BOOSTING INNOVATION AND DEVELOPMENT? THE ITALIAN SMART TOURISM: A CRITICAL PERSPECTIVE

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Abstract

This paper deals with smart tourism practices and innovative tools supporting cultural heritage, with the aim of evaluating their potential in the Italian scenery. In particular, it evaluates the theoretical and methodological implications of the Smart City paradigm, above all in the tourism sector, as well as analysing the results of data, indexes and good practices related to Italian smart tourism. Furthermore, it provides an innovative methodological approach named STeMA, used within different UE-funded projects with the aim of promoting integrated, strategic and competitive tourism management plans thanks to the development of ICTs.

Keywords: smart tourism, smart culture, sustainable development, Eurogeo2014

1. INTRODUCTION

In recent years smart technologies as well as the digitisation of cultural resources have been increasingly regarded as inputs for added-value products and services in fields such as *cultural heritage and tourism, growingly interwoven one each other.*

The increasing convergence between culture and economics in the process of city branding and the emergence of the so-called "commercial cultures" have been transforming urban spaces as well as their representations/narrations elaborated by citizens, city-users and tourists.

However, economical crises affecting Western - and specifically European - economies since 2008 have strongly affected the ascending trajectory of capitalism-based service societies where tourism is a very important economic driving force. Apart from this, other kind of "crises", namely environmental and institutional, induce an innovative change in cultural and tourist practices which have been recently oriented towards the paradigm of the Smart City, whose potential could be exploited particularly in a country such as Italy where tourism suffers from an integrated and holistic approach.

In effect, it is interesting to evaluate to what extent main Italian cities provide a smart sustainable access to cultural heritage for a wider range of users by the use of digital technologies in order to transform passive audiences into active practitioners, through the cross fertilization between ICT enterprises, Creative and Cultural Industries and local actors.

First of all the work underlines potentialities and limits of the Smart City concept - both at the theoretical level and the methodological one - . Secondly, the Italian smart tourism is analysed through a set of indicators at the core of indexes defining the Smart city, particularly

in tourism and cultural heritage. Finally, the paper analyses the methodological approach called STeMa (Sustainable Territorial environmental/economic Management Approach, developed by Prezioso, 2004; 2011; 2013) that, together with STeMA-GIS, aims at promoting integrated, strategic and competitive tourism management plans thanks to the development of ICTs, since smart tourist technologies should not be developed just for final users but above all in the planning stage.

2.CONTEMPORARY CITIES, BETWEEN SMARTNESS AND GLOBAL COMPETITION

During the last decades, competition across cities – both the so-called "global" cities and the small or medium-size ones – has growingly increased, due to globalization together with trade liberalization measures and fast technological changes, as underlined by Giffinger et al. (2007).

The post-fordism shift and the transition to a neo-liberalist urban paradigm, implying the passage from a public-led urban planning to a entrepreneurial approach of urban policies – has been deeply studied since the late eighties in order to highlight the material and experiential implications linked to the rise of "commercial cultures", based on the convergence between culture and economy (Harvey 1989; Featherstone, 1991; Lash and Urry, 1994).

Consequently, only a few out of many location-based characteristics gain importance for global actors. Among the different economic fields affected by the growing global competitiveness, cultural heritage and tourism seem to represent the sectors where urban image and attractiveness potential become even more important. Thus, several tourism-led or cultural-led regeneration policies have been recently developed in several European regions in order to attract exogenous investments, favour exogenous resources as well as creating a new city image according to the patterns of territorial branding strategies (Cirelli et al., 2013; Graziano, 2013).

Such an increased competitiveness has recently induced many local actors to consider the Smart City paradigm as the competitive asset to face city concurrence on a global scale. Combined with globalisation, the technological transition of the '90s as well as the patterns through which ICTs are being developed and deployed exert considerable impacts on the whole urban fabric, above all in sectors such as tourism for which digitisation has highlighted new potentialities of development. Digitisation does not mean only e-commerce, but it includes a wide range of technological tools which can permit to increase tourist attractiveness and consequently establish the city brand.

Thus, the growing connection among different sectors such as culture and tourism can be used as a privileged scheme of interpretation about the innovative contribution given by the ICTs in the process of reconfiguration of urban spaces.

2.1 The Smart City concept: a critical overview

In spite of the worldwide enthusiasm about the label of Smart City, an integrated and holistic definition of the city smartness is still missing. Different definitions of smart cities have been recently developed in order to generally indicate the use of technologies with the aim of improving competitiveness and ensuring a more sustainable future by symbiotic linkage of networks of people, businesses, technologies, infrastructures, consumption, energy and spaces.

If the use of technology and social innovation seems to be the core issue of the concept (Mosannenzadeh, Vettorato, 2014), generally a the city is regarded as smart when it is well-performing in six macro-areas, that is to say: Economy, Environment, Mobility, Governance, People, Living (Komninos, 2002; Giffinger et al., 2007; Shapiro, 2008).

So, according to Giffinger et al. (2007), "a Smart City is a city well performing in a forward-looking way in these six characteristics, built on the 'smart' combination of endowments and activities of self-decisive, independent and aware citizens".

Linked to the concept of "wired city" (Papa et al., 2013; 2014), the increasingly widespread label of Smart City implies a new dimension to be built through the inclusion of innovation and technological infrastructures into the systemic structure of the city.

In effect, even the very theoretical concept of Smart City is based on a controversial dialectics made of two antithetical representations. The first one implies a top-down approach considering the Smart city as the final output of business, commercial or institutional interests, often linked to the determinist idea of a kind of 'control room' for the city.

The second one refers to a bottom-up approach which considers the Smart City as the result of a participatory orchestrations empowered by active citizens, dismissing any pattern of top-down urbanisation projects (see also Breuer et al., 2014) so that the "smartest cities are the ones that embrace openness, randomness and serendipity — everything that makes a city great" (Mosannenzadeh, Vettorato, 2014). In the concept of the "Intelligent city" developed by Komninos (2002), human and social capital together with infrastructural and technological investments support a cohesive city development thanks to a bottom-up governance (see also Caragliu et al., 2011; Fistola, 2013).

Thus, the Smart City can be regarded as a kind of "enabling city (that) combines the creativity of citizens and experts, politicians and businesses for making cities in collaboration. Even though technology and connectivity are not necessarily the most critical factors in achieving this aim, they have the potential to be the enabler" (Hollands, 2008, p. 310).

However, the Smart City concept remains elusive, even though the recent proliferation of definitions mirrors the necessity of developing new ways of looking at the contemporary city. Still, its conceptual dimension should be more critically approached owing to not only its epistemological limits, linked to the wide range of different definitions, but also its methodological and operative ones. The enthusiasm about the concept, increasingly regarded as the new paradigm of urban renaissance policies, sometimes neglects the intrinsic conflict between technology-oriented development and socio-environmental sustainability (Hollands, 2008; Komninos, 2009).

Paradiso (2013) underlines the conceptual haziness and ambiguity of definitions, which should take into account socio-territorial disparities fostered by investments in ICTs, strictly linked to the concept of splintering urbanism developed by Graham, Marvin (2002). In addition to this, it should be highlighted the growing invasiveness of the mobile web, that has been re-drawing virtual aggregation clusters as well as the patterns of interaction between real and virtual spheres.

On a global scale, several cities are promoting a great number of initiatives aiming to become smarter attractive destinations. With regard to the Italian scenery, several studies and analyses have ranked Italian cities on the basis of their level of smartness, whose results often differ one each other because of an heterogeneous set of indicators, variables and data. Among the others, we remember the *ICity Rate* (Forum PA, 2013) as well as the *Smart City Index* (Between, 2014). The last reveals to be more useful for the aims to this work since it includes a specific index dedicated to smart culture and tourism.

Thus, the paradigm of smartness - even in fields such as tourism and cultural heritage – has been increasingly regarded as a panacea to enhance attractiveness. However, even in the tourism sector the concept remains elusive and over-valued. During the first meeting of the Tourism Resilience Committee of the UN World Tourism Organization in 2009 the smart tourism concept has been launched in order to include some relevant issues such as ethics, quality and sustainability at all levels of the service chain, with the aim of providing short-term reactions to the current economic crisis together with the overall goal of a long-term sustainable development.

In public discourse, however, smart tourism, like the smart city, is often associated just to the use and application of new generation technologies. Alongside the smartness related to the specific behaviour of tourists/consumers, smartness should be also referred to the economic structure supporting the tourism sector (travel agencies, tour operators, restoration, accommodation, tourist services) as well as to the whole tourist destination (see also Ercole, 2013).

In recent years, increasingly widespread updated technologies have been transforming the different micro-areas of tourism sector, ranging from the tourists' experience (the demand) to the supply both of individual tourist enterprises and overall destinations.

Particularly, an increasing number of tourists rely on mobile devices, social media and network technologies based on user's generated contents not only in the pre-travel stage with the aim of planning and organising, but above all during the tourism practice to gain information, share experiences and personalize the trip (see also Germann Molz 2012, p. 3).

The term "interactive tour" has been used to describe these new practices of tourism, that imply a rethinking of the well established paradigms of tourism studies in the digital age as well some concepts and narratives linked to traditional tourism experience, such as landscape, tourist gaze, authenticity, escape, increasingly pressed by unprecedented ones such as 'mediated gaze' or 'mobile conviviality' (Ercole, 2013).

It's not surprising that Urry and Larsen (2011, p. 14-15), in introducing the updated version of their seminal work *The Tourist Gaze*, significantly renamed *The Tourist Gaze 3.0*, underline the need to "rethink the concept of the tourist gaze as performative, embodied practices, highlighting how each gaze depends upon practices and material relations as upon discourses and signs".

Germann Molz (2012, p. 3) highlights that "over the past decade, the proliferation of Internet cafés, portable computers, mobile smartphones, wireless Internet, connected hotspots, online social networking sites, user-friendly social media platforms and photo sharing sites has normalized ubiquitous access to the Internet among mobile geographically-dispersed social groups, not least of all interactive travellers."

The author identifies some relevant characteristics of smart tourism, linked to the broader frame of mobile sociality.

First of all, the connection involves the use of smart devices, mobile and Internet-connected interfaces spatially localized (such as GPS or Google Earth), that allow tourists to orient themselves. Secondly, smart tourism transforms tourists in intelligent, co-creative active producers who can promote respect for the tourist destination (civic engagement). Third, smart tourism implies a multi-way, multichannel approach as an interface between the real space and the virtual one that stimulate the tourist's immersion in the physical environment of the destination through the unprecedented narratives and representations provided by mobile devices.

Moreover, smart tourism involves high levels of sociability, giving tourists increased opportunities to interact with local population or other tourists. Finally, it has the potential to improve local sustainability, since mobile applications and devices can promote awareness

about the host society, transforming tourists from "economic units" in "cognitive unities" (see also Ercole, 2013).

As a result, tourism, travel and backpacking are increasingly regarded as metaphors of the mobile world and generally of the issue of postmodernism: "interactive travel has a lot to tell us about this changing social world, and especially about the way social life has become wrapped up in technologies of moving and communicating " (Germann Molz, 2012, p. 7).

3. ITALIAN SMART TOURISM AND CULTURE

The analysis of Italian smart tourism implies the selection of a few macro-categories to choose smart cities where cultural heritage and tourism intersect with most evidence or have already been supporting local development inspired to the paradigm of smartness.

The chosen methodology is based on the theoretic and epistemological in depth examination of the Smart City concept, integrated with the analysis of data and statistics both on the national level and related to some selected urban areas. A swot analysis is finally used as an effective instrument in order to evaluate the level of smartness in the Italian scenery.

Generally, the smart enhancement of cultural heritage is related to four dimensions:

- collection, reproduction, protection, management/conservation (i.e. innovative restorative measures or techniques of archiving);
- contents and multimedia information creation technologies, both conservative and productive (i.e. data bases; data mining; semantic web; imagineering; augmented/virtual reality; oleographs);
- user's interactive experience technologies (i.e. immersive/virtual/augmented reality; context awareness and geo-localisation; smart ambient; applications for smart terminals).
- the dimension of cultural heritage as a specific element connected within a complex system giving new possibilities of urban governance. So, the territory should be regarded as a complex system to be monitored through live data collection and governed by allocating resources according to users/citizens/visitors requests through, for instance, sensor networks that record main activities or platform solutions to manage city events (i.e. sensors to record citizens fluxes; short-ray communication systems such as Bluetooth, WiFi; interactive kiosks; cloud computing platforms to concentrate huge quantities of data and their processing).

So, mobile technologies are the main tools through which citizens and tourists, more and more *prosumers* than consumers, can integrate their personal experience, by changing the relationship with cultural products in a dynamic interaction.

These tools can permit the tourists to represent/describe/interact with the cultural object or tourist site in a fluid space-time dimension trough a multi-way and multichannel approach which imply the simultaneous use of different mobile devices.

As far as the specific Italian scenery is concerned, during the '70s Italy was the first international tourist destination, whilst nowadays, in a global context of growing competitiveness, the impressing cultural heritage is not longer sufficient to attract visitors.

Smart tourism, that could involve relevant potentialities of development, is not really supported by institutional actors, as underlined by the *Smart Culture and Travel Report 2014*, published by *Between* with the support of *Agenda Digitale Italiana* (2014). The report analyses a wide range of 70 indicators, related to the possibility to access online information and book hotels and restaurants; to buy online tickets for tourist attractions, museums, theatres; to plan and personalize the travel; and finally, the presence of social network pages

and applications for tablets and smartphones dedicated to culture and tourism as well as the participation to calls for tender about Smart cities.
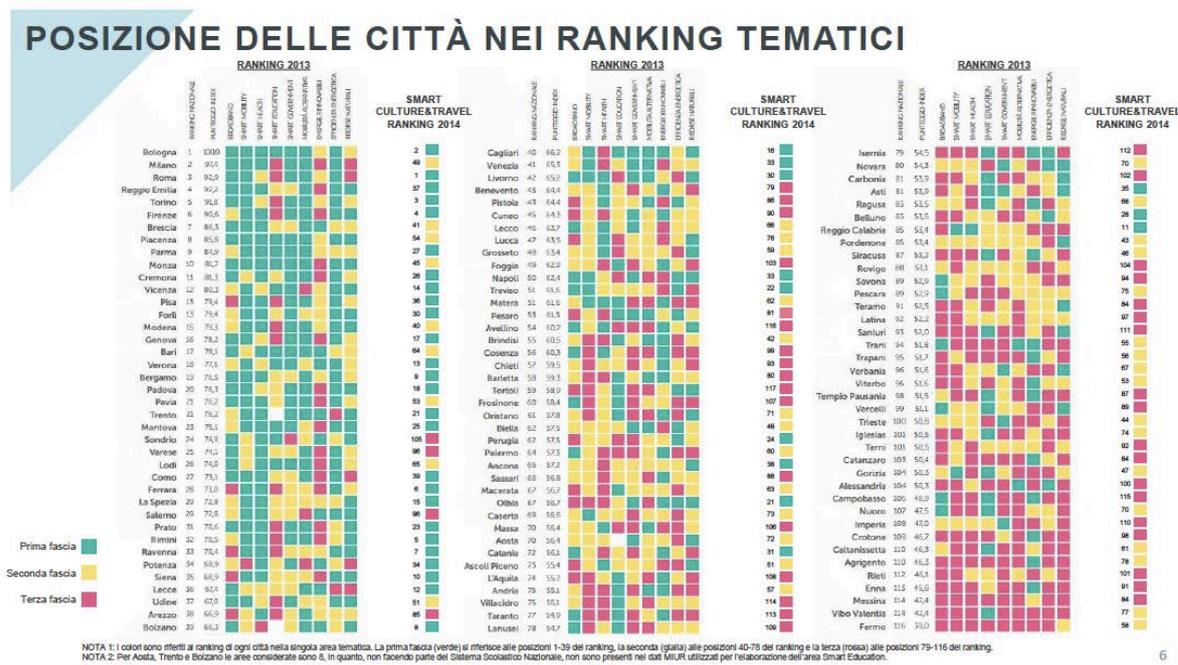

Figure 1. Italian province capitals smart and culture ranking.

According to this report, only 4 province capitals over 117 (Rome, Florence, Siena, Venice) permit the tourist to buy online tickets for museums, archaeological sites and cultural monuments.

Table 1. The first ten Italian smart cities concerning culture and tourism.

Rank	City
1	Rome
2	Bologna
3	Turin
4	Florence
5	Rimini
6	Ferrara
7	Ravenna
8	Bolzano
9	Bergamo
10	Siena

At a first glance, the most interesting result is that Rome, that suffers from deeply rooted issues related to quality of life, is the first smart city from the tourist point of view, even

before Bologna that is the smartest if we consider other aspects such as education, transports, renewable energies etc.

Rome is ranked as the first thanks to a system of thematic portals which permits to have information and book hotels, restaurants and monuments access, in addition to a highly technological library system and a wide range of tourist services offered through web and apps.

Medium-size art cities such as Rimini, Ferrara, Ravenna, Bolzano and Bergamo are inserted in the top ten while Siena is the only one as a small-size city. Reggio Calabria is the first southern city (11th) and as a whole just six southern cities are among the first twenty (Lecce, Cagliari, Olbia, Catania).

With regard to overall percentages about the diffusion of new web channels, applications and services, main Italian cities are far from being smart tourist destinations. Just 14% of municipalities gives the possibility to book online hotels and b&b; 21% of cities has a citizen or tourist card to improve access to city services; 61 % of province capitals has an official page on Facebook, Twitter or YouTube, but just 29% has an official page specifically destined to culture or tourism in all the above-mentioned social networks or sharing platforms. If all the province capitals have their own website, about 50% has a specific portal about tourism and 17% about culture or tourism.

Furthermore, according to a research carried out by Tourism Economics for Google (2013), improving online tourist content would means to give impulse to Italian economy to a such level to create 250.000 new jobs with an increase of PIL of 1%.

So, nowadays, Internet as an instrument of territorial enhancement is still undervalued and underused. The percentage of tourism coming from Web channels is just 26%, over an European media of 49%. Moreover, the market of online reservations and travels is dominated by the Online Travel Agencies that do not generate wealth in Italy, which is even more worrying if we think that 46% of overall global e-commerce, equal to 5 billions per year, is linked to tourism (*ibidem*).

At a micro level, Italian accommodation is not updated in terms of smart tourism. The simplest smart tool, that is to say a booking engine permitting to book online hotel rooms, is included in just 30% of websites, that underlines a very digital divide to be overcome. The digitisation is even more complicated by the extreme fragmentation of the supply and the deeply-rooted tradition of family-run micro-companies of the sector.

What is more, the reform of 2001 about the 5th Title of Constitution, in the 117th article gives the regions the exclusive competences about tourism, thus even more nourishing the already existing fragmentation.

So, on a local scale, in Italy there are only few effective examples of smart tourist and cultural practices, conceived in order to permit the tourist/visitor/user to "build" a tourist's personalised experience. Actually, some practices can be underlined, both at the institutional level and the semi-private one.

On the institutional level, the national official portal about tourism, recently redeveloped and updated, collects all the tourist cards and official applications destined to tourism for each Italian region (www.italia.it). According to this list, the first smart region is Trentino, with 24 official apps dedicated, followed by Umbria (13) and Piemonte (10). Campania and Sicily have not official apps on tourism, just some tourist apps developed by private actors.

As far as the public or public-private level is concerned, we should remember an innovative Italian project based on digitisation of culture. It's "Movio", realised by the *Istituto Centrale per il Catalogo Unico* thanks to the funds of *Invisible Goods 2010* by Telecom Italia. The project is based on the consciousness that, apart from the well-known excellences, Italian cultural heritage is also made of different cultural events and exhibitions

which could be better enhanced thanks to the ICTs. "Movio" is an open source through which archives, libraries, museums, universities, schools and associations can realize virtual exhibitions to promote their own works of art, above all the less known ones, by integrating different tools ranging from photo-galleries, timeline and storytelling to interactive and conceptual maps. The most interesting tool is the ontology builder that permits the curator to create the conceptual map of the exhibition in order to give the user the possibility to follow his own personal path of surfing/visiting within the website.

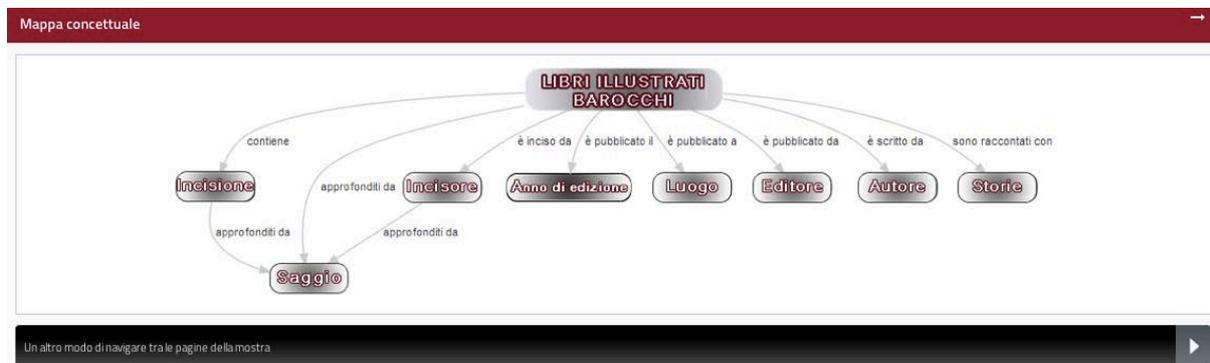**Figure 2.** An example of a virtual exhibition created through Movio.

Figure 3. The ontology builder, a useful tool to create a conceptual map of the virtual exhibition.

Another good practice is represented by the Telecom Italia Future Centre located in the former convent of Campo San Salvador in Venice, where different tools of ambient intelligence and augmented reality give new perspectives about the traditional cultural heritage. Recently the contest called "Innovative Interactive Tour on Telecom Italia's Future Centre" has been organised together with the *Arte Laguna Award* in order to award the most innovative way of tourist fruition of the Future centre architectural elements.

Figure 4. The Kiosk of the Future Centre with its Augmented Reality Point of Access

It is not surprising that the above-mentioned good practices of smart tourism and culture have been developed thanks the a public-private partnership as well as financially supported by a multinational company of telecommunication. This mirrors the transition to neo-liberalism urban policies and practices, more and more oriented towards an entrepreneurial approach of the city government and moulded by a growing privatisation of the public space. This implies increasing socio-economic and cultural inequalities of contemporary cities, where the smartness is not a prerogative of all citizens.

Within this scenery of the Italian smart tourism made of lights and darkness, a SWOT analysis can be used as an effective tool to evaluate current level of smartness and find out potentialities of future development.

Table 2.SWOT analysis

STRENGHTS	WEAKNESSES
World class, globally recognised heritage High tourist attractiveness Recent increase of start up companies in the tourist sector	Extreme fragmentation of the supply Modest technological orientation of the main institutions in the field Small family-run business in the tourist sector Lack of institutional coordination at the national level
OPPORTUNITIES	THREATS
Recent diffusion of calls for tenders and funds for developing smart tourism practices (national and international level) Proposal of creation of the *Registro Digitale Turismo* (Tourism Digital Register) Recent creation of Associations and Observatories about smart tourism	Lack of integration in the sector at the national level due to the exclusive competence of Regions about tourism Passive resistance from more conservative players that may prevent innovation in the field Lack of sufficient resources and know-how about smart tourism High burden of administrative issues

3.1. STeMA, an innovative methodology for tourism planning

The paradigm of smartness in the tourist sector should be better developed not only for final users but also in the tourism planning stage, so that new technologies can be exploited as innovative tools to support the ex ante analysis finalised to the tourism development.

With regard to this, an innovative theoretical and methodological planning approach to support tourism development is the STeMA and STeMA GIS methodology (Prezioso, 2004, 2011, 2013), finalised to understand the territorial sensitivity as the final indicator of the territory propensity toward transformation. This is a territorial planning instrument that integrates Plans, Projects and Balance, and acts as preventive measure promoting assessment analysis of projects to achieve social and economic sustainable growth.

The STeMA methodology provides fourth generation plans using Impact Assessments – (Strategic Environmental Assessment – SEA - and Territorial Impact Assessment – TIA -), depending on geographical plan scale, in addition to transforming the European geopolitic integration principles (sustainability, subsidiary, cohesion, integration, perequation) in project actions through a multi-disciplinary and balanced approach.

The model can represent a tool to evaluate and enhance the territorial attractiveness, which implies increasing quality, improving the historical cultural tangible and intangible heritage, supporting sustainability in tourism by an ex ante evaluation of policies, programmes and projects.

For this reason it is really suitable and applicable for ENPI-MED Cultural Heritage programme, UNESCO World Heritage Tourism programme, WHS brand/label for tourist destinations, sustainable conservation and tourist enhancement.

Specifically, the used tools are the following:

- Strategic Environmental Assessment
- STeMA Geographical Information System
- Quality Plan and Quality certification ISO 9000:2000 and 14001
- e-government
- territorial marketing: benchmarking, SWOT, business plan, project financing
- governance
- dissemination
- territorial management of EU budget projects

The first step is represented by the Initial Environmental/ Territorial Framework that implies the ex ante environmental evaluation, defining the overall level of territorial 'sensitivity' through the analysis of the following territorial subsystems:

- the morphological sub-units: hydrological, geomorphologic, natural landscape systems;
- the morpho-territorial unit: historical landscape system;
- the settling spatial typologies: natural and protected areas system; fauna system; settling urban system; rural settling system; atmosphere system; noise system; public safety system.

In the second stage, the Initial Programme Framework analyses the different normative typologies and the financial supply of each territory at the national or transnational (EU; UNESCO) level, in order to adapt the plan to the expected results.

In the third step the Project Framework links the previous frameworks through the Strategic Environmental Assessment in order to indicate the most sustainable paths of development.

This model has been already applied in several EU project, such as the Newcimed Project, which focuses on the enhancement of the cultural heritage of the so-called "New Towns", a urban phenomenon which is widespread in the Mediterranean area. In that case, the STeMA model have permitted to record, classify, normalised in an integrated and systemic way the tangible and intangible cultural heritage (open spaces, public spaces, musical as well as food and wine traditions) by integrating the strategic plan for a sustainable tourism development within the territories involved in the project.
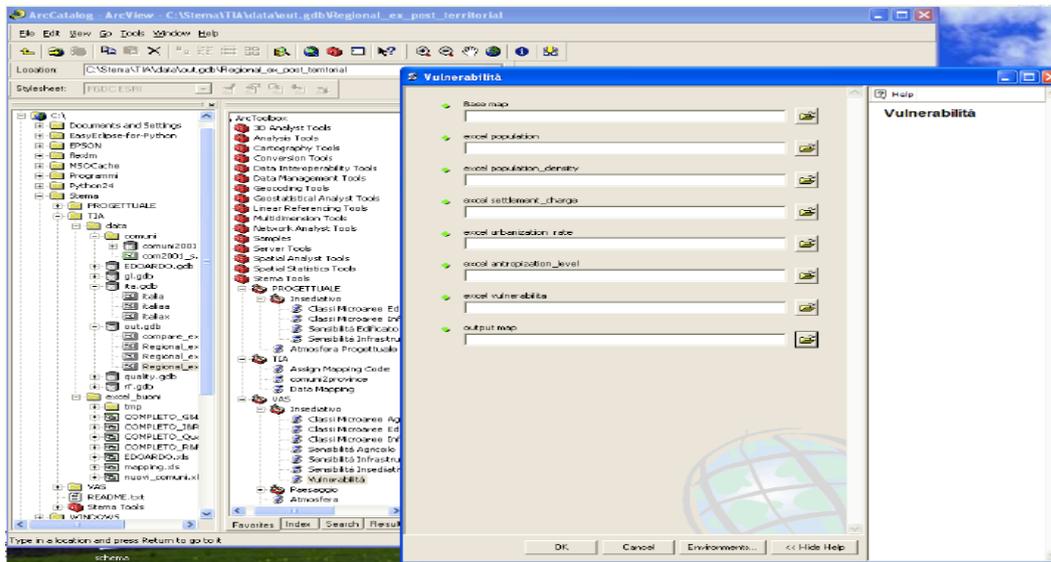

Figure 5. STeMA GIS: The assessment of territorial vulnerability, Prezioso (2004; 2011; 2013).

4. CONCLUSIONS

ICTs provide a wide range of tools able to enhance cultural heritage and, consequently, promote tourism. However, in order to be highly effective new technologies cannot be used just in the stage of user's fruition, thanks to the possibilities given by mobile terminals, but above all in the planning stage. Promoting smart tourism for a smart city means to take into account all the dynamics of development of the involved territories in order to plan a sustainable process of growth which implies also the possibility to 'use' cultural heritage for tourism reasons.

As shown by data and the SWOT analysis, in Italy the process of digitisation is still in progress, due to the lack of central and integrated coordination among different regions and shared standards, apart from the Italian specificity of an accommodation system mainly made of family-run micro-enterprises.

A first step could be the *Registro Digitale del Turismo* (*Tourism Digital Register*) that should be created by the government within the project of *Agenda Digitale* during Expo 2015. It should propose a common national standard, based on interoperability, through which private and public local actors can develop their applications and services for tourist uses.

To this regard, STeMA model provides a theoretical and methodological approach for sustainable tourism management which could reveal to be highly innovative and promote a sustainable smart tourism development.

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