

## Smart cultural Padua ecosystem

### *Ecosistema culturale intelligente di Padova*

FATIMA ZAHRA FAKIR, SILVIA RITA SEDITA, GIORGIO ANDRIAN, STEFAN MARCHIORO

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**Abstract.** Many international organizations have always shown great interest in the tourism development of the cultural heritage, and, over time, have been able to adapt to globalization and to the evolution of new technologies by responding to new tourist demands through the innovative techniques of digitization or reconstruction, and through more active and engaging communication strategies to disseminate and better understand the cultural heritage. Despite the proliferation of these studies, there have been only a few studies conducted on the cultural and historical aspect of the Padua destination and its potential which will allow it to be classified among the smart destinations. So, the aim of this research is to present, alongside Padua's artistic excellence, the city's other many riches, and this through a digital ecosystem that meets the various requirements of a sustainable smart destination.

**Abstract.** Molte organizzazioni internazionali hanno sempre mostrato grande interesse per lo sviluppo turistico del patrimonio culturale e, nel tempo, hanno saputo adattarsi alla globalizzazione e all'evoluzione delle nuove tecnologie rispondendo alle nuove esigenze turistiche attraverso le innovative tecniche di digitalizzazione o ricostruzione, e attraverso strategie di comunicazione più attive e coinvolgenti per diffondere e far meglio comprendere il patrimonio culturale. Nonostante il proliferare di questi studi, sono pochi quelli condotti sull'aspetto storico-culturale della destinazione Padova e sul suo potenziale che le permetterà di essere classificata tra le smart destination. L'obiettivo di questa ricerca è quindi quello di presentare, accanto alle eccellenze artistiche di Padova, le altre numerose ricchezze della città, attraverso un ecosistema digitale che risponda ai diversi requisiti di una smart destination sostenibile.

**Keywords:** Smart cities, Destination management organization (DMO), Cultural heritage, Veneto region, Padua ecosystem

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## 1. Introduction

Many international organizations<sup>1</sup> have always shown great interest in the tourism development of the cultural heritage, and, over time, have been able to adapt to globalization and to the evolution of new technologies by responding to new tourist demands through the innovative techniques of digitization or reconstruction, and through more active and engaging communication strategies to disseminate and better understand the cultural heritage (Garau, 2016; Lazzeretti and Sartori, 2016; Lazzeretti et al., 2022; Sedita and Ozeki, 2022). Besides, the potentialities that technology has to offer to the cultural tourism industry remain undisputed. Marty (2007) stated that technology can play a crucial role in supporting museum visitors and enhancing their overall visit experiences; they also offer museum professionals new ways to bring information about their collections directly to their audiences (Valente, 2015). Despite all of that, the system of cultural tourism involves a number of issues widely discussed by experts in the field, including the interference of (local and national) governments in culture, the vision of residents which is not always in line with that of the tourists, and the differences between European countries which make it challenging to implement a common and shared cultural planning at the European level (Lazzeretti et al., 2015; Lazzeretti, 2022; Birenboim et al., 2023). Based on these observations, various studies (Magnelli et al., 2021; Russo et al., 2021; Dell'Ovo et al., 2021) have been carried out to ascertain the success of smart destinations in Italy and their contribution to the cultural and historical development of their territory. Despite the proliferation of these studies, there have been only a few studies conducted on the cultural and historical aspect of the Padua destination and its potential which will allow it to be classified among the smart destinations especially in the category “Sustainable cultural heritage and creativity”. Yet, like the Italian and Venetian realities, Padua is affected by serious delays in the capacity to organize and manage the tourist phenomenon. In terms of reputation, Padua, and the neighboring territories, suffers from a still weak positioning and a “brand” that is still linked to traditional and strictly tourist elements. In this sense, Padua and its territory are certainly “cultural” places, but not only and not so much because of the cultural goods they contain, and not only because the leisure-culture motivation is the most widespread among those who visit and stay there, but because culture is the dominant feature of their identity, and it is perfectly adapted to

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<sup>1</sup> Global organizations—the International Council on Monuments and Sites (ICOMOS), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the World Tourism Organization (WTO).

it<sup>2</sup>. For this reason, current experiments, and especially those to come, must therefore have a new “Giottesque” dress<sup>3</sup>. So, the aim of this research is to present, alongside Padua’s artistic excellence, the city’s other many riches, it’s like a sort of “hat” that can be applied to thematic itineraries inside and outside the city around slow tourism, music and literature, gastronomy and wine, religious tourism, and business tourism. And all this, through a digital<sup>4</sup> ecosystem that meets the various requirements of a sustainable smart destination. Basically, this research will fill this gap in terms of literature and propose an innovative model of a smart cultural destination, that connect old tourism knowledge” with “new smart tourism”, which could be a benchmark for other emerging cultural destinations.

## 2. Smart Cultural Destination

### 2.1. Smart cities and cultural heritage

Cities have become increasingly aware of the importance of promoting themselves through branding. This can be seen in the case of several cities that have decided to promote their territories under different brands and images, such as *green and sustainable cities* (Acuti et al.,2018 a); *fashion and luxury cities* (Di Maria, Bettiol and Capestro ,2023; Mazzoli et al.,2019; Mazzoli et al. 2018; Acuti et al. 2018b); *Sustainable Wine Cities* (Acuti et al.,2019), etc. Razmus et al.(2020) & Graziano (2014) explain that city branding can reconstruct representations of urban spaces, especially in an urban setting with intangible and tangible cultural heritage. Furthermore, Zenker and Erfggen (2014) emphasize the importance of the relationship between culture and economy in the process of city branding, explaining that urban spaces acquire and lose their meaning depending on the ‘way’ they are perceived, where’ they are narrated, and the ‘way’ the city decides to promote itself. Different experiences and examples have been set up that demonstrate this complementarity and interaction between the urban world, culture and new technologies, Buhalis and Karatay (2022) cite the example of the City VR Experience [<https://cityvr.com/>] where players can walk around the city like

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<sup>2</sup> Many others may be these reasons, many have been, many will be. But the main thing is the cultural identity that materializes in the streets and palaces, in the streets and arcades, in the inns and gardens, in the language and in the skills.

<sup>3</sup> Following the Unesco recognition for the project “Urbs Picta: Giotto’s Scrovegni Chapel and the 14th century Padua cycles”.

<sup>4</sup> Example of the Digital Showroom of Venice Promex, the internationalisation agency of the Veneto Chambers of Commerce, &a physical and virtual space designed to promote the territory’s products of excellence abroad and to hold webinars and teleconference meetings.

a giant, see objects from above and below, zoom in and out, change the climate and take great photos. It provides a complete overview of any location the player wishes to visit. Another example of rethinking cities through new technologies, including video games, was presented by the destination of London through London Minecraft World [Design Future London Minecraft World Trailer]<sup>5</sup>, and which aims to inspire young Londoners (aged 5-24) to develop an interest in designing the city of their dreams, beautiful, accessible and sustainable places to live and work”. A different innovative idea to integrate art and technology to make cities more colorful, green and liveable was proposed in Rome by Veronica De Angelis and her Yourban 2030, an association with which she launched the anti-smog murals<sup>6</sup>, i.e. paints made with photocatalytic paints that neutralize polluting particles, to meet a “re-generated” Smart City. With this, smart cities have attracted a great deal of media interest, and have become the focus of considerable business for technology companies (e.g. VivaCity, the startup that aims to reduce road accidents with data and sensors<sup>7</sup>, UNIZEB project, the house-laboratory of the buildings of the future<sup>8</sup>) and are the leitmotiv of public investment programs (e.g. Cagliari, a new software (and chatbot) to better communicate with the citizens<sup>9</sup>) as well as the growing body of academic research (Celdrán-Bernabeu, Mazón, Ivars-Baidal, & Vera-Rebollo, 2018; Johnson & Samakovlis, 2019; Mehraliyev, Choi, & Köseoglu, 2019; Mora, Bolici, & Deakin, 2017).

## **2.2. Smart cultural destination**

The concept of smart destinations, inspired by the discourses on smart cities, has been developed to confront the profound impacts of digitalization processes on tourism, and is essentially based on the widespread use of technology and data to achieve higher levels of sustainability, innovation (Gretzel & Jamal, 2020), and better governance and management of destina-

<sup>5</sup> <https://city-vision.it/ripensare-le-citta-grazie-ai-videogiochi-londra-e-dentro-minecraft/>

<sup>6</sup> <https://city-vision.it/yourban2030/>

<sup>7</sup> So far it has installed 3500 sensors in different cities in seven different countries. Thanks to the analysis of the cameras, which protect and anonymise all the data, the administrations have a picture of how the movements of cars, buses, pedestrians and cyclists are articulated in the crucial junctions of cities. (<https://city-vision.it/la-startup-che-punta-a-ridurre-gli-incidenti-stradali-con-dati-e-sensori/>)

<sup>8</sup> The project was born in 2015 on the initiative of a few students from the University of Padua, an avant-garde, sustainable and technological building, in which companies and researchers will be able to experiment their own solutions for innovation in the building sector. <https://city-vision.it/unizeb-casa-laboratorio/>

<sup>9</sup> Software that thanks to artificial intelligence is able to answer questions in writing, all the questions asked to a chatbot become invaluable to understand what people need. <https://city-vision.it/cagliari-nuovo-software-e-chatbot-per-comunicare-meglio-con-i-cittadini/>

tions (Ivars-Baidal et al., 2021; Birenboim et al., 2023). According to the European Commission, smart tourism destination is defined “as a destination where the different stakeholders, under the coordination of the destination management organization, facilitate access to tourism and hotel products, services, spaces and experiences through innovative ICT-based solutions, making tourism sustainable and accessible, and taking full advantage of their cultural and creative heritage. This means addressing and improving the quality of life of the local population, as they would benefit from sustainable socio-economic development and actively participate in promoting the digital culture of the territory”. (European Guide on the Use of Data for tourist destinations, 2022).

For this purpose, smart destinations are constantly evolving in their offerings to tourists, due to the many socio-demographic, cultural, technological, environmental and political changes that affect all sectors of society. Therefore, understanding these changes in the tourism sector has become essential to define a smart tourism strategy that will be adequate to the whole tourism ecosystem, especially since the implementation of smart approaches is not only based on technologies, but also on cultural aspects. According to Boes, Buhalis & Inversini (2016) the “tourism ecosystem” refers to the interdependent network of stakeholders involved in the tourism industry, including tourists, service providers, local communities, and government agencies. It encompasses the natural and cultural resources that attract visitors to a destination, as well as the infrastructure and services that support their travel experience. Thus, different types of trends can be observed and predicted in the tourism sector that have occurred in different time periods, corresponding to the short term (until 2024), the medium term (until 2030) and the long term (2050). These trends can be grouped into three directions of change presented below.

*Table 1: Forces driving changes in tourism industry (EGUDFTD10, 2022).*

<b>SOCIO- DEMOGRAPHIC CHANGES</b>	An ageing population and progressively higher rates of digital literacy represent two defining demographic trends with direct implications for the tourism sector.	Propensity to remain connected. Boost in lifelong learning. Changes in the purchasing process. Ageing population	Digital natives to become the main consumers of smart tourism. Increased propensity for health tourism.
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<sup>10</sup> European Guide on the Use of Data for tourist destinations, (2022).

<b>TECHNOLOGICAL PROGRESS</b>	The growth of connectivity and distributed infrastructures are making digital transformation increasingly accessible and capillary. Data represent the key fuel for most of these forces.	Enhancement of mobile networks. Big data technologies. Cloud computing. Voluntary data capture and profiling. Evolution in IoT	Combination of AI and AR. Data interoperability and re-use. Increasing awareness of data ownership. Biometric for personal identification. Cyber security and blockchain.
<b>SUSTAINABLE DEVELOPMENT</b>	Already occurring before the COVID19 crisis, these forces are expected to drive change towards a more inclusive, economically and environmentally sustainable sharing economy.	Changes of travellers' behavior due to the COVID-19 pandemic. Increasing sharing economy. Growth of green tourism	Increase in the number of digital nomads and remote workers. Low cost business models. New business models.

From another perspective, Gretzel (2022) cited some examples of destinations pioneering the implementation of smart tourism strategies, namely China to respond to the problems faced in light of the new waves of mass tourism (Wang et al., 2013), South Korea to take advantage of the country's highly developed technological infrastructure and promote international tourism (Koo et al., 2013), Vietnam and Thailand, which have implemented smart projects to monitor visitors through the construction of data hubs (Phocuswire, 2019). Across Europe, smart tourism was firmly embedded in the Europe strategy for smart, sustainable and inclusive growth. Initiatives such as the European Capital of Intelligent Tourism<sup>11</sup> and European Destinations of Excellence Awards (EDEN)<sup>12</sup> provided evidence leading to the implementation of specific efforts in different cities for projects that increase the sustainability, accessibility, digitalization and creativity of their destinations.

*Table 2: Shortlisted finalists' destinations (ECST& EDEN, 2023)*

European Capital of Smart Tourism 2023	European Destination Of Excellence 2023
AARHUS	GREVENA
GIJON	

<sup>11</sup> <https://smarttourismcapital.eu/>

<sup>12</sup> [https://single-market-economy.ec.europa.eu/sectors/tourism/awards-and-outreach-activities/eden/current-destinations\\_en](https://single-market-economy.ec.europa.eu/sectors/tourism/awards-and-outreach-activities/eden/current-destinations_en)

PAFOS	KRANJ
PORTO	
SAN SEBASTIAN	LARNAKA
SEVILLE	
ZAGREB	TRIKALA

Indeed, Spain is probably the most renowned case due to the institutional commitment and the creation of specific funding lines, support programs and long-term strategies (Gretzel, 2022). According to Ivars-Baidal et al. (2021) in this country, smart tourism has been included in the Integrated National Tourism Plan in order to stimulate innovation in tourism and increase the competitiveness of Spain as a world-class tourist destination, and this in collaboration with SEGITTUR<sup>13</sup>. Furthermore, recent reviews of the literature on smart tourism illustrate its importance but also suggest some imprecision in definitions (Ye et al., 2020; Johnson & Samakovlis, 2019; Mehraliyev et al., 2020; 2019). According to Gretzel (2022) “*Smart tourism refers to efforts to integrate advanced technologies (including sensors, wireless communication networks, and big data analysis) into the fabric of destinations to enhance their capacity for innovation, generate value creation opportunities, and mitigate the negative effects of tourism while providing tourists with superior experiences.*” As for the European Commission, smart tourism “*responds to the new challenges and requirements of a changing sector, including the evolution of digital tools, products and services, equal opportunities and access for all visitors, sustainable development of local territories and support for creative industries, talents and local heritage*”. From another point of view, the emergence of heritage tourism aims to experience the past while immersing in historic places (Garrod and Fyall, 2000). According to Lin et al.,(2020) tourists visiting historic tourism destinations are either passive receivers motivated to recall their ancestral history or active seekers who have no connection but want authenticity in their experiences. On their part, Chi et al.,(2022) explain heritage sites as places where tourists experience nostalgic feelings by fantasizing about what happened in the past. However, due to the lack of experiences in these sites, this feeling of nostalgia can only be satisfied by an appropriate integration of museum buildings, monuments, cultural

<sup>13</sup> The public agency for tourism technology and innovation associated with the Ministry of Industry, Energy and Tourism

and social identities, traditions, memories, intangible links, local features and landscapes (Lin et al.,2020; Chark,2021). From this perspective, the main innovations in the field of cultural tourism have included synergies with the products of new communication technologies, through the creation of specific Internet portals (e.g *Veneto Region Observatory platform*<sup>14</sup> [<https://osservatorioturismoveneto.it/>], smart cards (e.g *Padova card*<sup>15</sup>), mobile applications [<https://smiity.com/>] , or through models of interaction between the real and virtual domains (e.g. *Incheon Craft*<sup>16</sup>) , allowing the user to be at the heart of the cultural tourism offer (Garau, 2016). Thus, cultural heritage appears to be a strategic factor for destination managers, as they can benefit from enhancing the cultural DNA that has shaped the appearance of the city, by making it visible and easily accessible to a wider public. On this, the following table shows the different advantages and disadvantages of the impact of smart tools on cultural heritage (Buhalis and Karatay, 2022)

*Table 3: Impact of new technologies on cultural heritage (Buhalis and Karatay, 2022)*

Functionality	Impacts for cultural heritage
<b>Cultural heritage</b>	<b>Advantages</b>
History of the location	Automated Workflow
Time travel	Staff Offload
Disappeared objects recreating	Less queuing
Surrounding information	Reduced Operational Cost
Demo presentation	Improve satisfaction
Preservation	Tourists' time spend increase
<b>Human Interaction</b>	Preservation
Accessibility	<b>Disadvantages</b>
Personalization	Visitors' opposition
Multi-language	Age limitation
Holograms	Importance of human interaction
<b>Notifications</b>	Avoidance out of habit
Real-time updates	Complex technology
Digitalization	Equipment service
	Possible malfunctions & Breakdowns

<sup>14</sup> The Veneto Region Observatory Platform aims to share a wide range of information, including data, indicators, analyses and reports, useful for the dissemination of knowledge and monitoring of territorial, national and international tourism phenomena and related trends (Gazillo & Marchioro,2022).

<sup>15</sup> <https://www.blogdipadova.it/padovacard-visitare-padova/>




<sup>16</sup> <https://www.youtube.com/watch?v=ALpmFdoOLfc>



### **2.3. Destination Management Organisation (DMO) and Smart destinations**

While technology is an important driver of smart tourism development, it is not sufficient for intelligence to be achieved in a destination (Gretzel,2022). According to Nam and Pardo (2011), intelligence is based on three dimensions, including the technological dimension, the human dimension and the institutional dimension. In other words, there are two types of intelligence according to Boes et al.,(2016), hard intelligence, which manifests itself in the technological infrastructure, and soft intelligence, which presents itself in innovation, social capital, human capital and leadership. These two types are complementary and must work together to facilitate the development of smart destinations. Following these explanations, it can be seen that smart destinations do not only require new technological capabilities, but call for a paradigm shift in destination management, through a flexible interaction of different value-creating entities. Gretzel et al., (2015) explain that these may consist of traditional tourism providers, residents, technology start-ups/platforms, media companies or government institutions, which may be physically or virtually linked to the destination. Their connectivity and the resulting value (co)creation activities emerge from the technological infrastructure and data capacities available in relation to the destination. Based on these aspects, it was found that smart tourism involves strong partnerships between the private and public sector, which calls for a different type of governance to facilitate smart capacity building. Femenia-Serra and Ivars-Baidal (2019) indicate that DMOs see smart tourism development as both an opportunity and a big challenge and recognize the need for new approaches and capacities in destination management. This was explained by Gretzel et al. (2018) in their definition of the roles of smart DMOs presented as follows: *“to lobby and maybe even partly sponsor the development of smart tourism infrastructure, to curate and manage smart tourism data, to facilitate development and uptake of smart tourism-related applications within the digital business ecosystem, to support tourists in learning about and consuming smart tourism experiences, and, finally, to link smart tourism with overall quality of life and sustainability development goals”*. The following table presents the three key dimensions for mapping the tourism ecosystem (Table 4). In fact, these three dimensions are the basis for identifying the valuable data sets that destinations often already have at their disposal but are not fully aware of the potential that could be unlocked through their exploitation.

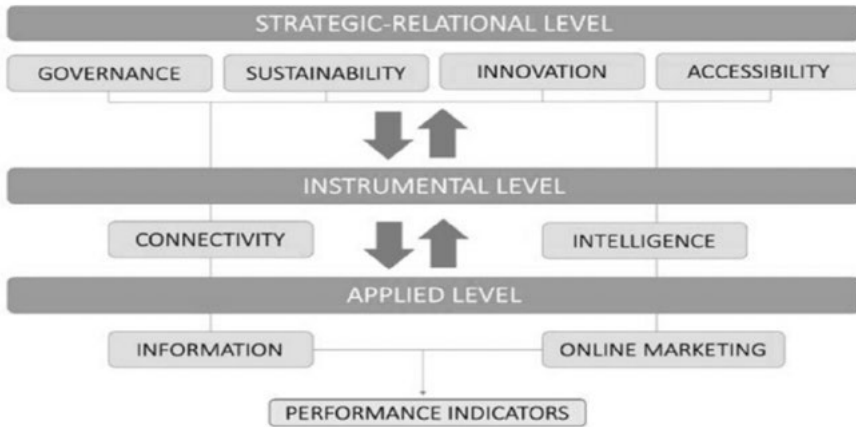
*Table 4: The three key dimensions for mapping the tourism ecosystem (European Guide on the Use of Data for tourist destinations, 2022)*

TYPES OF DATA USERS	PURPOSE AREAS OF DATA USE	TYPES OF DATA USED AND SOURCES
 Tourism destinations and public authorities	Improve interaction and engagement with the tourist	User generated data (textual information and photos).
 Private sector – Tourism industry	Conduct market analyses and inform decision-making	Transaction data (Web search and webpage visiting, Online booking and purchasing, Consumer card transactions).
 Private sector – Other	Improve planning and operations of tourism services	Device data (GPS, mobile roaming, RFID, Bluetooth, meteorological, Wi-Fi- Smart city (pollution, traffic, waste, etc.)
	Increase destinations sustainability and accessibility	Other data (Business Information, Statistics, Context specific information)

The Valencian Regional Network<sup>17</sup> of Smart Destinations illustrates this situation perfectly, according to Ivars-Baidal et al (2021), this network classifies destinations according to their stage of development in three levels: **Level 1** implies the initial step of joining the network and the willingness to develop a work plan as well as the participation in all meetings. **Level 2** membership requires assessment through a self-diagnostic tool based on indicators that will be presented below, as well as active participation in the network. **Level 3** requires the development of an intelligent destination plan based on the results of the diagnosis and involvement in research projects and pilot tests of different technologies. These levels have been summarized in the following diagram;

<sup>17</sup> The Valencia region (Comunitat Valenciana) has promoted a pioneering process coordinated by the Valencian Institute of Tourism Technologies (INVAT-TUR) in collaboration with SEGITTUR and has created a regional SD network that is the most dynamic in the country to date. (Ivars-Baidal et al.2021).

Figure1 : Smart destination model structure: levels and dimensions (Ivars-Baidal et al.2021)



The above model explains the different indicators on which managers should base themselves to conceptualize an intelligent destination; **the first strategic-relational level** explains that the intelligent destination is based on governance, planning, public-private collaboration and coordination in administration to achieve sustainable tourism development, an innovative environment and a tourist territory accessible to all. As for **the second instrumental level**, it states that the SD is built on digital connectivity, sensitization and big data, which constitute the infrastructures in which information systems and intelligent systems are based. This system facilitates the interaction between the physical and digital worlds and is an essential feature of intelligent tourism. For *the third applied level*, SDs generates intelligent solutions for destination management and marketing as well as for improving the tourism experience (Ivars-Baidal et al.2021). Hence, thanks to this model based on the methodology of SEGITTUR and INVAT.TUR indicators, Spain, and in particular the Valencia region, has become a leader in the development of tourist destinations, and has become a reference for destinations around the world aiming to develop smart tourism initiatives, including Mexico and Argentina. Thus, the emergence of smart destinations has provided opportunities for tourists to experience a new way of searching and enjoying the destination. Therefore, these innovations can have positive effects on destinations by enhancing the tourist experience, promoting sustainability, and creating economic opportunities for local communities. There are several studies that examine the effects of smart tourism initiatives. One example of a successful smart destination is Santander, Spain. The

city has implemented a smart tourism platform that provides visitors with real-time information about local attractions, events, and transportation options. Another example is Valencia, through mobile app for tourists, free Wi-Fi in public spaces, and digital signage throughout the city. These initiatives have helped to distribute tourists more evenly throughout the destination, reducing overcrowding at popular attractions and spreading tourism benefits more evenly across the community. Additionally, by encouraging tourists to explore less crowded areas of the destination through providing information about alternative attractions and activities, and also to use sustainable transportation options such as public transportation or bike sharing instead of driving or taking taxis, to reduce traffic congestion and carbon emissions. Overall, the perception of tourists and locals on smart destinations in Spain can vary depending on a variety of factors. While tourists generally have a positive perception due to the convenience and ease of use provided by technology-based solutions, locals may have more mixed feelings due to concerns about issues such as overcrowding and environmental degradation. However, many locals also recognize the benefits that smart destinations can bring to their community through increased economic opportunities for local businesses and job creation.

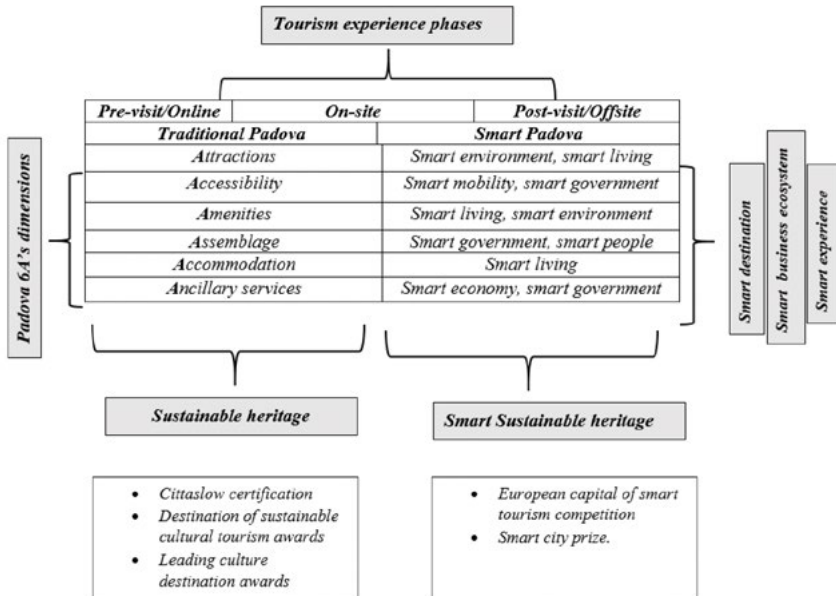
In this regard, our methodology is based on a literature review and on a secondary sources analysis, notably the following theories and studies. The choice of these theories were based on a long in-depth research, which allowed us to deduce the most cited theories and recommended by researchers in this subject. The objective is, firstly, to set up a structured tourist offer based on the different components of the destination of Padua, so that it can position itself as a sustainable cultural destination, and secondly, to develop smart strategies through the implementation of technological tools to digitalize its offer. Thus, before developing a smart strategy for Padova, it is first necessary to structure Padova's traditional offer. In fact, the primary function of a DMO is to provide visitors with a comprehensive range of services that will enhance their experience and ensure that they have a positive and memorable trip (Ritchie & Crouch, 2011), during the three phases of travel (before, during and after). Indeed, this can include providing information about local attractions, accommodation, transportation, events, and activities (Buonincontri & Micera, 2022), or the 6A's dimensions (Attractions, Accessibility, Amenities, Assemblage, Accommodation and Ancillary services) (Boes, Buhalis & Inversini, 2016). By paying attention to each of these elements, tourism professionals can develop and promote tourism products and experiences that showcase the unique characteristics and cultural heritage of the destination (Buonincontri & Marasco, 2016). This will allow it to be awarded as one of the leading cultural destination thanks to its well-struct-

tured sustainable and cultural offer responding to the different 6A's dimensions, and to be recognized as a "slow city" by the Cittaslow International network (Abbate et al., 2018). Afterwards, the destination of Padua will be able to develop a smart strategy, creating a smooth and pleasant experience for visitors, while reducing the environmental impact of tourism activities and improving the quality of life for locals. This will give the destination a competitive edge and move away from its old traditional model with a new and stronger brand and reputation as well as winning various national and international awards (Wang et al. (2015); Gretzel et al. (2015); Jeong & Shin, (2019); Segittur, (2013); Corte et al., (2017)).

*Table 5: Theories used in the design of our conceptual model (inspired by the literature review)*

<b>Theories Used</b>	<b>Authors</b>
Co-creation Experience.	Buonincontri, P., & Micera, R. (2022)
A model of destination competitiveness and sustainability.	Ritchie, J. B., & Crouch, G. I. (2011).
Cultural heritage experience model	Buonincontri and Marasco, (2016);
The Spanish standard A 178501 on the management system of smart tourist destinations (MSSTD) and the criteria for "Cittaslow certification	(Abbate et al., 2018).
Smart tourism destinations: ecosystems for tourism destination competitiveness	(Boes, Buhalis & Inversini, A., 2016).
Key attributes of smart tourism attraction	(wang et al., 2016)
Components of smart tourism	(Gretzel et al, 2015);
Key indicators in measuring the effectiveness of smart tourism technology in smart tourism destinations	(Jeong and Shin, 2019)
The four dimensions of smart tourism destination	(Segittur, 2013)
Smart cities and destination management	(Corte et al., 2017)

Figure 4: Traditional Padova vs Smart Padova (Own elaboration)



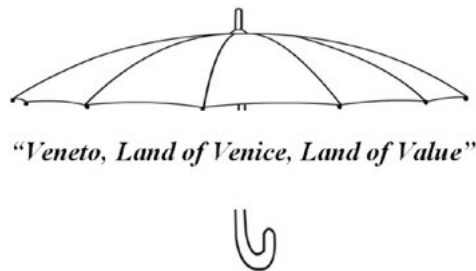
### 3. Smart Cultural Padova

#### 3.1. The Veneto region

Given the role of Italy and Veneto among the preferred destinations for international, European and non-European tourism, and in any case the importance that domestic tourism has for the overall movement, these projections highlight a revival characterized by various trends. In fact, the crisis and the acceleration caused by Covid have highlighted the need to rethink all the tools in the sense of constant innovation, especially at the level of the evolution of the territorial approach towards DMOs and modern territorial brands, the fundamental advance of the Federated Regional Observatory of Tourism towards effective marketing intelligence, the central role that people and their communities are increasingly assuming, precisely in the sustainable management and enhancement of resources, attractions, territories; the need for increased flow management, the implementation of new communication tools, in this case online and social channels, such as the use of the umbrella brand as an added value for all destinations and products,

including non-tourist products, also co-marketing with other production sectors which are very powerful ambassadors for the territory, and the “one to one” relationship with customers, etc., to the point of questioning the need to build a “house” transversal to the regional brand (Tourism strategy for veneto 2022-2024)

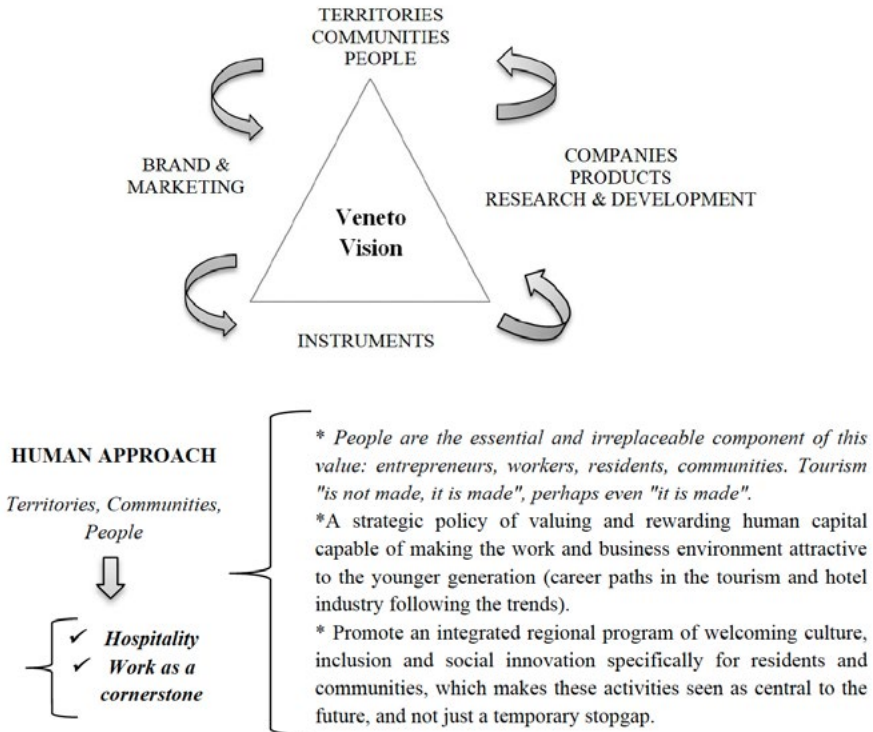
Figure 2: Umbrella brand “Veneto - The Land of Venice” (Tourism strategy for Veneto 2022-2024)



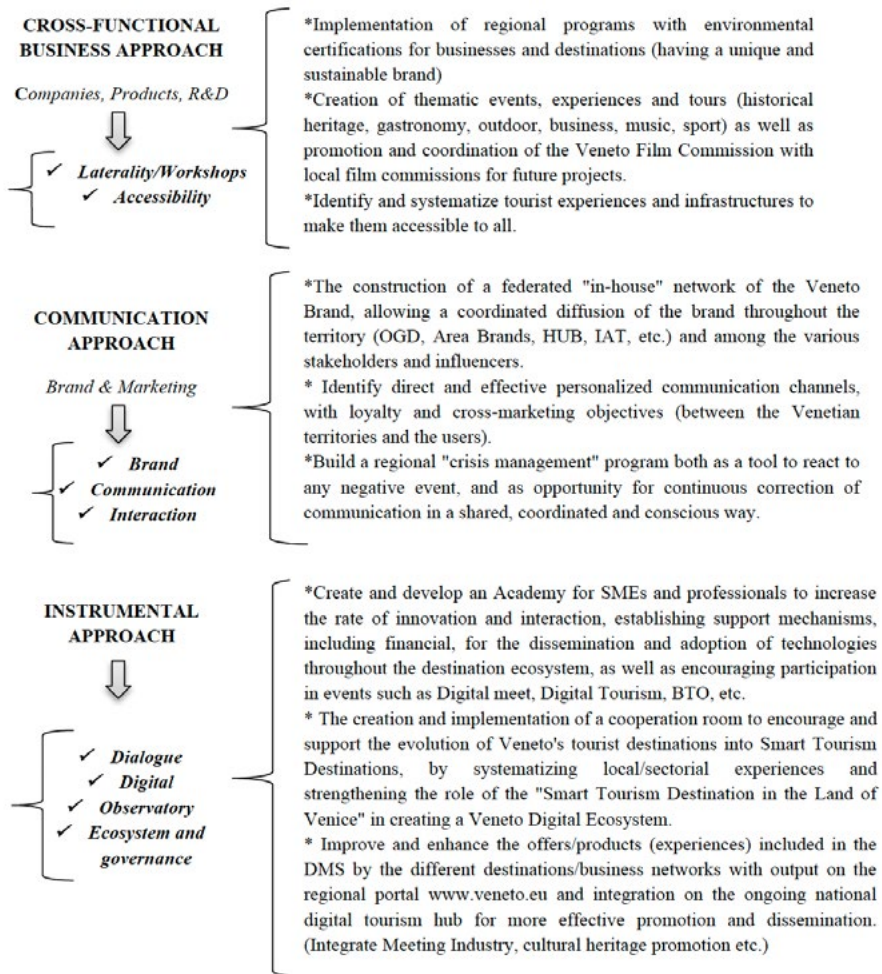
The Regional Council of Veneto (2022) stated that by 2025, the market will probably be back to 2019 in numbers, but not in substance. To remain competitive and maintain/develop the fundamentals (profitability, quality, etc.), companies and destinations need to evolve; those waiting for the final recovery risk finding themselves outside the market or at least in more difficult positions. In this context, it should be borne in mind that interventions in other sectors (agro-food chain; crafts & manufacturing; heritage, cultural and creative productions; technologies etc.) have an impact on tourism and vice versa, and that it is necessary to have ad hoc rules and regulations. In particular, it is important to invest in the new, but it is also necessary to constantly innovate consolidated/mature products, differentiating on several levels (accommodation, experiences, prices, etc.). In fact, new Postcovid trends have emerged, on the one hand, the emergence of potential visitors to explore, to seek destinations outside the main tourist routes, more isolated and “safe”, more authentic and less “touristy” experiences; notably slow tourism, which facilitates greater immersion and contact with the community (especially among Millennials, generation Z and the luxury segment, also in emerging markets) ; and on the other hand, due to digital and fluid societies, the tourist is increasingly “hybrid” and smart, with little brand loyalty, highly variable purchasing behaviors and a budget allocated according to the social and emotional value that a specific product or service has on the experience they have. In this respect, the Veneto region has launched a strategic plan for tourism that includes a series of actions to follow new market

trends while strengthening and spreading its umbrella brand “Veneto - The Land of Venice”.

Figure 3: The tourism strategy for Veneto 2022-2024 (Regional Council of Veneto, 2022)







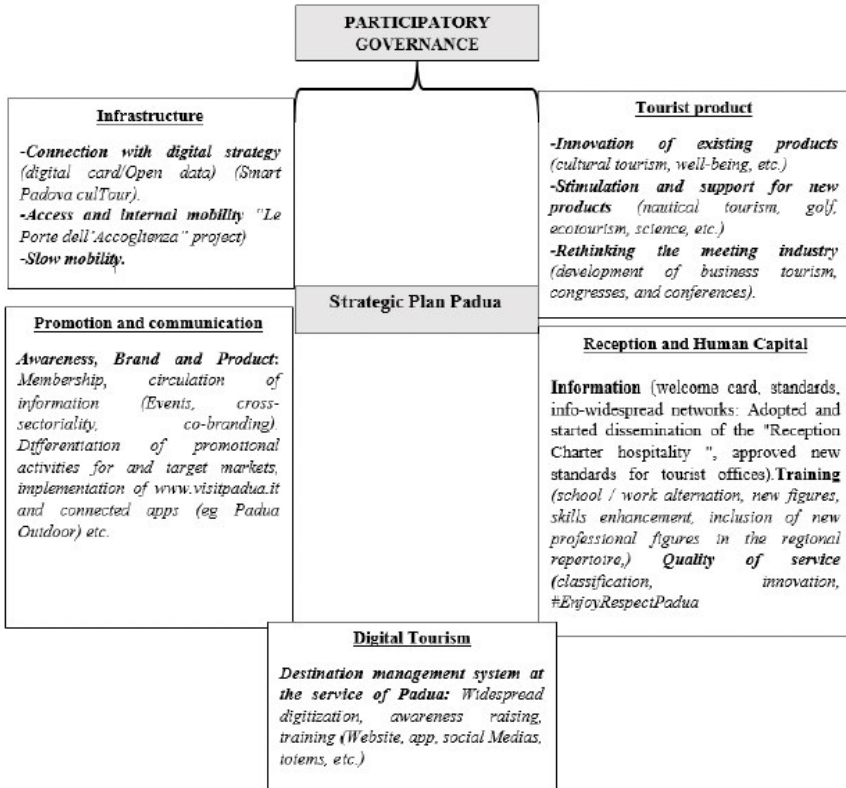
### 3.2. Smart Padova ecosystem

Padua<sup>18</sup> is an Italian city, capital of the province of the same name in Veneto. It is the third most populous city in the region after Venice and Verona (fourteenth nationally) and the most densely populated, the hub of a metropolitan area of over 400,000 inhabitants. Padua is in the east of the Po Valley, about 10 km north of the Euganean Hills and about 20 km west of the Venetian Lagoon. The territory is flat and crossed by various waterways,

<sup>18</sup> The description of Padua has been taken from the site [turismopadova](https://www.turismopadova.it/) <https://www.turismopadova.it/>

notably the rivers Brenta and Bacchiglione, which over the centuries have given shape and protection to the city. The city of Padua, considered “one of the main art cities in Italy”, has been struggling for years to improve more and more in terms of accessibility and to ensure that any citizen or tourist can enjoy the city in an inclusive way (Bazzo, 2022). A city of great artistic and cultural traditions, Padua has thousands of years of history, which have left the city with monuments of great historical and artistic value. It is a culturally lively city all year round: art, music, theatre, cinema, sports, and folklore events in a mixture of tradition, history, culture, and modernity. Padua is also famous for shopping, its streets full of shops and boutiques of famous brands are one of the most popular alternatives during free time, or between visits. According to Bonel and Andrian, (2022) Padua is described first by its long and rich history, and then by what are considered the main components of its current vocation, including its “museum and monumental center”, (“museum” of the Eremitani), “civil and religious center” (which includes the university, the municipal palace, the Caffè Pedrocchi and the Borgo Altinate, the Palazzo della Ragione and the squares, the Cathedral, the Baptistery and the episcopal palace.) The “Cittadella Antoniana” (which includes the Basilica of Santo Antonio, the Botanical Garden, the Garden of Biodiversity and Prato della Valle). However, almost this entire monumental heritage is concentrated in the historic center of the city, making it an area of very high monumental concentration, while neglecting other tourist offers and products in the city’s surroundings. Thus, despite this tourist attractiveness, it is important to note that Padua is affected by serious delays in the capacity to organize and manage the tourist phenomenon. As stated in the introduction, Padua, and the neighboring territories, suffers from a still weak positioning and a “brand” that is still linked to traditional and strictly tourist elements. For this reason, It is time to highlight the city’s other many riches, through thematic itineraries inside and outside the city around slow tourism, music and literature, gastronomy and wine, religious tourism and business tourism, all under the new cultural brand “Giottesque”, and this, through the implementation of a smart ecosystem for the destination, responding to the different needs and expectations of all stakeholders (public and private actors, residents, tourists, etc.). But before doing that, it is first necessary to define a strategic plan to structure traditional offer of the destination, which will allow us towards the end to have a solid destination management organization. Then, a set of smart tools can be put in place to digitalize the experiences and offers of Padova. Thus, the proposed Padua strategic plan was inspired by the strategic plan for Veneto 2022-2024 whose main objective is to diversify the tourist offer while integrating smart tools, as well as to include the various stakeholders using a participatory approach.

Figure 5: Strategic plan Padua (Own elaboration)



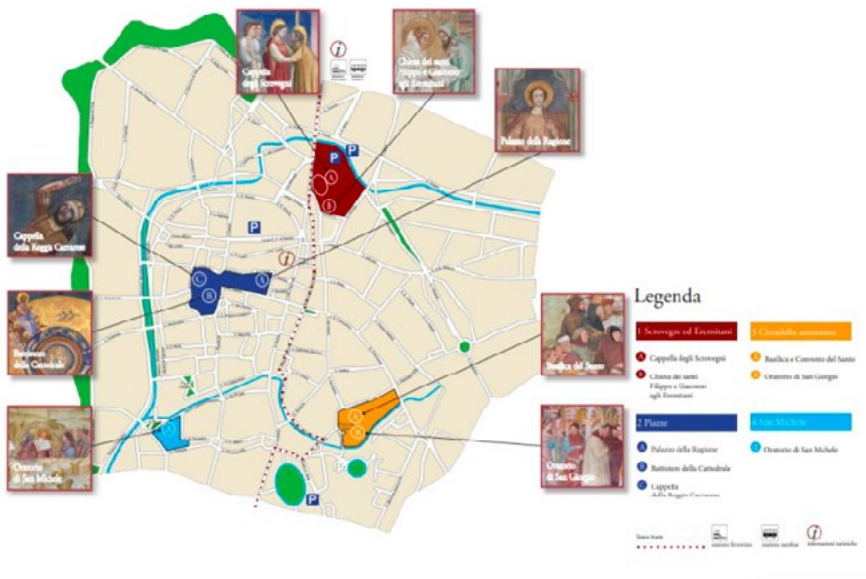
### 3.3. "Padova Urbs Picta": The new city brand of Padua

Padua had proposed the inscription of a "serial site" that includes all the precious and great cycles of frescoes of the fourteenth century preserved in eight buildings and monumental complexes of the city<sup>19</sup>: Scrovegni Chapel, Church of Saints Filippo and Giacomo agli Eremitani, Palazzo della Ragione, Chapel of the Reggia Carrarese, Cathedral Baptistery, Basilica and Convent of Sant'Antonio, Oratory of San Giorgio and Oratory of San Michele. In the 14th century, some of the most extraordinary artists of the time painted the walls of these places: Giotto, who created his absolute masterpiece with the frescoes of the Scrovegni Chapel, Guariento di Arpo, Giusto de' Menabuoi,

<sup>19</sup> <https://www.ilsole24ore.com/art/padova-affreschi-300-sono-patrimonio-unesco-AEJgV7Y>

Altichiero da Zevio, Jacopo Avanzi and Jacopo da Verona. The recent recognition of the 14th century fresco cycles of Padua as a UNESCO World Heritage Site, known as Padua Urbs picta<sup>20</sup>, has undoubtedly drawn the attention of a wide public not only to a whole century of frescoes of outstanding universal value, but also to the places where they are housed and used (some of which are typically museum like, for example, the Scrovegni Chapel or the Baptistery of the Cathedral). In fact, in the first weeks following this UNESCO recognition, Padova's cultural heritage experienced an increase in demand from different types of visitors (Bonel and Andrian, 2022). According to data provided by the Veneto Region's Statistical Office (based on ISTAT data) the arrivals in the period from January to March 2022 in the accommodation facilities belonging to the territory of OGD Padua almost tripled compared to the same period in 2021 (55,565 in the first quarter of 2021, 123,244 in the same period in 2022). This shows the importance of tourism for the destination.

Figure 4: Padova Urbs picta card (Padovaurbspicta.org) 21



<sup>20</sup> "Painted city" in Italian

<sup>21</sup> <http://www.padovaurbspicta.org/home-page-2/>

### 3.4. Padova Urbs Picta and smart cultural destination

The Municipality of Padua has put in place a set of initiatives to promote the city under the brand “Padova Urbs Picta”, while aligning itself with the intelligent strategy of cultural destinations:

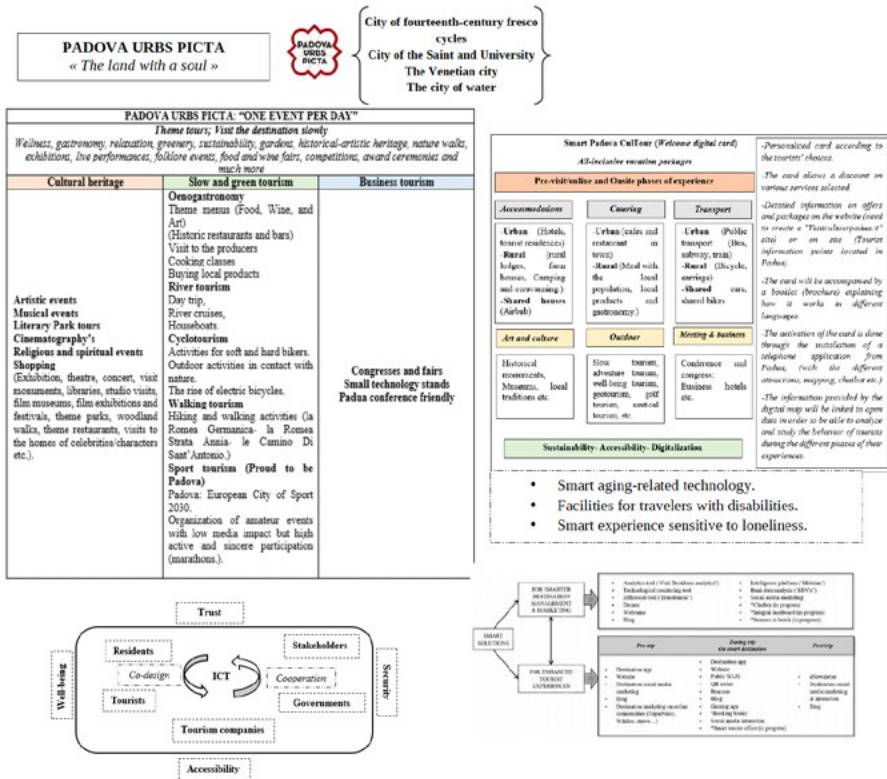
Table 6: Examples of Smart cultural Strategies by Padua (Own elaboration)

Examples of Smart cultural strategies	Link
“Padova card”, a smart card that allows to visit many cultural attractions in a practical way, taking advantage of free tickets, discounts and benefits that make it an interesting tool to discover Padua and its territory at a lower cost.	<a href="https://www.blogdipadova.it/padovacard-visitare-padova/">https://www.blogdipadova.it/padovacard-visitare-padova/</a>
Museums accessible to people with physical and sensory disabilities: the Museo degli Eremitani, the Cappella degli Scrovegni, the Palazzo della Ragione, the Oratorio di San Michele and the former Macleo Cathedral.	<a href="https://padovacultura.padovanet.it/it/musei">https://padovacultura.padovanet.it/it/musei</a>
A mobile application Padova Urbs picta has been created as a tool to discover the eight places and the origins of the project of the 14th century fresco cycles of Padua.	<a href="https://play.google.com/store/apps/details?id=com.meepale.padovaurbspicta&amp;fbclid=IwAR0z9VxSMBzS2lkZiHzPRolaD7Q3TsQEZPAWuQBN26SmLPYoWbpGRgZ08WY">https://play.google.com/store/apps/details?id=com.meepale.padovaurbspicta&amp;fbclid=IwAR0z9VxSMBzS2lkZiHzPRolaD7Q3TsQEZPAWuQBN26SmLPYoWbpGRgZ08WY</a>
A guide entitled “Accessible tourist route of Padua - the heart of the city”, allowing all disabled people to discover places of interest while knowing how to move or what precautions to take.	<a href="https://padovapertutti.files.wordpress.com/2021/02/ddeaf-itinerario-accessibile_padovapertutti_def.pdf">https://padovapertutti.files.wordpress.com/2021/02/ddeaf-itinerario-accessibile_padovapertutti_def.pdf</a>
A service managed by the “Cooperativa Radio Taxi Padova”, which offers a taxi service for tourists with disabilities.	<a href="https://apptaxi.it/">https://apptaxi.it/</a>
Online platform called “Accessible Padua” containing information, views and contacts on services for people with disabilities.	<a href="https://www.padovanet.it/padova-accessibile">https://www.padovanet.it/padova-accessibile</a>
A project called “Liberi di Andare” (Free to go) which aims to help disabled people to move freely on public transport <sup>22</sup> .	<a href="https://www.padovanet.it/informazione/trasporto-persone-con-disabilit%C3%A0-liberi-di-andare">https://www.padovanet.it/informazione/trasporto-persone-con-disabilit%C3%A0-liberi-di-andare</a>

<sup>22</sup>This project is a free service promoted by the social services sector of the city of Padua to support the autonomy of the person, who benefits from fifteen round trips of the transport service between his or her home and the place of interest every year.

Based on these aspects, the new Padova smart ecosystem proposed in the following figure promotes the destination from a different perspective, but still retaining its main identity of Culture, under the brand of “Padova Urbs Picta”. This new brand will be like a hat to promote the destination with sub-identities, namely *Padova the city of Saint, the university city, the city of science and Galileo, the city of water, the city close to Venice, the city with the 3 “without”(Prato without grass;”The saint without a name.””The Café without doors Caffè Pedrocchi “), etc.* Thus allowing the destination to acquire a wide public, offering thematic tours (Culture, nature and business), which will be co-designed by different actors (Residents, tourists, stakeholders, tourist companies, government) putting together their efforts to achieve these objectives. In addition, these tourism offers will be communicated through a digital platform aimed at the different targets and during the different stages of travel (before, during and after), while trying to meet the needs of different categories and tourists.

Figure 6: Padua smart ecosystem (Own elaboration)



## 4. Conclusion

Technology and talent are two key aspects in building a smart city. *“You can’t govern without knowledge” and knowledge, in a smart city, comes first and foremost through data*” Giacomo Angeloni. *“If open data is free, its use is not free and it is not possible to ignore the regulatory issues...”*. Add Alessandro Vasta and Francesca De Chiara, at the City Vision roundtable in Rome on governance and digital transformation.<sup>23</sup>

Today, the competitiveness of destinations depends on their ability to access enriched data and generate new content to improve their performance as a dynamic ecosystem. This data comes from traditional sources such as statistical institutes, but also from hosting platforms, meta-search engines, social media, etc. and is used for the promotion and positioning of the destination, market segmentation, event organization or competitor monitoring. However, Femenia-Serra et al.,(2022) indicate that each DMO is subject to different factors that influence its approach to data management, explaining that each territory has its own unique decision-making process, as well as the systems used in the data analysis employed. In addition, the data collected by each destination is marked by the size of the floating population, which can imply a higher degree of complexity in the collection and analysis of this data, and therefore a big challenge for managers. Another problem that destinations suffer from is the difficulty in developing a data platform, which is due to the very limited human, technical and financial resources available to DMOs, and which hampers their ability to exploit the data. In this case, destinations are faced with two options, either to use external companies such as IT and telecommunication companies or banks that sell data “packages” and pre-established platforms, that do not fit the needs of each destination, or to develop their own data platform using Microsoft Power BI© in which destinations integrate most of the data from different sources, but satisfaction with this service is low due to technical difficulties, additional costs and lack of usefulness. For this reason, it has become a requirement for DMOs today to have a data expert on their team, who would be responsible for developing data-driven reports, creating charts and maintaining them (Femenia-Serra et al.,2022). From another point of view, there must be a synergy between the administrations and the citizens, not only a vertical path from top to bottom, but the administrations themselves must be aware of the citizens’ needs. According to Gazillo and Marchioro (2022), however, data management and destination strategies geared towards sustainable tourism

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<sup>23</sup> <https://city-vision.it/governare-con-i-dati-una-questione-di-fiducia-i-punti-emersi-nella-tavola-rotonda-di-city-vision-a-roma/>



development presuppose - in turn - an awareness on the part of territorial actors of the importance of a data culture and that the information acquired is then transformed into generalized knowledge accessible to all.

Finally, there is another issue that is considered a major concern today for most smart destinations, and that manifests itself in the rights of citizens and tourists with respect to their shared data, according to Masseno & Santos (2018) These technologies raise important questions around the regulation and legal implications derived from the use of smart technologies, data misuse, profiling and surveillance. *Thus, the privacy concerns have been identified as one of the factors leading to the postponement of technology adoption in different sectors notably the travel context, for example in the case of mobile payment services (Khanra et al.,2021) or the smart Retail (Acuti et al.,2020;AIELLO et al., 2020;Vannucci et al.,2018).* This was confirmed by lawyer Alessandro Vasta, who summarized that *“European cities are now facing a decisive challenge: to become the protagonists of digital and technological development and, at the same time, to confirm the centrality of individuals and their rights”*. In essence, and on the whole, there are several challenges to implementing the data-driven approaches that underpin intelligent tourism. These challenges need to be known and taken into account in order to design strategies that can address them. By ‘challenges’ we mean not only aspects related to the purely analytical sphere of data, such as enabling technologies and related infrastructures and data formats, but also regulatory aspects related to privacy and data management, as well as ‘human’ aspects such as the digital literacy of tourists and tour operators or the ability to involve as many stakeholders as possible in data sharing initiatives. Therefore, being aware of the main challenges of data-driven tourism is crucial for any destination that aspires to master data successfully (European Guide on the Use of Data for tourist destinations, 2022).

## **5. Limitations**

The paper seems to be based on secondary sources and on the conceptualizations of the authors, without checking for external validity. Moreover, the claim made in the introduction and in the section on the city of Padua, that Padua lacks tourism management and governance capacity, is also based on scientific articles and statements of some professionals on the internet.



## 6. Future research

Future research could include testing and validating the model with stakeholders and conducting a gap analysis between the model and the real situation. Also they can include benchmarking activities for urban environments similar to Padua. Furthermore, other researchers may investigate the impact of the smart strategy for tourism in the city of Padua in terms of changes in tourist flows, new market segments, new costs and revenues, actors involved, etc.

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## Author information

FATIMA ZAHRA FAKIR: ORCID: 0009-0006-7406-0948, Postdoctoral researcher and assistant professor at the University of Padua, affiliated with the "Department of Economics and Business Sciences 'Marco Fanno' (DSEA)." Her area of expertise lies in smart tourism, cultural heritage, and sustainable development.

SILVIA RITA SEDITA: University of Padova ORCID 0000-0002-4589-6934 Professor Silvia Rita Sedita obtained a Ph.D. in Economics and Management of Small Firms and Local Development in 2004. She holds the position of full Professor in Management at the University of Padova, where she teaches Advanced Marketing, Sustainable Business Models, and Economics and Management of Innovation. Her research agenda includes issues within the field of management of creativity and innovation in interorganizational networks. Recently she has been interested in the sustainability of innovation.

GIORGIO ANDRIAN: International consultant and an expert in cultural heritage management. With a decade-long tenure at UNESCO and extensive teaching experience, he also oversees UNESCO candidacies and offers consultancy for Padua's UNESCO World Heritage Site nomination.

STEFAN MARCHIORO: Director of Territorial Projects and Tourism Governance for the Veneto Region, he concurrently serves as a contract professor instructing Applied Economics to Tourism at the University of Padua. Additionally, he holds significant positions on the Advisory Board of the BTO in Florence and the Scientific Committee of the ITS Veneto Foundation.