ). From the multiple comparisons carried out by the Tukey post hoc test, it emerged that SMS focussing on natural science and technology have a greater technology score than other SMS' typologies, while among these two there is no significant difference; on average, they have a score that is greater by two points with respect to the other typologies.

To conduct a comprehensive investigation, a study of whether there are differences in the adoption of single technologies among SMS' typologies has been undertaken. In this regard, a series of Chi-squared tests was conducted. Results show that there is a statistically significant association between natural science SMS and mobile website ( $\chi(1) = 0.232$ ;  $p = .001$ ), multi-language website ( $\chi(1) = 1.234$ ;  $p = .000$ ), online ticketing ( $\chi(1) = 0.234$ ;  $p = .001$ ), social media ( $\chi(1) = 1.970$ ;  $p = .000$ ), e-commerce ( $\chi(1) = 0.261$ ;  $p = .001$ ), forum ( $\chi(1) = 0.005$ ;  $p = .000$ ), newsletter ( $\chi(1) = 0.244$ ;  $p = .000$ ), targeted newsletter ( $\chi(1) = 0.122$ ;  $p = .001$ ), and mobile application ( $\chi(1) = 0.244$ ;  $p = .000$ ). Similarly, there is a statistically significant association between technology SMS and mobile website ( $\chi(1) = 0.443$ ;  $p = .000$ ), multi-language website ( $\chi(1) = 1.568$ ;  $p = .000$ ), online ticketing ( $\chi(1) = 0.443$ ;  $p = .001$ ), social media ( $\chi(1) = 1.633$ ;  $p = .001$ ), e-commerce ( $\chi(1) = 0.233$ ;  $p = .000$ ), forum ( $\chi(1) = 0.544$ ;  $p = .001$ ), newsletter ( $\chi(1) = 0.239$ ;  $p = .000$ ), targeted newsletter ( $\chi(1) = 0.222$ ;  $p = .001$ ), and mobile application ( $\chi(1) = 0.987$ ;  $p = .001$ ).

ANOVAs have been conducted also taking into consideration the computed technology scores and the number of employees ( $F_{(10,73)} = 1.325$ ;  $p = .321$ ), volunteers ( $F_{(10,73)} = 1.981$ ;  $p = .217$ ), and Region ( $F_{(10,73)} = 1.562$ ;  $p = .401$ ), on which SMs are rooted; however, none of these ANOVAs lead to significant results.

## 5. Discussion

The empirical investigation conducted on the level of technology adoption in Italian SMs brought some important results. First of all, it has been empirically demonstrated that natural science and technology SMs have a significant greater level of technology adoption than other SM typologies. This quantitative result is in line with the qualitative intuitions that have emerged from prior works, which reported how these museum typologies were the first (between the 70s and 80s) to adopt technologies<sup>65</sup>. So, natural science and technology SMs, because of their inner nature, are the museums that more than others have continued following the evolution of technologies and to adapt to them and to new visitors' needs. The main implication that can be derived from the greater technology score (i.e., adopting more technological features) of natural science and technology SMs, compared to the others, is that the former proposes an offer that *seems* to be closer to the big museums – now oriented to the strong adoption of technologies to meet the orientation of the market – rather than to the small ones (oriented to detail and to the relationships with the local community)<sup>66</sup>. From that, it is not posited that technology is positive or negative *per se*, but its efficacy depends on the alignment of its use with the defined museum's strategy<sup>67</sup>. Other SM typologies, on the other hand, seem to be distant from a massive adoption of technologies, *de facto* substantiating the perseverance with the traditional way to carry out curatorship activities.

Moreover, some differences in favour of natural science and technology typologies have been found, also when considering single technologies. In particular, these two SMs' typologies implement, more than others, mobile website, multi-language website, online ticketing, social media, e-commerce, forum, newsletter, targeted newsletter, and mobile application. Among them, in general, the most adopted technology by SMs has been the website, which is considered, right now, as the first condition for enhancing visitors' awareness and offering some pre- and post-visit services (e.g., on-line ticketing)

<sup>65</sup> Cataldo, Paraventi 2007; Bonacini 2011; Mandarano 2011.

<sup>66</sup> Dall'Ara 2020.

<sup>67</sup> Hume 2015; Bello, Mohamed 2018.



– in line with Hazan<sup>68</sup> in her analysis of the Israel Museum. The use of these technologies by technology and natural science SMs are supposed to be aimed at enhancing the accessibility of the SM to a wider audience, as well as creating interacting spaces that further push the simple interaction occurring during the visit momentum, and increasing their on-line value creation and co-creation<sup>69</sup>. This speculation is partly in line with prior literature on the role of website and technological facilities (e.g., online ticketing and e-commerce), and communication of museums<sup>70</sup>. In fact, the strategy based on the adoption of social media and other technological communication channels (i.e., forum, newsletter, targeted newsletter) is not always directed towards the engagement of visitors before and/or after the visit (multi-way communication strategies). Indeed, as pointed out by Fletcher and Lee<sup>71</sup>, the use of social media (usually Facebook) by museums is often oriented to event listing, reminders, and sending promotional messaging, thus adopting a one-way communication strategy – in brief, there is usually a gap between the possibilities presented by social media and their use by museums<sup>72</sup>. From that, without a proper strategy aligned with the dimension of the museum, the adoption of technologies in museums could have more negative than positive consequences<sup>73</sup>. In building this alignment, a technologically-driven communication strategy must take into account that some ethical problems can emerge from their use (e.g., censorship, and transparency) and skilled employees are needed to correctly manage technologies; only through that can opportunities from the adoption of technologies be explored, such as connecting young learners with an informal learning environment to let them become active cultural participants<sup>74</sup>.

However, it is surprising that directors and curators of SMs did not point out, within the questionnaire's space for technologies not listed, the implementation of the digitisation of collections and archives; nowadays, the latter are indeed considered as a consolidated practice that also helps the birth of specific, new functions within museums, i.e. Digital Asset Management System (DAMS)<sup>75</sup>. Maybe, this result can be ascribed to the fact that the interviewed SMs do not base their collections on archives but on physical objects – despite, also in this case, collections that can be digitalised.

Technology adoption by natural science and technology SMs is interpreted in this work as the intention of meeting the new needs of their visitors. On the contrary, however, the lack of adoption of technologies in other SMs' typologies

<sup>68</sup> Hazan 2011.

<sup>69</sup> Hume 2015; Kirova 2020; Mingione *et al.* 2020.

<sup>70</sup> Gerrard *et al.* 2017.

<sup>71</sup> Fletcher, Lee 2012.

<sup>72</sup> Kidd 2011.

<sup>73</sup> Padilla-Meléndez, del Águila-Obra 2013.

<sup>74</sup> Russo *et al.* 2010; Wong 2011.

<sup>75</sup> Santoro 2001; Poole, Dawson 2013.

could be the result of an intentional choice with regard to the visitors they are targeting. Indeed, as pointed out by Scott, a museum «creates a long-term bond with those sectors of the population sharing the same values»<sup>76</sup>. So, despite the adoption of these technologies and their relevant benefits, mainly in terms of marketing and communication<sup>77</sup>, there could be museums that do not want their relationship with visitors to be mediated by technologies as they do not want to lose the intimate relationship with their visitors. This does not mean that SMs that do not adopt technologies are not willing or able to interact with visitors, or that they do not let visitors co-create the content with the museum, but it means that the adopted communication channels are more direct and personal – with all the disadvantages of face-to-face interaction (e.g., lack of standardisation of information, difficulty in servicing large audiences at the same time, etc.). The decision for the residual typologies of SMs of not adopting technologies implies that their offered value is featured by other characteristics – e.g., explanation of exhibits through verbal transmitted anecdotes – directed at targets of visitors that look for a different, more intimate, experience as opposed to the one proposed by museums adopting technologies. This is supported by some statements – added as “free comments” – collected through the administered questionnaire, e.g.: «They [technologies] are not considered useful for the proposed activities and for the type of target audience» (“Museo del Giocattolo e del Bambino”); «The goal of the museum is to maintain a direct contact with visitors by offering a guided tour by the caretaker – much appreciated by visitors who are now accustomed to interfacing, in most museums and almost exclusively, with technological tools» (“Museo Antica Casa Walser di Borca/Alts Walserhüüs Van Zer Burfuggu”); and, «Our museum firmly believes in the importance of the human relationship that is established between visitors and cultural entertainers, from the management of reservations to the moment at which the visitor leaves the museum» (“Museo Storico della Giostra e dello Spettacolo Popolare”). In sum, the decision of other SM typologies of not adopting technologies seems to be in line with the recommendations provided by the President of the Italian Association of Small Museums<sup>78</sup>, thus: «to remove the rigidity of the check-in counter, to remove the centrality of the cash desk that is usually well in sight, to move it, to avoid the “ticket office” or “hotel hall” effect, and to tend rather to create a less bureaucratic and more relational atmosphere. The museum is not only made up of contents and containers, but is also made up of people: those who welcome, those who accompany, those who explain are *people* [emphasis added]. For this reason, the entire museum environment must be relational».

<sup>76</sup> Scott 2000, p. 35.

<sup>77</sup> Hazan 2011; Pencarelli, Splendiani 2011.

<sup>78</sup> Dall’Ara 2020.

Moreover, in the case of a SM that wants to pursue the adoption of technologies, two major problems – which are interconnected – arise: financial resources necessary to buy, implement, use, and maintain such technologies, and human resources having suitable capabilities to manage the technological side of museums. The latter has been well accounted by Confetto and Siano<sup>79</sup>, who demonstrated – through the analysis of 26 job postings for U.S. and U.K. museums – that new professional figures having both humanist and communication skills are the most requested to interpret new visitors' needs, in particular, and the dynamics of the cultural industry, in general. The identification of new professional profiles for the management of museums' communication through digital technologies is also witnessed by the emanation of the recent cultural heritage legislation – known as the «Museum Decree» (Ministerial Decree of 23 December 2014) – which identifies four functional areas for professional figures in museums: marketing, fundraising, services and relations with the public, and public relations. From that, as pointed out by Cataldo, there is the «urgency to rethink some profiles with specific and transversal skills taking into account the intangible aspect of museum activities, the impact of technologies, the socio-territorial dimension of the museum and the interaction with other cultural institutions»<sup>80</sup>. However, what is necessary to highlight is that digital managers, content managers, content creators, social media managers, and other similar figures, which are increasingly important for museums, can be hired only if SMs are able to secure the financial resources<sup>81</sup>. In this vein, new professional figures for museums should also have project financing capabilities, due to the fact that most of the financial resources for museums are accessible only after having won competition notices at a regional, national, and/or international level. Moreover, as it happens within any company that wants to maintain a competitive advantage over time, it is crucial that museum directors and curators establish appropriate ways of managing these new professional figures, clearly defining their roles and responsibilities according to the new needs of both museums' competitiveness and visitors<sup>82</sup>. This focus on the competences of human resources involved in SM activities is reflected also in the result of the other ANOVAs conducted, which did not show any significant differences in terms of technology adoption according to the number of employees and volunteers. Moreover, the locations of Regions with respect to one another do not seem to lead to a different degree of technology adoption.

<sup>79</sup> Confetto, Siano 2017.

<sup>80</sup> Cataldo 2014, p. 85 (own translation).

<sup>81</sup> De Biase, Garbarini 2003; Garlandini 2007; Colombo 2016; Confetto, Siano 2017.

<sup>82</sup> Cafferata 2018.

## 6. Conclusions

This work has tried to answer the following two research questions: “*Is there a difference according to the small museums’ (SMs) typology in the adoption of technologies? If yes, what are the most adopted technologies?*”. Indeed, due to the increasing competition for the leisure time of tourists, SMs are being pushed to ameliorate their ability to attract and engage visitors<sup>83</sup>. This mainly happens due to the change of needs of tourists, now mainly oriented to the interaction with the provider of the entertainment and with the object of the entertainment itself. In order to answer the above-introduced aims, a questionnaire has been designed and sent to directors and curators of small Italian museums (SMs) that operate in the five Italian regions with the highest concentration of museums. From the ANOVA and Chi-squared tests conducted on the 88 answers provided by respondents, it emerged that natural science and technology museums have a greater level of technology adoption than others, and that the most implemented technologies are mobile website, multi-language website, online ticketing, social media, e-commerce, forum, newsletter, targeted newsletter, and mobile application.

Thanks to the adoption of these technologies, museums are becoming “smart museums”. During the visits, visitors’ moves and actions are collected and form the information base of an orientation system based on the visitors’ experience, dynamically generated through the analysis of their behaviour when using the different museum services<sup>84</sup>. However, it is also true that visitors should have the adequate technological tools (e.g. smartphone) and capabilities (i.e. how to use them) to properly digitally interact with museums; this aspect of structural compatibility and technological accessibility is pivotal<sup>85</sup>. Moreover, museums need to consider also the multiple benefits that can be reached if the implemented technologies are used in relation to and collaboration with external partners (such as Institutions) to jointly create and promote cultural events and the like, improving the competitiveness of both the museums and their entire destination<sup>86</sup>. Despite this positive view in the adoption of technologies, especially for technology and natural science SMs that have an inner attitude towards innovation, it is worth noticing that a series of SMs have explicitly declared their intention of not adopting technologies and will remain consistent with their intimate relational strategy with visitors. This is in line with the recommendations provided by the President of the Italian Association of Small Museums<sup>87</sup> as well as with prior literature emphasising the need of

<sup>83</sup> Paniccia *et al.* 2010.

<sup>84</sup> Solima 2016; Confetto, Siano 2017.

<sup>85</sup> Confetto, Siano 2017; Solima 2018.

<sup>86</sup> Siano *et al.* 2010; Confetto, Siano 2017; Serravalle *et al.* 2019.

<sup>87</sup> Dall’Ara 2020.

museums to adopt technologies in a consistent way with their strategy and targeted audience<sup>88</sup>.

In terms of theoretical implications, this work adds to prior studies that did not distinguish SMs from large museums in their technology adoption<sup>89</sup> and also helps them in identifying whether there are differences according to the typology of a SM. Moreover, this is the first study computing a technology score for measuring the technology level for SMs. So, this work advances all prior qualitative studies on the adoption of technologies by SMs by providing empirical evidences accordingly. Moreover, this work suggests that while technology and natural science SMs have a strong propulsion and resources for the adoption of technologies, other SM typologies are not so willing about this implementation and/or do not have the resources to sustain it. In other words, it seems that SM typologies that are oriented, because of their nature, to exhibit scientific and industrial discoveries are more prone to implement technologies. To reinforce this assumption, apart from enlarging the sample of SMs to investigate, future studies should pay closer attention to the relationship with the technology of industrial heritage SMs that, in this study, were a tiny part of the total sample (i.e. 3). From what has been said, it emerges that the adoption of technologies among SMs depends on the strategy through which they want to create and co-create value with visitors<sup>90</sup> – i.e. technologically mediated or human mediated – which leads to the decision of strongly adopting, moderately adopting, or not adopting at all the technology features in SMs. In doing that, the creation and co-creation of value should not only take into account the functional and cognitive benefits and costs of the experience, but also the emotional ones<sup>91</sup>. From that, it would be interesting to understand, in future studies, the threshold level at which SMs perceive that they are shifting from a human-mediated museum experience to a technologically-mediated one – the two “schools of thought” that emerged from this study and that establish another main theoretical implication – and whether the functional, cognitive, and emotional benefits/costs of visitors are differently influenced by the implementation of technologies. In this regard, future studies can investigate, through the comparison of SMs that offer a technologically-mediated experience with the ones that offer a human-mediated one, if there are differences in performance. The latter, of course, does not have to include only the economic and financial performance, but also the effects on the local community, the perceived satisfaction of the visitors, and their willingness to repeat a similar (technologically-mediated or human-mediated) experience.

<sup>88</sup> Hume 2015; Neuhofer 2016; Cerquetti 2016, 2018.

<sup>89</sup> Kotler, Kotler 2000; Vom Lehn, Heath 2005; Gül, Akmeahmet 2015; Pop, Borza 2016; Damala *et al.* 2019.

<sup>90</sup> Scott 2000; Feliciati, Natale 2009; Bonacini 2011; Solima 2018.

<sup>91</sup> Mingione *et al.* 2020.

In terms of practical implications, and connected with the theoretical ones, SMs that want to adopt technologies should firstly understand – through in-depth interviews of their visitors – what is the level of adoption of technologies that is encouraged and tolerated. Indeed, if technologies are adopted in SMs that have, at the basis of their competitive advantage, a strong direct relationship with visitors, results of this implementation can be poor or null, if not even negative<sup>92</sup>. If the SMs receive positive answers for the adoption of technologies, the implementation of the latter should allow visitors to participate in the creation of cultural content and to foster the co-creation with the museum<sup>93</sup>; for example, by adding their own *tags* to the artefacts of the collection, allowing informal interpretations of objects. The remote museum communication will, through that, be enlarged also by unconventional meanings, avoiding the creation of unique interpretative codes<sup>94</sup>. In addition, more space should be devoted to the development of exhibitions and cultural initiatives, not only to communicate more and better preserve the heritage, but also to build a new “museums’ identity” able to communicate the ancient through the modern<sup>95</sup>. Of course, these last suggestions work for SMs whose targeted visitors have shown a tendency to prefer a technologically-mediated experience rather than a human-mediated one. To make this important decision between a technological or human-mediated experience, indeed, SMs should: *a)* identify the mission, vision, and resources and capabilities of the SM and how they can be developed in the future, *b)* identify the target audience and understand its preferences, through interviews and questionnaires, aiming towards a technological or human-mediated experience, *c)* identify whether there is alignment among mission, vision, resources and capabilities of the SM, the preferences of the target audience, and the prospective performance for the SM, *d)* develop the SM strategy according to the alignment emerging *e)*, or, if it did not emerge, reconsider the target audience and/or the way in which resources and capabilities can be more efficiently managed, and *f)* implement the strategy and reconsider it after having received feedback from the environment. In brief, this study does not provide a strong practical recommendation for SMs to adopt, or not, a technological or human-mediated experience, mainly because the choice of one of the two options (or a moderate adoption of technology) should emerge from an overall assessment of the SM and its targeted audience – from which alignment is sought.

Among the limitations of this work, the most important is having restricted the field of analysis to only five main Italian regions in terms of number of museums; future studies should be concerned with extending the sample

<sup>92</sup> Kotler, Kotler 1998; Kotler *et al.* 2008.

<sup>93</sup> Bonacini 2018; Santagati 2019.

<sup>94</sup> Guerzoni, Minnino 2008.

<sup>95</sup> Cristofano, Palazzetti 2011; D’Orazio 2017.

to generalise results. In doing that, future research should embrace both museums and their visitors' data about the adoption of technologies in order to understand different visitors' profiles, and whether they like or dislike the presence of such technologies. Moreover, apart from an extended geographical area for sampling purposes, future research should also identify and collect a/ some dependent variable/s to measure the impact of technologies in SMs (e.g., number of visitors per year). Last but not least, the causes that lead SMs to adopt technologies or not should be extensively investigated. Indeed, despite the "free comments" of directors and curators of SMs, it emerged that the relational aspect is the main factor that has led to technology implementation; there can, however, be others that foster/limit SMs in adopting technologies. In this regard, two research questions to be answered in future studies, directly emerging from the results of this work, are the following: "*What are the factors that foster/limit the adoption of technologies in SMs? Among them, what are the most and least important?*". These research questions, in contrast to those made earlier in this study, should be addressed according to a mixed qualitative-quantitative approach towards interviews to identify and rank the barriers and enablers that limit or foster the adoption of technologies in SMs.

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# Culture and the youngest. Insights for the future of cultural consumption from an Italian sample\*

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## *Abstract*

The paper explores the cultural consumption of teenagers, seen as consumers not yet independent from an economic point of view, but already independent in the choice and tastes. Our results apply to a sample of about 350 students living in the Cuneo province, in North-West of Italy, through a cluster analysis approach. Young consumers can be segmented into four homogeneous groups according to the level of consumption in five cultural sectors (music, cinema, museum, performing art, books) and the degree of direct engagement in cultural practices. There are significant differences in their cultural consumptions, family and individual cultural capital, school results and sports engagement. The cultural expenditure is differentiated accordingly. The existence of different cultural

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consumption clusters highlights the need, both for policy-makers and cultural industries, to better understand the next generation of adults, thus suggesting the importance to start a proper data collection at the national level.

In questo articolo vengono presentati i risultati di una prima indagine volta ad analizzare la partecipazione culturale degli adolescenti in Italia, in quanto consumatori non ancora indipendenti dal punto di vista economico, ma già indipendenti nelle scelte di consumo. Le riflessioni sono tracciate esplorando i dati di un'indagine su circa 350 studenti residenti a Cuneo, nel Nord-Ovest d'Italia. Attraverso una analisi cluster, sono stati individuati quattro gruppi indagati attraverso cinque settori culturali (ascolto di musica, visite al cinema, ai musei, alle arti performative e lettura di libri) e lo svolgimento diretto di pratiche culturali, alcune caratteristiche socio-demografiche, la spesa in prodotti culturali e l'utilizzo di dispositivi digitali. L'esistenza di diversi cluster di consumo culturale evidenzia la necessità, sia per i decisori politici che per le industrie culturali, di comprendere meglio quella che sarà la prossima generazione di adulti, suggerendo l'importanza di prevedere una mirata raccolta di dati a livello nazionale.

## 1. *Introduction*

Scholars and cultural producers are increasingly interested in adolescents' cultural consumption. Young consumers of culture of today are the constituent both of the society and of the cultural markets of tomorrow. Understanding their cultural participation and preferences is essential to address policies and to envisage the market structure of cultural consumption in the years to come. In cultural consumption studies, however, children and adolescents are typically seen as passive individuals, influenced by their parents' preferences in terms of cultural consumption, and cultural consumption is often just intended to be passed on from the parents to the children. Only recently has the trend in such studies started to change, although not without difficulties given the lack of specific data and information both at the national and international level on young cultural consumers. The EU Youth Report<sup>1</sup> examines the results of two Eurobarometer surveys, conducted in 2011 and 2014, on the young people's participation in various cultural activities. The emerging trend is that of a general decline in cultural participation of young Europeans in all the member States. On average, the highest decline rate is registered in the attendance to theatre, dance performance and opera (-14%), followed by cinema and concerts (-9%), and visiting historical monuments, museums and galleries (-6%). The declining cultural participation trend is similar to the trend detected for practicing amateur artistic activity. In this scenario, Italy is among the countries experiencing this decline with a particularly significant rate. However, according to the Flash

<sup>1</sup> European Commission 2016.

Eurobarometer on European Youth<sup>2</sup>, in 2017 “creativity and culture” were most likely to be indicated as an area where the EU should take action in Italy (47%), followed by Poland (44%) and Greece and Spain (both 41%).

Culture is universally acknowledged to be a distinctive factor for Italy, a country rich in cultural heritage and cultural expressions. The literature studying its cultural supply and cultural demand in various cultural sectors is growing since the seminal work by Santagata (2009), inspired by the KEA report on the economy of culture in Europe<sup>3</sup>. However, the characteristics of young cultural consumers in Italy have not yet been investigated. Only fragmented and relatively scarce information are available from national statistics when the focus is on adolescent consumers, and the framework for the analysis is still unclear.

The most important effort aimed at investigating young cultural consumers from childhood to late adolescence is due to the French Ministry of Culture, where at the beginning of the 2000s a large-scale longitudinal survey which followed the same children from the age of 11 up to 17 was designed. The results of the analysis underline that the culturalization of identities takes place when entering adolescence<sup>4</sup>. Moreover, with the increasingly important role of digital technologies for the generation of digital natives, cultural practices and cultural products become of autonomous interest and reachability. Diverse cultural and creative sectors are involved in this path, ranging from engaging in individual music listening and reading books to visiting museums with friends, from practicing artistic activities to playing videogames, from attending theatre live performance to going to cinema. The hierarchy of cultural consumption sectors is discussed, negotiated and shared within the group of peers more than within the family or the school.

The study we present here intends to contribute to this strand of literature, briefly summarised in section 2, by offering a deeper understanding of the cultural consumption of Italian adolescents. The aim is to test a set of information which is wider than the information available through the Italian national statistics Multipurpose Survey on Households<sup>5</sup>. Among other information about the daily life of households, the National Institute of Statistics (ISTAT) publishes, indeed, cultural consumption data for some cultural sectors by age classes, including 15-17 and 18-19.

For the purpose of this paper, original data were collected through a survey constructed and administered by the Santagata Foundation to a sample of about 350 students in the Cuneo province, in the North-West of Italy, in 2018. The survey allowed us to investigate numerous cultural consumption habits, together

<sup>2</sup> European Commission 2018a.

<sup>3</sup> KEA 2006.

<sup>4</sup> Octobre 2009; Octobre, Berthomier 2011.

<sup>5</sup> ISTAT 2019.

with the type of school and the school results, the family cultural capital and the use of leisure time dedicated to sports and to videogames play, as described in section 3 dedicated to data and methodology. A cluster analysis based on *a posteriori* approach was implemented, identifying four clusters of adolescent cultural consumers. The results are presented in section 4.1, where the clusters are described according to 5 cultural sectors (music, cinema, museum, performing art, books) and also taking into consideration the direct engagement in cultural practices of the sample. In section 4.2 we further investigated the profile of each cluster through a number of socio-demographic characteristics. To complete the study, in section 5 two focuses are developed. The first is dedicated to music listening and the preferred device among smartphone, computer, tablet, and radio; the second is dedicated to books reading and the preferred method between paper books, and e-books. Section 6 sketches some conclusion trying to open a debate about the importance and need of further research on young cultural consumers, in order to better understand the cultural participation and preferences of the next generation of adults.

## *2. Adolescent cultural consumption in the literature*

The general literature on cultural consumptions is strongly influenced by Peterson works on cultural omnivorousness<sup>6</sup>. The omnivore thesis, which emerged in contrast to Bourdieu's formulation of homology in cultural stratification (i.e. upper-class groups consume highbrow culture while lower class groups prefer lowbrow culture), caught the attention of a number of scholars who demonstrated its applicability and its variations in diverse cultural fields in different countries<sup>7</sup>. While there is a growing interest on the concept of omnivorousness among adult cultural consumers, the literature on adolescent cultural participation is still not extensive. A review of the literature shows that the youngest, in consumption theories, are traditionally thought of as mere passive actors in the adults' consumption patterns<sup>8</sup>, briefly mentioned in studies concerning consumer behaviour or made look as an implied presence. In his theory of social reproduction, Bourdieu stated that cultural capital is passed down from generation to generation through the habitus formed within the family of origin, therefore young's cultural participation is mostly determined by the family background<sup>9</sup>. Bourdieu identified three different forms of cultural capital: embodied, which concerns provisions and practices (i.e. tastes and

<sup>6</sup> Peterson 1992, 1997; Peterson, Simkus 1992; Peterson, Kern 1996.

<sup>7</sup> As referred in Sullivan, Katz-Gerro 2007.

<sup>8</sup> Bourdieu 1984; Campbell 1987.

<sup>9</sup> Bourdieu 1984 and 1986.

cultural participation), institutionalized, which relates to the level of education, and objectified, which includes the possession of cultural goods<sup>10</sup>. In this scheme, the presence of all three forms of cultural capital in the family can be assumed to have an impact on the cultural participation patterns of adolescents. Starting from this theory, many studies have found a strong link between parental and adolescent participation in highbrow cultural activities<sup>11</sup> as well as in popular music tastes<sup>12</sup>. For example, focusing on the dynamics of cultural preferences' transmission from a generation to another, the active involvement of parents in the cultural participation of their children has been demonstrated to be a significant variable in the definition of a culture-prone mentality in children<sup>13</sup>. In particular, a positive model in terms of cultural consumption is relevant; however, it is the actual participation of parents with their children in cultural activities that creates the children's own interest in cultural goods and services<sup>14</sup>. Furthermore, some other researchers have found significant effects of parental educational level on literary reading and attending cultural events<sup>15</sup>. From these studies, it has become clear that there are two main determinants of cultural participation, which are cultural participation in the family of origin and the attained educational level. Anyway, most of these theories regarding the cultural consumption of minors so far revolved around the relationship with the parents and their direct influence on children's behaviour. Only recently it has been theorized that many other variables can influence children and adolescents' cultural consumption and preferences, starting from their parents and siblings' behaviour, to media, to commercial activities, to school environment and peers<sup>16</sup>. Indeed, with the digital revolution, cultural practices are evolving, particularly among the generations of young people known as digital natives, i.e. those who are familiar with information and communication technologies. As a result, cultural practices and cultural products are increasingly of autonomous interest and reachability for young consumers<sup>17</sup>. These processes lead to rethink the functioning of intergenerational transmission, both in terms of family transmission and in terms of the link between culture and knowledge.

The attention paid to the consumption of cultural products by adolescents as autonomous consumers has recently started to rise. Specific national statistics are, however, missing, except for statistics on household consumption and habits generally related to the use of free time, from which some partial data can be derived.

<sup>10</sup> *Ibidem*.

<sup>11</sup> Mohr, DiMaggio 1995; van Eijck 1997; Nagel 2010; Kraaykamp, van Eijck 2010.

<sup>12</sup> Siongers 2007; ter Bogt *et al.* 2011; Willekens, Lievens 2014.

<sup>13</sup> Van Hek, Kraaykamp 2015.

<sup>14</sup> *Ibidem*.

<sup>15</sup> van Eijck 1999; Kraaykamp, Nieuwbeerta 2000; Kraaykamp *et al.* 2007.

<sup>16</sup> Šramová 2017.

<sup>17</sup> Octobre, Berthomier 2011.

The most important effort aimed at specifically investigating young cultural consumers from childhood to late adolescence is due to the French Ministry of Culture, through its *Département des études, de la prospective et des statistiques* (DEPS), where a large-scale longitudinal survey which followed the same children (a sample group of almost 4000) from the age of 11 (in 2002) up to 17 (in 2008) was designed. This study describes the frequency and diversity of adolescent practices, uses and consumption, and the influence of transmission agents (parents, family, school, cultural institutions, etc.) in the cultural field. The results of the analysis underline that the culturalization of identities takes place when entering adolescence, when the typical role to be either a child or a scholar gives way to the logic of identity which favours the passage to affiliation rather than filiation<sup>18</sup>. The survey investigated questions like: How do children acquire an appreciation for culture, and how does this change over the period which takes them from childhood to late adolescence? What part does engage in such activities as watching television, listening to the radio and to music, reading books and magazines, playing video games, using computers and surfing the internet play in the daily lives of young people, and to what extent does it contribute to the construction of their identity? Therefore, various cultural and creative sectors are involved, ranging from the engaging in individual music listening and reading books to visiting museums with friends, from practicing artistic activities to playing videogames, from attending theatre live performance to going to cinema. The adopted research method is aimed at collecting more detailed information than the typical percentages of male and female consumers available from the statistics on household consumption. Moreover, the role of the family and the school is also investigated thanks to the appropriate data collected.

In Italy, cultural consumption data are collected by ISTAT every year inside the Multipurpose Survey on Households – Aspects of Daily Life, where a breakdown by age is provided for age classes 15-17 and 18-19. The picture depicted for 2018 shows a high percentage of young consumers from 15 years to 19 years old never attending theatre performances (69%) and music concerts (59%); on the contrary, most of them went to cinema (83%)<sup>19</sup>. In terms of engagement in reading books, the percentage of young not reading any books is 44.5%, and, among the young who reads, only 10.5% declare to read more than 12 books a year.

<sup>18</sup> October 2009; Octobre, Berthomier 2011.

<sup>19</sup> ISTAT 2019.

### 3. Methodology

#### 3.1 Data

The study of cultural consumption of teenagers, seen as consumers not yet independent from an economic point of view, but already independent in the choice of their own consumption and with developed and precise tastes, deserves a specific data collection, since not all the relevant variables are available in the typical dataset provided by ISTAT, as already discussed in the previous section.

The survey conducted by ISTAT on Italian households is not conceived in order to specifically investigate the young cultural consumers. An *ad hoc* survey was therefore constructed by the Santagata Foundation with the collaboration of the authors, and in 2018 a questionnaire was administered to a sample of adolescent students living in the Cuneo province, in the Piedmont region (North-West of Italy). In particular, the size of the sample was determined by an optimal criterion based on the number of students attending secondary school in the province. The objective was to guarantee the widest possible diffusion of the questionnaire to the selected age group and the territorial coverage by type of school, observing a principle of maximum heterogeneity and differentiation. A quantitative approach has been adopted, choosing the method of the structured interview in the form of a questionnaire self-filled by the students at school with the support of their professors.

The resulting sample is composed of 334 teenagers (197 girls and 137 boys) aged between 15 and 20, attending different types of high school. From a quantitative point of view, we can assume that the students are representative of the student population of the province.

The questionnaire was built as an update of the model of the survey proposed to French children and teenagers by the DEPS at the beginning of the 2000s, which, as briefly described in section 2, had given rise to one of the most detailed research on the cultural practices and behaviours of children and teens. Accordingly, the variables investigated in our research relate to the adolescents' engagement in listening to music, reading books, going to the cinema, going to museums and attending performing arts. The picture of cultural consumption is then completed by considering also the level of direct practicing of cultural activities. Respondents were asked how often they attended, in the last year, the above cultural consumptions and the responses were categorised within a range from 1 (never) to 4 (very often). The adopted approach to measure cultural consumption activities differs from ISTAT<sup>20</sup>, in particular about music and books. In our questionnaire, the chosen question aims at measuring the importance of the music listening for the adolescents, whereas the question by

<sup>20</sup> *Ibidem*.

ISTAT relates only to music concerts attendance. As far as books are concerned, we measured the frequency of the act of reading, and not the number of books read. Quite similar and comparable are, however, the questions about going to the cinema, to museums, and attending performing arts. Are not available, within the ISTAT survey, the data about the direct practicing of cultural activities which we measured. Finally, we collected information about the money the adolescents allocate to the investigated categories of cultural consumption.

Following the literature on the factors that influence the young cultural consumption, we included relevant additional information, for each individual, about the family cultural capital, measured with the number of books at home<sup>21</sup> and parents' education<sup>22</sup>. Furthermore, a section of the questionnaire was dedicated to the type of school attended and to the school results<sup>23</sup>, where the students could classify themselves in four categories (bad, sufficient, good, excellent results). Lastly, we investigated the use of leisure time, where sports and videogames were measured asking to the respondents how often they practice these activities.

### 3.2 Method

In order to achieve the purpose of the study, we implemented a variety of methods and statistical analyses. First, segmentation was done using cluster analysis based on a *a posteriori* approach. This technique allows individuals to be clustered in such a way that those in each group are more similar to each other than those in other groups, thereby creating homogeneity within a cluster and heterogeneity between clusters. The segmentation variables include six cultural consumption items measured on four-point Likert scale. The number of segmentation variables is in line with the number of observations<sup>24</sup>. Multicollinearity is not an issue with the variables; thus, following Dolnicar suggestion, no principal components analysis was conducted to reduce it<sup>25</sup>.

The clustering method was the hierarchical Ward's algorithm, since the dataset is not very large and thus unsuitable for non-hierarchical clustering<sup>26</sup>. In our case, there were elbows at four, six and eight segments, thereby four to eight segments were tested. We then identified four segments as consistent and interpretable. Discriminant analysis was adopted to determine which predictor variables best classified cases into each of the clusters.

<sup>21</sup> Bourdieu 1986.

<sup>22</sup> Bourdieu 1986; Nagel 2010; Willekens, Lievens 2014.

<sup>23</sup> Nagel 2010.

<sup>24</sup> Mooi, Sarstedt 2011.

<sup>25</sup> Dolnicar 2012.

<sup>26</sup> Dolnicar 2003.



Second, we sought to establish the profile of each group through the characteristics of cultural consumption and the socio-demographic characteristics of students involved in the survey. Statistical tests have been applied to achieve this goal, based on the nature of the variables (metric and non-metric). The analysis of variance (ANOVA) and chi-square tests were used to ascertain if there were significant differences between the clusters and the other variables in the study.

## 4. Results

### 4.1 Cluster segmentation

The ambition of this study is to efficiently use cluster analysis to segment adolescents based on their cultural consumptions. Thus, the variables measuring cultural consumptions became the variables used within the cluster analysis. First hierarchical cluster analysis with Ward's linkage was performed, to define an appropriate number of clusters. The first step suggested a four to eight clusters solution as appropriate for the data set. After examining multiple tests on respondents, four clusters were optimally proposed, which were found to be 91 (Cluster 1), 90 (Cluster 2), 65 (Cluster 3) and 88 (Cluster 4), accounting respectively 27.2% for the first Cluster, 26.9% for the second, 19.5% for the third and 26.3% for the fourth.

In order to assess the validity of the four clusters proposed, discriminant analysis and ANOVA were performed. The discriminant analysis was run on the four clusters by the clustering variables, revealing that 96.3% of cases were correctly classified within the clustering procedure.

	Predicted Group Membership				Total
	1	2	3	4	
Cluster 1	88 97.78%	0 0.00%	0 0.00%	2 2.22%	90
Cluster 2	0 0.00%	90 98.90%	1 1.10%	0 0.00%	91
Cluster 3	0 0.00%	2 3.08%	59 90.77%	4 6.15%	65
Cluster 4	2 2.27%	0 0.00%	0 0.00%	86 97.73%	88
Total	90	92	60	92	334

Tab. 1. Results of discriminant analysis (Source: own calculations)

As presented in Table 1, of those included in Cluster 1, 97.78% were correctly classified; among those who were included in Cluster 2, 98.90% were correctly assigned; at the same time, 90.77% of those in Cluster 3 were correctly classified; finally, in Cluster 4, 97.73% of those were correctly assigned.

Then ANOVA was performed on variables mean scores to determine significant group differences, followed by a cross-tab analysis with chi-square on socio-demographic variables. Results of the ANOVA and mean scores analysis are presented in Table 2. The analysis revealed significant mean differences in all the cultural consumption variables across the clusters.

Variables	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Tot	F-value
Listening music	3.90	3.56	3.88	3.68	3.75	6.74
Going to cinema	3.67	3.64	3.12	3.14	3.39	11.87
Going to museum	3.29	3.29	2.54	2.00	2.80	44.14
Attending performing arts	3.37	3.21	1.55	1.19	2.35	254.56
Reading books	2.54	2.27	2.22	1.36	2.12	22.69
Practising artistic activities	3.53	1.53	2.98	1.13	2.31	236.38

Tab. 2. Clusters in cultural consumption activities and practices of young consumers (Source: own calculations)

According to the results of our cluster analysis, young cultural consumers can be classified according to their level of consumption in cultural activities. In Table 2, such activities are presented in a decreasing order, defined according to the overall level of consumption (column Tot). Music consumption is intense in all the clusters; however, Cluster 1 and 2 show high levels of consumption in all the cultural activities, while Cluster 3 and Cluster 4 are characterised by lower levels in all the other domains, in particular in performing arts and museums. We can identify the young consumers belonging to our first two clusters with the consumers defined by the literature as exhibiting omnivorous and voracious behaviour, i.e. combining a diverse range of cultural activities with a high frequency of participation<sup>27</sup>. Our results are consistent with the main findings of the literature on omnivorousness, which identifies as omnivorous in particular the younger cultural consumers<sup>28</sup>, and specifically the younger and highly educated cultural consumers<sup>29</sup>. Cluster 1 and 2 can be further differentiated according to an additional variable introduced in our study: the level of artistic practices presented in the last row of Table 2. Cluster 2 reveals indeed significant lower artistic practices participation, and slightly lower level of cultural activities in the examined sectors.

<sup>27</sup> Sullivan, Katz-Gerro 2007.

<sup>28</sup> Peterson, Kern 1996.

<sup>29</sup> Warde *et al.* 1999; van Eijck 2001; Holbrook *et al.* 2002; Lopez-Sintas, Garcia-Alvarez 2002.

Cluster 3 and 4, both characterised by a generalised lower level of consumption in all the tested cultural activities, show a noticeable reduction in museum and performing arts. Cluster 4, especially, identifies a group of young people scarcely involved in cultural consumptions and in artistic practices.

Additional relevant characteristics, further distinguishing the four clusters, are presented in Table 3 in the following section.

#### *4.2 Cluster profiles: socio-demographic characteristics and cultural expenses*

A cross-tab analysis with chi-square was performed on a number of socio-demographic variables in order to test whether the four clusters differ accordingly (Table 3). Chi-square test revealed differences across the clusters based on gender ( $\chi^2 = 28.97$ ;  $p = 0.000$ ), age ( $\chi^2 = 27.28$ ;  $p = 0.007$ ) and school ( $\chi^2 = 95.83$ ;  $p = 0.014$ ), as well as school results ( $\chi^2 = 15.42$ ;  $p = 0.004$ ) and time spent doing sports ( $\chi^2 = 25.74$ ;  $p = 0.015$ ) and playing videogames ( $\chi^2 = 17.70$ ;  $p = 0.039$ ). There were also differences across the clusters based on the cultural environment of the family, including number of books at home ( $\chi^2 = 46.97$ ;  $p = 0.004$ ) and parents' education ( $\chi^2 = 24.96$ ;  $p = 0.024$ ).

The socio-demographic features of the young consumers significantly contribute to the understanding of the main characteristics of the four clusters. The starting point is the well-established idea that children and adolescents are somehow influenced in their consumption of cultural goods and services by the environment they are exposed to, and that minors belonging to high-income and high-education environments are more likely to experience and consume high cultural content than those of lower socio-economic status. The results presented in Table 3 allow us to highlight that Cluster 1 and 2, where a high level of consumption in all the cultural activities was measured, mainly differ between them because of a different gender distribution. In Cluster 1 around 72% are young women, while in Cluster 2 young men are the majority (56%).

The uneven gender distribution is even greater between Cluster 3 and 4, because in Cluster 3 women are more than 74%. This result can be difficultly compared with the main findings of the literature on the role of gender in cultural consumption and leisure activities, since this issue was not strongly investigated and, among the studies that have paid attention to it, findings provide equivocal theoretical and empirical insights. For instance, in a study based on a sample of consumers aged between 16 and 65, men appear to be more voracious than women, but individuals with higher levels of human, economic and cultural capital are more voracious than others, regardless of gender<sup>30</sup>.

<sup>30</sup> Katz-Gerro, Sullivan 2010.

	Cluster 1 (%)	Cluster 2 (%)	Cluster 3 (%)	Cluster 4 (%)	Tot (%)	$\chi^2$ -value
Gender						28.97
Female	71.79	43.96	74.19	44.44	58.98	
Male	28.21	56.04	25.81	55.56	41.02	
Age						27.28
16	7.69	7.69	11.83	13.89	10.18	
17	23.08	28.57	40.86	45.83	34.43	
18	34.62	45.05	27.96	27.78	34.13	
19	24.36	15.38	11.83	11.11	15.57	
20	10.26	3.3	7.53	1.39	5.69	
School						95.83
Professional training	10.26	8.79	51.61	59.72	32.04	
Technical school	17.95	23.08	8.60	25.00	18.26	
High school	71.79	68.13	39.78	15.28	49.70	
School results						15.42
Bad results	1.28	2.2	1.08	6.94	2.69	
Sufficient results	29.49	34.07	26.88	45.83	33.53	
Good results	46.15	49.45	60.22	43.06	50.3	
Excellent results	23.08	14.29	11.83	4.17	13.47	
N. of books at home						46.97
None	1.43	1.27	5.88	15.00	5.44	
Less than 50	17.14	20.25	41.18	36.67	28.91	
Between 50 and 250	28.57	44.30	35.29	23.33	33.67	
More than 250	52.86	34.18	17.65	25.00	31.97	
Parents education						24.96
Middle school	22.03	22.86	52.70	35.09	33.85	
High school	47.46	44.29	31.08	47.37	41.92	
University	30.51	32.86	16.22	17.54	24.23	
Sport						25.74
Almost never	16.67	15.38	31.18	34.72	24.25	
1 per month	20.51	13.19	10.75	13.89	14.37	
1 per week	42.31	56.04	49.46	38.89	47.31	
Almost every day	20.51	15.38	8.60	12.50	14.07	
Videogame						17.70
Almost never	57.69	40.66	46.24	31.94	44.31	
1 per month	15.38	29.67	21.51	19.44	21.86	
1 per week	14.10	18.68	19.35	25.00	19.16	
Almost every day	12.82	10.99	12.90	23.61	14.67	

Tab. 3. The role of socio-demographic characteristics in the clusters (Source: own calculations)

In our sample, young consumers omnivorous and voracious in Cluster 1 are mainly students in high school and have excellent results in greater proportion, are relatively older, play frequently sports and are scarcely interested in playing videogames. In Cluster 2, students are as well mainly in high school, but with more ordinary school results, less frequent sports activity and more time allocated to videogames. At this regard, we have to underline that playing videogames may suffer of underreporting since the questionnaire was distributed through

schools. In both the clusters, parents' education is the highest, but the number of books at home is bigger for Cluster 1.

Cluster 3 and 4 show lower levels in cultural activity and practices than Cluster 1 and 2, apart from music, and are characterised by a larger presence of students attending professional and technical schools with parents mainly not university graduated. Cluster 3, where the students with parents not highly educated concentrated, differs from Cluster 4 in particular because of the school results. In Cluster 3 people with good and excellent results have a higher share. Quite the reverse, the lowest presence of students with excellent results is in Cluster 4, where the highest rate of people never doing sports and playing videogames almost every day concentrates. This is probably the effect of a typical vicious circle.

In Table 4 some additional information about the economic dimension of the cultural consumption are investigated by considering the percentage of adolescents who allocated some budget to four cultural sectors (music, book, cinema, and theatre) and to videogames and smartphones. The sectors are presented in decreasing order following the results obtained in the column Tot. In the table the results are presented separating the cultural sectors from the videogames and smartphones.

	Cluster 1 (%)	Cluster 2 (%)	Cluster 3 (%)	Cluster 4 (%)	Tot (%)
Cinema	58.06	48.65	42.68	40.00	47.25
Book	51.61	33.78	35.37	7.27	32.97
Theatre	40.32	22.97	15.85	7.27	21.61
Music	29.03	10.81	15.85	3.64	15.02
Videogames	9.68	18.92	10.98	29.09	16.48
Smartphone	27.42	41.89	50.00	40.00	40.66

Tab. 4. Cultural expenses among clusters (Source: own calculations)

The cultural expenses allocation confirms the results previously obtained as the main characteristics driving the cluster analysis. The percentages presented in Table 4 allow us to further highlight that cinema is the cultural activity that absorbs cultural expenses for the highest percentage of young consumers in all the clusters; for music the opposite occurs. This implies that, even though the activity of music listening is the most often practiced activity in all the clusters, except for Cluster 2 where it is slightly less practiced than cinema, from an economic viewpoint it is the activity that, for the young consumers, absorb economic resources in less occasions.

Smartphones are an important tool in today adolescents' life. In all the clusters, a high percentage of adolescents incurs in expenses for smartphones, except for cluster 1, where brilliant students, omnivorous cultural consumers, are described.

Among the cultural sectors investigated, for the generation of digital natives it appears of autonomous interest to develop a focus on the device most frequently used for the music listening, which is the most practiced activity in our sample, as shown in Table 2. Reading books, which is the less practiced activity in our sample, deserves for this reason some further investigation too.

In the following session, music and book consumption activities are further analysed by considering the digital dimension in terms of the frequency of the method used for the consumption activity.

## 5. Insights for the future consumption of music and books

### 5.1 Listening to music

The digital shift, and in particular the arrival of music streaming in a scenario of increased competition from global players, has led to fundamental changes in the way music is created, produced and performed, distributed and consumed. In our sample, the cultural activity related to the music listening is the most diffused and it is the highest in all the four clusters. Table 5 shows that on average more than 80% of adolescents listen to music every day (86% are women, 77% are men) and only few men and no woman specified that they almost never listen to music (2.1%).

Device	Listening to music				Tot (%)
	Almost never (%)	1,2,3 times a month (%)	1,2,3 times a week (%)	Almost every day (%)	
Smartphone	14.29	50.00	85.40	93.33	84.13
Computer	14.29	12.50	37.78	54.38	50.30
Tablet	14.29	25.00	24.44	36.50	34.13
Radio	42.85	37.50	31.10	27.37	28.40
Total	2.10	2.40	13.47	82.04	--

Tab. 5. The music listening by frequency and preferences in listening music device (Source: own calculations)

In the music listening activity, new technologies are one of the main driving forces changing the way in which people interact with music<sup>31</sup>. Music listening is no longer restricted to live performance, physical recordings or radio broadcasts, but can instead be accessed through several new ways, typically digital methods, such as smartphones, tablets and computers. As a result, advances in music

<sup>31</sup> Nill, Geipel 2010.

technology offer the opportunity for music to become increasingly present in people's daily lives<sup>32</sup>. For these reasons, among the preferred music device involved in everyday listening, not surprising, in our sample smartphones are the most diffused (84%), followed by computers (50%), tablets (34%) and radio (28%), as shown in Table 5.

This result is consistent with the main findings of the literature on music listening which identifies the students as the frequent early adopters of new technologies<sup>33</sup> and support the hypothesis that younger people are more likely to use mobile and computer devices to access music, whereas older use more traditional formats, such as radio and, at the time of the publication of the various studies, CD<sup>34</sup>. Our results are also consistent with data published by the International Federation of the Phonographic Industry (IFPI) according to which the radio is still the most widely used device for listening to music; however, among young people, 44% listen to music only on smartphones and 74% would choose the smartphone if they could only have one device<sup>35</sup>.

Finally, analysing the distribution between frequency in music listening and device preferences, we can see how the percentage of those who listen to music through their smartphone increases as the frequency of this activity increases. On the other hand, among those who say they almost never listen to music, in most cases (42.8%) they do so through the radio.

## 5.2 Reading books

In our sample, the less diffused cultural activity is reading books. More than 52% of young male consumers never read books, and, on average, the totality of young people reading scarcely (either never or up to three times a month) is more than 66%. In general, our results show that young male consumers read significantly less than young female ones.

The percentage of Italian children and adolescents, aged between 15 and 19 years, who read books in 2018 was estimated by ISTAT to be around 55%. Among them, over 10% read more than 12 books in a year<sup>36</sup>. In our sample, the percentage of strong readers is quite the same, and it is particularly low when we separately consider the presence of strong young readers within the male consumers' group.

Reading books is an activity mainly done on paper books (Table 6). Nonetheless, the young age, technological innovation in the reading activity is

<sup>32</sup> Krause *et al.* 2015.

<sup>33</sup> Tepper, Hargittai 2009.

<sup>34</sup> Nielsen Company 2012; Smith 2012; Krause *et al.* 2015.

<sup>35</sup> IFPI 2019.

<sup>36</sup> ISTAT 2019.

not diffused among the young consumers of our sample, since 7.6% uses only e-books, even though the 21.8% uses both paper books and e-books.

However, from this first analysis it is interesting to note that the use of e-books increases with increasing frequency in reading practice. In fact, 42% of those who say they read almost every day affirm to do so through both devices, showing that there could be a complementary relationship between reading on paper books and e-books (Table 6).

Device	Reading books				Tot (%)
	Almost never (%)	1,2,3 times a month (%)	1,2,3 times a week (%)	Almost every day (%)	
Paper-books	68.35	68.32	84.29	55.26	70.49
E-books	16.46	6.93	1.43	2.63	7.64
Both	15.19	24.75	14.29	42.11	21.88
Total	33.53	32.63	21.86	11.98	100.00

Tab. 6. The books reading by frequency and preferences in reading method (Source: own calculations)

## 6. Conclusion

The cultural consumption literature mainly focuses on adults' demand, investigating the role of income, gender and other socio-economic variables. The youngest are traditionally thought of as mere passive actors in the adults' consumption patterns. Nevertheless, we are persuaded that the knowledge regarding children and teenager's cultural consumption deserves specific attention. They, not only are the future consumers and citizens, but are likely to represent a new cohort of cultural consumers embracing new practices and products, given the increasingly important role of digital technologies for the generation of digital natives. The issue becomes even more challenging in the light of the recent international health emergency due to Covid-19 disease, whose impacts have been having strong influence on human behaviour and cultural consumptions. We can expect 2020 to be a turning point, and it is important to also portray a picture of the young cultural consumers' characteristics before that critical phase.

Our findings suggest, through a cluster analysis approach, that young consumers can be segmented into at least four homogeneous groups. There are significant differences in their cultural consumption, family background, and individual cultural capital. In particular, two clusters (Cluster 1 and 2) can be described as a group of young consumers with high cultural capital within the family, a breadth of cultural tastes, and high frequency of participation in



different leisure activities, confirming the omnivorousness and voraciousness thesis<sup>37</sup>. As a consequence, also the allocation of cultural expenditure of these two groups is higher than in other groups. Our results are consistent with the main findings of the literature on omnivorousness, which identifies as omnivorous in particular the younger cultural consumers<sup>38</sup>, and specifically the younger and highly educated cultural consumers<sup>39</sup>. What differentiates the two clusters is the level of artistic practices. Cluster 2 reveals indeed significant lower artistic practices participation, and slightly lower level of cultural activities in the examined sectors. This group is made by students with more ordinary school results, although mainly in high school, allocating more money to videogames and smartphones, and being older. We can probably consider them as more “passive” young cultural consumers, more externally driven by the education policies and by the market offers. Hence, we can identify the real profile of the “strongest” young cultural consumer (Cluster 1) with a group of teenagers mainly female, in high school, with excellent results in greater proportion, not allocating much time and money to videogames and smartphones. They represent the best target for the producers of cultural contents and services. However, they are not the only ones. A wider overview of the different types of young people involved in the cultural domains is crucial.

At the European level, policy recommendations on culture clearly target the creativity of young people and their innovation potential in the digital age. In the frame of the European Union Council conclusions on the Work Plan for Culture 2019-2022<sup>40</sup>, in particular, a growing need to focus on young people’s participation in culture, in order to foster their creativity and develop skills that are important for their future employability, active citizenship and social inclusion, is recalled. In order for this vision to be implemented, special attention has to be paid towards teenagers at risk to be excluded from such a perspective of design of the future European society. In our study, two clusters in a similar situation emerge. Cluster 3 and 4 show a generalised lower level of consumption in all the tested cultural activities and practices. Cluster 4, especially, identifies the group of young “poor” cultural consumers, scarcely involved in any cultural consumption, with the highest rate of adolescents playing often videogames and never doing sports. This is probably the effect of a typical vicious circle. Similarly, Cluster 3 identifies “scarce” cultural consumers, but with a higher rate of students with good and excellent results, attending professional and technical schools, and in a higher proportion being female.

The existence of different clusters among the young consumers analysed in our research contributes to highlight the need, both for policy-makers and

<sup>37</sup> Sullivan, Katz-Gerro 2007.

<sup>38</sup> Peterson, Kern 1996.

<sup>39</sup> Warde *et al.* 1999; van Eijck 2001; Lopez-Sintas, Garcia-Alvarez 2002; Holbrook *et al.* 2002.

<sup>40</sup> European Union 2018.

cultural industries, to better understand desires and weaknesses of the various groups within the teenagers, targeting policies and strategies accordingly. Starting from the changing user behaviour due to digitalisation, ageing and culturally diverse societies in Europe, the need of a better understanding of different audiences, and a stronger emphasis on interests and desires of specific groups, such as young people, is mentioned as one of the priorities for cohesion and well-being through culture in the New European Agenda for Culture<sup>41</sup>. A strategic approach related to young people's participation in culture, in order to foster their creativity and develop skills that are important for their individual empowerment and future employability, democratic consciousness and active citizenship, and social inclusion, is invoked. The Agenda seeks to foster the cultural capability of all Europeans by supporting culture-based creativity in education and innovation and making available a wide range of cultural activities and providing opportunities to participate actively.

Within this scenario, our paper contributes to underline how the young European citizens should not be considered as a homogeneous group just because of the age. A significant difference may arise both among them, in terms of cultural activities and active participation, and towards the real use of their common digital knowledge. For the generation of digital natives, in our sample, reading books is, for instance, an activity mainly done on paper books, whereas, among the preferred music device involved in everyday listening, smartphones are the most diffused, but the radio still play an important role.

Culture in the digital age is perceived as a tool potentially able to shape new models of access to culture, in particular engaging young people, their creativity and self-expression possibility, fostering innovation capacity and skills for cultural and creative industries, and reinforcing culture and intercultural dialogue for peaceful inter-community relations. Further research is, however, needed, to better understand how really culture is passed down from previous generations, and it becomes a resource for sustainable cultural, social, environmental and economic development of the future. Our study aims at contributing to shed some light on this ambitious vision. However, our results still suffer from a limited amount of data. Our sample, and the conducted analysis, should be considered a first step towards a deeper understanding of the cultural consumption of adolescents in Italy, trying to open a debate about the importance of this kind of research, and, even more critically, about the need of more specific and nation-wide database specifically designed to study young cultural consumers. Further research and data are needed, in order to cover the Italian national territory, and to allow international comparisons, at least at the EU level.

<sup>41</sup> European Commission 2018b.

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# Cultural environment, entrepreneurship and innovation in Europe. The importance of history\*

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## *Abstract*

This paper proposes a conceptual framework in which the cultural environment is shaped by historical factors and, in turn, affects entrepreneurship and innovation in the long-term. To support this idea, we have described the scientific revolution that took place in Europe at the end of the Renaissance period, when social and religious tolerance, the power of the church and the attitude of elite groups towards scientific discovery spawned different cultural environments across European regions. In addition, using historical data

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at NUTS-3 geographical level in Europe, we estimated an econometric model to explore the long-term impact of regional knowledge base and creativity, two important aspects of the cultural environment, on actual economic drivers. The estimates suggest that the presence of universities in the past, our measure for historical knowledge base, and the number of scientists and inventors in the past, our measure for historical creativity, have a positive effect on current levels of regional entrepreneurship and innovation. The effects of creativity depend on the scientific field of the scientists and inventors.

Il presente lavoro propone un quadro concettuale in cui l'ambiente culturale è modellato da fattori storici e, a sua volta, influisce sull'imprenditorialità e sull'innovazione a lungo termine. Per supportare questa tesi, abbiamo descritto la rivoluzione scientifica che ha avuto luogo in Europa alla fine del Rinascimento, quando la tolleranza sociale e religiosa, il potere della chiesa e l'atteggiamento delle élite verso le scoperte scientifiche hanno creato diversi ambienti culturali tra le regioni europee. Inoltre, utilizzando dati storici con un livello geografico NUTS-3 in Europa, abbiamo stimato un modello econometrico per esplorare l'impatto di lungo periodo della base di conoscenze e della creatività regionale, due aspetti rilevanti dell'ambiente culturale, su aspetti economici contemporanei. Le stime suggeriscono che la presenza di università nel passato, la nostra misura per la base di conoscenza storica, e il numero di scienziati e inventori nel passato, la nostra misura per la creatività storica, hanno un effetto positivo sull'imprenditorialità e sull'innovazione delle regioni. Inoltre, gli effetti della creatività dipendono dall'area scientifica di appartenenza degli scienziati e degli inventori.

## 1. *Introduction*

Many studies have examined the role of history in economic development, showing that historical cultural differences across countries and regions persist over long periods of time and can explain different paths of regional growth<sup>1</sup>. A first approach maintains that the institutions of a society can be an important determinant of the evolution and long-term persistence of economic growth. These studies suggest that the differences in domestic institutions explain the different paths of growth today. Some important papers within this literature examined European expansion and colonization of the globe, which began in the sixteenth century<sup>2</sup>. These papers share the view that the characteristics of the region being colonized were crucial in determining the effects of colonial rule on long-term development. Many empirical studies have confirmed this hypothesis, although the papers differ in their view of which aspects of colonial rule were more important for shaping institutions, and in the proposed causal mechanisms.

<sup>1</sup> Nunn 2009.

<sup>2</sup> Acemoglu *et al.* 2001; Engerman, Sokoloff 1994; Sokoloff, Engerman 2000; La Porta *et al.* 1997, 1998.



Another approach considers that historical events permanently affected culture and the norms of behavior. The most well-known use of this approach is by Max Weber, who studied the importance of the Protestant religion and its effects on norms and behavior and, therefore, on the development of capitalism. Evolutionary anthropologists have recognized that there are clear micro-foundations that explain the existence of a phenomenon like culture<sup>3</sup>. The geneticist Cavalli-Sforza<sup>4</sup> observed that potential geniuses can be born anywhere but a suitable cultural environment is crucial for them to achieve success. Individual behavior is influenced by both genes and the external environment. Genetic factors can partially affect the geographical distribution of scientists and inventors, but a sociocultural environment inclined towards science is the key aspect that determines if a potential genius will become a great scientist or inventor. Cavalli-Sforza<sup>5</sup> noted, for example, that most Italian scientists before 1600 were born near the city of Florence. This was not because of a concentration of genetic factors, but because Florence had a very open and stimulating cultural environment. From the twelfth to the sixteenth century, Florence was in fact the most stimulating city in the Western world for arts and culture.

Putnam<sup>6</sup> advanced the hypothesis that during the period 1000-1300, the city states in Northern Italy developed a level of social capital higher than the towns in the Kingdom of Naples. These large differences in behavioral norms between Northern and Southern Italy may explain the current differences in economic development across Italian regions.

The psychologists Cohen *et al.*<sup>7</sup> suggested that there was a culture of “honor” in the South of the USA but not the North because the two areas were settled by different groups. The North was mostly settled by groups with a farming background, whereas the South was settled by Scottish and Irish people, who were mostly herders. Herders leave the protection of property rights to the individual and not to the community. Their culture of honor was less important in a more organized society.

The hypothesis that culture also affects norms of behavior in homogeneous environments was tested by Fisman and Miguel<sup>8</sup>. They found a link between corruption and culture across countries. There was a close link between parking violations by United Nations diplomats in New York City and the cultural tolerance of corruption back home. Another approach hypothesized that knowledge, education, and technology, through historical events, have

<sup>3</sup> Boyd, Richerson 1985; Cavalli-Sforza, Feldman 1981.

<sup>4</sup> Cavalli-Sforza 2016.

<sup>5</sup> *Ibidem.*

<sup>6</sup> Putnam *et al.* 1993.

<sup>7</sup> Cohen *et al.* 1996.

<sup>8</sup> Fisman, Miguel 2007.

a long-term impact on economic development. Glaesler *et al.*<sup>9</sup>, for example, argued that part of the positive relationship between European settlements and economic growth documented by Acemoglu *et al.*<sup>10</sup> may reflect the knowledge and know-how brought by settlers to the colony.

Recent literature has emphasized the relationship between cultural environment and attitude towards science. Attitude towards science is affected by socio-cultural factors and shapes regional entrepreneurship. An environment that supported new ideas could also have a crucial role in fostering innovation and economic activity. This stream of literature identified creativity as a driver of innovation, competitiveness and, ultimately, economic development<sup>11</sup>. Audretsch and Belitski<sup>12</sup> proposed a theoretical framework supporting the creativity theory of knowledge spillover entrepreneurship. They distinguished ordinary and intellectual human capital from creativity, embodied in people. The former is attributable to educational attainment, and the latter «is an excluded knowledge element, primarily personalized (tacit) knowledge of individuals»<sup>13</sup>. Both human capital and creativity in well-educated or skilled people can foster entrepreneurship at national and local level<sup>14</sup>. Regions with large numbers of ideas and talented people are centers of global competitiveness. Creative people are attracted to an environment characterized by diversity and availability of cultural amenities<sup>15</sup>. Cities with a creative environment show higher levels of innovation and new firm formation in technology-intensive industries<sup>16</sup>. However, this literature on creativity has not tried to explain the historical roots of actual creativity.

Only a few papers have explored the importance of history for actual creativity and knowledge base. Some have emphasized the path-dependency of regional entrepreneurship, which is a long-term phenomenon<sup>17</sup>. Fritsch and Wyrwich<sup>18</sup> documented the persistent effect of the establishment of universities and historical self-employment rates on new business formation in German regions over the period 1907-2014. They found that, despite the political, social and economic changes that influence society over time, the structure of new business formation at local level was broadly constant over a long period, and only changed slowly<sup>19</sup>. Del Monte and Pennacchio<sup>20</sup> proposed a measure

<sup>9</sup> Glaesler *et al.* 2004.

<sup>10</sup> Acemoglu *et al.* 2001.

<sup>11</sup> UNCTAD 2008.

<sup>12</sup> Audretsch, Belitski 2013.

<sup>13</sup> Audretsch, Belitski 2013, p. 820.

<sup>14</sup> Boschma, Fritsch 2009; Lee *et al.* 2004.

<sup>15</sup> Florida 2004.

<sup>16</sup> *Ibidem.*

<sup>17</sup> Fotopoulos 2013; Fritsch, Wyrwich 2014.

<sup>18</sup> Fritsch, Wyrwich 2018.

<sup>19</sup> Anderson, Koster 2011; Fritsch, Storey 2014.

<sup>20</sup> Del Monte, Pennacchio 2020.

of cultural attitude towards science based on historical data about scientists and inventors (SIs) and investigated whether the actual rate of high-tech firm formation in Italy was affected by this index. Their paper also highlighted the positive relationship between the establishment of universities in the past and the current levels of new business formation in Italy.

This paper has two main areas of focus. Firstly, we analyzed the role of historical institutions in shaping the cultural environment and attitude towards science. We focused on the scientific revolution that took place in Europe at the end of the Renaissance period, and continued to the late 18<sup>th</sup> century, and used this as a case study. We developed a descriptive analysis suggesting that the level of social and religious tolerance, the power of the church and the attitude of elite groups towards scientific discoveries gave rise to different cultural environments across European regions. These different environments affected the attitude towards science. Secondly, we estimated an econometric model showing that regional knowledge base and creativity, two proxies for the attitude towards science and cultural environment, had long-term and positive effects on actual economic drivers such as entrepreneurship and innovation. We found that having a higher concentration of SIs in the “soft” (social) sciences than “hard” (natural) sciences had a stronger impact on entrepreneurship, while the reverse was true for innovation. This empirical analysis was based on current and historical data going back as far as 1100 on some items. It considered the four European countries with the largest GDPs (Italy, France, Germany, and the UK) at the NUTS-3 geographical level. Our results suggest that the presence of universities in the past, our proxy for historical knowledge base, and the number of scientists and inventors in the past, our proxy for historical creativity, have a positive effect on current rates of regional entrepreneurship and innovation.

The paper contributes to the literature in several ways. First, we suggest that historical factors, such as the scientific revolution in Europe, have an important role in shaping the cultural environment. Previous studies have not emphasized the importance of history in this way. Second, we proposed a new and original database for scientists and inventors, our proxy for creativity, which is based on data from Wikidata. This database extends and complements the data used in Del Monte and Pennacchio’s paper<sup>21</sup>, by distinguishing the scientific specialisms of scientists and inventors and their different impact on entrepreneurship and innovation. Lastly, previous analyses were based on individual countries<sup>22</sup>, but we investigated the historical determinants of entrepreneurship and innovation across European regions.

The remainder of this paper is organized as follows. Section 2 discusses our theoretical framework and derives the two research hypotheses about the

<sup>21</sup> *Ibidem*.

<sup>22</sup> Fritsch, Wyrwich 2014, 2018, among others.

importance of history in shaping cultural environment and attitude towards science in the past, and their impact on current levels of entrepreneurship and innovation. Section 3 discusses the case study of the scientific revolution in Europe, and sets out a descriptive analysis supporting the idea that historical factors have shaped the cultural environment and the attitude towards science in the past. Section 4 describes our data and the econometric model used to empirically test the hypothesis that historical attitude towards science has a long-lasting impact on two important drivers of economic growth today: entrepreneurship and innovation. Section 5 concludes the paper.

## *2. Historical cultural environment, attitude toward science and current economic drivers*

The scientific revolution replaced the Aristotelian scientific tradition, which was based on deduction, with an inductive approach that aimed to obtain knowledge, and observe events with an open mind. The value of evidence, experimental or observed, led to a scientific methodology in which empiricism played an important role. The scientific revolution had no immediate economic effect but it strongly affected the intellectual environment. Until the nineteenth century, technology was developed by individuals who were not necessarily scientists. The scientific method affected the way of thinking and operating of artisans, who were the main technological innovators. The use of observation, experimentation and rationality became a crucial aspect of the innovation process, which was part of the way that artisans commonly operated.

The positive attitude towards science inspired the creation of scientific societies and organizations across Europe that tried to explain natural phenomenon with a common method based on observation, experimentation and reasoning<sup>23</sup>. The relationship between science and technology was not immediate, but the influence of the new scientific method based on experimentation and reasoning spread into many aspects of society, fostering technology and, ultimately, growth. The long development of scientific knowledge would not have determined continued economic growth if Western society had not developed a social consensus on the use of new products and inventions. The importance of innovating, starting new firms and modifying the management of existing firms spread widely. However, the scientific revolution and its positive consequences were not accepted everywhere with the same intensity. In Western regions, science and technology developed more easily where there was an environment

<sup>23</sup> The Royal Academy of Science was created in the UK in 1662. Academies of Science were also created in France in 1666, in Prussia in 1700, in Russia in 1724, in the United States in 1743, and in Turin (the Kingdom of Sardinia) at the end of the eighteenth century.

with a high degree of autonomy from political and religious authorities. The environment was therefore not equally favorable in all countries to the rise of a positive attitude towards science and technology.

A different strand of literature identified historical tolerance as an important determinant of the cultural environment, especially with respect to creativity and innovation. Social tolerance of cultural diversity and cultural differences can drive unconventional approaches to the development of new ideas and encourage experimentation, innovation and entrepreneurial behaviors. Florida<sup>24</sup>, for example, analyzed the case of San Francisco, emphasizing that its long history of tolerance fostered the creation of a creative environment. Florida<sup>25</sup> also found a significant and positive relationship between creativity and concentration of high-technology industry. Religious tolerance is also important to build a creative environment. McCann<sup>26</sup> found that the success of the Dutch Republic during the seventeenth century was because religious tolerance allowed inflows of Jews, Huguenots and Catholics. This led to a creative environment. Similarly, the growth of some of the US coast cities in the nineteenth century was supported by high levels of religious tolerance.

Serafinelli and Tabellini<sup>27</sup> showed that city institutions promoting economic and political freedoms, as well as local autonomy, were crucial in developing a creative environment. They considered a sample of large cities in Europe between the eleventh and nineteenth centuries and found that local culture played an important role in encouraging individuals towards creative endeavors. They also suggested that elite creative groups were attracted by social and cultural environments open to external ideas and where authority and tradition had a lesser role. These articles therefore emphasized that historical heritage and the characteristics and history of a society are crucial factors in determining the cultural environment of a region, especially knowledge base and creativity<sup>28</sup>.

Culture shapes institutions and environment, and environment affects the birth of new inventors and scientists. Scientists spending their life in their region of birth could positively affect local scientific culture. This creates a very strong self-sustaining mechanism that improves local scientific and cultural environment. The openness of regional culture toward scientific discoveries and attitude toward science determine beliefs, social connections, perspectives, mental models, and behaviors of the population, and these aspects affect the birth of scientists and inventors. In turn, a cultural environment characterized by strong levels of creativity and knowledge base is conducive to a positive

<sup>24</sup> Florida 2002.

<sup>25</sup> *Ibidem*; Florida 2014.

<sup>26</sup> McCann 2013.

<sup>27</sup> Serafinelli, Tabellini 2019.

<sup>28</sup> Santagata 2002.

attitude towards entrepreneurship and innovation, which are important drivers of regional growth<sup>29</sup>.

Figure 1 shows the theoretical background used to derive our research hypotheses. Historical factors such as the degree of autonomy from religion and politics, and social and religious tolerance, created a culture and norms of behavior that determined a favorable attitude toward science. This environment was an important factor in past centuries that favored the birth of important scientists and inventors. Institutions like academies of science and other informal organizations of scientists that adopted methods based on an inductive approach helped to spread a mentality supporting the development of knowledge over parts of the population, such as artisans and the intellectual elite. This process had a positive effect on culture and norms of behavior that were open to science, and supported self-sustaining development. From this theoretical background, we derived two hypotheses. The first one was investigated through the descriptive analysis set out in Section 3, and the second was empirically tested using econometrics, described in Section 4:

*Hypothesis 1.* The cultural environment and attitude towards science have historical roots that depend on factors that affect culture and behavioral norms.

*Hypothesis 2.* Historical attitude towards science has an important role in fostering innovation and entrepreneurship in the long-term.

### *3. Scientific revolution, culture and the birth of new scientists and inventors in Europe*

This section provides a descriptive analysis of the historical evolution of institutions and how they affected the attitude towards science in Europe. We also calculated an index linked to history and based on the number of scientists and inventors at regional level. The index is both a measure of attitude towards science in a location and a factor with a positive effect on the attitude of culture towards science.

Table 1 shows the spatial and time-related distribution of scientists and inventors and GDP per capita in five European countries: France, Germany, UK, Italy, and Spain. The last two columns of the table show the ratio between the number of SIs born in Italy and Spain, and the total number born in the five countries, and the variance of their spatial distribution.

It could be argued that the distribution of SIs has been affected by GDP per capita. This relationship is quite complex to investigate. From the fifteenth to eighteenth centuries, Italy had the highest GDP per capita of the five countries.

<sup>29</sup> Del Monte *et al.* 2020.

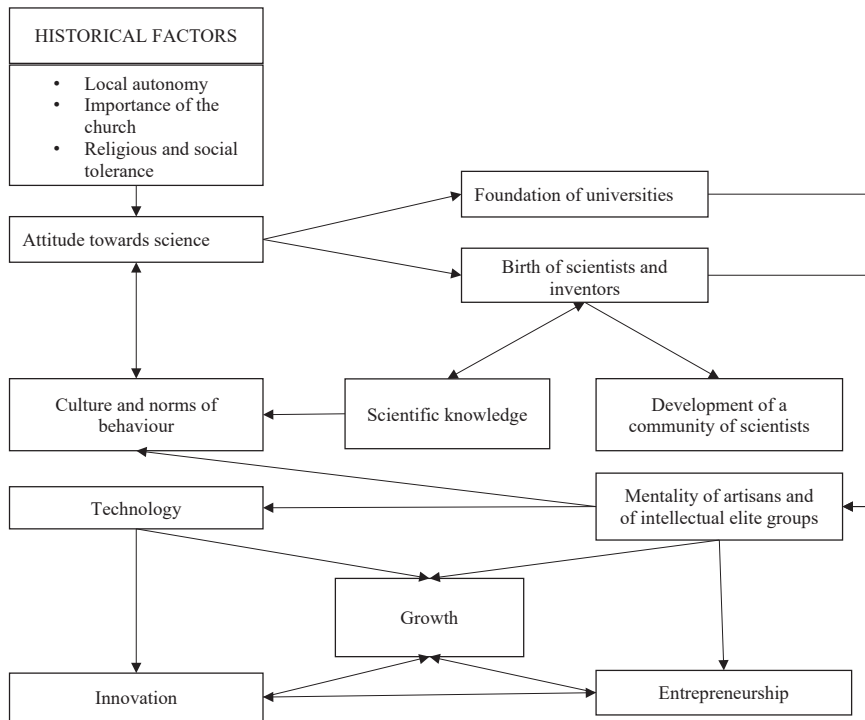


Fig. 1. The theoretical framework of this paper (Source: own elaboration)

It was exceeded in Europe only by the Netherlands. However, it had fewer scientists and inventors than Germany and France. In the seventeenth century, with the start of the industrial revolution, Italy was surpassed by the UK. Spain, with a GDP per capita similar to Germany and France, had very low numbers of SIs. A relationship between SIs and GDP per capita therefore cannot be ruled out, but the evidence is mixed<sup>30</sup>.

It is more likely that the changing pattern of the presence of SIs was shaped by the emergence of the scientific revolution. It is interesting to note not only that there are differences across countries, but that these differences increased steadily over time. The variance in the SIs index increased from 2.8 before the fifteenth century to 382.8 in the nineteenth century. Before the fifteenth century, the number of scientists and inventors was quite low in all countries and the differences between the five countries were also low. The change started with the scientific revolution that marked the emergence of modern science during the early modern period. The scientific revolution took place in Europe towards

<sup>30</sup> In the same vein, Serafinell and Tabellini (2019) provided evidence that the agglomeration of creative individuals in European cities cannot be predicted by the levels of wages.



the end of the Renaissance period and continued to the late eighteenth century, influencing the intellectual and social movement known as *the Enlightenment*. The publication in 1543 by Nicolas Copernicus of *De revolutionibus orbium coelestium* is often cited as marking the beginning of the scientific revolution. From the sixteenth century, the proportion of SIs in Italy and Spain relative to the other countries decreased steadily, probably because the Catholic Church was stronger in those countries than the other three. We suggest that the different intensity of scientific revolution in the five countries was caused by the differences in the social, economic, and political institutions. Religious institutions were very important. The Catholic religion in Southern Europe played a different role in supporting science and development than the Protestant religion in Northern European countries. Max Weber described Catholics and Protestants having a different attitude towards innovation. After the sixteenth century, the Protestant world was characterized by a higher freedom of expression than Catholic countries. The intolerance of the Catholic world caused the different effects of Reform and Counter-Reform<sup>31</sup>. The British historian Hugh Trevor-Roper suggested that the reactionary attitude against Protestantism, more than Protestantism itself, characterized the destiny of Southern Europe for more than three hundred years. The Iberian Peninsula and Southern Italy therefore lost their opportunity to lead the scientific revolution. Intolerance also existed in the Protestant world, but religion's control on intellectual life was much weaker<sup>32</sup>. The reaction of the Inquisition was tougher, and this explains the attitude of suspicion of new ideas seen in many Catholic countries.

In addition, in the Protestant world, power was seen as emanating directly from God. Political power was seen as sacred. Even after the theological origins of this belief were forgotten, a sense of respect for the political institutions remained. During some periods, absolute institutions prevailed in Protestant countries, but during other periods, constitutional theories were accepted. Sometimes the rejection of a cruel prince was instituted through democratically-elected representatives. This led to a higher tolerance of new ideas than in Catholic countries. Catholics believe that God has no role in institutions that are created by humankind and people could therefore build whatever they desired<sup>33</sup>.

<sup>31</sup> Landes 2000, p. 196.

<sup>32</sup> Jostock 2007; Luzzi 2011, p. 84.

<sup>33</sup> Levi 2011.

	Spain	Italy	Germany	France	Great Britain	SIs in Spain and Italy as a proportion of total SIs	Variance of SIs between countries
<i>11th–15th centuries</i>							
SIs	3	4	0	2	4	0.53	2.8
<i>15th century</i>							
SIs	0	3	6	1	0	0.30	6.5
GDP p.c.	661	1,100	688	727	714		
<i>16th century</i>							
SIs	0	6	6	5	2	0.31	7.2
GDP p.c.	853	1,100	791	841	974		
<i>17th century</i>							
SIs	0	7	7	13	15	0.17	34.8
GDP p.c.	853	1,100	910	910	1,250		
<i>18th century</i>							
SIs	0	7	16	31	36	0.08	235.5
GDP p.c.	1,008	1,117	1,077	1,135	1,706		
<i>19th century</i>							
SIs	1	5	44	11	37	0.06	382.8
GDP p.c.	1,207	1,499	1,839	1,876	3,190		

Tab. 1. Number of scientists and inventors (SIs) and GDP per capita (p.c.) from the eleventh to nineteenth centuries (Notes: GDP per capita is in 1959 international dollars. Sources of data were Singer (1959) for SIs and Maddison *Contours of the World Economy 1-2018* for GDP per capita)

Humans are sinners and tend to produce imperfect institutions, so the Church was required to correct their action and lead them to salvation. Under the Counter-Reformation, two forms of authority – the Church and the State – were constantly fighting for supremacy, with no clear separations of tasks or hierarchies. In many Catholic countries, the strength of the Church meant that citizens' relationship with government was marked by weak institutions and a culture of clemency, absolutism and legal uncertainty. The Church was able to sustain the old ideas in line with the Bible. The trial against Galileo is probably the best-known action of the Church against new scientific ideas but there were many other cases before the Counter-Reformation. Belloc *et al.*<sup>34</sup> noted that in Italy between 1100 and 1300, the occurrence of an earthquake retarded institutional transition from autocratic regimes to self-government (the commune) in cities where the political and religious leaders were the same person (episcopal cities) but not in cities where the political and religious power were distinct (non-episcopal cities). In the Middle Ages, earthquakes were considered to be manifestation of the will and outrage of God, and represented a shock to people's religious beliefs. The earthquake in Italy therefore enhanced

<sup>34</sup> Belloc *et al.* 2016.

the ability of political religious leaders to restore social order after the crisis because of the emerging of communal institutions' leaders.

In Spain, where the Catholic religion was the core of national identity, the scientific revolution had very weak roots. During the years of political decline in Spain, while the hegemony in Europe was disappearing, there was a burgeoning of the arts (e.g. Cervantes, Lopes De Vega, Calderon El Greco) but few scientists and inventors. Theology was still considered the master science, and all other sciences its servants. The University of Salamanca held that the study of Newton would not improve logic or metaphysics and that Descartes was much further from revealed truth than Aristotle<sup>35</sup>. There were fanatic religious massacres across the whole of Europe during the period, but Spain is unique in how long religious intolerance lasted. The Inquisition was not abolished until 1820.

The situation was different in other Catholic countries like France. This was a centralized state and the political power was able to resist the power of the Church. After a period of religious war in the second half of the sixteenth century, the Edict of Nantes in 1598 granted a degree of religious tolerance towards Protestants. The strength of the central State relative to the Church, and the religious tolerance, allowed France to give a strong push to the scientific revolution.

The Italian situation was different again. Italy was not characterized by religious wars, but was greatly influenced by foreign powers. In Southern Italy, where the influence of Spain was very strong, religious intolerance and closure to the ideas of the scientific revolution resulted in an attitude that was not favorable to science. The number of great scientists and inventors born in Southern Italy was low<sup>36</sup>. Lazio, dominated for centuries by the pope, also had few scientists and inventors. A different situation emerged in the center and Northern Italy. This area was more influenced by Austria and France, both of which were inclined towards the scientific revolution, and the weight of the Renaissance was strong.

Germany was characterized by a large number of states with different religions (Lutheran, Calvinist, and Catholic). The citizens of each state were forced to adopt the religion of their rulers (the principle of *cuius regio, eius religio*, set out under the Peace of Augsburg in 1555). Germany was devastated by religious wars until the second half of the seventeenth century, when the Peace of Westfalia in 1648 institutionalized the Catholic, Lutheran, and Calvinist religious divide with the population either converting, or moving to areas controlled by rulers of their own faith. However, in the last few years of the seventeenth century, religious tolerance and openness towards new ideas increased. In the kingdom of Prussia, constituted in 1701, and under Federico II (the Great), the law of religious tolerance was approved. Federico II also

<sup>35</sup> Crow 2005.

<sup>36</sup> Del Monte 2019.

adopted policies favoring science and culture. Consequently, in the eighteenth century, the scientific revolution received a big push in Germany.

In Great Britain, before the Protestant reformation, the power of the Church was largely opposed by the kings, and there were fights against the privileges of the Church. After the Reformation, freedom of speech and religious tolerance, despite the distrust of Catholics, were regarded as important. The role of Parliament was also important, dating from the *Magna Carta*. From the seventeenth century, Parliamentary government was viewed as a key characteristic of Britishness, and the ideas of limited government, representative politics, an accountable monarchy, the rule of law and an absence of religious persecution (even if Catholics could not take public office until the nineteenth century) were established.

Summing up, religious tolerance, free speech, and weak power of the church were therefore all elements that favored the spread of the scientific revolution, the creation of a cultural environment open to science and the growth of important scientists and inventors. This descriptive analysis is consistent with our Hypothesis 1.

#### *4. The impact of historical attitudes towards science on current entrepreneurship and innovation in Europe*

This section describes the empirical test of our second hypothesis about the positive and long-lasting effect of a cultural environment inclined towards science on current levels of entrepreneurship and innovation. To this aim, we built an econometric model to assess the impact of historical creativity, in terms of SIs, and knowledge base, in terms of universities, on regional entrepreneurship and innovation.

The information used in this empirical analysis drew on different sources of data. We built an original dataset that includes data at the NUTS-3 geographical level for the most important countries in Europe in terms of GDP (Germany, United Kingdom, Italy and France) collected over a long period starting from the eleventh century for some items. The NUTS-3 administrative unit corresponds to small regions, which are about the size of a main city and its neighbouring municipalities. Overall, our dataset includes cross-sectional data for 737 small regions.

## 4.1 *Data and variables*

### 4.1.1 *Dependent variables*

To fit the theoretical background outlined in Section 2, we used current entrepreneurship and innovation as dependent variables in our econometric analysis. Entrepreneurship and innovation are important drivers of growth and are closely linked<sup>37</sup>.

We used two proxies for entrepreneurship. These considered firms in innovative sectors in the period 2013-2018. The variable *Innovative SMEs* measured the number of innovative small and medium-sized enterprises (SMEs) that were less than five years old and held at least one patent in the period under scrutiny. This variable captures the intensity of start-ups in a region. The second proxy for entrepreneurship is *Innovative Firms*, which gives the number of all firms (SMEs and larger firms) with at least one patent. The source of data for these two variables was Orbis, the cross-country longitudinal firm-level database provided by Bureau van Dijk.

We used two proxies to operationalize innovation. *Patents* measures the number of patents registered with the European Patent Office (EPO) and *Inventions* measures the number of inventions by firms. The first can be considered as a measure of radical innovation, and the second can be used to measure incremental innovation, because it includes different types of innovations (process, product, and organizational). Data were from Eurostat for *Patents*, and Orbis for *Inventions*. Both variables were calculated as the sum of patents and innovation in the period 2007-2012.

### 4.1.2 *Main explanatory variables*

The main explanatory variables concerned historical creativity and knowledge base, two important characteristics of a cultural environment. Data for both variables were collected from the eleventh to the twentieth century at NUTS-3 level.

<sup>37</sup> We embraced the view of Schumpeter, whose first entrepreneurship theory coined the figure of “entrepreneur as innovator”. He argued that the implementation of new ideas requires entrepreneurs. Innovation and technological change therefore stem directly from the effort of entrepreneurs (Schumpeter 1912, 1947).

## *Creativity*

Creativity is a multidimensional concept that embraces different contexts. Artistic creativity, for example, is associated with imagination and the ability to generate new ideas and interpret things differently, in the form of text, sound, or image. Scientific creativity implies curiosity and propensity to experiment and make new connections among existing pieces of information. Economic creativity is a dynamic process that applies innovative solutions in technology and business domains to obtain a competitive advantage.

Previous studies have used data on creative industries<sup>38</sup>, creative people such as “bohemians and other artistically creative people” (authors, musicians, composers, actors, directors, painters, sculptors, or dancers)<sup>39</sup> or notable individuals in different creative endeavors (art, humanities, science and business)<sup>40</sup> to measure creative activity of regions and countries. However, we felt these proxies of creativity were not suitable to investigate the relationships with entrepreneurship and innovation. Data on creative industries are more useful to identify the impact of creativity on economic development, and data on bohemians and individuals in creative endeavors are mainly related to artistic creativity rather than scientific or economic creativity. We suggest that economic and scientific creativity matter more than artistic creativity in studying entrepreneurship. Following Del Monte and Pennacchio<sup>41</sup>, we therefore used the number of scientists and inventors in a region as a more suitable proxy for the type of creativity that matters in the economic and business domain, that is, economic and scientific creativity. As we explained, the presence of scientists and inventors in a region has a close link to the socio-economic conditions and the characteristics of the cultural environment.

Information on SIs came from two sources of data. First, in line with Del Monte and Pennacchio<sup>42</sup>, we used the book *Short History of Scientific Ideas to 1900* by Charles Singer<sup>43</sup>, which provides a list of scientists and inventors between the eleventh and twentieth centuries, with information on their place and date of birth. The variable *SI\_Singer* measured the number of scientists and inventors who were born in a given region in the period under scrutiny.

Second, as a new source of data, we used Wikidata, the free and open knowledge base associated with Wikipedia<sup>44</sup>. Wikidata has two major

<sup>38</sup> Lazzeretti *et al.* 2015.

<sup>39</sup> Lee *et al.* 2004.

<sup>40</sup> Serafinelli, Tabellini 2019.

<sup>41</sup> Del Monte, Pennacchio 2020.

<sup>42</sup> *Ibidem.*

<sup>43</sup> Singer 1959.

<sup>44</sup> Launched in 2012, Wikidata is designed to host structured, multilingual (so there is only one edition) and plural (can support many competing facts) data. It is a free and open knowledge base with 82,149,960 data items that people can edit. Wikidata acts as central storage for the structured data of its Wikimedia sister projects, which include Wikipedia, Wikivoyage, Wiktionary,

advantages over Singer: *i*) it contains data about more scientists and inventors; and *ii*) it provides information not only on the place and date of birth, but also on the field or specialism of scientists or inventors, distinguishing between “hard” (natural) and “soft” (social) sciences. This distinction is useful to compare scientific fields on the basis of their perceived methodological rigor, exactitude, and objectivity. Natural sciences (e.g. biology, chemistry, physics, mathematics, and astronomy) are considered hard, whereas social sciences (e.g. economics, political science, psychology, and sociology) are usually described as soft<sup>45</sup>. Singer’s book only gives information about scientists and inventors in hard sciences.

To extract information on scientists and inventors from Wikidata, we selected the labels “scientists and inventors” and “occupation of a person”. For each individual, therefore, we obtained information on the place and date of birth, place and date of death, and occupation. Using information on the place of birth, we calculated a variable measuring the total number of SIs (*SI\_Wikidata*) who were born in a given region between the eleventh and twentieth centuries. This variable was used in the first set of estimates as an alternative measure of creativity instead of *SI\_Singer*. We then considered data on occupation of SIs. We allocated them to provinces by their place of birth, and created two further variables distinguishing the number of SIs in hard sciences (*SI\_Wikidata\_HS*) and the number of SIs in soft sciences (*SI\_Wikidata\_SS*). These two variables were used as explanatory variables in the second step of the analysis to verify whether the impact of creativity on entrepreneurship and innovation depends on the field of the SIs.

### *Knowledge base*

To measure the stock of regional knowledge base, we used historical data on universities. The presence of a university in a given area is widely used in the literature on innovation as a proxy for the stock of knowledge available in an area. This is because universities foster the creation of local research networks<sup>46</sup>, the transfer of knowledge to industry<sup>47</sup> and increase the probability of knowledge spillovers<sup>48</sup>, stimulating local entrepreneurship and innovation. Historical information about universities was taken from Wikidata, which provides the city and the year of establishment for each university from the eleventh century. Using these data, we computed two variables at the NUTS-3

and Wikisource. This “data commons” provides structured data for Wikipedia articles and other applications. Every article on Wikipedia has a hyperlink to an editable item in this database.

<sup>45</sup> Fanelli 2010; Hedges 1987; Smith *et al.* 2000.

<sup>46</sup> Ardovino, Pennacchio 2012.

<sup>47</sup> Bellucci, Pennacchio 2016.

<sup>48</sup> Bellini *et al.* 2019.



level to measure: *i*) the number of public and private universities, and *ii*) the sum of years since the establishment of all the universities in the region. The results shown are those obtained with the latter variable (*University*), which can be considered a measure of the stock of knowledge available in each region. This variable accounts for both the presence of universities and also their reputation in terms of years of activity. The first variable gave similar results in terms of statistical significance, and these were therefore omitted for the sake of space.

#### 4.1.3 Controls

We included several control variables. *Population* controlled for the size of different regions, and was the number of individuals (million). The variable *Density* measured the number of people per square kilometer. This control is important because the literature has emphasized that agglomeration economies could generate more productive environments that foster the birth of new firms and, therefore, entrepreneurship and innovation<sup>49</sup>. Both variables were calculated in 2012 to be consistent with the reference period of the dependent variables. The source of data was Eurostat.

Finally, we used GDP per capita at constant price as a control for the economic development of the regions, calculated in 2012 (variable *GDP p.c.*). The source of data for the GDP per capita was the Organization for Economic Co-operation and Development (OECD).

Table 2 shows the main descriptive statistics and correlations of the variables used in the empirical analysis. The final sample included 737 small regions in Italy, France, UK and Germany. The proxies for entrepreneurship included 4,990 innovative small and medium-sized enterprises and 6,766 innovative large firms. We therefore included 4,990 firms in the variable *Innovative SMEs* and 11,756 firms in the variable *Innovative Firms*. For the proxies of innovation, the variable *Patents* included 247,265 patents registered with the EPO, and the variable *Inventions* considered 38,825 inventions made by firms in the time span.

The number of scientists and inventors varied with the source of data. Singer gave a total of 256 SIs (variable *SI\_Singer*), but Wikidata gave much higher numbers: 1,548 scientists and inventors in total (*SI\_Wikidata*): 1,320 in hard sciences (*SI\_Wikidata\_HS*) and 228 in soft sciences (*SI\_Wikidata\_SS*). The total number of universities is all regions was 538.

<sup>49</sup> e.g. Reynolds *et al.* 1994.

	Mean	Std. Dev.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Innovative_SMEs	6,77	14,8											
(2) Innovative_firms	15,95	27,4	0,75*										
(3) Patents	335,5	529,2	0,60*	0,57*									
(4) Inventions	52,68	417,9	0,09*	0,12*	0,14*								
(5) SL_Singer	0,34	1,13	0,23*	0,40*	0,36*	0,05							
(6) SL_Wikidata	2,10	5,29	0,40*	0,55*	0,51*	0,06	0,80*						
(7) SL_Wikidata_HS	1,79	4,44	0,38*	0,53*	0,50*	0,06	0,79*	0,99*					
(8) SL_Wikidata_SS	0,34	0,98	0,42*	0,56*	0,45*	0,07	0,71*	0,88*	0,83*				
(9) University	0,73	2,37	0,48*	0,65*	0,40*	0,08	0,61*	0,72*	0,72*	0,63*			
(10) Population	361,507	392,650	0,63*	0,64*	0,58*	0,05	0,30*	0,42*	0,41*	0,39*	0,57*		
(11) Density	815,7	1,757	0,11*	0,38*	0,39*	0,05	0,34*	0,38*	0,38*	0,30*	0,32*	0,20*	
(12) GDP p.c.	37,241	24,706	0,19*	0,47	0,41*	0,10*	0,42*	0,45*	0,44*	0,41*	0,41	0,03	0,46

Tab. 2. Descriptive statistics and correlations (Notes: N = 737. \* Statistically significant at the 5% level)

## 4.2 The model

The baseline estimated equation is:

$$Y_i = \beta_0 + \beta_1 SIs_i + \beta_2 University_i + \beta_3 Population_i + \beta_4 Density_i + \beta_5 GDP_{pc_i} + \alpha_i + \varepsilon_i$$

where  $Y$  is the dependent variable and  $SIs$  our different measures for scientists and inventors; indicates small regions (NUTS-3 geographical level) in Germany, United Kingdom, Italy and France;  $\alpha_i$  are regional fixed effects at NUTS-2 geographical level that capture any unobserved heterogeneity that may affect regional entrepreneurship and innovation;  $\varepsilon_i$  is the error term and  $\beta_1$  and  $\beta_2$  are the main coefficient of interest. The object of this empirical analysis was to estimate the impact of historical creativity and knowledge base on current levels of regional entrepreneurship and innovation. The dependent variables covered the current period (between 2007 and 2018), and the explanatory variables measured the stock of creativity and university using historical data from the eleventh century onward. This therefore provided a cross-sectional dataset including both current and historical data.

The model was estimated using ordinary least squares and all variables were log-transformed so that coefficients are elasticities. The variables on the presence of universities and inventors have the advantage of being fairly exogenous to the dependent variable, because of the ample time lag.

## 4.3 Empirical results

In first step of the analysis, we estimated the econometric model by considering  $SIs$  from Singer. The results are shown in Table 3. In columns 1 and 2, the dependent variables measure entrepreneurship, and in columns 3 and 4, they measure innovation. Looking at the specifications of the model with *Innovative SMEs* and *Innovative firms* as dependent variables,  $SI\_Singer$  and  $University$ , our main variables of interest, had positive coefficients and were statistically significant at the 1% level. This indicates that regions with a strong historical presence of both scientists and inventors and universities have higher rates of entrepreneurship today. The coefficients were 0.17 and 0.15 for  $SIs$  and 0.13 and 0.17 for universities, suggesting that the positive effects of creativity and knowledge base on entrepreneurship are quite similar.

There were similar results for the specifications with *Patents* and *Inventions* as dependent variables. Both  $SI\_Singer$  and  $University$  were statistically significant and had a positive coefficient. The significance was lower and the coefficients were smaller than for entrepreneurship, but the result was basically the same: historical knowledge base and creativity have positive and long-lasting effects on current levels of innovation.

In all model specifications, the control variables were statistically significant and had a positive coefficient, as expected. The R-squared was high in all specifications, suggesting that the model had good overall explanatory power. It was higher in the equation with *Patents* as dependent variable (0.88) and lower when the dependent variable was *Inventions*. This is probably because the variable *Inventions* was drawn from Orbis and was based on a sample of firms, while the other dependent variables considered innovation across the whole population of firms. The measurement of firms' innovation is also more difficult than the measurement of patents or innovative firms. These considerations may explain the weaker explanatory power of the equation for firms' innovation.

	Innovative SMEs	Innovative firms	Patents	Inventions
SI_Singer	0.173*** (0.062)	0.152*** (0.047)	0.129** (0.064)	0.124* (0.054)
University	0.131*** (0.047)	0.177*** (0.036)	0.093* (0.054)	0.351*** (0.076)
Population	0.785*** (0.050)	0.905*** (0.041)	1.292*** (0.047)	1.070*** (0.080)
Density	0.048* (0.025)	0.047** (0.022)	0.054** (0.027)	0.090* (0.048)
GDP p.c.	0.623*** (0.110)	0.632*** (0.097)	0.338*** (0.107)	1.120*** (0.212)
Regional fixed effects			YES	
Observations	737	737	683	737
R2	0.81	0.85	0.88	0.64

Tab. 3. The historical determinants of current entrepreneurship and innovation. Data from Singer (1959) (Notes: \*\*\*, \*\*, and \* show statistical significance at the 1, 5 and 10% levels. Robust standard errors in parenthesis)

The next step was to estimate the model using SI numbers from Wikidata. In this set of estimates (see Tab. 4), we used the variable *SI\_Wikidata*, which includes all scientists and inventors in a region, across both hard and soft sciences.

The variable *University* was still significant in all specifications and the coefficients were similar to Table 3. For the new proxy for creativity, however, there were some differences. The variable *SI\_Wikidata* was still significant at the 1% level for entrepreneurship, but not for innovation. In addition, the coefficients attached to *SI\_Wikidata* in the equations for entrepreneurship were also lower than those obtained with *SI\_Singer*. These differences between the two sources of data for SIs may be because Singer only included information on scientists and inventors in hard science areas, but the variable *SI\_Wikidata* includes those working in soft sciences.

	Innovative SMEs	Innovative firms	Patents	Inventions
SI_Singer	0.016*** (0.003)	0.010*** (0.002)	0.003 (0.004)	0.006 (0.006)
University	0.091** (0.046)	0.163*** (0.037)	0.124** (0.055)	0.346*** (0.082)
Population	0.794*** (0.047)	0.913*** (0.040)	1.307*** (0.046)	1.077*** (0.080)
Density	0.049** (0.024)	0.049** (0.022)	0.058** (0.028)	0.091* (0.048)
GDP p.c.	0.602*** (0.107)	0.620*** (0.097)	0.330*** (0.108)	1.115*** (0.221)
Regional fixed effects	YES			
Observations	737	737	683	737
R2	0.81	0.84	0.87	0.63

Tab. 4. The historical determinants of current entrepreneurship and innovation. Data from Wikidata (Notes: \*\*\*, \*\*, and \* show statistical significance at the 1, 5 and 10% levels. Robust standard errors in parenthesis)

In the next step of the analysis, we therefore distinguished between SIs in hard (*SI\_Wikidata\_HS*) and soft sciences (*SI\_Wikidata\_SS*). Table 5 provides the estimates for hard sciences, and Table 6 shows those for soft sciences.

Looking at the variable *SI\_Wikidata\_HS*, there was a positive and statistically significant effect for both entrepreneurship and innovation. These results are consistent with those in Table 3, where we used data from Singer. This therefore means that when we included only scientists and inventors in hard science fields, there was a positive impact on both entrepreneurship and innovation, irrespective of the source of data.

	Innovative SMEs	Innovative firms	Patents	Inventions
SI_Singer	0.021*** (0.004)	0.013*** (0.003)	0.010** (0.005)	0.007* (0.004)
University	0.084* (0.046)	0.156*** (0.037)	0.117** (0.055)	0.349*** (0.081)
Population	0.793*** (0.048)	0.913*** (0.040)	1.306*** (0.046)	1.077*** (0.080)
Density	0.048** (0.024)	0.048** (0.022)	0.057** (0.028)	0.091* (0.048)
GDP p.c.	0.615*** (0.105)	0.635*** (0.096)	0.365*** (0.107)	1.116*** (0.220)
Regional fixed effects	YES			
Observations	737	737	683	737
R2	0.81	0.84	0.88	0.64

Tab. 5. The historical determinants of current entrepreneurship and innovation considering SIs in hard science fields (Notes: \*\*\*, \*\*, and \* show statistical significance at the 1, 5 and 10% levels. Robust standard errors in parenthesis)

It is interesting to observe that the results were slightly different when we included only SIs in soft sciences (Tab. 6). The coefficient of *SI\_Wikidata\_SS* was positive and significant for both *Innovative SMEs* and *Innovative firms* as dependent variables, but was not significant for *Patents* or *Inventions*. This suggests that those working in soft sciences had a positive effect on entrepreneurship but not innovation. This could be because we measured innovation using patents and innovations. Both items are more likely to capture radical innovation, which requires specific and technical skills that are mainly acquired in the hard sciences.

In addition, the coefficients of *SI\_Wikidata\_SS* in Table 6 were higher than those of *SI\_Wikidata\_HS* in Table 5. This suggests that scientists and inventors in soft sciences have a stronger effect on entrepreneurship than those in hard sciences. However, the effect of creativity on entrepreneurship was less dependent on the fields of SIs.

	Innovative SMEs	Innovative firms	Patents	Inventions
SI_Singer	0.086*** (0.022)	0.060*** (0.016)	0.33 (0.029)	0.035 (0.036)
University	0.103** (0.045)	0.164*** (0.036)	0.130** (0.053)	0.352*** (0.078)
Population	0.797*** (0.048)	0.916*** (0.040)	1.309*** (0.046)	1.079*** (0.080)
Density	0.054** (0.024)	0.052** (0.022)	0.056** (0.027)	0.093* (0.048)
GDP p.c.	0.605*** (0.104)	0.628*** (0.096)	0.365*** (0.107)	1.112*** (0.221)
Regional fixed effects	YES			
Observations	737	737	683	737
R2	0.81	0.84	0.86	0.60

Tab. 6. The historical determinants of current entrepreneurship and innovation considering SIs in soft sciences (Notes: \*\*\*, \*\*, and \* show statistical significance at the 1, 5 and 10% levels. Robust standard errors in parenthesis)

Until now, the dependent variables have been expressed in logarithmic form. For robustness purposes, we also estimated the main regressions in Tables 3 and 4 using alternative measures of the dependent variables. Tables A1 and A2 in the Appendix show the results obtained by estimating a negative binomial model in which the dependent variables give the number of SMEs and large innovative firms. In Tables A3 and A4, we applied ordinary least squares regression to the dependent variables scaled per thousand inhabitants. The estimates are consistent with those provided in the main analysis.

Overall, our findings show that historical creativity and knowledge base, and therefore the cultural environment in the past, have an important role in fostering entrepreneurship and innovation today. This evidence supports our Hypothesis 2. Using data from Wikidata, however, we found that the effect on

creativity depends in part on the field of the scientists and inventors included in the analysis.

## 5. Conclusions

In this study, we analyzed the impact of historical factors on the cultural environment and attitude towards science, as well as the role of the cultural environment in shaping regional entrepreneurship and innovation in the long-term. Analyzing the scientific revolution that took place in Europe at the end of the Renaissance period, we showed that historical factors such as social and religious tolerance, the power of the church and the attitude of elite groups towards scientific discovery spawned different cultural environments across European regions. Where the cultural environment was characterized by tolerance and a positive attitude towards culture and scientific knowledge, important values such as creativity and knowledge emerged. These factors, in the long-term, stimulated regional entrepreneurship and innovation. However, the scientific field of scientists and investors matters when assessing the effect of creativity: soft sciences have a stronger impact on entrepreneurship than hard sciences, but the reverse is true for innovation.

Overall, our results suggest that history matters in shaping long-term economic patterns. This is consistent with the recent strand of literature that recognizes a culture of entrepreneurship as an informal institution<sup>50</sup>. This culture is persistent over time despite relevant changes in regional socio-economic conditions. It is highly heterogeneous across different regional contexts and helps to explain why regions have different rates of growth.

An important implication of this analysis is that public policies that are designed to foster entrepreneurship and innovation may be effective in the short-term. In the long-term, however, it is necessary to build a culture of entrepreneurship and innovation through the creation of an environment characterized by tolerance and a positive attitude towards scientific knowledge and culture in general.

In this paper, in line with previous studies, we considered regional creativity and knowledge base as two important but independent aspects of the cultural environment. Future research could investigate their relationship to understand if they are really independent, or if there are some causal links between them. Future studies could also try to provide empirical support for our first hypothesis. We used the scientific revolution to provide a descriptive analysis of the impact of historical factors on the features that characterize the cultural environment of different European regions. This idea should be extended to other historical

<sup>50</sup> Fritsch, Wyrwich 2019.



contexts and supported by an econometric analysis. Previous studies have suggested the presence of spatial dependence in the regional distribution of SIs<sup>51</sup>. An in-depth investigation of spatial spillovers of regional creativity would therefore be an interesting avenue for further research. Similarly, the migration flows of SIs could also be analyzed. The geographical distribution of SIs considered in this analysis was based only on the place of birth. However, some studies on artists have emphasized that it is important to consider where they moved to study or work<sup>52</sup>.

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<sup>51</sup> e.g. Del Monte, Pennacchio 2020.

<sup>52</sup> O'Hagan, Hellmanzik 2008; O'Hagan, Borowiecki 2010.

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## Appendix

	Innovative SMEs	Innovative firms	Patents	Inventions
SL_Singer	0.213*** (0.062)	0.137*** (0.042)	0.134** (0.061)	0.188* (0.112)
University	0.118*** (0.047)	0.157*** (0.032)	0.095* (0.052)	0.312*** (0.081)
Population	1.070*** (0.044)	1.046*** (0.032)	1.286*** (0.045)	1.176*** (0.092)
Density	0.043 (0.029)	0.050** (0.019)	0.066*** (0.026)	0.144*** (0.051)
GDP p.c.	0.728*** (0.113)	0.764*** (0.086)	0.314*** (0.097)	1.548*** (0.215)
Regional fixed effects			YES	
Observations	737	737	683	737
Pseudo R <sup>2</sup>	0.31	0.38	0.39	0.15

Tab. A1. Negative binomial regressions on the historical determinants of current entrepreneurship and innovation. Data from Singer (1959). (Notes: \*\*\*, \*\*, and \* show statistical significance at the 1, 5 and 10% levels. Robust standard errors in parenthesis)

	Innovative SMEs	Innovative firms	Patents	Inventions
SL_Wikidata	0.016*** (0.002)	0.011*** (0.002)	0.003 (0.003)	0.001 (0.008)
University	0.058 (0.046)	0.122*** (0.031)	0.128** (0.051)	0.343*** (0.083)
Population	1.089*** (0.043)	1.058*** (0.031)	1.301*** (0.045)	1.190*** (0.091)
Density	0.042 (0.029)	0.050*** (0.019)	0.072*** (0.026)	0.146*** (0.051)
GDP p.c.	0.743*** (0.110)	0.760*** (0.085)	0.345*** (0.099)	1.562*** (0.217)
Regional fixed effects		YES		
Observations	737	737	683	737
Pseudo R <sup>2</sup>	0.31	0.36	0.38	0.15

Tab. A2. Negative binomial regressions on the historical determinants of current entrepreneurship and innovation. Data from Wikidata (Notes: \*\*\*, \*\*, and \* show statistical significance at the 1, 5 and 10% levels. Robust standard errors in parenthesis)

	Innovative SMEs	Innovative firms	Patents	Inventions
SI_Singer	0.592*** (0.218)	2.154* (1.220)	16.82* (10.01)	10.36* (0.611)
University	0.247** (0.115)	0.177* (0.968)	0.488* (0.052)	0.660** (0.312)
Population	0.006 (0.177)	0.798 (0.647)	2.106*** (0.730)	1.737 (1.533)
Density	0.223** (0.097)	0.027 (0.261)	1.214*** (0.437)	1.165 (1.145)
GDP p.c.	1.827*** (0.486)	6.434*** (1.996)	6.003** (2.291)	4.984* (3.063)
Regional fixed effects			YES	
Observations	737	737	683	737
R <sup>2</sup>	0.58	0.65	0.65	0.29

Tab. A3. Historical determinants of current entrepreneurship and innovation. Data from Singer (1959) (Notes: The dependent variables are scaled by population (100,000 inhabitants). \*\*\*, \*\*, and \* show statistical significance at the 1, 5 and 10% levels. Robust standard errors in parenthesis)

	Innovative SMEs	Innovative firms	Patents	Inventions
SI_Wikidata	0.051** (0.025)	0.378* (0.216)	0.650* (0.350)	0.413* (0.224)
University	0.140 (0.139)	0.476* (0.257)	0.430 (0.743)	0.230 (1.283)
Population	0.038 (0.169)	0.729 (0.492)	2.220*** (0.707)	2.606* (1.526)
Density	0.228** (0.096)	0.052 (0.206)	1.232*** (0.446)	1.234 (1.156)
GDP p.c.	1.836*** (0.474)	5.85*** (1.764)	6.205*** (0.302)	4.465 (3.015)
Regional fixed effects		YES		
Observations	737	737	683	737
R <sup>2</sup>	0.57	0.69	0.65	0.29

Tab. A4. The historical determinants of current entrepreneurship and innovation. Data from Wikidata (Notes: The dependent variables are scaled by population (100,000 inhabitants). \*\*\*, \*\*, and \* show statistical significance at the 1, 5 and 10% levels. Robust standard errors in parenthesis)

# La città d'arte, bene economico e sociale. Introduzione

Giacomo Becattini\*

Questa nostra sessione non è esattamente 'economica', ma è una sessione in cui alcuni studiosi dell'economia e di discipline *viciniori* si avvicinano a questo oggetto misterioso, la città d'arte – oggetto misterioso concettualmente e, aggiungo, oggetto particolarmente scomodo per gli economisti.

\* Becattini G. (1988), *La città d'arte, bene economico e sociale. Introduzione*, in *Città d'arte*, Atti dell'incontro di studio "La città d'arte: significato, ruolo e prospettive in Europa" (Firenze, 10-11/XI/1986), Firenze: Giunti, pp. 87-90. Per facilitare la lettura del testo si riporta di seguito l'indice del volume: Saluto del Rettore dell'Università degli Studi di Firenze, p. 7; Presentazione (Franco Cardini), p. 9; La Città d'Arte: attualità di un tema (Mario G. Cusmano), p. 11; *Sezione I: La città d'arte, immagine e condizione*: Introduzione (Vittorio Franchetti Pardo), p. 17; Venezia, conservazione e proiezioni future (Alvise Zorzi), p. 23; La ville comme musée total: Tolède du Moyen Age à la Renaissance (Miguel Angel Ladero Quesada), p. 33; Arte nella città e arte senza città (Rosario Assunto), p. 47; *Sezione II: La città d'arte, officina culturale*: Introduzione (Franco Cardini), p. 57; Città e Accademie (Giovanni Nencioni), p. 61; Gli Istituti di Cultura nella Città (Gerhard Ewald), p. 69; Città e Università (Girolamo Arnaldi), p. 75; *Sezione III: La città d'arte, bene economico e sociale*: Introduzione (Giacomo Becattini), p. 87; Attività economiche e produzione artistica negli ambienti urbani tra medioevo ed età contemporanea (Alberto Tenenti), p. 91; Le rôle de la Ville d'art dans l'avenement d'une économie de la contemplation (Claude Raffestin), p. 97; The cultural city, technological innovation and the economy (Uwe Schubert), p. 107.



L'analisi economica, infatti, è un metodo di 'decomposizione' dei fatti sociali che non si adatta ugualmente bene a tutti i materiali. Mentre si adatta bene, ad esempio, ai fatti della produzione di massa, ai fenomeni della distribuzione, l'analisi economica, quale si è venuta fin qui sviluppando, trova difficoltà quando incontra argomenti che appartengano, poniamo, all'area del consumo in senso lato. Gli economisti classici tenevano esplicitamente il consumo fuori dall'economia politica: l'economia politica – dicevano – è la scienza delle leggi della produzione e della distribuzione delle ricchezze, il consumo appartiene ad un'altra sfera. Gli economisti più recenti, apparentemente, hanno ribaltato il discorso, ma sostanzialmente non l'hanno fatto, perché anche se il discorso degli economisti neoclassici comincia dalla 'domanda' e quindi dal consumo, in realtà parte presupponendo tutte le cose importanti e demandandole ad altre categorie di studiosi. Quindi il consumo è un'area già di per sé abbastanza periferica, se non addirittura estranea al grosso della riflessione economica.

Il consumo di oggetti artistici è un'area ancora più periferica, perché all'interno del consumo l'economia si muove ancora abbastanza bene quando le componenti non simboliche, non puramente culturali, non sono tanto importanti mentre trova appunto difficoltà quando si tratta di consumi, poniamo, di prestigio o di qualità. La qualità è un grosso ostacolo nell'applicazione della strumentazione dell'analisi economica. Sotto questo profilo, quindi, l'economista è in difficoltà. È anche in difficoltà sotto l'altro profilo: la città d'arte, oltre che un oggetto d'arte, è una città. C'è un ramo dell'economia, che si occupa delle città, l'economia urbana, che ha avuto un certo sviluppo e che ha dato contributi anche importanti, ma direi, fondamentalmente, nel trattare aspetti particolari del problema complessivo. La città, infatti, come organismo urbano, presenta anch'essa delle resistenze sistematiche all'aggressione analitica dell'economista. Tali resistenze sono dovute in parte al fatto che la complessità urbana ha radici almeno parzialmente extraeconomiche, in parte al fatto che gli interventi sulla città di cui l'economista dovrebbe valutare la convenienza privata e sociale si presentano spesso con caratteri di indivisibilità, che mettono fuori gioco alcuni degli strumenti più consolidati dell'analisi economica (per esempio tutto lo studio degli aggiustamenti e delle variazioni al margine). In terzo luogo, perché lo strumento che l'economia adopera più di frequente nel campo degli studi urbani, le esternalità, è uno strumento in rapida evoluzione e trasformazione, non ancora concettualmente del tutto sistemato.

Quindi, l'economia politica si trova in difficoltà, l'economia urbana procede su punti particolari (quelli, per esempio, legati all'economia dei trasporti, all'economia della localizzazione), e così per quanto riguarda la sua capacità di cogliere tutto insieme il fenomeno della città, l'economia politica non si trova particolarmente a suo agio.

Queste difficoltà dell'economia non sono sempre avvertite dagli altri studiosi: c'è in realtà un'aspettativa nei confronti dell'economista che non sempre, per le ragioni che ho detto, è giustificata. Ci si aspetta, cioè, che l'economia come

scienza sociale più strutturata di altre, sia capace di portare luce dove, nei discorsi del sociologo, dell'urbanista, del geografo, si vede solo il molteplice e non l'uno – ci si aspetta insomma che l'economista possa ricondurre ad una visione trasparente, unitaria, una fenomenologia frammentata. Per esempio, un'espressione di questa egemonia non del tutto giustificata dell'economia politica sul pensiero sociale, la si vede nella terminologia: tutti siamo afflitti (e non del tutto colpevoli) dall'uso di termini come 'produzione di cultura', o come 'officina di cultura'. È chiaro che queste sono metafore, ma non mi soffermerò a lungo a spiegare come siano fortemente ingannatorie e ci portino ad associazioni che poi ci precludono la comprensione corretta dei fenomeni artistici e culturali. Il concetto di produzione elaborato dagli economisti, infatti, è fecondo, in quanto si applichi a processi in cui l'elemento materiale è quello fondamentale e l'elemento di novità, di innovazione, di creatività è un elemento solo accessorio. Infatti, quando compare, esso mette l'economista in difficoltà.

Il primo punto che vorrei trattare in questa introduzione, rivolgendomi non agli economisti, ma a chiunque abbia una certa cultura economica, sta nella seguente considerazione. In una società avanzata, dove la produttività del lavoro ci abbia allontanato notevolmente dai livelli di sopravvivenza e dove la distribuzione non sia particolarmente perversa – cioè tale da lasciare alcuni al di sotto o intorno ai livelli di sopravvivenza mentre altri godono di altissimi redditi – quando, dunque, si verificano queste condizioni, produttività del lavoro alta, distribuzione non perversa, in una tale realtà le contraddizioni più sottili, più importanti, più meritevoli di ricerca, sono nell'area del consumo. Le contraddizioni dell'aspetto produttivo che riverberano il confronto tra l'uomo e la natura, le contraddizioni dell'aspetto distributivo che riverberano l'appropriazione dei prodotti della precedente fase, sono a questo punto meno importanti delle contraddizioni che l'uomo viene ad instaurare con se stesso nell'uso delle cose prodotte, e nell'uso – come subito vedremo – del tempo di cui dispone. Sono le contraddizioni del consumo – e i consumi artistici sono proprio il cuore del cuore di queste contraddizioni – come cercherò di mostrare brevemente con alcune osservazioni rapsodiche e non con una trattazione sistematica che maggiormente debbono richiamare la nostra attenzione.

C'è una tesi facile, di buon senso – e credo che ognuno di noi ne sia vittima, in qualche momento – ed è questa. Siccome il livello culturale, attraverso mille canali, continuamente cresce e siccome continuamente aumenta il tempo liberato dal lavoro e dall'impegno di ricostituzione fisica delle nostre energie, c'è ragione di sperare che la domanda di servizi artistici debba crescere. Quindi noi immaginiamo il futuro sotto forma di un fiume di turisti che vengono a godere e vedere le bellezze delle città d'arte; sotto la visione di musei pieni, affollatissimi; immaginiamo, insomma, un mondo di questo genere. Credo, invece, che tale rappresentazione sia molto da discutere e addirittura, forse, mistificante.

Vorrei fare a questo punto un passo indietro, per riconsiderare la discussione che c'è stata ieri e che forse ci può aiutare nel nostro discorso. Cominciando con

la relazione di Cusmano, poi con quella di Franchetti Pardo e ancora con quelle di altri in modo indiretto, si è cercato di delineare l'oggetto, la città d'arte. Sono emerse due specifiche opposizioni logiche. Anzitutto si è contrapposta la cosa alla sua immagine: Firenze e l'immagine di Firenze. A sua volta l'immagine è stata sdoppiata in immagine di Firenze dei Fiorentini e immagine di Firenze da parte dei non Fiorentini. Ognuna di queste tre parti risponde ad una logica di movimento abbastanza differenziata, per cui è venuto fuori, se ci riflettiamo, un quadro abbastanza paradossale, persino un po' allucinante. Vediamo ballare queste immagini di Firenze e la realtà di Firenze, senza che s'incontrino praticamente mai ed io addirittura, a titolo di esercizio, mi sono provato a fissare in due definizioni, che sono l'una la 'controimmagine' dell'altra, il succo della discussione di ieri.

Secondo una prima definizione che segue una via canonica, dal materiale all'intellettuale, la città d'arte potrebbe essere definita un sistema territoriale compatto di oggetti d'arte, collocato o immerso in un organismo urbano, interiorizzato dai cittadini, ma anche affidato al processo generale dell'evoluzione culturale. Oppure, controimmagine di questo, una forma ideale, un'idealizzazione, un mito (si è parlato di mitopoiesi), di un'esperienza storica percepita unitariamente – una stagione della cultura, una città – che trova rispondenza apparente in un complesso di oggetti d'arte collocato in una città. Come dire che noi possiamo partire [d]al mondo delle idee e trovare il correlato empirico più o meno rispondente, oppure partire dal mondo della realtà e vedere in che modo da esso si sollevino, come effluvi, idee prodotte da questo. Questa è l'immagine delle città d'arte che è venuta fuori ieri.

Ora, la prima domanda che mi vorrei fare per inquadrare la città d'arte nell'economia del consumo, è quale tipo di servizio la città d'arte può offrire, proprio come città d'arte, non semplicemente come città. Sono giunto alla conclusione, naturalmente molto interlocutoria ed aperta, che essa può fornire tre tipi di servizi. Il primo è abbastanza ovvio: la città d'arte offre una visione concentrata di opere d'arte. Ma può essere anche un'altra cosa – e vi invito a riflettere su questo, perché può essere una delle esperienze che i fiorentini credo debbano avere presente. La città d'arte può essere anche un luogo di raccoglimento, di ripensamento, di chiarificazione di sé: uno dei luoghi in cui, per la nostra cultura, appare più naturale andare a ricercare se stessi è la città d'arte. È questo un luogo che non è così congestionato come la città dell'industria ed allora diventa luogo di un'esperienza fondamentale della vita. Questa è una funzione molto importante che non può essere svolta dalla grande città moderna.

Una terza funzione è quella di crocicchio, o crogiuolo della cultura. In una città d'arte, per una serie di ragioni abbastanza intuitive, c'è una concentrazione di intellettuali allogeni, oltre che indigeni, particolarmente alta. Non solo c'è un transito, ma c'è anche una sosta, e anche in questo la città in cui viviamo è un esempio patente.

Il professor Schubert utilizzerà, credo, questo punto per mostrare come ciò sia importante anche dal punto di vista strettamente economico, con ciò “sciupandomi” un po’ il ragionamento, poiché io fin qui mi sono posto nella prospettiva della città d’arte come strumento per il miglioramento delle condizioni della vita umana e, se questo miglioramento viene riportato dentro il cerchio dello sviluppo economico, in parte perde della sua ‘purezza’.

Veniamo, brevemente, all’argomento dei consumi dei beni artistici e facciamo un’ipotesi che non giustificherò, perché sarebbe troppo lungo farlo qui: prendiamo un incremento costante, continuo della produttività del lavoro umano come un dato del nostro discorso.

Questa crescita si traduce o in un aumento dei beni prodotti per unità di tempo oppure in una liberazione di tempo dal lavoro socializzato, o dalla riproduzione delle energie fisiche. Si dice comunemente, ma sarebbe da discutere, che aumenta il tempo libero – e questa è la premessa di quella tesi facile che ho detto prima. Intanto, se andiamo a guardare le statistiche attentamente senza farci ingannare dalle apparenze, noteremo che questo aumento è molto lento. Ci sono delle ragioni immediatamente evidenti, che si capiscono subito: una buona parte dell’incremento della produttività si traduce, per esempio, in beni che vengono stoccati, pronti per la distruzione dell’umanità (tutta la produzione di armi assorbe una parte dell’incremento della produttività senza produrre niente, e speriamo che non produca niente). In realtà, il meccanismo di trasformazione dell’incremento della produttività del lavoro umano in liberazione di tempo è un meccanismo terribilmente indiretto, che passa attraverso tutta una serie di canali (produttivo, distributivo, di proprietà, etc.) i quali rendono lenta questa trasformazione. Quel che è peggio, essa si presenta molto contraddittoria, e non alludo alle contraddizioni denunciate tradizionalmente dall’economia politica, alludo al fatto che noi abbiamo 24 ore di tempo e se noi aumentiamo la produttività e con l’aumento della produttività aumentiamo le nostre possibilità di guadagnare in un’ora, che cosa succede nell’area del nostro consumo? Il consumo è un processo in cui noi mettiamo dentro tempo, il nostro tempo, e dei beni e ne traiamo soddisfazioni. Quindi può esistere un consumo in cui ci sono molti beni consumati in poco tempo, o ci può essere molto tempo e pochi beni. In una società ricca nasce una contraddizione specifica, che il dedicare il tempo al consumo, intanto, è sempre più costoso: ogni lira, ogni ora che dedichi al consumo la sottrai al guadagno, ti costa relativamente di più.

Sulla base degli studi recentemente fatti si dà una spiegazione del fatto che questo tipo di contraddizione dia origine ad un consumo sempre più frettoloso, sciatto, angosciato, frammentario. Siamo pervenuti al dominio di alcune forze della natura che ci apparivano minacciose e siamo comandati dal nostro orologio e dalla nostra agenda, che sono divenuti i nostri padroni.

Siamo spinti, dunque, verso un consumo sempre più intensivo di beni. Se questo è vero, che cosa ne discende sulle prospettive di una domanda sulla città d’arte? La città d’arte, anzitutto, ci offre una fruizione immediata, diretta e

concentrata delle opere d'arte. Sotto un certo profilo la società cui ci riferiamo – che produce infiniti sostituti – non spinge alla domanda del bene originale: è molto più facile guardarsi una città d'arte seduti in poltrona davanti al televisore, comprarsi un bellissimo libro illustrato che non muoversi per andarla a vedere. Naturalmente il sistema dei sostituti è una piramide rovesciata che non si reggerebbe se alla base non ci fosse l'oggetto reale. In un certo senso, c'è una doppia spinta, a non andare nella città d'arte e a guardarsela nel libro, e ad andare invece ad inverare quel mito che il libro ha creato.

La città d'arte come luogo di riflessione su di sé, inoltre. Bene, questo deve essere ricollegato a quell'aspetto di frenetizzazione, di disorientamento, si sarebbe tentati di dire di alienazione – che è caratteristico della società in cui viviamo e che si lega a quel discorso sul tempo che abbiamo fatto – che creano la condizione di base per la ricerca di luoghi di riorientamento. La città d'arte può proporsi questo obiettivo, che è molto selettivo. Se ci si pensa è un obiettivo che si lega, per canali molto strani, al *Grand Tour* del Settecento, itinerario spirituale, ricerca di se stessi nei luoghi che maggiormente simboleggiano la civiltà.

Infine, la città d'arte come crocicchio di cultura che può favorire lo sviluppo economico – e qui si chiude il cerchio. Se la città d'arte è capace di produrre una stagione come la Vienna dei primi decenni di questo secolo, allora ha dato il suo grande contributo all'avanzamento della civiltà umana. Però, c'è a questo punto l'economista che vorrebbe approfittare di questa creatività squisitamente intellettuale per trasformarla in aumento della ricchezza, con ciò riproponendo a livello superiore tutti i problemi che ho appena enunciato.

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