

New technologies for the sustainable development of cultural routes: the case study of the Holy Face Route in Garfagnana Region and in the Serchio River Middle Valley

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ABSTRACT

The aim of this work is to understand if cultural tourism and pilgrimage are good opportunities for the sustainable development of a destination and in which way new technologies can be used to develop and communicate this tourist destination. In the last 20 years, cultural routes have become important for sharing European identity, and we can confirm that this kind of “touristic product” is growing and is a real economic opportunity for a destination – e.g. Santiago De Compostela and Galicia. Moreover, pilgrimage and cultural tourism have a low environmental impact - especially if travelers decide to move on foot or by bike. Concerning the new technologies, in this case, the route has been marked with a GPS and the gpx file has been elaborated with a GIS with the aim to create a virtual and interactive map, containing all the most important information for those who are traveling on foot. This map has been elaborated with two different software. With Google Earth has been created a video showing the route in a “plane view”, with the aim to be used as “commercial” showing the route. We also created a Web App with ArcGIS in which all the most important touristic information, photos, videos have been collected and that could be used by those travelers who are interested in the route before and during their trip. These technologies could be used not only to communication and promotion touristic destination, but they could be a real utility for travelers. Last but not least all this could be made with a low economic and environmental impact for the destinations.

Keywords: cultural tourism, GIS, sustainability, tourism, technology, development

INTRODUCTION

Tourism is indisputable an economical resource for many countries all over the world. According to UNWTO “over the past six decades, tourism has experienced continued expansions and diversification to become one of the largest and fastest-growing economic sector of the world”. A demonstration of this continuous growth is the international tourist arrivals, which have increased from 674 million in 2000 up to 1.186 million in 2015 (UNWTO Tourism Highlights, 2016). Today the challenge is not to understand how to increase tourism, but which is the best way to develop tourism in a sustainable way.

Tourism is one of the few “industries” that really needs to preserve the environment, as it is part of the “touristic product”. Moreover a large section of the tourist market is always more interested in “new” types of tourism - especially tourists that are coming from countries with a “mature” touristic history. Sustainable tourism can be defined as “Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities” (UNEP and UNWTO, 2005, p. 11-12).

As it isn't simple to define what culture tourism is (Richards, 2003) and keeping in mind the sentence regarding sustainable

tourism written above, we can affirm that cultural routes are a good mix between both types of tourism as they give the opportunity to plan and develop a destination and its territory in a sustainable way, without spoiling environment but preserving landscape, cultural identity, natural and territorial resources. In fact, travelers interested in cultural routes mostly travel on foot or by bike and the impact is lower compared to those traveling by car, train or airplane. Moreover, these travelers are interested in preserving the cultural identity and in the active protection of the natural resources of the destinations. For all these reasons, 2016 has been announced as “Anno dei Cammini d’Italia” by the MIBACT – Ministero dei beni e della attività culturali del Turismo.

We should underline how sustainability should be considered in all the different steps when “planning” a touristic destination. In this case study we have tried to keep in mind a simple but effective idea: is it possible to rediscover, value and promote in a sustainable way a cultural itinerary through the new technologies?

Moreover, we decided to study a route that runs along two geographical regions “Garfagnana Region” and “Serchio River Middle Valley” that belongs to Tuscany, but that are not important as other parts of the Region (e.g. Chianti). This is relevant for our study, as we are working with an almost unspoiled territory without crowds of tourists. Moreover, the geographical landscape and the natural resources are impressive, especially gullies and Apuan’s Alps.

METHODOLOGY

The work has been divided into four main parts. First of all, we have analyzed which are the European Organizations contributing to the development of the Cultural Routes and their policies. That lead us to a statistical-economic analysis of the

motivation and the tourist flow. Later we conducted a historical study concerning the Holy Face route, its history, and its historical path. We have also conducted a Tourism Resource Audit.

In this paper, we will not go into details on these three parts, as we want to be focused on the last and main part of the work: how to use new technologies for the sustainable development of a destination. Three are the main technologies used: a GIS software, Google Earth and the WebApp of ArcGIS.

TOURISM RESOURCE AUDIT OF THE HOLY FACE ROUTE

After defining the story of this route and the ancient itinerary, we have tried to recreate it, keeping in mind that today some of the original paths could have been destroyed. The maps used were maps in scale 1:50.000 (Multigraphic map) and 1:30.000 (map created by the Florentine association “Comunità Toscana Il Pellegrino”) together with some ancient maps preserved in the Archivio di Stato in Lucca.

After the definition of the route that could be philologically correct, we tried to evaluate the power of cultural- touristic attraction on the route and the power of attraction for the landscape resources. The methodology used is called Tourism Resource Audit (Godfrey & Clark, 2002).

The first step of this audit is to verify the resources of a destination and then to evaluate them. For the case study we decided to classify the resources themselves following their nature:

- Natural and environmental
- Cultural and historical
- Perspective and sensitive aspects.

After this audit, we passed to the field work, and we tested and geo-referenced the chosen track, paying attention to the resources but also on the problems found during the trip. We also kept in our mind

that the final output had to be useful not only for trekking tourists but also for cultural tourists and pilgrims.

This leads us to the main important part of our paper.

NEW TECHNOLOGIES FOR THE SUSTAINABLE DEVELOPMENT OF CULTURAL ROUTES

This is the most innovative part of the work and the one that needs to be deeply analyzed. As said before, we have geo-referenced the track. We have used a GPS, marking the cultural, historical, landscape resources we were meeting – using placemark and waypoints. Moreover, we also have pointed out the handy information for those traveling on foot, such as dangerous streets, inaccessible paths, but also more touristic information like drinking fountains, ATM, bar and so on.

GIS – Geographical Information System

After the field job, we have used a GIS as we should combine the GPX file with all these information. We have used QGIS (Quantum GIS), an open source GIS. GIS

are really useful as we wanted to realize an output that should be customizable following the different needs of the targets. This is the reason why we have decided to work on several shape files. The final project has to be the first step for creating several “products”, available on different devices – computers but also smartphone - so the information contained in the database of each shapefile should have been short and effective.

We have realized several layers in order to customize as much as possible the final output. This is the reason why we divided the several resources into different layers: there is one for “bridges”, one for “churches”, but also a shapefile for “attention” or “drinking fountain”. The layers can be overlaid and selected.

The project has been saved in several extensions, as we had to realize different “products”.

Google Earth

The first “product” that we wanted to realize is a KMZ file that includes all the shape files contained in the GIS project. KMZ is readable by Google Earth and let us decide which layer we want to select and

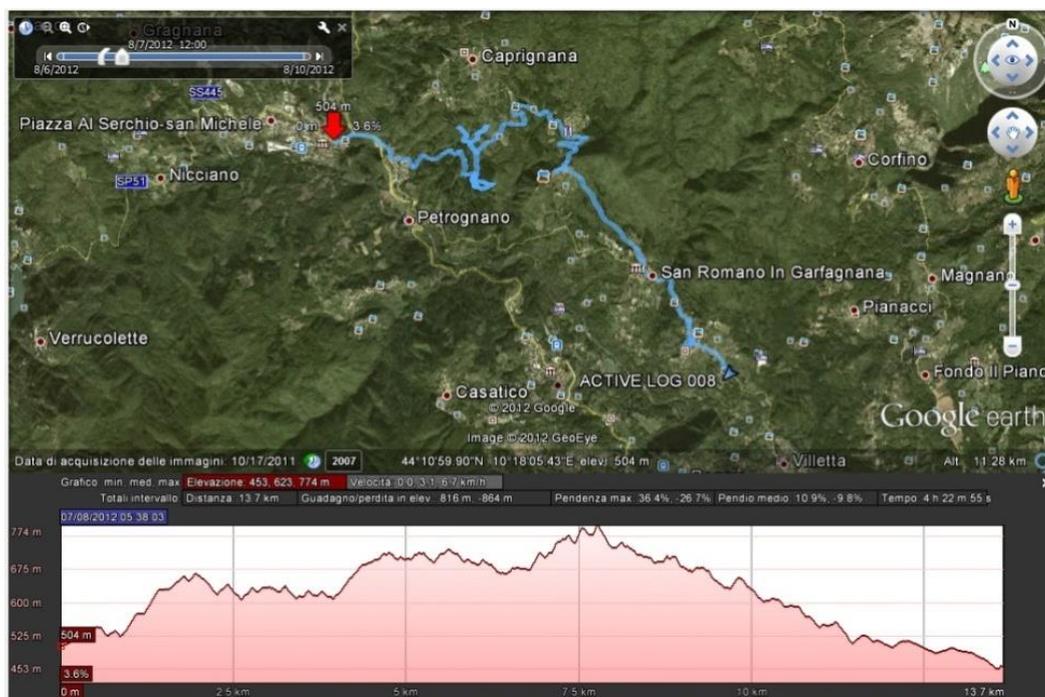


Fig. 1 Altitude profile between Piazza al Serchio and Sillicagnana.

see. Google Earth is a useful software, as it has lots of utility - like the altitude profile. This kind of information is fundamental for those who are walking around 20 km per day. In Fig. 1, we can see the altitude profile between Piazza al Serchio and Sillicagnana.

The biggest chance Google Earth gives us is to upload updates and realized new “interactive maps” without a loss of time and money.

It is also possible to recognize the different resources using different icons. If we click on them, we have the opportunity to read the main important information concerning the resources. Let us take as an example the Religious buildings. Clicking on its icon (the logo of a church), we can find out:

- Category: Religious building
- Location: Name of the city/town
- Type of building: Church/Bell Tower/etc
- General information

Lastly, we have also realized a “movie” of the route with the Google Earth “Tour tool”, that record a flight along the track of the route (Fig. 2). The appeal of this kind of technology is increasing and in this kind of output the component of “entertainment” is

relevant so that it could be used as a commercial video on websites. Moreover, it is a free software, and anyone should download it on its own device.

WebApp with ArcGIS online

The second software used is “WebApp” a Web Mapping Application developed by ArcGIS, allowing us to create a real App. We have chosen to use WebApp because it is handy, the result is effective and it is a nice union between a GIS and an App developer. Moreover, many Institutions – Universities, but also CAI (Club Alpino Italiano), Croce Rossa and much more – are using this software.

First, we have created a free account on the website www.arcgis.com. In our case study, we wanted to develop an app in which collecting maps, photos, videos, and text. The next step is the creation of the maps. Clicking on “Map” section is possible to create our own map, uploading layer from the web or, like in our case, from a file (the shapefile elaborated with the GIS). In this section is also possible the selection of which type of base map has to be used (Fig. 3).

After uploading the shapefile, it is

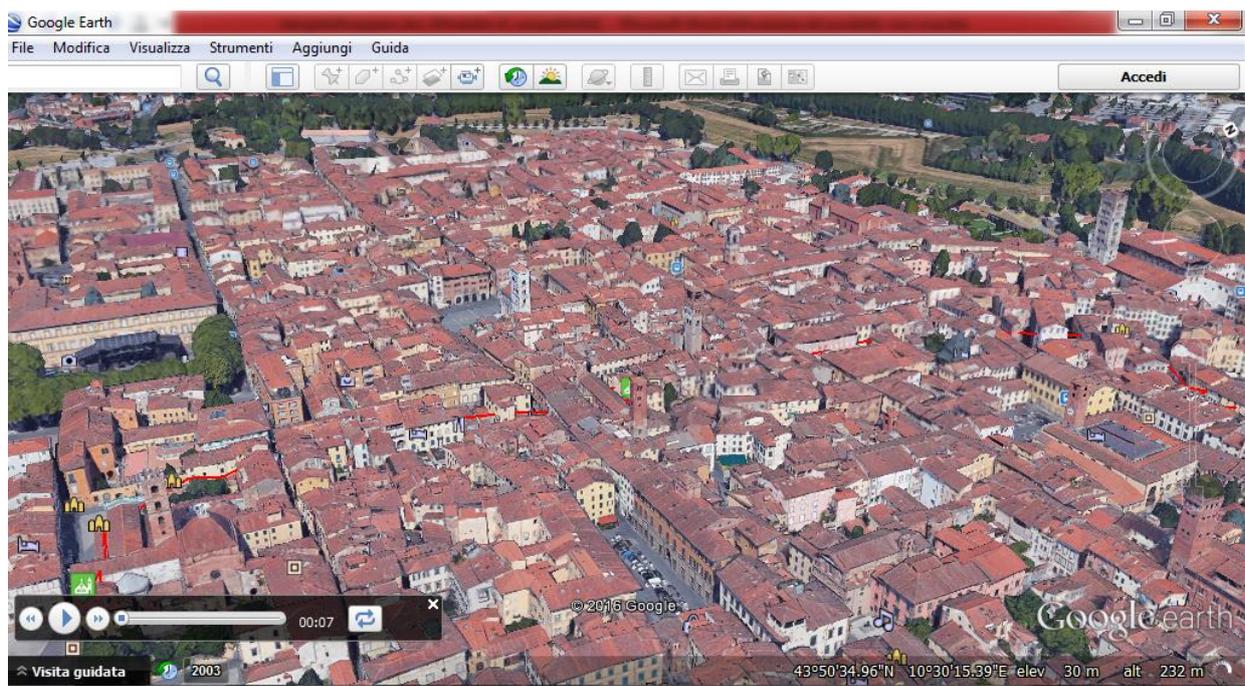


Fig. 2 Tour movie created using Google Earth Tour tool

possible to add information and icons on the map. In our case has been useful the tool: “Add notes to the map”. With this tool, it is possible to add information and significant icons on the map. With information, we do not mean to add only text, but also photos.

After the creation of the all the maps, we have begun the real development of the App. After going on “my content” section, it is possible to select which type of Web App we want to create.

In this case, we have chosen a Diary – Story map. With this template, it is possible to combine interactive maps with text and movies. For the movies, we need to have a URL, and it is possible if we have shared the video previously on Youtube or other channels. After the development of the WebApp, it is possible to share it on directly on Facebook and Twitter or to obtain a sharable link (in our case the link is <http://arcg.is/1qTR7dc>). Moreover, clicking on the “share icon” it is possible to catch the Html code and put it inside a web page. The final output is a real Diary containing all the information, the videos, the texts we

want to share (Fig. 4).

RESULTS

We would like to draw your attention to the following facts. For the European Institutions (EU and COE) the development of cultural tourism is the main instrument for the protection of the landscape identity and for the development of sustainable tourism. Moreover having a look at the results of the Tourism Resource Audit we can underline how this territory is rich in cultural resources, with beautiful landscapes and a strong local identity: all things that we need to preserve. The technologies used in this case study help us, as apps and video are impressive but at the same time cheap and easy to be developed. This is important as this kind of touristic product is often developed and promoted by associations. Finally, yet importantly, the outputs could be easily updated and are readable with software available on all the mobile devices, helping tourists in appreciating the route before – during – after the journey.

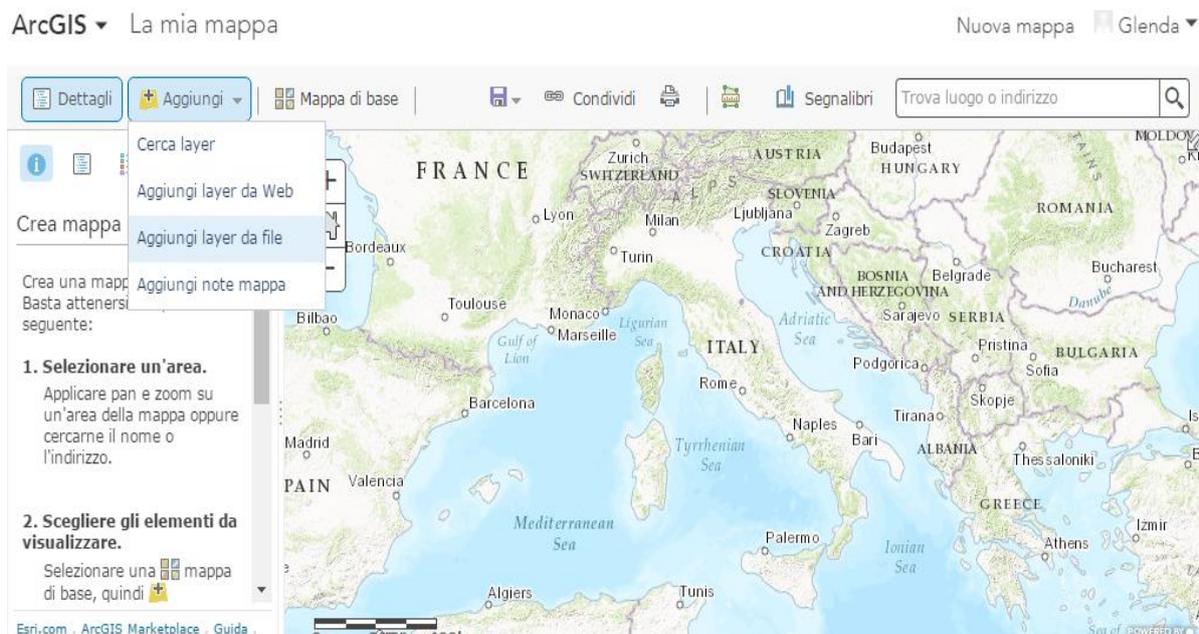


Fig. 3 Example of map use in the ArcGIS online application

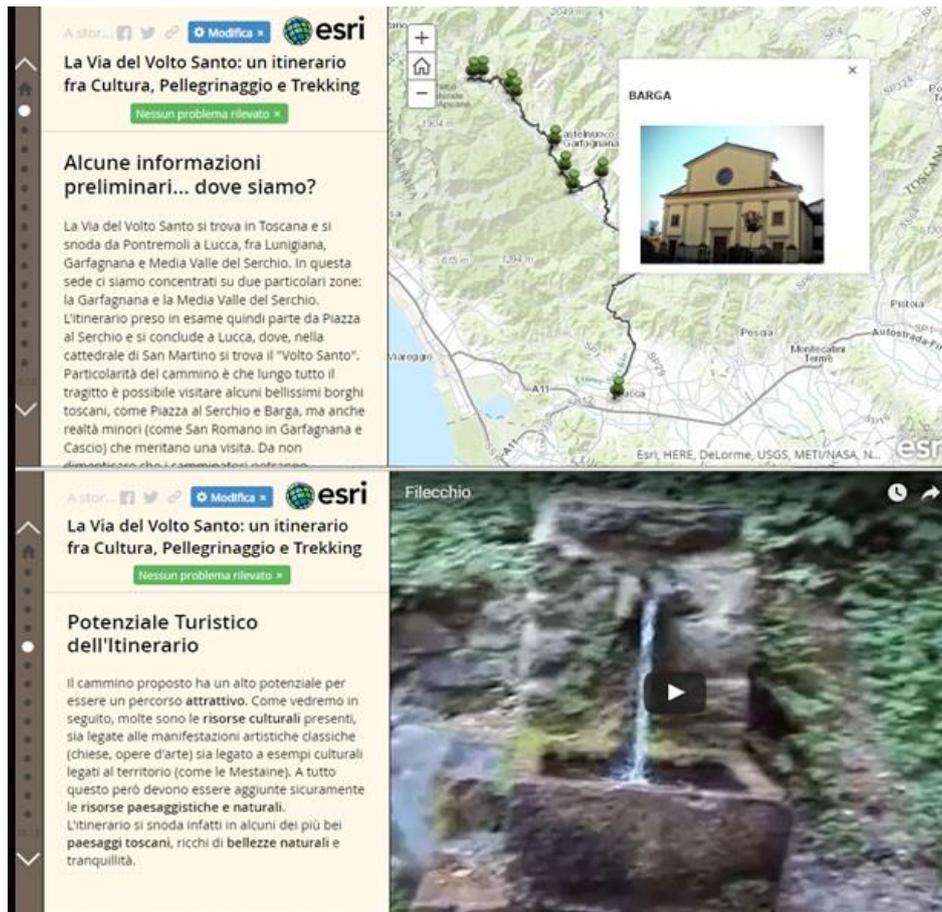


Fig. 4 Diary – Story Map

DISCUSSION AND CONCLUSIONS

Cultural tourism is growing and cultural routes are following the same trend. Plan and promotion of this kind of routes are necessary, not only for the economic development of these territories but also for the protection of the local identity.

Through the Tourism Resource Audit is clear how much the Garfagnana Region and Serchio River Middle Valley are full of cultural resources, beautiful landscapes and local identity. Our question in this specific case was if and how many new technologies could help the touristic development of this kind of routes. The answer is that new technologies, especially those analyzed here, could really become an opportunity for this kind of cultural routes. First, these technologies can be used free and let us create something that is updatable constantly, despite what we could do in the past with paper maps.

Then, we would like to underline that these technologies could be used in two different ways and by two actors. The first way is the most intuitive: local tourism organizations and the association could use them for the development and above all for the promotion of this kind of cultural routes on social networks (e.g. "Abbots Way" on Facebook) or publishing the videos on institutional websites.

The second way is the one that could be even more interesting and is now unexplored. Nowadays Social networks let us be really focused on what our peers are sharing: most of the conversations are peer to peer. Even on Youtube, the most followed persons are "youtubers", that are "normal" persons, an expert in a theme and giving advices on-line. As these technologies are really handy and smart and because almost in every smartphone there is the opportunity to download GPS for tracking the route, we think that the old

websites should be integrated by the apps created by the new “pioneers” of cultural routes. We are not saying that Public Institutions should not plan or organize in the best way tourism, but we underline how new tourists may be part of the discovering and promotion of these types of tourism, like they are already doing with other aspects of the travel (e.g. TripAdvisor).

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