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Smart Dashboard and Slow Tourism. A Case Study of Santa Barbara Walk (Sulcis – Iglesiente, Sardinia, Italy)

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Abstract: Information and communication technologies play an increasingly important role in the process of acquiring knowledge from a territory and managing it at different scales. ICTs allow a rapid diffusion of data not only through institutional channels but also through social networks where the smart community share experiences and perceptions. In this sense, ICTs become strategic to support the promotion of sustainable tourism development of territories. An important tool to implement it, can be a circular smart dashboard, a decision support system in which the digital data are organized and processed to produce an information output, to be used, after the evaluation by the decision makers, as a new input for the system. The present paper deals with a wider research the authors are involved in, related to the reconversion and valorization of a former mining area towards slow tourism, as the Santa Barbara Walk (SBW), an ancient mining route in the Sulcis Iglesiente area (Sardinia, Italy)¹. In particular, we here focus on the design proposal of a dashboard, capable of organizing information concerning the main features of the walk, in order to facilitate a shared governance for an effective tourism promotion. The paper is based on a thorough recognition of the main characteristics of the Walk, both the material ones and the digital, immaterial ones. The SBW represents in fact a network connecting the main points of interest along the Walk. On the contrary, its digital network – consisting of intangible infrastructure and flows - is however fragmented in terms of policies and contents. Also a state of disorganization in slow tourism promotion activities can be observed. The goal of this paper is to present and analysis of the area, and to propose an evaluation and planning tool as the design of a circular dashboard of the SBW.

Keywords: smart dashboard; smart governance; slow tourism; Santa Barbara Walk; Sulcis - Iglesiente; Sardinia; Italy

1. Introduction

Information and Communication Technologies (ICTs) play an increasingly important role in the process of acquiring awareness and knowledge from a territory, as well as of its management, enhancement and promotion at different scales [1-4]. Information is no longer managed only by a few institutional subjects through official portals but built to a significant extent by smart

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communities that populate social networks and media, sharing experiences and perceptions. New ICTs are tools to support the promotion of sustainable regeneration and development of the territories, including tourism, especially if organized within the smart dashboard [5-13].

The area of Sulcis - Iglesiente, located in the South-Western part of Sardinia (Italy), went through a phase of economic conversion based on sustainable slow tourism development [14-17] referred to abandoned mines [18, 19]. This is the part of cultural tourism that arises from the reinterpretation, conservation and enhancement of the material and immaterial mining heritage [20].

In Sulcis – Iglesiente this type of tourism is becoming a driving force for economic development [20], responding to the recent trend to prefer trips for recreational and spiritual purposes [21], training or work and slow and sustainable forms of mobility [22]. This is in line with the objectives of the Historical Environmental Geo-mining Park of Sardinia, established in October 2001 to safeguard and enhance the architectural and landscape heritage. In addition, it is also in line with the subsequent establishment (2017) of the SBW [23] and the birth of the homonymous Foundation, that allowed starting a new development phase based on the concept of slow tourism [24]. The risks and opportunities of this process of economic and social transformation, both in terms of policy and governance, led the authors to develop a specific research activity [24-27] which highlighted the correlation between the fragmented nature of management - promotion of the territory and the numerous public administrations. In the area of the Sulcis - Iglesiente, in fact, the presence of points of historical-cultural and naturalistic interest, mining sites, reception and refreshment activities that are not managed within a single network was detected. Many sites are equipped with portals and dedicated web pages, but the promotion is not performing because of the disorganized materials and poor management of the information. The website of the SBW Foundation deserves attention, it's in fact a first attempt at an institutional network of slow tourism [28].

This paper is aimed at systematizing the information coming from institutions and from the users' communities - as those using social networks and media when interacting with a territory - in order to strengthen smart governance initiatives related to tourism development [29]. In the information age, the Smart Community [30] represents a significant part of our contemporary society that makes use or extensive use of the available technological tools, services and devices to promote organization and efficiency, to improve the quality of life but also to share personal knowledge, opinions and interests [31]. For these reasons, it gradually became an extraordinary source of data for policy makers [32]. The 'heritage and new technologies' binomial contains an immense material and immaterial heritage of historical, cultural and artistic values " enhanced through the most recent forms of fruition of the Tourist Experience Design [33], according to which it becomes fundamental to offer each user personalized information and unique emotions, influencing both the cognitive and the emotional sphere.

The goal is to provide content and define the layout for a circular smart dashboard. It is based on the simultaneous management of data from different sources (e.g. meteorological services, social network streams, geographic data, etc.) which makes it a tool gathering data and information to be used and managed for taking decisions and therefore influencing input data for the further step. Some scholars [6] define the circular dashboard as "the process of data gathering, processing and organization of decision makers and users for planning purposes. In this domain the information obtained from the dashboard is used to evaluate urban performances and calibrate further and future city actions". In this sense, the dashboard of the SBW organizes the characteristics and information of the path:

- Intrinsic characteristics - length (km), "difficulty" and duration (hours);
- Extrinsic characteristics - sites of historical-cultural and natural interest located in a 1 km buffer;
- Smart, user generated data and information.

Furthermore, the dynamism of the data of the proposed dashboard allows to elaborate coherent outputs with the institutional objectives and the comments and notes of the smart community. In the first section – Introduction, after having framed the recent literature of new technologies for slow tourism development, the authors have articulated the contribution in three sections: the second

section - Materials and Methods explores the case study of the SBW and develops the methodology for elaboration of the framework and design - of the SBW Dashboard; the third section - Results reports and discusses the main research results carried out; in the fourth section - Conclusions, we summarize the conclusions of the study and anticipate the future developments .

2. Materials and Methods of the case study: Santa Barbara Walk

2.1. The Santa Barbara Walk towards the Smart Community

SBW (Figure 1) traces the ancient mining routes of the Sulcis Iglesiente, in South-Western Sardinia, brought to new life in sustainable slow tourism.

Figure 1. Territorial framework and the SBW

This historical region has been for several decades the most important center for international mining, as the main Sardinian economic source. The following crisis hitting the sector, followed by the mines dismantling in the 1990s required rethinking the territory also through a form of tourism linked to industrial archeology in a particularly beautiful coastal landscape.

Within this context, in October 2001, the Historical and Environmental Geo-mining Park of Sardinia (Geopark) was established [34], divided into 8 areas covering 81 Municipalities of Sardinia, for a total area of approximately 3800 Km2, which since 2007 is part of the "Global Geoparks Network" of UNESCO [35]. The SBW is located within the "area 8" of the Park of Sulcis - Iglesiente which, other than being the largest, it is the one most characterized by the presence of ancient mining activities.

Today the SBW is included in the regional register of historical-religious paths of Sardinia and in the year 2017 it was included in the Atlas walk of Italy of the Ministry of Cultural Heritage and Activities [36]. The walk extends along a 400 km ring, organized in 24 tracks. It can be traveled walking, cycling and on horseback [23, 28]. The landscape of the SBW is characterized by the presence of numerous points of historical, cultural and natural interest, enriching the already evocative mining

landscape [24, 26]. However, to date the challenges are still many and constantly call for new policies to manage and enhance the SBW and cultural, natural and landscape resources.

As we described above, the main use of the SBW is inscribed within the recent slow tourism, characterized by the presence of innovative users which we consider as a relevant part of the so called “Smart Community”. We mean both the “community” providing user-generated contents, as, in this case, tourists or hikers actually enjoying the Walk and its points of interests, sharing their impressions and activities on social networks. In this particular context, the smart community correspond to those actors which contribute to the awareness on the SBW by means of their activity on social networks and media and, therefore, they are potential players for its development and growth.

The set of social network and media users, from Wikiloc paths collectors, to social networks and media users - both tourists and operators, becomes pioneer of this SBW smart community. As a matter of fact, a true smart community is not yet existing, but a network of users willing to share their experiences is present. The data coming from this community is a significant input in this work. In the concept of the proposed dashboard there is the primary object of helping the integration of the top-down management and the bottom up approach of the users. We assume that using the data and information this community provides, we can build a bottom up participation process, in which the dashboard will represent the extent in which a true smart community set up, linking together users and decision makers.

In this framework, the contribution of the dashboard proposed by the authors is inserted.

2.2. Methodology

After describing the case study of the SBW and the role of its Smart Community, the authors decided to plan the realization of a dashboard to gather information and indicators on the walk. This required to develop a methodology for designing the dashboard, articulated in the following phases, consisting of:

1. definition of the conceptual framework to organize the contents of the dashboard, consisting in the collection, analysis and classification of the intrinsic and extrinsic characteristics of the Way (paragraph 2.2.1), and of the user-generated ones from the smart community these latter aimed at the production of internal reports for SBW managers (paragraph 2.2.2);
2. definition of the design to organize the contents of the SWB circular dashboard (paragraph 2.2.3).

This methodology reflects the conceptual framework of the dashboard proposed by the authors (Figure 2), which is thought as a collector capable of organizing a comprehensive data set - characteristics and user generated - respectively elaborated by the authors and collected by the main social networks, as discussed below.

Figure 2. The Dashboard conceptual framework.

2.2.1. Survey and analysis of the Intrinsic and extrinsic features of the walk

The data concerning the intrinsic characteristics of the route, which describe the physical conformation of each of the 24 tracks, were obtained from the SBW Foundation official website : length (km), "difficulty" and duration (hours) (Figure 3) .

Figure 3. Intrinsic features of each of the 24 tracks: length (km), "difficulty" and duration (hours). Source: [15,20].

The extrinsic characteristics refer to the points of interest included in a 1 km buffer from the SBW's tracks. These contribute to increasing the attractiveness of the SBW, and, among them, we consider also urban areas, as qualifying factors for tourism activities, as well as dynamically linked to the context. The points of interest are classified according to the following categories (Figure 4):

1. Abandoned mining sites (distribution areas and nodes): villages and mining plants, industrial archeology facilities;
2. Sites of historical and cultural interest (areas and nodes) rural and archaeological villages, churches, museums and historic buildings;
3. Sites of naturalistic interest (areas and nodes): natural parks, salt marshes, waterfalls and springs, caves, lakes, beaches, natural monuments;
4. Urban areas.

Figure 4. Points of interest (areas and nodes) within the 1 km buffer from the walk.

In organizing the extrinsic features we used also the open source data from the Sardinia Region in shapefile format [37, 38]. Then we proceeded to classify the intrinsic and extrinsic characteristics, assigning specific score indexes referring to an average evaluation of difficulties²:

1. Intrinsic characteristics - a maximum weight has been assigned for the stages of shorter length, difficulty and travel time.
2. Extrinsic characteristics - a maximum weight has been assigned for the stages with the greatest number of points of proximity interest, including accommodation facilities and refreshment points.

Below is reported the classification of intrinsic and extrinsic characteristics (Table 1).

² As it happens in the case of hiking maps, a value of difficulty will be given to these tracks. A set of expert users will be selected to evaluate the difficulties of the tracks.

Table 1. Score index - Intrinsic and Extrinsic characteristics of each SBW tracks.

Features of the track	Type	Range	Weight
Intrinsic ¹	length (Km)	0-10	3
		10-20	2
		20-30	1
	difficulty	Low	3
		medium	2
		High	1
	travel time (h)	0-5	2
		5-10	1
Extrinsic ²	n. of points of interest (buffer 1 km)	0-20	1
		21-40	2
		41-60	3
		61-80	4
	n. of tourist accommodation facilities (buffer 1 km)	0-10	1
		11-20	2
		21-30	3
		31-40	4
	n. of food and beverage points	0-10	1
		11-20	2
		21-30	3
		31-40	4

¹ Data source: <https://www.camminominerariodisantabarbara.org/>

² Data source: <http://webgis2.regione.sardegna.it/catalogodati/card.jsp?uuid=ae5a776b-ef08-417b-acf3-752478f0d0b1>

This classification then allowed the authors to elaborate two indexes for each stage: the walkability index (WI) and the attractiveness index (AI).

Within the debate on urban walkability [39, 18], according to Blečić et al. (2015) [40], the authors have rethought the definition of walkability adapting it to the peculiarities of the SBW, inserted in a extra-urban environment, marked by elements from the former industrial processes of considerable landscape value, together with the physical properties of the path and the reference context.

We therefore proposed the walkability index (WI), given by the sum of the weights attributed to the individual intrinsic characteristics (Wi), which can vary from a minimum of 3 to a maximum of 8 (1); and the attractiveness index (AI), understood as the sum of the weights attributed to the individual extrinsic characteristics (We), which can vary from a minimum of 3 to a maximum of 12 (2). To standardize the indexes to the more known and used Tripadvisor classification, WI is given by the product between the summation of Wi and the ratio of 5/8; while AI is given by the product between the summation of Wi and the ratio of 5/12.

$$WI = \frac{5}{8} \sum_{w=3}^8 Wi \tag{1}$$

$$AI = \frac{5}{12} \sum_{w=3}^{12} We \tag{2}$$

The following is an example of the tracks No. 02, 06, 07 and 21, selected for the application of the methodology because they are characterized by a significant landscape heritage and industrial archeology that makes them among the most attractive of the walk (Figure 5).

Figure 5. Walkability index (WI) and Attractiveness index (AI) of the No. 02, 06, 07 and 21 SBW tracks.

2.2.2. Survey and analysis of the data provided by social network

The second component of data necessary for the development of the dashboard concerns the user-generated characteristics of the Walk, provided by the smart community. They were found through the main social websites such as Facebook, Instagram and Tripadvisor, for the main point of interest of the 24 trackss, with reference to the abandoned mining sites. In fact, from the analysis of GPS tracks related to walking and / or cycling routes downloaded from the Wikiloc platform³ [24-26], these sites were found to be the most frequented by the smart community [27], as is shown from Figure 6. Furthermore, the disused mining sites were selected by the authors as a survey category to evaluate the approval rating of the smart community, which required the following analysis:

1. active Websites for each abandoned mining site: (Figure 7)
2. profiles in the main social web (Facebook, Instagram and Tripadvisor) (Figures 8, 9 and 10).

³ SBW's tracks have been downloaded between 20 and 29 January 2018; bike tracks have been downloaded between 21 January and 3 February 2019.

Figure 6. Comparison between the concentration of disused mining sites and the location of digital tracks (source Wikiloc) from the smart community.

Figure 7. Web Site Map of the mining sites in the SBW. Period of investigation: 1-31 July 2019. Author: Michele Pinna.

Figure 8. Mining sites with Facebook profile (left) and Facebook Social Rating (right). Period of investigation: 1-31 July 2019. Author: Michele Pinna

Figure 9. Mining sites with Instagram profile (left) and Instagram followers (right). Period of investigation: 1-31 July 2019. Author: Michele Pinna

Figure 10. Mining sites with a Tripadvisor profile (left) and Tripadvisor Social Rating (right). Period of investigation: 1-31 July 2019. Author: Michele Pinna

From the analysis it emerged that only a minimal part of the abandoned mining sites is equipped with an official web page and a Facebook and / or Instagram profile to support the management and promotion activity (Figures 7, 8, 9).

In particular, it can be stated that the most important mining sites have a webpage and social profiles, while in some cases the social profile is preferred to the website. The analysis confirms that the most significant mining complexes, such as Montevecchio and Serbariu, collect the greatest number of likes on Facebook (Figure 8b), while the Museum of Mining Art in Iglesias reaches the greatest number of followers on Instagram, followed by the Mine Rosas (Figure 9b).

The Tripadvisor platform, the main one currently in use at international level, also provides the satisfaction index associated with the type of user according to its own classification, shared by the authors and adopted in Figure 10 and Table 2. In this case, Piscinas and Porto Flavia are the sites that have collected the highest number of reviews, and therefore are also the most visited ones.

An analysis of the data provided implied the organization of the data from social web platforms in a matrix for each individual abandoned mining site. However, here we report the only matrix of social media analysis of the Montevecchio Mine Complex as it is one of the most appreciated and best managed (Table 2). In fact, the Complex, in addition to having a well-structured and content-rich website, has also Facebook and Instagram profiles, other than being reviewed on Tripadvisor.

Montevecchio has a high rating on both Facebook (4.6 / 5) and Tripadvisor (4.5 / 5). The data provided by Tripadvisor shows that the site is visited mainly during the summer (June-August) and mainly by couples.

All these data reveal the state-of-the-art in terms of tourist promotion activities carried out by each mining sites. At the same time, they are useful to inform future management and promoting policies of the several points of interest.

In particular, while Instagram informs about the number of followers, Facebook provides also the rating manifested by the smart community, along with comments and opinions, which reveal strengths and weaknesses of each point of interest and therefore guide specific actions.

Table 2. Matrix of the data provided by the social network (Facebook, Instagram, Tripadvisor) for the Montevecchio Mine Complex. Period of investigation: 1-31 May 2019. Author: Michele Pinna.

MONTEVECCHIO www.minieramontevecchio.it				
Social Web	Type of Data	No.	Download Date	
Facebook	Like	5891	May 2019	
	Follower	6013		
	Review	200		
	Rating	4,6 / 5		
Instagram	Post	56	May 2019	
	Follower	423		
	No. profile	49		
Tripadvisor (Period 2014 – May 2019)	Valuation	No. review	360	May 2019
		Rating	4,5 / 5	
	Type of visitor	Family	64	
		Couple	135	
		Group	66	
		Single	5	
		Businessman	1	
	No. visitors/ trimester	March-May	81	
		June-August	149	
		September-November	74	
		December-February	16	

Going beyond the data provided by social networks, Tripadvisor describes each site in terms of community satisfaction, type of visitors and the visiting period. These data allow to inform, in different cases, about the types of visitors attracted, as well as to encourage their presence throughout the year in order to guarantee an extension of the seasonal tourism [25].

2.2.3. The SBW circular Dashboard design

The classification of the intrinsic, extrinsic characteristics () and user generated data of the SBW, as well as the definition of the walkability index (WI) and attractiveness index (AI) for each track, allowed us to develop the design of the SBW circular dashboard. After having framed the recent literature about data, techniques and platforms of existing Dashboards [41] and Big data dashboards as decision support tools [42], we decided to use the open source Google Sites tools as a framework for developing the dashboard, as compatible with the SBW Foundation website, so that the project presented here can be easily implemented and developed in the future. Moreover, we have considered the digital platform dedicated to the Regional Bicycle Mobility Plan of Sardinia [43], from which we extracted the tracks of the walk organized in biking tracks; furthermore, we selected the SBW Foundation website [28] for the walk and horse riding tracks. The dashboard framework proposed (Figure 2) [44] is thought as a collector capable of organizing a comprehensive data - set elaborated by the authors and collected by the main social networks, as discussed in this study. It is not yet fully integrated and linked to the existing Foundation website. In the present stage of the research, we did focus on the design of a dashboard which will support both potential tourists and planners in future decisions for the area and for the Region of Sulcis Iglesiente. So, from the design and style point of view, we decided to maintain the general layout of the existing website, in order to allow, once the dashboard is implemented, an easy integration with the existing material. In our vision, the dashboard consists of a homepage of general information of the SBW, and of specific

several web pages dedicated to the characteristics of each of the 24 tracks. In the following figures we present the dashboard’s proposed structure and a mock-up of the set of data and information for one selected segment of the walk as a demo of the possible contents to be collected, gathered and shared. The homepage (Figure 11) allows users to select each track and go to the next page (Figure 12). The web page dedicated to the track No. 06 Piscinas - Montevecchio (Figure 12), provides four types of geospatial information:

1. Track and points of interest georeferenced in Google Maps (down on the left);
2. Physical profile of the track, and its Walkability Index (WI) and Attractiveness Index (AI) (on the top);
3. Rating provided by the main social networks analyzed (down on the right)⁴.

Figure 11. SBW Dashboard design.

The system here proposed can be defined as a smart dashboard because it is structured so to provide a constant update on performance indicators, with reference to dynamic information such as the weather, the Attractiveness Index (AI) and the rating provided by the main social networks. This is also a circular dashboard because supports public institution to observe and monitor what happens along the Walk and the data provided are fundamental to inform future policies.

⁴ This will be implemented by means of RESTful API's as made available by the main social media portals :
Facebook - <https://developers.facebook.com/docs>
Instagram - <https://www.instagram.com/developer/>
Tripadvisor - <https://developer-tripadvisor.com/content-api/documentation/>
Instagram does not have ratings, but it has Likes and Followers. Real time photo can be shared on the profile.
The construction of the dashboard was supported by Iulia Tatomir, Sr. Analyst at Avande Cagliari, Italy – <https://www.avande.com/en-gb>

Figure 12. The web page of the track No. 06 Piscinas – Montevecchio.

3. Results and discussion

The result of this paper is the proposal of a dashboard design and the first result of a broader research project named “TSulki” (Tourism and Sustainability in Sulcis-Iglesiente area), currently in progress, regarding the sustainable tourism of the Sulcis - Iglesias area.

We can point out different results in this paper that can be summarized as in the following paragraphs. The preliminary analysis helped in understanding the characters of the area. It is a territory characterized by the presence of a well defined and identified Walk, in terms of tracks, walkable and “bikeable”, the points of interest on the same SBW and in its proximity, as well as by a network of users – as tourists and sport practitioners. Such a situation presents high potentials but still lacks in terms of organization and integration in structured policies. However, it can be resembled that a smart community is slowly emerging by the main social networks and media, as the people involved in the ‘digital’ component of the SBW represents a niche of users that can be involved in a bottom-up contribution to planning tourism – sport.

We derived two indexes from the analysis of the characteristics of the SBW in terms of the tracks available: WI – Walkability Index, based on intrinsic characteristics (as length, difficulty, travel time) - and AI – Attractiveness Index, based on extrinsic characteristics (points of interest, tourism facilities, food and beverage points) - that represent the context of SBW. In addition, the degree of interest was based on the comments and opinions from the community of users for each track coming from the main social networks – Instagram’s followers, Facebook’s and TripAdvisor’s ratings. Finally, the design of the SBW Dashboard was organized, with both users and decision makers in mind.

The results obtained are in terms of a wider knowledge of the SBW, in terms of its intrinsic and extrinsic characteristics, as well as in terms of the perception of a particular subset of the users, as those leaving traces over the social networks and media. The analytical synthesis of these elements represent valuable contents for decisions makers to target policies of slow tourism.

These elements represent the main data to be summarized and used into the dashboard.

From the design point of view, as Table 3 summarizes, the dashboard is structured so to be fed by a combination of data and information. Some main components deal with the fundamental and characterizing elements of the dashboard itself. As suggested above, the WI and AI indexes represent one of the important sources of added value of the project. Their presence at the present stage of development is thought as a periodical update from the analysts and scholars involved in the SBW project, in the process of constant observation, maintenance and update of the SBW. Further data after a synthetic extraction through API from social network and media contents, assigned to the different tracks of the SBW. A further level of data input come from different websites linkable to the dashboard itself: the SBW websites; weather forecast widgets, etc. An extendable set of sources can be thought in the further evolutions of the dashboards: further reports generated by experts; other social networks and media contents and synthesis; links to external websites for information on tourism.

Table 3. SBW Dashboard frame components (authors' elaboration)

Contents	Connectors	Main	Extendable
Analyzed	Periodical expert user update	WI; AI	Periodical Reports on SBW
User generated	API	Social media and networks ratings	Bot; Social walls; etc.
Web generated	API & Frames	SBW Website	Weather forecast Civil protection information; Tourist information

4. Conclusions and future development

The paper was aimed at designing a dashboard for the slow tourism promotion and management of the Santa Barbara Walk (SBW) in the Sulcis – Iglesiente area (Sardinia, Italy). Different phases were followed before designing the dashboard and reaching some first, partial conclusions. Through the material and immaterial networks and the intrinsic and extrinsic characteristics organized in the SBW Dashboard, the aim is to transform the condition of periphery of disused contexts making them emerge as a new tourist destination.

In particular, a preliminary activity implied a thorough analysis of the SBW in terms of its network structure and of the features related to the Walk. That consisted of a study of the area, based on the physical features as well as of the social network presence. That allowed us to obtain an image of the SBW as a network perfectly integrated into the surrounding area. It emerged that it is characterized not only by its physical features, but also by a set of several points of interest in its proximity - those located within a 1 km buffer from the different segments of the walk. Such first results have been expressed in terms of indexes and maps helping a description and understanding the new slow tourism and the potentials of further development in the area. Such preliminary phase represented a starting point for developing the research methodology, consisting of three main phases.

The first phase was dedicated to the collection, analysis and classification of the intrinsic and extrinsic characteristics of the walk that allowed developing a Walkability Index (WI) and an Attractiveness Index (AI) for each of the 24 tracks. Both of these two indexes are considered useful to describe the different parts of the walk and, therefore, to guide the users' choice.

The second phase was dedicated to the collection, analysis and classification of the user-generated characteristics of the points of interest located along the SBW. These data, provided by the SBW's users through the main social networks (Facebook, Instagram and Tripadvisor), reveal the state-of-the-art in terms of tourist promotion activities.

The third phase appeared as that dedicated to the systematization of the web info data and the team data analysis to develop a design and a user- friendly graphical interface for the SBW circular smart dashboard. The analyses carried out revealed that a smart community is rising, from the SBW's users, contributing significantly to the affirmation of a new model of sustainable development based on slow tourism. Awareness and knowledge of history are fundamental to the re-construction of the past. Slow tourism is softly included in the Sulcis - Iglesiente area, free from compulsive mass tourism. The future developments of this study will cover the implementation of the dashboard, also for aspects linked to the safety of the place and the active role of the community of users, to be involved more and more in a bottom up approach in a smart community. This implies the validation of the data and information to be put into the same dashboard. In particular, we will select a set of users, basing the analysis on ad hoc users, to test the design and the validity of the indicators used. We will submit the dashboard to a selected group of users, expert and non-expert users, looking forward to its inclusion on the SBW Foundation website and, therefore, usable for the public consultation. We will then proceed with the physical realization of the fully operational dashboard, taking care of the automatization of the process of data collection and gathering, particularly of those coming from the social networks and media platforms involved, as well as of those feeding the indicators considered in the dashboard itself. In this sense, the proposed dashboard, including subsequent advances and possible implementations, represents a strategic tool to support the governance and the policies to promote slow tourism in the territory, in order to overcome the deep crisis left by the end of mining activities. The dashboard designed and presented here aims at representing a data, information and report integrator, facilitating the decision process for both users as tourists and sport practitioners, as they can cross data concerning the quality and characteristics of the tracks, the environmental conditions as well as the comments from the other members of the community of users. From the policy makers point of view, the dashboard is useful in providing such information in a dynamic point of view. The frequent reports on the AI and WI indexes, as well as the constant comments and evaluations through social networks and media, will help acquiring a major awareness of the area and of its preferred parts, as well as to highlights those parts where an intervention – of maintenance, major coordination between operators, municipality agreements, etc. – is needed.

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