

# Digital Technologies for the Promotion of Cultural History

## Best Practices in Matera, the European Capital of Culture in 2019

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**Abstract** The relationship between cultural landscape, history and technology is crucial to understand the new tendency of man to carry out actions based on sustainability and on the intertwining of tradition and innovation. Matera, thanks to the current use of technologies for cultural heritage and Smart Agriculture 5G, of which it is one of the experimental cities, is an interesting case study. European Capital of Culture 2019 and a UNESCO World Heritage Site, the City of Stones is characterised by a thousand-year history of archaeological evidence, but also by a material and intangible cultural heritage linked to rural culture and its agricultural landscape, now widely accessible to visitors through digital platforms.

**Keywords** Cultural landscape. Sustainability. Virtual heritage. History. Digital technologies.

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## 1 Introduction

At present, since globalisation has dissolved both identity and market barriers in favour of the relocation of people and productions, technology and social sciences are called into question regarding the progressive disruption of the relationship between man, landscape and culture and the consequent lack of interest towards community welfare.<sup>1</sup> Communities' well-being depends on the care of landscapes, that requires both the government and local administrations to develop strategies based on sustainability which now emerge as a crucial issue for the survival of the planet (Lai 2020; Salvarani 2013). The interaction between innovation in technology and cultural heritage, through action based on the recovery of traditional knowledge and practices and their implementation with digital applications, has shown to be a suitable key for sustainability.

As stated in The European Landscape Convention,

Landscape is a portion of land, as perceived by populations, whose character derives from the action of natural and/or human factors and their interrelation. (ELC 2000, 2)

This definition is based on the assumption that some key cultural features deriving from the inextricable historical intertwining between environment and man are expressed through the form and potential of a landscape. This is confirmed by the definition of Cultural Landscape as expressed in the UNESCO Operational Guidelines for the Implementation of the World Heritage Convention.

Cultural landscapes are cultural properties and represent the "combined works of nature and man" as outlined in Article 1 of the Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of the following social, economic and cultural forces, both external and internal. (UNESCO 2008, 87)

## 2 A Double Look on the Landscape

In order to provide appropriate analysis and interventions on a landscape, it is necessary to focus on the dual nature of the landscape. In this regard, it may be worth recalling what Marc Augé pointed out

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when, introducing the concept of anthropological places, he referred to a “concrete and symbolic construction of space” (Augé 2009, 42). For this reason, a landscape is perceived both as external, objective and tangible as it appears to the senses of the observer, and internal, mediated by the cultural look that belongs to the inhabitant that kept it and lived in it.

It is a “principle of meaning for those who inhabit it and a principle of intelligibility for those who observe it” (Augé 2009, 42) because the organisation of space and the constitution of places represent one of the patterns of collective and individual practices; both the collective and individuals symbolise the constituent elements of the shared, particular and individual identity. The way of dealing with space is one of the means of this process of concrete and symbolic construction of space that the French scholar indicates with the expression ‘anthropological place’.

The landscape, therefore, is shaped, imagined and described by a social group, and the meaning of places is revealed in the practices which connect them to the collective memory of the community. It is a space in construction, where internal and external complex relations are in continuous re-definition. The identity, both of the landscape and of the community that inhabits it, is therefore not given but historically determined, from time to time, on the basis of the relations between space and the members of its community, but also between space and those who visit it, hang out with it, both really and virtually (De Martino 1959).

The identity of a cultural landscape is therefore constantly evolving, as an open site under relentless construction. In addition, by borrowing the concept of social morphology from French anthropology, a further useful key for the study of the material and immaterial landscape comes to light as it emphasises the complexity of the link between landscapes and population, between space and community, where space is no longer just a centre of resources and social dynamics cannot be separated from symbolic practices, technical representation, and technological space (D’Alessandro et al. 2020).

Anthropological places are of variable scale and are closely related to relational identity and historical perception. A place is, above all, a cultural creation, which is continuous and necessary. The perception of one’s own territory is culturally determined. A space, when anthropised and anthropological, can never be neutral. All the systems of symbolic classification that society adopts are projected on it and we can read the same social system through it while the system is constantly being implemented and re-founded. Several elements of the landscape are subject to symbolic manipulation. For instance, the agglomeration of houses, their internal spaces, the districts beyond a town, work spaces and sacred places. All these elements are recollected in a complex system of symbolic references that organises the entire space.

The organisation of the living space, in many ethnographic contexts, is concretely and metaphorically a reinterpretation of a mythical-ancestral world. As argued by the International Union for Conservation of Nature (IUCN), more attention to the dynamic of conservation of landscapes as 'cultural heritage' should be placed not only to culture itself or nature itself and the relationship that has been established between these two dynamic components, but also to identity values, knowledge and decoding of intangible heritage, according to a more holistic approach. These two elements play an active role because they represent a shared social behaviour and the mechanisms of transmission of knowledge and trans-generation awareness, which are also related to the complex and fascinating world of uses, traditions and rituals, that are key tools to manage a landscape and its culture.

## 2.1 The Landscape of Matera

Thanks to the current use of technologies, the cultural heritage of Matera is now promoted and shared. This makes it one of the most visited destinations with an exponential growth of tourists but significantly impacts on the restructuring of the symbolic space of its landscape and cultural heritage by its inhabitants. Symbolic representation is a central tool of conscious management of the landscape in Matera where the vocation of its land, mainly agricultural, has generated a traditional rural society in which the concept of neighbourhood, besides a spatial connotation, also had the symbolic connotation of sharing knowledge and practices due to the specific conditions of its land.

The area surrounding Matera has always been affected by severe shortage of water that has determined the need to build a series of ingenious infrastructure such as wells, tanks and divers aimed at achieving efficient management. At the end of the eighteenth century, the city was a perfect model of symbiosis between its anthropic component and a natural ecosystem called 'Sassi', an autonomous organism constituting micro-super-family aggregations consisting of a group of dwellings joined together by the same space, usually equipped with a well and a common oven that reflected and substantiated the concept of neighbourhood in its dual anthropogenic and cultural component. This is tragic but almost mythical and exotic in the eye of the observer.

The subsequent demographic increase determined the beginning of a nefarious process of degradation which led, on the one hand, to the crumbling into multiple units of the delicate biosystem of the surrounding areas and, on the other hand, to the change of the intended use of many environments previously used as cisterns and warehouses in order to obtain new habitable rooms, thus leading not only

to an architectural evolution of the landscape but also to a cultural evolution that has remote transformation roots (D'Antonio et al. 2019; D'Antonio, Romano 2019).

In his book, the English writer Henry Vollam Morton narrates his visit to Matera in the 1960s, when the city appeared to his eyes as Pompeii, suspended between past and future, once inhabited and then abandoned (Morton 1969). The Sassi were abandoned and the population moved for the most part to new neighbourhoods especially in the rural village of La Martella. There, architects' design was also directed to recreate from an architectural point of view the conditions which reproduced the neighbourhood, the spaces of aggregation, its distinctive rural culture and the identity of the inhabitants of Matera. The project aimed at preserving the cultural landscape identity of the inhabitants of the Sassi which resulted in the construction of buildings that responded to the needs of a rural farming world. These needs were poorly met in the Sassi, and were, for example, the provision of areas where animals could live, which are always near living areas but separated from them.

## 2.2 Matera from Magna Graecia to the European Capital of Culture 2019

The European Capital of Culture 2019 is characterised not only by a thousand-year history of archaeological remains, paintings, frescoes, but also by a material and intangible cultural heritage linked to rural culture and its landscape. Although Matera is located in an inland area, thanks to contacts with the coastal populations of Magna Graecia, primarily Metaponto, it is located in the anthropological landscape of the Mediterranean Sea with its typical productions related to traditional agricultural knowledge, especially wine, oil and wheat.

The spread of viticulture, for example, is one of the most important events in the history of civilisation. It follows the circulation of men and goods and accompanies the settlers in the settlement of new lands. Wine is a typical element of the ancient world and in traditional societies it affects every social dimension. Wine is a 'social fact'. The Aglianico del Vulture is believed to have been introduced by the Greeks in southern Italy between the seventh and the sixth centuries BC. As early as the fifth century BC, Sophocles defined Italy as "Dionysus' favourite country". This shows the link between the Greek cult of the god Dionysus and viticulture in Basilicata. As illustrated by archaeological evidence, many red figure craters were found in the area of Materano which document the use of wine that was accurately mixed with water in the aforementioned craters near the Greeks during the banquets. It also bears witness to the finding of lamps which shows that oil was used to light spaces and that pot-

tery was used to store foods based on cereals. In classical Greece, as in Magna Graecia, these three products belonged to the universe of the sacred.

In materano, the depiction on pottery of a divinity with branches of olive trees in its hands, Demeter's ear of wheat, the Dionysian procession with satyrs and maedi that relates to the cult of Dionysus and the powerful god of wine, identifies with the Magna Graecia and relates to classical Greece. This goes beyond myths and symbols and becomes a ritual or a practical articulation of daily peasant activities from olive plantation to the cultivation of wine and wheat and their production in materano. The historical, anthropological and archaeological appeal enriches the rural culture linked to traditional cults of the land. The Mediterranean historical identity of the city dates back to the seventh and sixth centuries BC.

The anthropological and productive landscape of the Mediterranean is therefore shaped from Greece to Magna Graecia, up to the area of materano, including cultural elements common to a shared identity which was symbolised by both the community and its individual citizens. The link between past, present and future in the anthropological landscape of materano is a great opportunity to launch the production linked to its tradition once again from an innovative perspective based on sustainability.

### **3 A New Dialogue with the Landscape: Sustainability**

One of the objectives of the 1972 UNESCO Convention on Material Cultural Heritage is to protect and enhance representative cultural landscapes. There is a wide variety of landscapes which represents different regions of the world. These complex works are the result of the constructive relationship between man and nature and express the long and intimate relationship between peoples and their natural environment. Some sites, including those with the agricultural or environmental background of the materano reflect specific techniques of land use that can support biological diversity and eco-systemic services.

Due to global meteorological changes, progress, intended as the indiscriminate action of men on the landscape and linked to the industrial age, is now ineffective and requires a different dialogue with landscapes and natural places. These places are renewed 'sacred' elements of human action in the natural order where the concept of sacred as related to the divine is replaced by a concept of sacred intended as respect and care for the landscape which is priceless heritage of mankind.

In this respect, the actions promoted by Matera 2019 stress the need to recover its tradition through innovation and sustainability by emphasizing and strengthening the link between history and

product landscape via strategic actions which aim at encouraging the spread of an inclusive culture that makes both inhabitants and users of the landscape 'cultural inhabitants'. By contrast, Marc Augé, while talking about spaces and places, identifies in their sharing function the construction of cultural identity that is founded by a link with the past which is the history of the places themselves. As in the past with Magna Graecia, the encounter between peoples and cultures can only take place through the exchange of ideas and techniques that participate in the construction of a shared identity. The Mediterranean space becomes an anthropological meeting place between people and cultures. Therefore, the landscape is not only something to build or protect, but also something to recognise, perceive, listen and describe. The deep link between man, material and immaterial landscape is at the basis of the cultural identity of the Mediterranean community. In traditional, ancient and modern societies, the link with the material landscape, which is mostly agricultural, went through the immaterial landscape, made of moments, times, rituals, rites of passage and mythical worship of natural deities, as already mentioned above and documented by archaeological evidence that bears witness to the adoption of Greek myths in the indigenous culture of Mesogaia (halfway between sea and inland).

The relationship between man and landscape is therefore both mediated by human activity on nature and by cultural activity on the community. These two actions aim to regulate the concrete relationship with nature which is based on the satisfaction of primary needs of individuals and the community. The landscape derives from an evolutionary process and is not an immutable entity. Thanks to this study, we can start from the analysis of the past to foster future actions on the landscape while respecting the peculiarities of the land and the cultural identity of the landscape itself through agricultural practices based on sustainability.

### 3.1 Smaller Historical Centres. The Case of Matera

Smaller historical centres, for their architectural, landscape and anthropic features, are the basis of our historical memory and participate in the construction of our collective identity. They are a widespread presence nationally and find their identity strength in the landscapes and links among regions. Their resources now represent, if properly managed and exploited, a driving force for innovation and sustainability in the process of transformation of the land. Therefore, they must be preserved from degradation and oblivion through actions that avoid depopulation and abandonment. This is happening in some smaller centres through the use of new technologies based on the concept of cultural landscape that promote integrated man-

agement in the life of the community and cultural and architectural heritage to be enjoyed in harmony with the cultural specificities of the land and its inhabitants.

The European Landscape Convention in 2000 and the Cultural Heritage Code in 2004 affirmed once for all the importance of the landscape, also intended as cultural landscape, in which Title I of Part Three defines the landscape as the expressive territory of identity, whose character derives from the action of natural factors, human resources and their interrelations, which aims to protect the landscape as an expression of cultural values with the aim of safeguarding or recovering them through knowledge, information and training activities, by retraining and using the landscape, and where possible, fostering new, coherent and integrated landscape values in agreement with public administrations.

Already protected in architectural and cultural terms by the Code of Cultural Heritage and thanks to the urban reforms of the 1960s and 1970s, historic centres still require renewed attention. They need a type of safeguarding that does not only include the preservation of the monuments of the past and material heritage, but also protection of customs, traditions and knowledge.

The analysis conducted on the site of Matera, a UNESCO World Heritage Site, and, in particular, on the rural village of La Martella, has shown that 100 historic centres of Italian main cities show this complex picture characterised by different behaviours which is also a consequence of the historical and cultural dynamics that have affected our country (D'Antonio et al. 2020a). Our analysis has shown that the problem of smaller centres is the onslaught of tourism, lack of infrastructure and difficulties in managing landscapes. The European Parliament has already adopted a resolution on this subject.

The 100 historical centres included in this analysis extend across 172 kmq, that is 0.6% of the Italian peninsula, a portion of land which is geographically limited but rich of values if we take into account the cultural and economic value that they represent and their pivotal role for the economy and the image of the country. Matera, a predominantly agricultural town, which historically welcomes complex social relations, has always been a traditional rural society in which the concept of neighbourhood, besides its spatial features, had also the symbolic connotation of sharing knowledge, practices, relationships, and, above all, inclusiveness and sustainability. By building the village of La Martella, the project aimed at preserving the cultural landscape identity of the inhabitants of the Sassi. The design of the study group composed of architects of the Roman School led by Ludovico Quaroni and sociologists, anthropologists and social sciences professionals recreated, from an architectural point of view, the conditions required to reproduce the neighbourhood and the spaces of aggregation typical of the distinctive rural culture and identi-



ty of the inhabitants of Matera. Faced with the problem of creating a village that could house a part of the citizens displaced by the Sassi of Matera, the pool of scholars understood that the construction of a village that was not perceived as an expression of the community by those who would move to live there could not be felt as an architectural, urban and liveable environment. The delicate phase of displacement from the Sassi to the future rural villages would not have touched only a physical reality but also the most exquisite culture of the rural community of Matera. Therefore, the transfer would not have been free from potential traumas for the parties involved. It was essential to preserve the values of the original community and its cultural peculiarities on which it was founded.

This approach also reflected the new urban trend of the era oriented towards a new way of thinking about cities, which placed social relations at the centre and which, consequently, could not disregard in-depth knowledge of the society that would have lived in it. From this new vision, which resulted from interdisciplinary work, the need to give the new settlement a social and economic structure framed in continuity with the tradition of the community, taking inspiration also from the concept of 'neighbourhood unit', emerged. This unit aimed to reproduce by a calculated composition the peculiar features of the nuclei of the Sassi's houses, which were poor, when not unhealthy, but characterised by a lively community life (Bilò, Vadini, Liman 2016).

Relevant contribution was provided by the anthropology that investigated, in the meantime, the reality of the neighbourhood of the Stones, which, over time, had assumed a function of association and mutual help for the inhabitants in order to reach institutional value and the psycho-social function of moral and material solidarity, but also of transmission of knowledge and practices, as well as beliefs and values (De Martino 1959). In his essay, the anthropologist Tullio Tentori (1976) further investigated how this set of practices and knowledge, or culture in the anthropological sense, is always subject to continuous transformation, due to its internal development and external influences, in terms of 'cultural dynamics'. Therefore, the system 'recreated' by building La Martella would benefit from new sources of agricultural economy based on improved living conditions and greater well-being which is still tied to its original cultural system. For this reasons, urban conditions were created not to upset the system of life of the inhabitants in a traumatic way but to improve it in the wake of its cultural specificity.

With La Martella, urban planning thus became an attempt at social planning based on the awareness of the reality of the natural and cultural landscape on which they intervened. The promotion of La Martella is outlined in detail in the Dossier of Matera as the European Capital of Culture in 2019, in order to make it a centre of cultural production dedicated to the themes of architecture, design and

urban planning, especially as a permanent design laboratory and, at the same time, to promote a productive vocation based on satellite agriculture and sustainability of production.

### 3.2 The Promotion of Historical Culture Through New Technologies

Matera 2019 moves in the direction of a project of anthropological and cultural enhancement of places, of the material and intangible heritage of the city, a recovery of the relationship man-environment-territory which is based on the harmonisation of these three elements which allows men to live a relationship with their anthropological places, past and history. It intertwines with multiple projects and possibilities of broadening cultural horizons by considering artistic connections between tradition and innovation based on sustainability and enhancement of national culture. This would allow each individual to become a cultural citizen of Matera and the world. Tourists would be surrounded by a symbolic and cultural landscape and would become part of this scenario without losing a sense of belonging to a common destiny. They would also be aware of the need to open culture to sustainability and enhance anthropological landscapes and tradition through innovation.

The new technologies, and, in particular, the 5G of which Matera is a testing centre, provide important support for the enhancement and protection of the landscapes of smaller centres such as La Martella. The 5G, the new standard for mobile communication, goes in the direction of increasing the speed of connection for users and improving the quality of service to ensure a faster and affordable connection for everyone. It is not only an upgrade of 4G but also a platform that enables innovative services ranging from Internet of things (Iot) to self-driving cars and ensures very high download and upload speed.

New technologies and GIS are configured as a real 'laboratory' where it is possible to experiment and develop new methodologies of interpretation and new strategies of intervention. These technologies could also be applied to land systems as the sum of various sub-systems such as, for example, agricultural, settlement, industrial, environmental and road systems.

In this historical moment that is characterised by globalisation and the progressive removal of the individual from his roots, new technologies allow to maintain a link with his/her own community also through the possibility of perceiving, seeing and listening, even remotely, to his/her own cultural landscape. A community, in fact, recognises itself within a landscape where technologies are connecting modes that give way to connect citizens in real time. They also enhance agricultural production through traceability systems and dis-

tricts through the promotion and knowledge of these productions, because they are not only products but also a synthesis of culture, traditions, processes, raw materials and biodiversity, all autochthonous elements of a site. Therefore, they are part of an identity path that men managed to create by giving their contribution to enrichment without, however, generating actions that can alter identity profiles (D'Antonio et al. 2020b).

The village of La Martella is developing forms of sustainable agriculture based on the recovery of traditional agricultural forms linked to self-consumption, solidarity and sharing, which are related to urban food gardening in the form of community gardens. La Martella is an interesting case study to analyse the impact of landscape management systems through new technologies in the light of a recovery of traditional forms and identity of production dynamics. The 5G allows a farmer from La Martella, who is far from his field at another point on the planet, to check in real time the threshing that is taking place, and 5G also plays the function of maintaining and reconnecting at each point their sense of belonging to the community by sharing virtual platforms, knowledge and practices.

The possibility of historicising a large amount of geodata will allow various users to monitor all situations potentially at risk, for instance road trees, the state of urban water canals, the surveillance of historical heritage-cultural, and make predictions and strategic projects in the short and medium term. Matera, in recent years, has been at the forefront in various areas. In order to pursue the good path undertaken, it seems necessary to make the best use of the great opportunities resulting from 5G.

The Lucanian area is naturally suited to agriculture, an undisputed witness of southern agricultural civilisation. However, this sector currently faces great difficulties due to the lack of competitiveness *vis-à-vis* of large international companies. Among the main themes of the project, *Matera5g* is the one linked to smart agriculture, that is accurate agriculture based on satellite systems and 5G technologies. In terms of fruition of cultural and historical contents, virtual reality is useful to touch the rock churches of Matera whereas augmented reality permits to manage the maintenance of marine engines in Bari. These are the first applications of *Bari-Matera 5G*, an initiative promoted by the Ministry of Economic Development to test the fifth generation mobile network in the field. In addition, with 5G, the neighbourhood community now becomes a virtual community and the management of cultural heritage can take place through the network thanks to the use of applications that promote accessibility and sustainability. Besides 5G technology, Matera introduced a number of best practices in digital access to historical contents, including virtual museums, online search programmes and digital platforms.

## Matera Città Narrata

The project *Matera Città Narrata* (<http://www.materacittanarrata.it/>) commissioned by APT Basilicata to CNR ITABC followed an innovative approach in redeveloping and enhancing the cultural landscape of the area of Matera (archaeological, historical-artistic, naturalistic, anthropogenic) through digital communication systems, which not only concern sites of excellence but also widespread heritage. It is an integrated, multidisciplinary and multidimensional cultural project, a virtual heritage network that ideally connects content, places, times, authors, users, real world and virtual dimensions. It is a digital platform that can support users both in the planning phase of the visit experience in Matera, and while the visit is in progress, by allowing visitors to orient themselves and access cultural content in near monuments, sites and itineraries. The project has created multimedia formats of enhancement of intangible heritage, thus generating a dynamic and open system of management of cultural content.

The contents are divided into four macro-sections:

- sites: there are 31 sites of Matera identified by the project and described in detail with dedicated sheets and in-depth content;
- itineraries: there are 6 itineraries identified by the project. From Piazza Duomo to Piazza Vittorio Veneto through the Sasso Barisano, from Piazza Duomo to Piazza Vittorio Veneto through the Sasso Caveoso, from Piazza Vittorio Veneto to Piazza Duomo going up along the Civita, beyond the Gravina, an excursion to the Tramontano Castle and an excursion to the Casa di Ortega;
- time passing by: 3D reconstructions of Matera and the surrounding areas have been carried out in 8 chronological phases: Upper Pliocene, Neolithic Age, Classical Age, Byzantine-Norman Domination, Swabian Domination, Renaissance-Aragonese Period, late 19th century period and the present day;
- witnesses: 17 illustrious people and 26 citizens of Matera were involved to contribute to the project. Thanks to some short films, including visions, memories and artistic performances, 5 additional witnesses, who are children from Matera, have been involved in collaboration with local schools.

## Activities

- Creation of a website (<http://www.materacittanarrata.it/>) including all the contents of the project in double version (to be accessible from any computer or smartphone).
- Creation of an iPad application (including all project contents) downloadable from the App Store in the Education section.

- Creation of an Android applications (related to 4 routes) downloadable from the Play Store in the Travel/Education section.
- Integration of users' localisation via GPS.
- Creation of a playful application for children on iPhone and iPod touch called 'O Munacedd', downloadable from the App Store in the Education section. It integrates user localisation via GPS.
- Creation of a complete guide in MP3 and PDF formats.
- Provision of mobile services, namely IVR, MMS and SMS.
- Creation of a backbone Wi-Fi in the Sassi of Matera with free access.

### **The Multimedia City Memory Archive**

The Multimedia City Memory Archive is a tool for dynamic and flexible research targeted at several levels to different users. This archive includes photographic materials, local public and private photo libraries, a collection of graphic materials in the stalls of ecclesiastical institutions and nineteenth-century and contemporary cadastral materials in the international competition on Sassi. Documentaries belonging to the Istituto Luce and the Triennale di Milano as well as a roundup of films shot in Matera from the 1950s to present day can also be found in the archive. They are rich witnesses of urban landscapes in different eras. The composition of a multimedia archive of historical, graphic, photographic, cinematographic and documentary sources concerning the maternal site plays a fundamental and preparatory role to any type of management approach. There is a single multimedia container with ancient, less ancient and recent flashbacks, of which some are remote in the consciousness of the Matera community. A real mnemoteca, an archive of memory, helps to reconstruct the collective memory of our territory through the collection, filing and digitisation of historical sources dispersed and scattered in private and public archives.

### **The MUV (Virtual Museum of Collective Memory of Matera)**

The MUV<sup>2</sup> is a non-profit cultural association created to collect and share photographs, audio and video stories on the history of the city of Matera. It is one of the first museums of online memory participated, according to the philosophy of web 2.0. It is possible to register and upload your photos with the intent of sharing and collective-

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**2** For further information see: <https://www.materawelcome.it/en/luogo/muv-matera-museo-virtuale-della-memoria-collettiva-di-matera/>.

ly exchanging materials, since the historical memories of a territory belong to the community and represent its identity.

### The Cultural Project *Casa Noha*

At a stone's throw from the Duomo, *Casa Noha* involves the visitor in an evocative multimedia journey to discover the city and its soul. The walls of the Noha house become a theatre where the story of Matera is narrated, from prehistory to present day. The filmed story *The Invisible Stones* is an immersive experience. An extraordinary journey through the history of Matera, this project by Giovanni Carada offers visitors the first complete reconstruction of the history of the city. A fascinating narration enhanced by the careful work of a team of specialists who have faced the complexity of the land from different perspectives.

Leaving *Casa Noha*, the journey continues thanks to the app *Matera Invisibile*. *Sulle tracce di una città straordinaria*, edited by Antonio Nicoletti, which is an exceptional guide that leads the visitor step-by-step to discover the secrets of Matera through five of its constituent elements, namely water, stone, light, time and spirit. The app is free and is available for Android and iOS.

### I-DEA (Archive of Archives and Collections)

The Institute Demo-Ethno-Anthropological (I-DEA) is one of the key projects of Matera 2019. It is proposed as a prototype laboratory for a new idea of cultural institution in the twenty-first century. It intends to be a public institution aiming at researching and representing the rich anthropological and cultural history of the Basilicata region through exhibitions, performances, research programmes and an online digital platform. To draw inspiration, compare and share practices and knowledge useful to fine-tune the start and implementation of the project I-DEA, the Foundation Matera Basilicata 2019 and the Dicem, the Department of European Cultures and the Mediterranean of the University of Basilicata organised the international conference *Food for Art - Archives as Driver for 2019 Creative Communities* in Matera.

The I-DEA has two programmatic aspects: the establishment of a centralised archival database of all the pieces stored in each collection or archive member of the network and the creation of a new exhibition structure in the Sassi of Matera, made through the conversion and extension of existing spaces. The exhibitions will be composed of elements from the archives of the network. By going beyond the understanding of the museum as a static space for the preservation of

cultural artefacts, the notion of the museum as a public platform for speech and interpretation will be introduced. Guest curators will be invited to propose their interpretations in the form of temporary exhibitions that explore the history, culture and anthropology of Matera, the Lucan territory and Southern Italy.

### **Co-Working Culture Space: Innovative Spaces for Accessibility to Culture**

The project carried out by the Joven Volunteer Association, funded by the Ministry of Labour and Social Policies Law 266/91 Directive 2015, aims to activate physical and virtual spaces in which young people can express their creativity. This experience took place in multi-disciplinary laboratories and relates to research and development of digital systems and applications for accessibility. It is also connected with the study and identification of specific support related to places, paths and exhibitions which benefit from 3D printing. This includes the identification paths to illustrate the artistic-cultural heritage of the city via virtual tours designed for specific needs.

Through the sharing of knowledge, you can then imagine solutions, study strategies and design services aimed at the accessibility of the cultural and artistic heritage of the city of Matera.

### **Casa-Cava**

This is a real jewel set in the excavated complex of San Pietro Barisano currently used as a hall for concerts and cultural interventions for its acoustic and phonic peculiarities. It extends over 900 sqm and is made of nine rooms with an auditorium of 140 seats, one exhibition gallery, training rooms and laboratories, exhibition rooms and three outdoor courts. Casa-Cava is a complex predominantly hypogeum which consists of an ancient well quarry of post-medieval origin rediscovered and restored by the Office Sassi of the Municipality of Matera.

### **Aroundly. Discovering Together**

Through the app Aroundly, it would be possible to move from the Sassi to the Cathedral, by walking through the rock churches and natural areas to discover the hidden heart of an ancient civilisation in the caves. Aroundly, developed by Informatica Srl, is an application available for free on Play Store and App Store (<http://sassi.aroundly.it>) which can provide an original route that is able to intercept traits and preferences on the basis of the responses of the

traveller. Aroundly offers three possible solutions: embarking on a new journey, participating in a live trip and discovering the city. In the first case, the application returns a personalised trip structured in tabs which is easy to consult and describes in detail the surrounding places and the route to get there. The application allows you to share the journey with new friends, giving your stay in the European Capital of Culture 2019 a new perspective.

### 3.3 Sustainable Tourism

The Sassi, the Murgia, the gravine and the rupestrian churches are rich in natural architectonic barriers. However, this rock world seems to be made specifically to be explored with all five senses. The scents of the Mediterranean maquis, the flavours of the Mediterranean cuisine, the limestone rock, the different levels of humidity perceivable in underground environments, the tools of the peasant civilisation in its most disparate forms, the silence that conveys the feeling of being suspended in time are the forms through which the City of Stones is revealed to its visitors, whether they are disabled or not, while common sense continues to recount it as the inaccessible place *par excellence*.

Sustainable and responsible tourism is, first of all, open to all, without any exclusion or discrimination. The main aspects of this 'intelligent' tourism cannot be separated from its capacity to be a supportive, welcoming and inclusive phenomenon. Provocation and challenge are a chance to taste, enjoy, travel, feel, listen to, see, touch, breathe, and ultimately to live a place which is morphologically, culturally and historically extraordinary, however uncomfortable it might seem for people with disabilities and specific needs as well. In the past, Matera was a human environment attentive to natural resources and rich in solidarity values of neighbourhood. The use of 5G applications and advanced connectivity services encourage the establishment of an ecosystem favourable to the development of the economic chain of culture and creativity and allow each man to know and live his past and history by intertwining them with multiple projects and opportunities. Future artistic blending between tradition and innovation based on sustainability and the enhancement of national culture should also be considered. Thanks to mobility services to manage visitors and touristy destinations, new areas and a more accessible cultural heritage will be available to foster smart and sustainable tourism.

5G applications, such as augmented reality or the support of digital platforms dedicated to services, allow people with disabilities and specific needs to live a place morphologically, culturally and historically extraordinary. It also permits visitors to approach new



technologies and people who are distant, as well as to explore these extraordinary historical places, for example, thanks to multimedia travelling. Projects based on digital applications, like digital museums and identification and mapping of routes truly accessible to all, were carried out in Matera.

### **Multimedia Museum**

Inaugurated in the rock church of San Pietro Barisano, in the homonymous tufa district, the Multimedia Museum offers a chance for disabled people, people with mobility difficulties, elderly and minors to visit the rock heritage of the Sassi districts and the murgic area in three dimensions and in six languages, including Italian Sign Language (LIS) and braille language.

This initiative, introduced by the members of the cooperative *Beyond Art*, is linked to the project *Sassi and Senses: know Matera Beyond the Barriers*. Thanks to technology, even tourists with motor disabilities can travel virtually across the environments of rock churches and appreciate the underground which is normally off-limits to them. Visitors in the multimedia museum can also touch the rock environments 'to scale' with their own hands the plastic models of some churches.

### **Social Trekking**

The project, funded by the Basilicata Region and the EPOS Programme 2012 and approved by the Italian Blind Union and Ente Nazionale Sordi, was created by the cultural association Sassi e Murgia in collaboration with the environmental education centre Lega Navale Matera-Castellaneta. Three touristy itineraries for the blind and the deaf were created in Matera in the Sassi, in the Crypt of Original Sin and at the WWF Oasis of San Giuliano. Social trekking is a form of trekking truly accessible to everyone according to the limits and difficulties of each. The proposed itineraries aim to combine knowledge of local artistic and natural heritage with education to sustainable development and the correct use of water resources since the culture of attention to landscapes is both a common good and an economic, cultural, ecological, environmental and social resource.

These itineraries are designed specifically for the blind and adapted, with the help of interpreters of LIS (Italian Sign Language), to the needs of the deaf. There is sight support for those who cannot hear as well as touch and hearing for those who cannot see. In this way, the deaf can 'perceive' the world whereas the blind can 'observe' it.

## ***Matera Mare. Accessible Destinations and Itineraries***

The project, coordinated by the Basilicata Region, involves private social associations rooted in the region, non-profit associations engaged in social integration of people in difficulty and the Italian Tourism Institute for All. *Matera Mare* is a specific initiative aimed at identifying, mapping and processing data in relation to the theme of accessibility in the Lucanian area.

The project consists of the following:

- a web platform, simple to use both to access and manage data and to input new information;
- paper-based travel tools, designed and composed to provide clear and readable information;
- a tale of experiences from individual points of view.

Information was collected and organised on Map 1.0. The work of mapping the itineraries is enriched by additional data and stories which are summarised in maps and divided by theme.

The routes are divided into three types:

- urban routes that do not have jumps in altitude and, by their nature, have elements that can be identified as facilitators for orientation;
- mixed pedestrian/vehicular routes that have jumps in altitude but can be solved with ramps or slides in a reversible and light perspective (e.g. paths with *gradelle* or 'climbs').
- extra-urban trekking or bike routes.

### **'Tutti nei Sassi'**

This design idea is to lead visitors to the discovery of the richness and uniqueness of a land that has its pivotal centre in the stones and extends to the overlooking *plateau* murgico. The type of visitor to whom this project is aimed at is anyone who has an interest in embarking on an exciting journey to discover a World Heritage Site, based on his wishes, needs and limitations. The three elements mentioned above are the pillars on which the proposed routes and their services were built, following a long and in-depth study phase and field experiences.

Sustainable tourism is also connected to the preservation of landscape and typical production. In this process of enhancement and protection, technology plays a crucial role. Matera is also promoting food and wine for sustainable tourism through the reconstruction of the supply chain of bread and through the valorisation and promotion of the typical bread thanks to the association of bakers, the Associazione per la Valorizzazione del Pane di Matera. Blockchain in 5G technology, besides giving precise information on every phase of the supply chain of the product, also allows to bring that same prod-

uct back to a landscape that refers to an emotional imagination and to the memory of the past for those who lived in that area throughout their life. It recalls one's own childhood, before globalisation, but also participates in the creation and reconnection of collective memory which reinforces the sense of belonging and well-being of the community. In order to enhance sustainable tourism, the local administration of Matera has recently signed the *E-matera: Pact for Sustainable Tourism* in order to celebrate a new season of development and collaboration in the tourism sector. The objectives of the *E-matera* programme are the promotion of a model of sustainable development and widespread and lasting well-being of the region.

Based on the synergy between local administration and associations, *E-matera* promotes the restructuring of local economies enhancing traditional activities and prioritising hospitality facilities that reflect the special character of the city. It also focuses on the minimisation of the environmental impact by strengthening local supply chains and promoting the use of local products and services by visitors.

#### 4 Conclusions

The use of digital applications in addition to 5G technology, of which Matera is a place of experimentation, is enacting important cultural transformations. What the neighbourhood community represented in the past in Matera now becomes a virtual community where sharing of knowledge, practices, beliefs and values, including the access and management of cultural heritage, takes place through a network with applications that promote accessibility and sustainability. According to this historical-anthropological prediction, it can be assumed that technology, with its extreme pervasiveness, will favour an even greater accessibility of historical places, in harmony with the conservation of cultural heritage, and will also encourage the dissemination of cultural content in the future.

The city of Matera has always been a welcoming land. The sense of community, solidarity and sharing are its peculiar features of living 'in the neighbourhood', which represented the typical model of settlement within the Sassi of Matera. Topographically, its neighbourhood consisted of a set of dwellings, partly dug into the tufa rock and partly built. They became a well around a courtyard and expressed, in the most immediate form, the sense of belonging to a community.

The neighbourhood was perceived as an autonomous system, as these units were, in environmental spaces which formed the nodes of a continuous and changing network in relational dynamics. There was no lack of positive values of solidarity and mutuality arising from the need to help each other. Interpersonal relationships were the most

important type of relationships; they came from clear signs of need for survival. Matera breathed her human dimension in the neighbourhood and life flowed in a humble but very dignified context. Today, the European Capital of Culture 2019, mindful of that respect based on mutual understanding between individuals, promotes intercultural dialogue starting from acceptance and sensitivity, through the multiplicity of application of digital technologies, both for its citizens, who can find a renewed sense of cohesion through co-working spaces for ideas and arts, and tourists, thanks to the wide choice of virtual museums and immersive experiences provided in the city that enhance accessibility and sustainability.

The City of Stones wants to be a place free from obstacles and open to the knowledge of the other to show that culture, in all its forms, is an inclusive value. In addition, thanks to the *E-matera* programme, the city of Sassi focuses on sustainable tourism through the promotion of all those activities that offer visitors and residents facilities and services that encourage active participation, promotion of the landscape as a whole, sustainable agri-food production and food tourism respecting and enhancing local cultural heritage.

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