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All roads lead to Rome… and not only. Assessment of competitiveness and satisfaction in Italy

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Abstract

Recently, Italian tourism heritage has strongly affected the growth of the Italian economy. In this perspective, Italian tourism destinations must apply efficient management of their resources to allow them to stand out internationally and to attract more tourists. The research objective is to study the link between competitiveness and satisfaction in the tourism field. In Italy, a renewed interest in these two aspects has developed. The combination of these tourism aspects determines the achievement of the effects of good tourism management: the improvement of the quality of life, the increase in GDP, and the increase in employment levels. While competitiveness can be measured by comparing the performance of the territorial tourism operators (e.g., countries, regions, provinces, etc.), satisfaction becomes the means to measure the expectations and benefits of its users, i.e., tourists. It becomes necessary to search for methods and solutions expressed in literature to use the appropriate tools to address the strengths and weaknesses of the tourism sector.

Chapter 1

The complex role of tourists' satisfaction in destination competitiveness

Abstract

This paper aims at exploring the relationship between the competitiveness of tourism destinations and tourists' satisfaction, to study their interplay. Through a systematic quantitative literature review, this paper offers a picture of the current state of the art and analyzes the role of tourists' satisfaction in increasing the overall tourism performance and give a framework useful for destination managers.

Keywords: tourism, destination competitiveness, tourists' satisfaction, systematic quantitative literature review

1. Introduction

In recent years, tourism has become an increasingly important source of income for various countries, and the focus on the tourism destination competitiveness (TDC) has become pivotal for many stakeholders. In particular, TDC has been identified as a crucial aspect for destinations' economic survival and performance (Abreu-Novais et al., 2015). Its main advantages include an increase in GDP, a higher employment rate, and a better quality of life for residents (see Crouch, 2011; Crouch & Ritchie, 1999; Dwyer & Kim, 2003).

The most crucial attempt to provide a theoretical foundation to destination competitiveness is the conceptual model proposed by Ritchie and Crouch (2003). The authors state that destination competitiveness is the "*ability to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying, memorable experiences, and to do so in a profitable way, while enhancing the well-being of destination residents and preserving the natural capital of the destination for future generations*" (Ritchie & Crouch, 2003, p.3). Besides the promotion of economy, well-being of residents, and natural-cultural factors as ordinary aspects related to tourism, this statement expounds satisfaction as an embedded concept of destination competitiveness.

Generally, satisfaction is defined as subjective evaluation concerning a comparison between a prior-expectation and a post-experience of a particular product or service (Oliver, 1980). Moreover, tourists' satisfaction is positively related to destination competitiveness, affecting destination

choice, willingness to return and destination loyalty (Yoon & Uysal, 2005). Hence, tourists' satisfaction becomes helpful to define the destination's ability to provide a comprehensive tourism product, where this product must be more appealing than the one offered by other tourism destinations (Cracolici & Nijkamp, 2009). This outlook affects the creation of outstanding experiences for tourists during their destination visit.

Although some attempts have been made to define the relationship between tourism destination competitiveness and tourists' satisfaction to provide marketing strategies (see Chen et al., 2011; Cracolici & Nijkamp, 2009; Croes & Kubickova, 2013), this relationship is still underrated in tourism studies. Nonetheless, these two notions' interrelation would help destination managers to identify latent aspects that can improve destination tourism performance.

The goal of this paper is to study the interplay between the tourism destination competitiveness and tourists' satisfaction and to what extent the satisfaction aspect is addressed in tourism competitiveness studies. This paper relies on a Systematic Quantitative Literature Review (SQLR) of 36 papers according to the guidelines proposed by Pickering & Byrne (2014).

The main aims of this research are to:

1) study the relationship between tourism destination competitiveness and tourists' satisfaction;

2) investigate the role of satisfaction in the tourism destination competitiveness framework.

The paper is organized as follows. In Section 2, we discuss the notion of tourism destination competitiveness and tourists' satisfaction provided in the literature to identify their interplay. Section 3 is then devoted to the description of the study methodology (namely the systematic quantitative literature review) and its implementation in this study; while Section 4 outlines the review findings, including the descriptive analysis of the literature review dataset and the insights about the role of satisfaction in tourism destination competitiveness literature, also performing a textual analysis (namely word frequency analysis). Finally, Section 5 concludes offering some insights and discussions on future research paths.

2. Competitiveness and Satisfaction in tourism

2.1 Defining Tourism Destination Competitiveness

Defining Tourism Destination Competitiveness is so far a cumbersome issue in tourism studies. So, there are several notions of competitiveness in the literature, given its complex nature and its multidisciplinary facets. Competitiveness is a notion originating in the business disciplines, in which a firm competes with others to achieve better performances in their relative market. From a

business point of view, Porter (1990, p.166) states that " *a nation's competitiveness depends on its industry's ability to innovate and improve*"; so, companies achieve competitive advantage through innovation activities or by identifying new market opportunities. In his seminal paper, not specifically dealing with the tourism field, Porter (1990) formulated the "Diamond of National Advantage", defining the four fundamental attributes of a competitive nation. These are: (1) Factor conditions: the most important factors of production are those that include important and lasting investments; (2) Demand conditions: nations gain a competitive advantage in industries where domestic demand gives a clearer and earlier view of the emerging needs of buyers; (3) Related and Supporting Industries: interaction is mutually beneficial and self-reinforcing but does not happen automatically; (4) Firm strategy, structure, and rivalry: the success of a nation depends on the type of management practices that talented industries choose.

If appropriately declined, the four elements proposed by Porter's seminal model are also useful for defining the tourism competitiveness of a nation and, even more specifically, of a single destination (i.e., the tourism destination competitiveness). However, since the notion of competitiveness stems from business studies, its introduction in tourism studies was not easy neither trivial nor straightforward, particularly at a destination level. In the past, models measuring TDC considered mainly the business activities of companies in the tourism sector. Now the approach has been changing: it is no longer necessary to consider only the rivalry between the tourism business companies, but it is needed to strive towards measuring the capacity of the destination to offer satisfactory experiences to the tourists (Hassan, 2000). For this purpose, tourism destinations have to manage competitively their resources and attributes as a firm (Cracolici et al., 2008), to achieve better performances in terms of productivity and creation of welfare for their residents (Aiginger, 2006; Kohler, 2006). In the light of the above consideration, the concept of competitiveness in the strict sense is contaminated by other aspects, generating a notion that even now is difficult to define.

In this perspective, many definitions of TDC (see Croes, 2011; Crouch, 2011; Mazanec et al., 2007; Mihalič, 2000) have been proposed in tourism literature, where these definitions are linked to that the possession of "a superior ability" in implementing efficient strategies to increase tourist flow compared to the rivals (Ritchie & Crouch, 2003). Thus, for a destination to be competitive, it is necessary to guarantee a better tourism performance than that offered by its competitors. In this view, the "prosperity", as pointed out by Crouch and Ritchie (1999), becomes the main goal that a tourism destination must aim at. Therefore, it is necessary to plan tourism activities that increase the overall well-being of society.

To better understand the real potential of destination competitiveness and why both scholars and destination managers have been paying more and more attention over the last decades, it is

necessary to underline how the determinants of destination competitiveness contribute to the increase of tourism performance (Dodds & Holmes, 2020). In this vein, the "Conceptual model of destination competitiveness" by Ritchie and Crouch (2003, p.63), and in the "Integrated model of destination competitiveness" by Dwyer and Kim (2003) are the two most frequently cited destination competitiveness models.

The model proposed by Ritchie and Crouch (2003) is presented as a "*device that provides a useful way of thinking about a complex issue*" (*ibidem*, p.60). The complexity stemming from studies on destination competitiveness is related both to its multidisciplinary nature and to the difficulty of unravel the theoretical and conceptual foundations of competitiveness. To reduce this complexity, the authors in their seminal work, in addition to providing insights on the topic, identified the components that affect destination competitiveness: core resources and attractors; supporting factors and resources; destination policy, planning, and development; destination management; qualifying and amplifying determinants. The interplay of these tourism-related aspects and tourism business-related aspects leads to a successful tourism performance of the destination.

Core resources and attractors are considered as the primary elements of a destination as they characterize its profile, as well as influence the motivations of tourists to the destination and its attractiveness. Natural and cultural resources include the following categories: physiography and climate, culture and history, market ties, mix of activities, special events, entertainment, and the tourism superstructure. If the destination strengthens its attractiveness and peculiarity, it will provide unique experiences for the tourist can hardly be replicated by other destinations. Nonetheless, this category must be protected more because, without a sustainable approach, the benefits generated by these components can be lost in the long period (Cracolici et al., 2008; Gryszel & Walesiak, 2018; Perna et al., 2018).

Supporting factors and resources, as the name suggests, assist the purpose of core resources in attracting more tourists. Therefore, the destination must create and provide structures that can enhance the primary resources of the destination (e.g., natural and cultural) and make them more accessible to tourists (Assaf & Josiassen, 2012; Cracolici & Nijkamp, 2009). These structures include infrastructure, enterprise and their initiatives. For example, a good transport system will influence the tourist's choice to visit one destination rather than another.

Destination policy, planning, and development are responsible for ensuring residents' quality of life and promoting sustainable activities. To do so, strategic or policy-driven frameworks for the planning and development of the destination must respect the characteristics of the area and the destination communities' needs (Croes & Kubickova, 2013; Hong, 2009). Destination management plays an intermediary role between all the components of the model: it carries out activities aimed

at strengthening core resources and attractors; it improves the quality of supporting factors through appropriate procedures; it implements policy and planning frameworks according to the needs and characteristics of the destination; it deals with the constraints imposed or opportunities presented by the qualifying and amplifying determinants. (Knežević Cvelbar et al., 2015; Mazanec & Ring, 2011; Mazanec et al., 2007).

Qualifying and amplifying determinants are also identified as situational conditioners, given that these do not directly influence competitiveness but only define its limit. This category is a residual category in which are included those factors that can influence the level of competitiveness of the destination. For example, if we consider a tourists' attractive destination but located in a geographical area challenging to reach, this will become a disadvantage compared to better-located destinations (Chen et al., 2011; Cracolici & Nijkamp, 2009; Croes & Kubickova, 2013). However, a good marketing strategy and interdependence with nearby destinations can become a strategy to manage this issue. Briefly, this type of component is one on which destination managers can intervene marginally.

Based on the model by Ritchie and Crouch (2003), the "Integrated model of destination competitiveness" by Dwyer and Kim (2003) identifies a further component of competitiveness in addition to the factors presented in the "Conceptual model of destination competitiveness". The integrated model acknowledges the demand condition as an essential determinant of TDC. This TDC determinant involves three main elements of tourism awareness, such as motivations, needs, and demands of tourists and how these affect firms and destinations' ability to be competitive. Focusing only on the supply side can limit the potential of destinations. For this reason, the authors propose three aspects of tourism on which to focus: demand-awareness (it is ensured and promoted through destination marketing activities), perception (it influences the tourist's visit based on the image formed in the tourist's mind), and preferences (the closer the tourist's preferences are to the tourism product offered, the more the visit will lead to a positive experience). Thus, the demand condition addresses the need to create a tourism product that "*matches consumers' evolving preferences, if the destination is to improve or even maintain competitiveness*" (*ibidem*, p. 379).

Identifying the determinants of TDC becomes preliminary in managing this phenomenon and the benefits that come with it, such as ensuring a higher standard of living for residents and achieving better tourist performance than competitors. It should be emphasized that destination competitiveness and performance are linked by several steps (Ritchie & Crouch, 2003). The first step for a successful destination starts with the attractions and resources: there can be no tourism product without them. Here, destinations must strengthen and improve the management of factors that significantly affect the competitiveness of the destination, especially those factors that concern

the attractions and resources that characterize them. Thus, tailored tourism destination resources and attractors allow the destination to provide tourists with a satisfying experience.

2.2. Satisfaction in Tourism

Satisfaction is one of the most important and most frequently examined concepts of modern marketing (Giese and Cote, 2000), essential for the survival of any business. This is true also for tourism destinations. Generally, satisfaction stems from the gap between customer's expectations and perceptions about a product (Kozak and Rimmington, 1999; Oliver, 1993; Oliveri et al., 2019; Parasuraman et al., 1985); the customer expectation is fulfilled if the good or service overcomes customer's perceived quality (Vittersø et al., 2000). Many scholars identified perceived quality and perceived value as the main satisfaction antecedents (Campo-Martínez & Garau-Vadell, 2010; Chen et al., 2011). According to Zeithaml (1988), the perceived quality of service is understood as the evaluation that the customer expresses on consuming a specific product. Simultaneously, the perceived value can be seen as the relationship between the perceived benefit in using the product and the sacrifice that the consumer had to support to obtain it (mainly in terms of price). Generally, satisfaction reflects the perceived quality of products that are delivered to customers (D'Urso et al., 2020; Pizan & Ellis, 1999; Glover, 2009). Quoting Campo-Martínez & Garau-Vadell (2010, p.462), "*perceived quality should be regarded as a global state, close to an attitude, while satisfaction refers to a specific transaction*".

A complementary concept to satisfaction, useful for monitoring tourists' experience, is the service quality: it is related to the attribute's perceptions of a specific service or structure, where customers' evaluations are based on the comparison between desired and perceived service (Zeithaml et al., 1993). Often, the notion of customer satisfaction and service quality are overlapped since these concepts are thought to be interchangeable. In this perspective, Lewis and Booms (1983) affirmed that service quality is "*a measure of how well the service level delivered matches customer expectations. Delivering quality service means conforming to customer expectations on a consistent basis*" (*ibidem*, p. 102). In general marketing literature, it is acknowledged that both customer satisfaction and service quality focus on satisfying customers' needs and expectations, albeit the service quality involves mainly how the service is provided to the customer.

In defining satisfaction response, the cognitive and affective aspects of experience play a fundamental role (see Gil & Ritchie, 2009; Ruyter et al., 1997; Tam, 2004). The former happens in the tourist's mind: the formation of the expectation and performance judgments occurs in the cognitive dimension. In contrast, the latter is related to the emotional aspect that is not consciously

under the consumer control. As Oliver (1993) pointed out in his study on the attribute of satisfaction response, satisfaction is a function of cognition, affect, and direct experience; these were defined as "attributes basis" of satisfaction. Generally, individuals are thought to attempt to maximize positive affective states and minimize negative affective states (Oliver, 1993, p. 422).

In the tourism framework, tourists' satisfaction is a crucial factor in managing destination attractiveness since it works on creating the most memorable and appealing experience for tourists (Formica & Uysal, 2006). In this perspective, tourists' satisfaction is identified as "*the interaction between tourist's experience at the destination area and the expectations he had about that destination. When the weighted sum total of experiences compared to the expectations results in feelings of gratification, the tourist is satisfied*" (Pizam et al., 1978, p. 315). Here, the concept of the "gap" (Oliver, 1980; Parasuraman et al., 1985) comes to light: the tourists in the pre-visit moment creates an image of the tourism destination based on their expectations towards the attractions and resources. Then, they make a comparison between the expectations and perceptions about the post-visit performance of the destination. The difference between expectations and perceptions leads the tourist to a positive (or negative) evaluation of the destination visited. From this outlook, the tourists' positive recommendations can stimulate prospective tourists to visit the destination.

Tourists are often seen as "clients" who search for engaging and memorable experiences; they are the final users of destination products, and there is no tourism without them (Raj, 2004). Using tourists' feelings about their experience helps destination managers to measure tourism performance (Yoon and Uysal, 2005; Dolnicar et al., 2015; Alrawadieh et al., 2019), besides understanding how positive or negative evaluations of a destination have been elicited. So, tourist's experience is strictly related to the gap between expectations and perceptions concerning how the tourism product has been offered and perceived. Among the positive effects of a good level of tourists' satisfaction, there are willingness to return (contributing to the destination loyalty), positive word-of-mouth, and improved quality of life for residents (Chi & Qu, 2008; Croes & Kubickova, 2013; Neal & Gursoy, 2008; Scaglione & Mendola, 2017).

Against this background, as proposed by Dwyer and Kim (2003), tourism development can be reached by strengthening the relationship between tourism destinations and tourists.

3. Methodology

The present review study adopts two methodologies: the Systematic Quantitative Literature Review and the Word Frequency Analysis. The former aims to delineate literature boundaries by

identifying papers dedicated to the topic and to highlight research gaps (Yang et al., 2017). The latter is a textual analysis: the number of times a term is mentioned within the text is counted to highlight useful aspects for understanding the phenomenon (O'Connor, 2010). Combining the two approaches allows us for a more in-depth exploration of the relationships between the two constructs. Through these two approaches, we aim to assess the role of satisfaction in TDC studies and detect which elements play critical roles in their interplay.

3.1. Systematic quantitative literature review

The aim of our review study is to assess the relationship and the role of satisfaction in tourism destination competitiveness studies. Among the various methods used to analyze the literature and in the creation of reviews, firstly a systematic quantitative literature review approach (Pickering & Byrne, 2014) was selected to define the literature boundaries to create a paper dataset useful to answer our research question. The systematic quantitative literature review (hereafter SQLR) makes use of online databases and the application of specific inclusion criteria, resulting in the building of final dataset that respects the heterogeneity of the research topic and supports the subjective aspect of the author's experience, typical of the "narrative" approach (Borenstein et al., 2009; Pickering & Byrne, 2014; Yang et al., 2017).

In particular, the SQLR becomes the proper tool to map the literature, identify new insights, and fill the gaps. It is characterized by the following aspects: it is *systematic* because the quantitative approach to the study of the phenomenon under examination allows to achieve explicit and reproducible results; it is *comprehensive* because it analyzes how researchers have studied the phenomenon and which destinations, tools, units of analysis and other important aspects for the research have considered; it is *structured* because to achieve its purpose in defining the boundaries of the literature to be analyzed, it follows precise steps. Regarding the latter aspect, our SQLR is developed to achieve the five macro goals formulated by Yang et al. (2017): define research questions; formulate review protocol; search literature; extract literature; synthesize findings. Given the multidisciplinary nature of the two constructs examined in this review, the following section specifies how the steps proposed by the systematic quantitative literature review were developed to define the literature useful for identifying the relationship between the two.

3.2. Implementing the systematic quantitative literature review process

In order to formulate the review protocol and search for literature, we searched through online databases where papers that meet specific requirements are considered.

Scientific databases, selected due to their diffusion and reputation in the scientific community, are: Scopus, Science Direct, and Web of Science.

Requirements include:

a) the inclusion of the scientific article in at least one of the online databases;

b) the English language;

c) the presence of the words "destination competitiveness" and "satisfaction" in the title, abstract, or keywords;

d) the time span set between 2010 and 2020;

e) only original research papers were included;

f) tourist as primary units of analysis.

In January 2021, 129 papers were identified as meeting the above criteria. Subsequently, a screening of the identified papers was performed, excluding any duplicated paper (given that some papers were simultaneously present in more than one database) and those papers that were not adequate to answer the research question (i.e., those where, even though the search term is present in the title, abstract, or keywords, the focus is not on the research objective). At this stage, the dataset consisted of 45 potential papers.

For greater accuracy and to answer our research questions, from the 45 papers identified through the three online platforms, nine papers were not included in the final dataset. The reasons concern marginality in addressing the research objective, such as topics that do not deal with the destination but other aspects of tourism or the centrality of the topic addressed concerned satisfaction without giving the necessary attention to the complexity of TDC. In conclusion, the final dataset used for the descriptive and textual analyses consists of 36 papers (see Table A1 in Appendix). The characteristics considered of each paper are noted in an endnote file, such as the year of publication, the subject category of the journal, the geographical area considered in the study, the data collection method used therein, the sample size, the classification of analysis method performed, and the role of satisfaction identified related to TDC framework.

4. Review findings

4.1. Mapping the literature

The SQLR procedure has made it possible to delineate the literature's boundaries useful for highlighting the characteristics and differences proposed by scholars in the study of the relationship between tourists' satisfaction and tourism destination competitiveness.

Figure 1 shows the trend of publications by year in the decade 2010-2020. Considering the growing interest in the joint study of the two phenomena, especially from the second half of the decade and mainly concentrated in 2019, it is possible to notice a sudden reduction of this interest. Probably, this situation occurred in the year 2020 because scholars focused more on the impact of the COVID - 19 virus on tourism, pointing out that the tourism sector productivity was considerably reduced until the necessary stop caused by the measures of distancing and lockdown (Lemy et al., 2020).

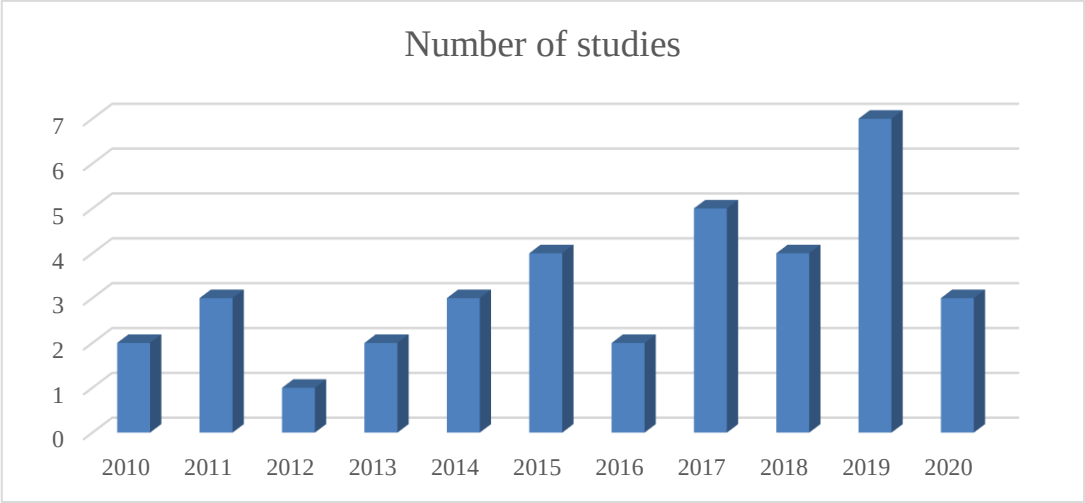

Figure 1. *Number of studies on "destination competitiveness" and "satisfaction" from 2010 to 2020*

Table 1 shows the branch of knowledge reported by Journals according to the classification proposed by SCImago by subject area and category of the journal. Each journal can belong to more than one domain. As expected, the journal discipline most present in our papers' dataset is Tourism, Leisure and Hospitality Management, followed by Social Sciences.

Table 1. *Classification according to the SCImago categories*

Journal discipline	Number of studies
Tourism, Leisure and Hospitality Management	28
Social Sciences	18
Economics, Econometrics and Finance	4
Environmental Science	3
Agricultural and Biological Sciences	2
Earth and Planetary Sciences	2
Computer Science	2
Engineering	2
Mathematics	2
Arts and Humanities	1
Psychology	1

Table 2 summarizes the characteristics of the research designs in the selected papers: the geographical area of investigation, the data collection method, and the sample size (categorized by intervals). Most of the studies focused on the European Union (55.6%), while Asia (19.4%) and Africa (11.1%) are placed second and third, respectively.

Concerning the data collection method, tourism phenomena can be measured using a) primary data, for example through a questionnaire, useful to acquire information on the direct experiences of visitors or b) secondary data, that are those data previously collected by institutions for purposes different from those of the authors of the studies. In this framework, collections of primary data (through interviews and questionnaires) are the most performed to register tourists' opinions and perception.

Noteworthy, the work of Miličević et al. (2017) is the only case that implements both types of data. Destination characteristics can be approached from the demand side by considering the tourists' importance towards these attributes. The authors proposed a destination competitiveness model that takes into account the supply side and the demand side. Thus, the authors used primary and secondary data sources. Primary data were extracted from a survey administered to destination managers (supply-side). Secondary data were collected from the TOMAS summer survey; this is an institutional tourism survey in Croatian seaside destinations administered by the Croatian Institute for Tourism. It also provides information on tourist satisfaction (demand side). Finally, in terms of sample size, the category relating to "0-500 tourists" is used by under half of the studies employed in our research, precisely 47.2 percent of the papers. This result confirms the difficulty in surveying tourists because collecting data is time consuming and expensive practice.

Table 2. *Studies research design features*

Geographical area investigated	**Number of studies**	**%**
Africa	4	11.1
America	2	5.6
Australia	2	5.6
Canada	1	2.8
Europe	20	55.6
TOT	36	100
Data collection method	**Number of studies**	**%**
Primary data (Self-administered questionnaire)	26	72.2
Primary data (Interview)	5	13.9
Secondary data	4	11.1
Primary and secondary data	1	2.8
TOT	36	100
Tourists' sample (range)	**Number of studies**	**%**
0 – 500	17	47.2
500 - 1000	4	11.1
1000 - 1500	5	13.9
> 1500	10	27.8
TOT	36	100

Given the diversity of statistical methods applied, Table 3 summarizes the analysis methods into groups referred to as "family." Specifically, each study performed more than one analysis method. The "factor family" includes: principal component analysis, factor analysis exploratory factor analysis, confirmatory factor analysis, categorical principal component analysis, non-linear principal component analysis. This type of analysis is the most used among these papers because it permits, in a previous step, to discover the underlying dimensions and, in the next step, to run other types of models (e.g., structural equation model, importance-performance analysis, or cluster analysis) (see Campo-Martínez & Garau-Vadell, 2010; Hall et al., 2017; Vodeb & Rudež, 2017). The "structural equation" family includes: structural equation model; partial least square - structural equation model; multigroup multi-wave LISREL model. This type of family shares with the "factor analysis" family the exploration of latent variables. The "structural equation" family aims to analyze constructs (such as TDC or satisfaction) that cannot be measured directly but only through measurable variables (i.e., manifest variables). By combining these variables with others, respecting specific criteria, a composite measure of the phenomenon under study can be calculated (see Bernini & Cagnone, 2014; Lemy et al., 2020; Zainuddin et al, 2017). The third family that was detected is the "Grid analysis" family. This category includes: importance-performance analysis; asymmetric importance-performance analysis; penalty-reward analysis. The name of the group comes from the use of a grid producing four quadrants. This type of analysis aims to suggest suitable strategies based on the positioning of the destination attributes within the grid (see Alegre & Garau, 2010; Bogale & Wondirad, 2019; Sever, 2015). The "cluster family" encompasses cluster analysis and ascendant hierarchical cluster analysis, where the attributes with similar features are grouped with the intent to discover specific tourist segments (see Hall et al., 2017; Miragaia & Martins, 2015). Statistical methods not belonging to the previously listed families are included in the last residual category, related to statistical and econometric techniques (e.g., linear regression model, multivariate regression analysis, ordered probit, seemingly unrelated regression).

Table 3. *Families of statistical methodologies*

Analysis Method	Number of methods performed
"Factor" family	21
"Structural equation" family	13
"Grid analysis" family	10
"Cluster" family	2
Other statistical /econometrical methods	10

4.2. The role of satisfaction in tourism destination competitiveness studies

Although the tourism literature agrees on the importance of TDC and tourists' satisfaction in improving destination performance, few studies have focused on the link between these two constructs. Highlighting this gap in the existing literature, this review attempts to build a bridge to find out the interrelation between the two constructs. Given the breadth of tourism research related to competitiveness and satisfaction, the SQLR allowed us to identify the useful papers to become the "building blocks" in the creation of this bridge through the delineation of appropriate literature boundaries.

This review has considered a particular aspect of the relationship between the two constructs to manage the tourism research complexity. Through consultation of the 36 papers, it was possible to identify the types of roles that satisfaction plays in the evaluation of TDC: tourists' satisfaction as a consequence of the TDC or tourists' satisfaction as a driver of the TDC. Carefully reading the papers, it come out that the prevalent role of the tourists' satisfaction is that of driver of the TDC. In our final dataset, only 8 out of 36 papers (22.2%) defined this type of satisfaction role. In contrast, 28 out of 36 papers (78.8%) employed satisfaction as a component for measuring TDC.

Satisfaction becomes an effect of competitiveness when the destination can meet tourists' needs and create memorable visits by effectively managing its resources (Ritchie & Crouch, 2003). Therefore, when a destination is competitive, it will be able to achieve high levels of satisfaction. Regarding the role of satisfaction as a determinant, a specification should be made: in 9 papers, satisfaction was introduced as an explanatory variable included in the model to perform statistical analyses of a destination's competitiveness. In the remaining 19 papers, satisfaction is expressed as a determinant of TDC but the authors merely provide suggestions of how to implement the results to ensure more competitive destination management. In the next sub paragraphs, we explain the features of the two groups of paper as effect and determinant role of satisfaction in TDC frameworks for the last ten years.

4.2.1. Satisfaction as effect of tourism destination competitiveness

Tourists' satisfaction depends on what the destination can offer but also on how these destination attributes are managed and offered (Kim & Jogaratnam, 2015), especially in term of image. To carry out the evaluation of the demand side of the destination, expressed in terms of tourists' satisfaction, researchers have approached in the last decades the use of TDC models to evaluate satisfaction, to identify which factors or destination attributes have influenced the tourist's

experience the most, both positively or negatively (Hallman et al., 2014). Most of the paper relies on the classification of attributes by Ritchie and Crouch (2003). It is the case of El Said and Aziz (2019), Hallman et al. (2014), and Kim and Jogaratnam (2015).

This type of model uses key success indicators in the evaluation of destination performance, shifting the focus from the supply aspect to the demand perspective, that is from the management to the tourist perspective. In this outlook, the researchers try to verify if the elements of destination competitiveness (and its final measurement) can influence tourists' satisfaction. In this context, the evaluation of destination attributes is done according to a qualitative approach. The basic idea is that if these destination attributes (i.e., infrastructure, core resources, attractors, and so on) have a competitive effect on the destination, consequently, this can lead to an increase in the satisfaction felt by tourists during their travel experience (Hallman et al., 2014). As a result, if tourists are satisfied with their experience, they will recommend that destination to others (i.e., word-of-mouth) (Zainuddin et al., 2016), as well as strengthening the tourist's revisit intentions towards the destination (Ballina et al., 2019; Sever, 2015).

4.2.2. Satisfaction as determinant of tourism destination competitiveness

In this category of studies, TDC is assessed through analyses focused on tourist satisfaction and expectations. Here, satisfaction is included as a factor that influences destination competitiveness (Chen et al., 2016). As in the previously described category of studies, destination attributes, especially core resources and attractors that most influence tourists' perception and satisfaction, are analyzed. According to Alegre and Garau (2011), if these destination attributes do not reach a certain threshold of satisfaction rating, they can penalize the destination, negatively affecting its ability to be competitive and threatening its survival. To avoid these negative effects, studies using satisfaction as a determinant of TDC aim to identify the factors that ensure the competitiveness of the destination, besides implementing an appropriate promotion strategy for the destination. Here, tourists’ satisfaction serves as an important indicator of destination competitiveness (Mihalič, 2013; Miličević et al., 2017).

Miličević et al. (2017) state that in measuring TDC, in addition to the employment of hard data for its measurement, soft data must be used when conducting tourism studies. This type of approach uses tourist satisfaction as a proxy to acquire information on the intangible characteristics of the tourism services provided by the destination. Thus, this approach, which focuses on the demand side of the destination's tourism product, as proposed by Dwyer and Kim (2003), allows to measure the destination's performance through the gap between the tourist's expectations and perceptions (and, therefore, their satisfaction). In other words, tourists' satisfaction represents a

valid key indicator in the measurement of TDC, since an increase in the levels of overall satisfaction leads to greater competitiveness (Alegre & Garau, 2011; Mihalič, 2013).

In subcategory regarding the 19 papers, satisfaction is understood as a determinant of TDC. However, the research designs focus mainly on the analysis of tourists' satisfaction through the evaluation of destination attributes. The contribution of these papers focuses on the importance of satisfaction in strengthening competitiveness through the identification of the combination of the attributes that directly and positively influence the formation of overall satisfaction (Vodeb & Rudež, 2017). As stated by Bernini and Cagnone (2014, p. 5) "*measuring tourist satisfaction towards a destination contributes to an understanding of tourist requirements and the dynamic analysis of satisfaction becomes one of the key elements of management and marketing strategy in improving destination competitiveness*".

4.2.3. Word frequency analysis

This second strand of analyses proposes a textual analysis (namely a word frequency analysis) to identify which specific words are more frequently associated with the particular satisfaction role (i.e., effect or determinant) in the TDC studies.

Here, the NVivo 12 software was used by performing a search query (Bazeley & Jackson, 2013): the software analyzed the textual bodies of the 36 papers, thus the information related to authors, abstract and bibliography had been eliminated to ensure greater accuracy of the results (Cheng, 2016).

Based on the literature mentioned in section 2.2, we classified the words related to tourist satisfaction's drivers and outcomes to be detected by the software in two sets. Specifically, we labeled as "satisfaction drivers" the following terms: image, perception, expectation, experience, quality, attractiveness, while we defined as "satisfaction outcomes": loyalty, word-of-mouth (also as an acronym: WOM), revisit/intention to return.

The analyses were produced separately for the two groups of papers previously introduced (see sections 4.2.1 and 4.2.2), with the purpose to offer an informative comparison between the two. Particularly, given the numerical disparity of the two groups of papers (28 in the first category, where Satisfaction is a *determinant* of the TDC, and 8 in the second category, where Satisfaction is an *outcome* of the TDC), the average number of times each word is present in the specific group of papers was calculated. Resulted are presented in Table 4.

Table 4. *Word frequency analysis on the role of tourists' satisfaction in TDC studies*

	Satisfaction role in TDC			
Words	**Occurrence in papers where TDC→ SAT**	**Average occurrence**	**Occurrence in papers where SAT →TDC**	**Average occurrence**
Drivers of satisfaction				
Image	51	6,4	121	4,3
Perception	29	3,6	94	3,4
Expectation	25	3,1	99	3,5
Experience	128	16,0	261	9,3
Attractiveness	16	2,0	75	2,7
Quality	44	5,5	559	20,0
Outcomes of satisfaction				
Loyalty	13	1,6	145	5,2
WOM/word-of-mouth	11	1,4	22	0,8
Revisit/return intension	61	7,6	58	2,1

In the category of papers that identify satisfaction as an effect of TDC (see columns 2 and 3 in Table 4), image is an antecedent of satisfaction (El Said & Aziz, 2019; Perovic et al., 2018; Zainuddin et al., 2016). Image influences tourists' behavior and motivation towards a specific destination (Hallman et al., 2014). In these papers, the competitive connotation of the image is also highlighted: it is a crucial component for the destination's success (Kim & Jogaratnam, 2015), as it is related to the destination attributes and what the tourist destination can offer to the visitor. El Said & Aziz (2019) assert that image is crucial for destination competitiveness and enhancing tourists' satisfaction. They highlighted how investment in both tangible (e.g., natural and cultural) and intangible (such as residents' hospitality or safety) resources could remedy situations in which a destination's competitiveness is adversely affected by terrorist incidents. Perception focuses on the emotional aspect of the service offered: it affects the tourist's usefulness (Ballina et al., 2019), also increases the value of the stay perceived by the tourist (Zainuddin et al., 2017). Thus, perception is a condition related to the consumption process; the perception of tourists who have more involvement towards the destination and its characteristics are stronger than tourists who are less involved (Zainuddin et al., 2016) (in this way, tourists can develop different travel experiences). In short, the tourist perception of the tourism product becomes an essential aspect for the business strategies, especially concerning the intangible elements as they affect the overall satisfaction and are the most difficult to replicate for competitors (Perovic et al., 2018; Server, 2015). Consumer experience is an antecedent of tourist satisfaction and is composed of tangible and intangible elements (Perovic et al., 2018; Server, 2015). Kim & Jogaratnam (2015) highlight that a positive experience with the competitive tourism product allows for satisfying memories.

Therefore, destinations should strengthen those attributes that enable them to maintain competitive advantage (El Said & Aziz, 2019; Hallman et al., 2014).

Regarding satisfaction outcomes for this group of papers, revisit intention and word-of-mouth (WOM) are the most prevalent concepts. Although both terms are related to loyalty, the latter word is mentioned the least here. Revisit and WOM are both effects of satisfaction and are related to the visitor's future behavior response (Hallman et al., 2014; Kim & Jogaratnam, 2015; Zainuddin et al., 2017). Revisit intention is influenced by the destination image (El Said & Aziz, 2019) and reflects the willingness of tourists to revisit the destination based on their satisfying experience. Typically, it is more efficient for tourism destinations to target return intention because it leads to a higher volume of revenue and saves on marketing costs (Perovic et al., 2018). Regarding WOM, it is a communication process in which, specifically in the tourism domain, the visitor comments positively on their experience (El Said & Aziz, 2019; Zainuddin et al., 2016). Moreover, it is a mechanism used for destination managers, on the one hand, to reduce marketing costs and, on the other hand, to entice new prospective visitors.

Among the drivers most cited by papers that define tourists' satisfaction as a determinant of TDC, visitor expectation relates to the pre-tourist activity aspects where tourists make advance cognitive evaluations at this preliminary stage based on previously acquired information about the destination or past travel experiences (Bogale & Wondirand, 2019; Djeri et al., 2018). As stated earlier, satisfaction is defined as the gap between expectation and perception where the tourist is satisfied if the perception of the service or attribute is higher than expected. However, several authors (e.g., Bernini & Cagnone, 2014; Chen, 2011) place more attention on the generated expectations, as without the preliminary perspective of the tourist, it will not be possible to say whether the vacation met his or her expectations. According to this outlook, the attractiveness of the destination becomes supportive of the concept of expectations. If the tourism product is attractive, appealing, and well organized, it will influence the choice of potential tourists in visiting a specific destination rather than another (Texeira et al., 2019). Strengthening the attractiveness of both tourism-related and business-related factors provides the possibility to create new opportunities for tourists to be satisfied and to come as close as possible to their vision of an ideal tourism destination (Breiby & Slåtten, 2018; Garín-Muñoz & Moral, 2017; Hall et al., 2017; Texeira et al., 2019). Additionally, the quality of the tourism product stands out more in this group of studies than the other. Service quality is an essential intangible factor that can influence overall satisfaction (Hall et al., 2017) and achieve competitive advantage (Dodds & Holmes, 2020; Campo-Martínez & Garau-Vadell, 2010). According to Mihalič (2013), the destination's performance is influenced by the product or service quality consumed by the tourist and spreads its effects on the tourist's decision-making process.

Turning to satisfaction outcomes, the word “loyalty” recurs more when papers address satisfaction as a determinant of the tourism destination competitiveness (average recurrence 5.2 vs. 1.6). Loyalty is an attitude that aims to promote a product or service regularly in the future, thus leading to continued consumption (Lemy et al., 2020). In this type of studies, the models proposed by the authors (see Bernini & Cagnone, 2014; Breiby, & Slåtten, 2018; Lemy et al., 2020; Neuts et al., 2013) carry out the analyses on tourists’ satisfaction and loyalty to propose marketing strategies focused on the characteristics of the destination to satisfy the needs and expectations of tourists and, consequently, strengthen the competitiveness of the tourism destination, and especially its the competitive advantage. Briefly, the higher the satisfaction, the greater the likelihood that tourists will become loyal, leading to a higher intention to revisit or recommend the destination to family and friends (Lemy et al., 2020; Neuts et al., 2013).

It could be summarized that the literature search undertaken in the present study has highlighted two main approaches. In papers where satisfaction is a determinant of competitiveness, the research goal focuses primarily on the tourist's cognitive and emotional aspects. Thus, destinations must maximize the creation of an environment that best reflects the tourist's needs and preferences. On the other side, papers stating that when a tourism destination is competitive, measured through the positive or negative perception of tourists on destination attributes, it will increase visits from new and potential visits and induce positive comments on the experience through WOMs. Here, a marketing-centric and pro-business approach stands out compared to the other group of papers. In conclusion, considering that the number of studies dealing with satisfaction as a determinant of TDC is larger than the other group, we can presume that most recent tourism research on competitiveness moves towards an approach increasingly focused on the tourist's characteristics and needs.

5. Conclusion

Given that the relationship between competitiveness and satisfaction is somehow underrated in tourism studies, this research aims at emphasizing how tourists’ satisfaction is related to the tourism destination competitiveness framework. Traditionally, destinations must address the organization and management of their scarce resources efficiently to perform better on the tourist market. In this sense, whether a destination competes better than its competitors, it will be able to attract and satisfy current and potential new visitors (Croes, 2011). Competitiveness involves a long-term relationship with customer satisfaction (Chen et al., 2011; Cracolici & Nijkamp, 2009; Veasna et al., 2013), so the fact that a tourism destination continues to be competitive leads to loyalty and high-quality service levels (Croes & Kubickova, 2013). This assumption is crucial for

the survival of the destination, as well as permits the achievement of benefits described in previous sections. Nonetheless, the issue of planning marketing practices on a destination is poorly applied in tourism research (Buhalis, 2000; Ritchie & Crouch, 2000). From this perspective, the tourism destination competitiveness analysis should not be based exclusively on the characterizing territorial attributes of the tourism destination but must integrate a broad set of determinants associated both to the tourism business performance and to evaluations of tourists' experience (Cracolici & Nijkamp, 2009; Enright & Newton, 2004). Even though the concepts of destination competitiveness and tourists' satisfaction have been treated profusely in tourism research, this review attempts to identify and fill the gaps concerning the relationship between these two constructs. The review herein proposed was set up via the methodology known as Systematic Quantitative Literature Review.

The nature of the link between satisfaction and competitiveness remains undefined. Nonetheless, in this review, we have identified possible relational directions proposed by authors of tourism studies, precisely in terms of effect and determinant (that is, antecedent and consequent construct).

While satisfaction as an effect of competitiveness was an approach shared by several authors (e.g., Enright & Newton, 2004; Mazanec et al., 2007; Ritchie & Crouch, 2003), the great majority of the papers identified in this review treat satisfaction as a determinant of competitiveness. Specifically, satisfaction as a variable used to measure TDC is a process carried out by a small number of papers (9 out of 28). The remaining 19 papers highlight this relationship as a marketing tool, and therefore the authors suggest applying tourists' satisfaction studies to improve destination competitiveness. A limitation found in these 19 papers is that no additional effort is made in introducing the satisfaction variable into the competitiveness measurement model. Here, the authors provide only theoretical and managerial implications related to the supporting action of satisfaction in achieving tourists' needs and expectations through the services offered.

Furthermore, the word frequency analysis allowed us to better understand the differences in the two hypotheses about the directions of the relationship between satisfaction and TDC. Here, the concepts used to perform the word frequency analysis belong to the drivers and outcomes of satisfaction: image, perception, experience, expectation, quality, attractiveness, revisit/intention to return, word-of-mouth, loyalty. By performing this textual analysis, the words most commonly used by papers defining satisfaction as an effect of TDC are: image, perception, experience, revisit/intention to return, and word-of-mouth. In contrast, the words most frequently used in papers that consider satisfaction as a determinant of TDC are: expectation, quality, attractiveness, and loyalty. Based on this review's results, the new trend in TDC studies of integrating the tourists' view into measuring tourism performance is more vital than ever before. Briefly, two approaches

come out: the group of papers related to the role of satisfaction as an effect of TDC reflects the destination's aim to be more competitive by implementing marketing and strategic tools to reach a higher level of tourists' satisfaction. In the other group, the tourists' impact in the definition of destination competitiveness by satisfying his/her need is more pronounced. Considering the number of studies dealing with satisfaction as a determinant is greater than the "effects" group highlights how tourism research on competitiveness moves towards an approach increasingly focused on the tourist's characteristics and needs.

Among the gaps in the literature identified in this review arises the lack of more innovative tools to collect tourists' impressions and evaluations of their travel experience, such as text mining techniques useful for extract information hidden in online textual data provided by web platforms (e.g., TripAdvisor) (Li et al., 2019a). No one of the paper included in the dataset proposed this kind of tools. In very recent years, the use of social media and related big data has recently experienced significant growth, especially in tourism research (Li et al., 2019a; O'Connor,2010; Pantano et al., 2019; Su & Teng, 2018; Ye et al., 2019). Here, the expression "big data" indicates a set of data so extensive and complex that their use involves the application of specific tools and the elaboration of new strategies to obtain information from sites whose content is generated entirely by users (Hashem et al., 2015). A particular case of big data, as user-generated content (UGC), can help tourism managers in understanding user behavior and how visitors evaluate their experiences. So, the use of UGC is twofold: tourism destination can improve the tourism offer to attract more tourists by understanding their needs, preference, and purposes. On the other hand, tourists share their preferences or complaints about their journey. Here, tourism managers can work to reduce the issues related to destination management, according to tourists' evaluation experience. In recent years, the new challenge becomes to combine competitiveness and satisfaction measures provided by the big data. Unlike the traditional customer survey method, the UGC text analysis can reflect more accurately the several attributes of destination performance expressed by the tourists' travel experience in real-time (Li et al., 2018). Briefly, combining the tourists' subjective thinking with hard data aspect can enhance the competitiveness of the tourist destination.

In summary, tourists' satisfaction leads to the belief that strengthening the quality of services enhances the appeal towards destinations, ensuring an increase in the number of tourists (Baker and Crompton, 2000). Therefore, it is critical to fully understand both causes and consequences that lead to tourists' satisfaction or dissatisfaction (Su & Teng, 2018) since tourists' satisfaction is decisive in defining the success of a tourism destination by influencing behavioral intentions.

Thus, tourism destinations must avoid implementing passive management of resources (both endowed and created). As discussed in this review, they can improve their competitiveness by employing tools that provide information on the tourists' experience. Nowadays, tourism

destinations are seen as business organizations. For this reason, the need to absorb satisfaction evaluations to assess tourism performance allows the tourism destination to be more competitive than its rivals. As demonstrated in this study, the inclusion of the satisfaction dimension in tourism destination competitiveness framework is of crucial importance for tourism performance.

APPENDIX

Table A1. *List of papers in the final dataset*

Authors	Year	Journal
Alegre & Garau	2011	Journal of Travel Research
Ballina et al.	2019	International Journal of Tourism Cities
Barak et al.	2019	African Journal of Hospitality, Tourism and Leisure
Bernini & Cagnone	2014	Current Issues in Tourism
Bogale & Wondirad	2019	International Journal of Tourism Policy
Breiby & Slatten	2018	International journal of culture tourism and hospitality research
Campo-Martínez & Garau-Vadell	2010	Tourism Economics
Chen et al.	2016	Journal of Sustainable Tourism
Chen et al.	2011	Ocean & Coastal Management
Deng et al.	2010	Tourism Analysis
Djeri et al.	2018	Economic Research-Ekonomska Istraživanja
Dodds & Holmes	2020	Ocean and Coastal Management
Doğan et al.	2012	Tourismos: an International Multidisciplinary Journal of Tourism
El-Said & Aziz	2019	Tourism and Hospitality Management
Esparon et al.	2015	Journal of Sustainable Tourism
Ferreira & Perks	2018	African Journal of Hospitality, Tourism and Leisure
Garín-Muñoz & Moral	2017	Journal of Reviews on Global Economics
Hall et al.	2017	Journal of Travel & Tourism Marketing
Hallmann et al.	2014	Current Issues in Tourism
Kim & Jogaratnam	2015	Tourism Review International
Lemy et al.	2020	Journal of Asian Finance, Economics and Business
Melian-Gonzalez et al.	2011	Tourism Management
Mihalič	2013	Journal of Travel Research
Miličević et al.	2017	Journal of Travel & Tourism Marketing
Miragaia & Martins	2015	International Journal of Tourism Research
Neuts et al.	2013	Tourism Economics
Perovic et al.	2018	Kybernetes
Ponte et al.	2019	Revista de Gestão e Secretariado
Promsivapallop & Kannaovakun	2020	Asia-Pacific Social Science Review
Sever	2015	Tourism Management
Soler & Gemar	2019	Tourism & Management Studies
Teixeira et al.	2019	Tourism Review
Vieira et al.	2014	Scandinavian Journal of Hospitality and Tourism
Vodeb & Rudež	2017	Tourism: An International Interdisciplinary journal
Zainuddin et al.	2016	Advanced Science Letters
Zainuddin et al.	2017	Procedia - Social and Behavioral Sciences

Chapter 2

Competitiveness as a puzzle: the case of Italian tourism destinations

Abstract

The present study focuses on the thematic areas suitable for developing Tourism Destination Competitiveness (TDC) as related to 106 Italian provinces. Based on the available indicators, we have analyzed the competitive tourism capacity of each province. The novelty for the Italian case is to calculate a composite indicator by identifying and measuring the latent elements that characterize the phenomenon under study. Partial Least Square – Path Model was used to carry out this task by identifying four constructs (Economic and Social Development, Infrastructure, Attractiveness, Sustainability) which determine the Competitiveness. The Economic and Social Development, Attractiveness, and Infrastructure constructs significantly and positively influenced the TDC, while the Sustainability construct was not significant. The Tourism Destination Competitiveness Score is estimated to obtain a provincial rank for tourism destinations. The top five destinations are Rome, Milan, Venice, Bozen, Naples.

Keywords: tourism destination competitiveness, partial least square – path model, Italian provinces, formative constructs, composite indicator.

1. Introduction

The literature on Tourism Destination Competitiveness (hereafter, TDC) is quite wide but there are not many insights on Italian tourism competitiveness (Cracolici & Nijkamp, 2009; Cracolici et al., 2008; Cucculelli & Goffi, 2016; Massida & Etzo, 2012). The scarce availability of data at a sub-regional level makes these insights even fewer, especially for the Italian provinces (NUTS3).

In Italy, tourism is an economic activity that significantly contributes to the increase in GDP and employment levels (Banca d' Italia, 2018). The development practices and the promotion of the tourist offer are directly managed by the Regions (NUTS2). Regions must implement specific development policies, especially for creating new forms of receptivity and transport, that take into account the strength and the weakness of each belonging province (set at the NUTS3 level) (Banca d' Italia, 2018). Moreover, the adoption of development policies has to consider the tourism sector complexity: they are influenced by several tourism-related economic activities (i.e., hospitality sector, catering, transport, and so on).

Working at the provincial level instead of the regional one allows us to define tourism's impact on destination development more precisely regarding tourist flows and added value. In this way, we assess the province's latent capacities to provide crucial information for destination managers to adopt appropriate growth policies and strategies. With this outlook, we investigate on 106 Italian provinces: each province exploits the type of tourism that fits better with its peculiarities. For instance, some of them may have a sea tourism vocation or can have a globally recognized cultural heritage (Cracolici & Nijkamp, 2009). Therefore, it is necessary to consider the heterogeneity of the Italian provinces' tourism vocation.

An accurate definition of the competitiveness of tourism destinations can be found in Ritchie and Crouch (2003, p. 3): "*What allows a tourist destination to be truly competitive is its ability to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying, memorable experiences, and to do so in a profitable way, while enhancing the well-being of destination residents and preserving the natural capital of the destination for future generations*". Thereby, whether a destination cannot exploit its resources, it will not be competitive in to ensure a pleasant experience for the tourist than other rivals. In brief, this paper aims to explore the TDC of 106 Italian provinces, focusing on the comparison between how the province deployed their resources and what returns they achieved. From this outlook, it is possible to assess which destination has performed better than others. A novelty of this paper is the formation of a composite indicator to deal with the Italian provincial competitiveness, also providing a competitiveness ranking.

In this study, we contribute to the literature on the Tourism Destination Competitiveness for the case of the Italian provinces using a Partial Least Square - Path Model (PLS-PM). Critical components for tourism development have been identified to investigate aspects not directly measurable. For its nature, TDC is a multidimensional concept related to different aspects, as proven by our results. Herein, TDC has been considered as a latent construct interconnected with its observable indicators (Mendola & Volo, 2017). The advantage of this approach is to measure the hidden capacity of a destination's competitiveness to achieve tourism goals (Mazanec & Ring, 2011). This paper intends to find out the components influencing the Italian tourism destinations' competitiveness and to analyze those aspects of competitiveness which can satisfy multiple interests such as: guaranteeing the protection of the environment of the tourism destination, the well-being of the community, and maintaining an advantage over time for future populations (in line with Crouch & Ritchie, 1999 and Ritchie & Crouch, 2003).

Considering the Italian tourism framework, the aims of the research are:

1) assessing the complex construct of the tourism competitiveness of the Italian provinces;

2) testing relationship between TDC and other abstract constructs (i.e., economic structures development of provinces; their attractiveness for tourists, the environmental sustainability of their development, their accessibility to tourists);

3) providing a synthetic score to compare the tourism competitiveness of Italian provinces.

This paper is structured in the following way: the next section deals with the literature review of TDC. Afterward, there is a discussion about the chosen method and the variables used. Section 4 aims to elaborate hypotheses about relationships among constructs. In Section 5, model validation is provided. In Section 6, the results of the analysis are presented through the application of the PLS-PM while in Section 7 the TDC score of the provinces is shown. Finally, in the eighth Section, the final comments are reported.

2. Literature review

Assessing Italian tourism competitiveness aims to develop strategies to ensure economic growth and to enhance the tourism market share. Thus, introducing a global framework of Tourism Destination Competitiveness is fundamental. To address this topic, it is necessary consider the Porter's (1990) Diamond of National Advantage as a starting point. The author affirms that: "*a nation's competitiveness depends on the capacity of its industry to innovate and upgrade. Companies gain advantage against the world's best competitors because of pressure and challenge. They benefit from having strong domestic rivals, aggressive home-based suppliers, and demanding local customers*" (Porter, 1990, p.3). Moreover, Porter defines the four great attributes of a nation. These are: factor conditions; demand conditions; related and supporting industries; firm strategy, structure, and rivalry. According to the author, the competitive advantage is ensured by efficiently combining and managing these attributes.

Albeit this concept stems from the business literature, the contribution of Porter (1990) is considered seminal in tourism research; it is a useful base to define the tourism competitiveness of a nation and, even more specifically, of a single destination (see Cracolici & Nijkamp, 2009; Croes & Kubickova, 2013; Crouch, 2010; Crouch & Ritchie, 1999; Dwyer & Kim, 2003). Particularly, the combination of business competitiveness research with tourism research permits to reduce gaps in the tourism competitiveness studies (Enright & Newton, 2004). In this perspective, tourism destinations are seen as business organizations that need to establish strategic activities (within the country) to guarantee their survival by providing services that are superior, if not unique, respect to other rivals, or offer them at a competitive price. On the other hand, tourism destinations also need

to consider the interconnections between the various tourism industries (Hassan, 2000). In this outlook, competitiveness is a two-fold phenomenon (Spence & Hazard, 1988): it is relative (compared to what?) and multidimensional (what are the critical attributes that determine competitiveness?).

Although the concept of competitiveness is well defined in business literature, tourism destination competitiveness is a blurred concept: interactions of stakeholders in the tourism sector at different levels (such as countries, firms, tourists, and so on) as well as processes triggered by them make it cumbersome to measure TDC. Here, the multidisciplinary nature of the phenomena is outlined and several researchers have attempted to define it.

Crouch and Ritchie (1999) examined the definition of competitiveness in the tourism sector and its influence on the well-being of society. They stated that TDC is the ability of the destination to guarantee a high standard of living for the residents of that destination. Moreover, they stress the importance of an approach to competitiveness that does not harm the places surrounding the tourism destination. Additionally, the authors contributed to identifying the four determinants that characterize TDC (*ibidem*). They are: core resources and attractors (as primary elements of the attractiveness of a destination), supporting factors and resources (as foundations for successful tourism development), destination management (as activities that can influence and enhance the core resources, the supporting factors and the qualifying determinants), and qualifying and amplifying determinants (as "situational condition" that can modify the former three determinants). Crouch and Ritchie (1999), furthermore, underlined the importance of the competitive advantage, which is in contrast with the comparative advantage: the former is the ability of the destination to exploit its resources in the long run while the latter refers to the resources available in a destination. Thus, enhancing the former will lead to a certain degree of preference for a destination over the others. Based on the Crouch and Ritchie TDC model (1999), Dwyer & Kim (2003) developed a destination competitiveness model that identified the strength and the weakness of tourism destinations and conceived an appropriate set of indicators useful to measure the competitiveness of each destination. The authors pointed out that TDC is "*linked to the ability of a destination to deliver goods and services that perform better than other destinations on those aspects of the tourism experience considered to be important by tourists*" (p. 374). According to the authors, the framework of TDC is formed by price competitiveness, firm-specific factors, cultural and related factors, and subjective factors. Moreover, the key factors of destination competitiveness they identified are: endowed resources (the natural or cultural resources that characterize the destination); supporting factors (concerning general infrastructure, quality of service, accessibility of destination, hospitality, and market ties); destination management (referring to a set of procedures useful to maintain and develop the destination competitiveness);

situational conditions (as events that can influence the destination competitiveness); and demand factors (namely elements of tourism demand related to awareness, perception and tourist preference).

Another contribution in destination competitiveness studies is by Hassan (2000): he stated that competitiveness stems from the ability of destination to "*create and integrate value-added products that sustain its resources while maintaining market position relative to competitors*" (p. 239). Hassan has identified four factors of market competitiveness and they are: comparative advantage (the factors measuring competitiveness performances are embedded in the micro and macro environments); demand orientation (namely the ability of destination to adapt itself to market changes); industry structure (a strong tourism industry leads to improve competitiveness performance); and environmental commitment (the awareness of environmental issues enhances competitiveness).

The TDC definitions presented thus far include both the elements and effects of competitive tourism performance. However, there is some difficulty in identifying the roles and relationships of the competitive constructs' counterparts (Conti et al., 2020). Considering different contributions made by several scholars in the tourism field (see Croes & Kubickova, 2013; Enright & Newton, 2004; Gooroochun & Sugiyarto,2005; Kozak & Rimmington, 1999) allowed us to reduce the complexity among TDC and its components. Briefly, as summarized by Abreu-Novais et al. (2015), there are three shared dimensions among the concepts of TDC expressed in the literature: economic dimension, attractiveness dimension, and sustainability dimension. First, the economic dimension considers the level of productivity of the tourism enterprise and the financial status of the destination to achieve economic prosperity. So, a strong economy affects the level of investment in the tourism sector and government support (Assaf & Josiassen, 2012). Second, the attractiveness dimension measure, directly and indirectly, the capacity of the destination to attract visitors. Here, understanding how the image of a destination is perceived by tourists is crucial to gather information about their destination selection processes (Baloglu & Brinberg, 1997). Finally, the sustainability dimension becomes necessary to maintain tourism destination long-term advantage through the implementation of strategies to preserve their natural and cultural resources (Glatzer, 2012). Thus, if we consider components as "*input variables that are the potentials of destinations to realize the objective of tourism development, such as increased demand and enhanced quality of life*" (Conti et al., 2020, p. 1753), measuring which aspect compete mainly on tourism performance becomes fundamental. Given that TDC is a latent construct, it is necessary to measure these aspects (components) using specific indicators (i.e., manifest variables). To analyze the vast Italian territory, performing secondary data becomes essential to compare different tourism destinations (in our case, the Italian provinces). It is necessary to underline here the difficulty, if

not the impossibility, of applying primary data to acquire data directly from tourists since they generally entail high costs in terms of time and money (Assaker et al., 2013).

Focusing on Italian TDC, several studies have attempted to define competitiveness based on the characteristics of Italian tourism destinations. Cracolici et al. (2008) carried out the analysis of the territorial productive efficiency for 103 Italian regions through the data envelopment analysis and stochastic production function. From this perspective, they observed that tourism destinations must focus on the efficient management of their essential quality, crucial in comparing the tourism efficiency of a region over another. According to their view, "*regions are considered [...] as heterogeneous multi-product, multiclient business organizations. In the light of the competitive behaviour in the tourism market, regions have to maximize their market share given the resources available"* (p. 3). Cracolici and Nijkamp (2009) underpinned that tourism destination performance is connected to the ability to manage its resources. In their study, the authors evaluated the destination attractiveness related to tourists' perception of the Southern Italian regions. Here, competitiveness involves tourists' satisfaction and the evaluation of destination determinants (such as friendliness of the residents, natural and cultural attractors, typical food and wine quality, and so on). The use of the Principal Component Analysis has allowed them to assess the destination's competitive ability and acquire information on tourist well-being. An important difference to take into account is between economic and non-economic factors. Massida and Etzo (2012) analyzed the main factors of the Italian tourist demand and assume that it is necessary to consider also the role of non-economic factors in assessing TDC. In fact, the authors posited that lifestyle, culture and the local endowment of natural and cultural resources can influence choices and behavior of tourists, in terms of regional differences.

In the end, it is noteworthy the role of sustainability in shaping TDC. Cucculelli and Goffi (2016) have examined this aspect studying some small Italian "destinations of excellence" such as villages or small towns. The authors stated that "*competitive and sustainable destination is not only the one that meets the needs of tourists preserving the natural and cultural local resources, but also increases the residents' well-being*" (p. 381). In this respect, they introduced a set of sustainability indicators, such as the quality of environmental and natural resources, the local empowerment in the tourism industry, or gastronomy (as a destination source identity, also critical for promoting tourism in small destination areas) related to the pursuit of destination long-term welfare objectives. Furthermore, the authors stressed the importance of sustainability as a critical determinant of TDC, suggesting to destination managers to develop strategies to preserve the ecological balance of the destination.

The literature search undertaken in the present study underpins that tourism destination competitiveness is centered on the notion of "ability" to be superior to the rivals (Ritchie & Crouch,

2003) and to maintain this condition in the long-run. In this framework, several authors attempted to identify competitiveness components. Despite the broad number of components provided, it is possible to recognize elements in common among these definitions. These refer to economy, infrastructure, cultural and natural factors (as attractors), and sustainability aspects. Based on the previous considerations, this study adopted these underlying dimensions as the most suitable in determining the tourism destination competitiveness.

3. Data and methods

To analyze the Italian Tourism Destination Competitiveness, we relied on official indicators provided by the National Statistical Office (ISTAT) and the European one (EUROSTAT). The units of analysis are the 106 Italian provinces (NUTS3). Table 1 presents the indicators with a brief description. The used data all refer to 2015, with the exception of the indicator "Museum" that is available only for 2011.

Since we consider TDC as a latent construct, to model the relationship among TDC and the related constructs (introduced just below) we selected a Partial Least Square - Path Model (PLS-PM), also known as PLS - Structural Equation Model (PLS-SEM). The PLS-PM (Wold 1982, 1985) manages complex models treating both latent variables (constructs) and manifest variables and tests their relationships; in this way it is possible to measure multidimensional concepts that are not directly observable (Bollen, 1989). Identifying these constructs as pieces of a puzzle allows us to create a drawing useful to understand a cumbersome concept.

The PLS-PM offers a useful statistical instrument to identify the unobservable dimensions (assessed by specific indicators) that determine competitiveness to measure and compare the tourism performance of Italian destinations.

A PLS-PLM is a model in the set of the structural equation models, which allows estimating complex cause-effect relationship models with latent variables, measured through specific observable indicators. Thus, the complexity of a system can be managed by analyzing the relationship among the latent dimensions of the phenomenon (i.e., the latent variables). To do so, the manifest variables as observable indicators measure the latent dimension of the concept. Particularly, PLS-PM combines both reflective measures (the manifest variables express the latent variable's outcome) and formative measures (the manifest variables employed in the model can differently affect the common underlying construct) to specify the latent variables. In reflective methods, the construct causes the measure (i.e., the effects) of the indicator, specifically covariation. In this case, there are no collinearity issues. In contrast, in the formative measurement

method, the observed variable causes the construct. Here, each indicator must explain a different aspect of the construct to which it relates. For this reason, formative indicators are not interchangeable in this approach, and collinearity becomes a significant problem for model specification (Hair et al., 2016).

Furthermore, path models are developed based on theory, and they permit the examination of the variables' relationship and hypotheses formulated on the constructs. They can be considered as the extension of regression models as they involve the analysis of simultaneous multiple regression equations. By exploiting the path model, PLS-PM deals with evaluating latent variables at the observation level (outer or measurement model) and testing casual relationships between latent variables on the theoretical level (inner or structural model) (Bollen, 1989).

From a methodological point of view, the PLS-PM (Wold, 1979; Tenenhaus, 1998) is a procedure of partial information carried out through two phases: the first one provides an iterative estimation of latent variables scores by estimating outer and inner weight by using the PLS algorithm, while the second one performs estimation of loadings and path coefficients through OLS regression. The objective of PLS-PM is to maximize the explained variance (R^2) of endogenous latent variables through the predictive capacity of the model. (Jöreskog & Wold, 1982). Among its features, PLS-PM deals with a small sample size, a reflective and formative measurement of constructs can be applied (do Valle & Assaker, 2015), and no assumptions are made about the distribution of data. Assaker & Hallak (2012) assert that PLS-PM is appropriate for national tourism studies.

In recent years, competitiveness has been defined as a complex notion that involves different attributes difficult to measure (Dwyer & Kim, 2003). Nonetheless, several studies approach assessing the tourism destination competitiveness as a latent construct: identifying its components becomes necessary to understand its multidimensional nature (Gooroochurn & Sugiyarto, 2005). Among the tourism studies that deal with the latent variable modeling framework (see Assaker et al., 2013; Gooroochurn & Sugiyarto, 2005; Mazanec et al., 2007), we follow the approach of Mazanec and Ring (2011). The authors applied a PLS-PM to measure the destination competitiveness by using indicators provided by the Travel and Tourism Competitiveness Index (TTCI) realized by World Economic Forum (WEF). In their study, they propose to transform the TTCI into a formative structural model and emphasized the application of formative measurement instead of reflective measurement in the destination competitiveness analysis. They affirm that this condition is obvious, since the latent quality of destinations competitiveness affect the success or failure of the destination.

Based on the existing literature (particularly) provided in Section 2, we selected as components of TDC four dimensions (assumed to be latent constructs): Economic and Social

Development, Infrastructure, Attractiveness, and Sustainability. We decided to carry out a formative measurement on Economic and Social Development, Infrastructure, Attractiveness, and Sustainability constructs because the indicators aim to globally consider the domain of the associated construct. This choice is supported by do Valle & Assaker (2015), who maintain the need to exploit the possibility of introducing a formative approach of the model. For the TDC construct, a reflective measurement has been applied, since competitiveness influences the selected manifest variables (Mazanec & Ring, 2011). In this study, the independent (formatively measured) constructs of the model are understood as the measurement of the tourism potential of the destination-province, while the dependent (reflectively measured) variable expresses the results of the tourism destination potential. Thus, PLS-PM is an appropriate methodology to study TDC, given that it can efficiently deal with both formative and reflective measurement models and is considered the direct approach when the hypothesized model includes formative measures (Hair et al., 2016).

For each construct, a specific set of observable variables has been identified (see Table 1).

The Economic and Social Development construct is related to concepts of human development and economic well-being, useful for the competitive tourism framework (Croes, 2012; Croes & Kubickova, 2013). More specifically, the construct aims to capture the quality of life of destination residents as it affects the tourist experience and the tourism quality of the destination (Gooroochurun & Sugiyarto, 2005). The importance of this construct as a component of competitiveness is highlighted by the fact that good economic planning and solid social development of the destination are necessary to consolidate a successful tourism product. Among the formative indicators used, there are: the gross domestic product per capita (GDP), that measures the efficiency of the economic system and collective well-being calculated as the volume of goods and services produced by its residents in a specific year (Knežević Cvelbar et al., 2015); the population density (Density) as a measure of the ability of the province to create tourism flow by its dimension (Masidda & Etzo, 2012); the level of education (Education) considered as a human resource indicator (Mazanec & Ring, 2011), measuring the quality of a destination's labor force, crucial for providing better quality services, especially for tourism services (Gooroochurn & Sugiyarto, 2005). Thus, a higher economic and social development level will allow the destination to promote a quality tourism product (Croes & Kubicova, 2013).

The infrastructure construct stems from the “supporting factor” category proposed by Crouch and Ritchie (1999) and Dwyer and Kim (2003). Here, the construct's goal is to measure the capacity and quality of services provided by the destination to tourists. The construct consists of indicators of ICT and infrastructures (Assaker et al., 2013). Specifically, it includes indicators related to those services defined as purely tourism-related, for instance, number of beds of

accommodation facilities per km^2 (Beds) and those services of general nature, such as seats-km offered by local public transport (TPL) as an indicator of the quality and capacity of public transportation services provided by the destination. Moreover, the spread of broadband internet connection (Internet), which is considered an ICT indicator of research and innovation in territorial contexts and useful as a source of information for both tourists and tourism stakeholders, has been included (Mazanec et al., 2007). Briefly, destination infrastructures are considered the foundation for successful tourism product (Ritchie & Crouch, 1999; Enright & Newton, 2004). However, it was not possible to report the indicator related to the presence of ports and airports because it did not meet the model's inclusion criteria.

The central facet on measuring the competitiveness of destination is related to the tourism role of attractions and resources (Murphy et al., 2000; Yoon et al., 2001). They are recognized as primary factors for the formation of a tourism product since tourism cannot exist without them. Basic-core resources are considered the pillar of successful competitiveness and are related to the destination's natural and cultural aspects. For the Attractiveness construct, the number of holiday farms (Farms), the degree of promotion of the cultural offer (Cultoff), and the density of cultural sites (Museum) - that is museums per inhabitant- are counted as indicators. Unfortunately, there are no indicators that account for the natural attractiveness at the provincial level available for Italy and the indicator related to beach coasts' presence (which could be a proxy for sun and beach tourism) did not meet the model's inclusion criteria. The number of holiday farms has been considered here as a proxy of food and wine tourism[1] (Garibaldi & Pozzi, 2018), which is gaining more and more interest among tourists (Banca d'Italia, 2018). Otherwise, the density of cultural sites (Museum) and the degree of promotion of the cultural offer (Cultoff) highlight the destination appeal related to the culture and history of the population (Masidda & Etzo, 2012). Noteworthy, in this study, we considered only the potential attractiveness of provinces as tourism destinations, given the difficulty in acquiring more accurate information.

Quoting Gooroochurn and Sugiyarto (2005, p. 30), "*the quality of the environment is an important asset for a destination, especially in light of the increasing number of environmentally-conscious tourists*." For the definition of the Sustainability construct, the environment indicator reproduces the quality of the physical environment and a country's ability to be aware and involved in environmental planning and management (Conti et al., 2020; Gooroochurn & Sugiyarto, 2005). In this context, energy from renewable sources (Renewable) and hectares of wooded area per km^2 (Wood) have been used. The Renewable Energy Indicator considers the extent to which the tourism destination exploits electricity from renewable sources (see e.g., Ben Jebli et al., 2019). Forest density (Wood) is a proxy of natural areas' existence and width stemming from preservation

[1] Farms do not take into account those tourism structures offering accommodation services.

strategies by political interventions (Conti et al., 2020). Nonetheless, it was not possible to introduce a variable expressing CO_2 emissions in the model due to the excessive number of missing data. Furthermore, the available indicator for urban waste from the separate collection was not added because it did not meet the criteria of the model.

Lastly, the TDC construct is considered as a latent variable, able to capture the level of tourism performance and economic growth in terms of tourism service profitability achieved by the destination. As effects of the Competitiveness construct, the number of overnight stays (Nights) and value added by the industry for tourism services (VaT) have been considered, according to a reflective measurement approach. Both aspects have been chosen as a proxy for tourism demand to handle the complexity of TDC. Nights are related to domestic and international (incoming) tourism flow. The number of presences describes the economic impact and is proved to be better indicators when compared to the number of arrivals (Cortés-Jiménez, 2008). Moreover, the number of nights spent in different types of facilities well explains the tourism demand (Cracolici et al., 2008; Guizzardi & Mazzocchi, 2010). Aside from the number of overnight stays, the value added for the tourism services represents an effect of TDC: it provides responses for provincial tourism factors such as transportation networks, urban development, commerce, telecommunications, and public health (Wen, 1997). Competitiveness is conceptualized as the tourism destination's superior performance in creating well-being for residents over rivals, which is affected by its productivity level (Aiginger, 2006). Therefore, the effects of tourism destination competitiveness cannot be expressed exclusively by classic tourism outcomes (for instance, the number of overnight stays). Indeed, a framework that includes a more general condition that also considers the not strictly tourism aspects is needed (Ritchie & Crouch, 2003; Dwyer & Kim, 2003).

Table 1. *Selected individual indicators and their measurement*

Construct	Indicators	Measurement	Source	Year
ECONOMIC & SOCIAL DEVELOPMENT (Formative)	GDP	Gross domestic product at current market prices per capita	EUROSTAT	2015
	Education	Persons aged 25-64 who have completed at least secondary school (high school) (percentage values).	ISTAT	2015
	Density	Population density (ratio between yearly average population and km^2)	ISTAT	2015
INFRASTRUCTURE (Formative)	Beds	Ratio between total number of beds for accommodation establishments (hotels and similar establishments, holiday and other short-stay accommodation, camping sites and areas equipped for campers and caravans) and km^2	ISTAT	2015
	TPL	Seats-km offered by Tpl (product of the total number of km actually covered in the year by all public transport vehicles for the average capacity of the vehicles supplied)	ISTAT	2015
	Internet	Number of ultra-broadband subscriptions as a percentage of the resident population	ISTAT	2015
ATTRACTIVENESS (Formative)	Farms	Number of authorized holiday farms	ISTAT	2015
	Cultoff	Degree of promotion of the cultural offer of the national institutes (ratio between paying visitors and non-paying visitors of national museums)	ISTAT	2015
	Museum	Number of museums, archaeological sites and monuments per province (per 100,000 inhabitants)	ISTAT	2011
SUSTAINABILITY (Formative)	Renewable	Percentage of electricity consumption covered by renewable sources out of total gross domestic consumption.	ISTAT	2015
	Wood	Hectares of wooded area per km^2	ISTAT	2015
TDC (Reflective)	Nights	Number of overnight stays registered per province per year	ISTAT	2015
	VaT	Value added by the industry for tourism services	ISTAT	2015

The PLS-PM is used to develop theories in exploratory research and it is considered a variance-based approach to SEM (Hair et. al, 2016). Manifest variables are introduced into the path- model (Figure 1). Constructs are defined with circles (which are the latent variables) while indicators are represented by rectangles (the manifest variables). The relations and their directions are expressed by arrows. Inside the path-model, we distinguish the Structural Model (or Inner Model), explaining how constructs relate to each other and the Measurement Model (or Outer Model), which explains how constructs (or latent variables) are measured.

Within the structural model, exogenous latent variables and endogenous latent variables come to light. The former ones are considered as the model's independent variables and have only arrows pointing to the other latent variables and do not have arrows indicating them. The latter ones are defined as dependent variables and have an arrow pointing to them. Considering the structural Model, the Economic and Social Development, Infrastructure, Attractiveness, and Sustainability are treated as exogenous latent variables while TDC is considered as endogenous latent variable. TDC can be measured through the Path Coefficients to assay the relationship between the latent variables.

The measurement model can be distinguished into reflective measurement model and formative measurement model: in the first case it is stated that the construct exerts its effects on the manifest variables, while in the second case, the manifest variables cause the construct (Mazanec & Ring, 2011).

The formative measurement model was used for the latent constructs of Economic and Social Development, Infrastructure, Attractiveness, and Sustainability, while the reflective measurement model was applied to the TDC construct. To define the relationships between the formative or reflective indicators and the related construct, it is necessary to take into account the outer weights and the outer loadings, thus giving a measure of the relationships between the manifest variables and the relative construct. The outer weights are estimated through multiple partial regressions, where the indicators are the covariates, and the construct is the dependent variable. The outer loadings are calculated through simple regressions considering the construct as an independent variable and each individual indicator is treated as a dependent variable (Mazanec & Ring, 2011). Appendix A presents the model equations for the measurement model and the structural model.

The PLS-PM calculates the score for each latent variable: the scores are estimated through the use of known factors. Then, they are used as inputs for the regressions of the Path-model.

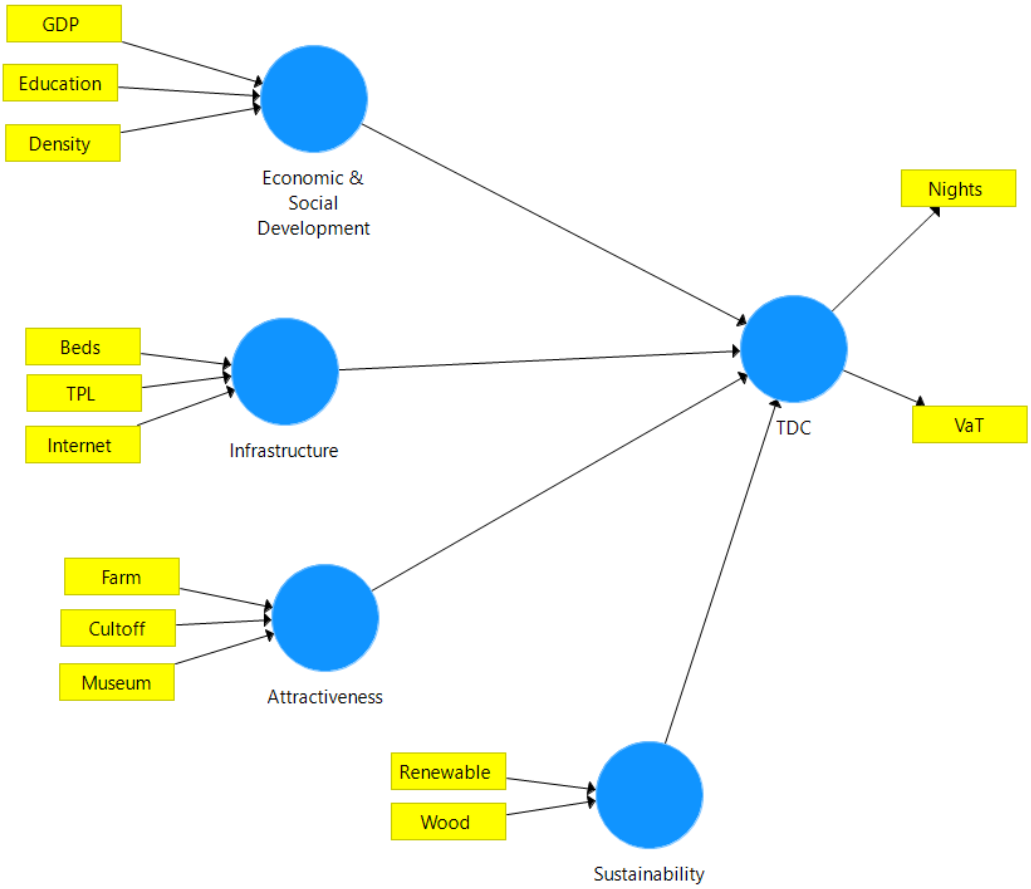

Figure 1. *Proposed Path Model for Provincial Tourism Destination Competitiveness*

4. Model analysis with PLS-PM

The PLS-PM model allowed us to estimate the causal relationships, based on a theoretical model, related to two or more latent complex concepts (i.e., the composite indicators), each measured through specific observable indicators. PLS-PM established the relationships between constructs and defined the relative hypotheses.

A positive relationship between Economic and Social Development and TDC is expected as higher provincial income influences the collective well-being. The main marking of the competitiveness of the Tourism Destination Competitiveness is the socio-economic prosperity of

the territory and its residents. Moreover, a strong and healthy economy is an important driver of tourism competitiveness (Knežević Cvelbar et al., 2015).

About Infrastructure and TDC, a positive relationship is expected, given that a good tourism industry will increase the level of tourist offer, while a structure in the general sense will encourage tourists to reach destinations that have appropriate transport services. As stated by Khadaroo & Seetanah (2007), a more significant development of the territorial infrastructure involves an increase in its tourism potential.

Considering the relationship between Attractiveness and TDC, this is expected to be positive. The demand for cultural tourism is increasingly in growing, and is among the main driver of the Italian tourism sector. The bank of Italy (Banca d' Italia, 2018) pointed recently out that the greater propensity for short-term travel leads to a hybrid tourism motivation, where the attractiveness comes from the combination of cultural and non-cultural aspects. Lastly, the presence on the territory of holiday farms is considered as a pulling factor too, given the possibility of tasting local dishes in natural environment.

Between Sustainability and TDC, a positive relationship is expected. The issue of environmental sustainability is gaining more support, rising awareness toward the environmental resource protection (Glatzer, 2012). Without the enhancement of environmental and cultural heritage, there is no competitive advantage for tourism destination. It is necessary to implement appropriate practices to preserve the territory for both residents and tourists, considering the growing anthropic impact of tourism on the destination. Thus, the tourism industry must give more space in the formulation and development of environmental practices critical for the competitiveness of destinations (Crouch, 2011).

Based on all these considerations, the following hypotheses have been elaborated:

Hypothesis 1: A significant positive relationship exists between economic and social development and TDC.

Hypothesis 2: A significant positive relationship exists between infrastructure and TDC.

Hypothesis 3: A significant positive relationship exists between attractiveness and TDC.

Hypothesis 4: A significant positive relationship exists between environmental sustainability and TDC.

5. Model validation

The sample of analysis is composed of 106 Italian provinces. The software used to perform the analysis is SmartPLS 3 (Ringle et al., 2015). Indicators have been standardized before estimating the model. For the application of the PLS-PM algorithm, the path-weighting scheme as weighting schemes for the structural model was chosen while the number of iterations was set at 300. Missing data were imputed using sample mean (Venturini & Mehmetoglu, 2017). For the measurement model, mode A (reflective scheme) for TDC construct and mode B (formative scheme) for Economic and Social Development, Infrastructure, Attractiveness, and Sustainability have been used. As given in Section 3, the PLS-PM estimates the latent variables as linear combinations of the observed measurements: it is possible to acquire an exact definition of the component scores.

5.1. Measurement model diagnostics

The measurement model is the initial step in the process of evaluating the results for the PLS-PM. In turn, a distinction must be made between reflective measurement model (RMM) and formative measurement model (FMM), as the evaluation criteria are also different. For RMM only the TDC construct has been considered while for FMM Economic and Social Development, Infrastructure, Attractiveness, and Sustainability constructs have been performed.

The RMM is related to the reliability and validity of the constructs' measurements. The internal consistency reliability purpose is to measure reliability through the intercorrelation of manifest variables. Cronbach's α and composite reliability are calculated only for the TDC construct, as this is a reflective construct. For both criteria, the values are above the threshold of 0.70 (respectively Cronbach's α is equal to 0.741 and composite reliability is equal to 0.885), as shown in Table B1 in the appendix.

Another important measure is the convergent validity: a variable correlates positively with other variables of the same construct. The outer loading captures the degree of association between the indicators and their respective constructs. For this, the outer loading of all the indicators belonging to the reflective measurement construct, in our case the TDC construct, must be higher than the threshold value of 0.70 (Hair et al., 2016). The outer loadings for Nights and Vat are respectively equal to 0.883 and 0.899 (see Table B2 in the appendix). Another important criterion to measure the convergent validity is the average variance extracted (AVE): it is the grand mean value of the squared outer loadings associated with the construct. The construct has to explain more than half of the indicators' variance. To respect this criterion, it is necessary having AVE ≥ 50%. For the TDC construct, AVE is equal to 0.794 (see Table B1).

Finally, for the RMM, the discriminant validity is taken into account: it measures how a construct describe the phenomenon distinctly to the others. Here, construct shares a greater variance with its indicators than the other constructs. For this purpose, the Fornell-Larcker (1981) Criterion has been performed: the square root of the AVE for each construct must be greater than the correlation between the other constructs. The AVE has been calculated only for the TDC construct. This condition is respected, as shown in Table B3 in the appendix.

Moving on to the evaluation of FMM, the outer weights measure the relative contribution of each indicator in the formation of its construct. Being the PLS-PM a non-parametric technique (Chin 1998), tests on the significance of outer weights have been carried out via the bootstrap procedure (1,000 bootstrap samples have been drawn). Table 2 shows the values of the standardized outer weights, the standard deviation, the t-values, and their p-values. Nevertheless, there are some exceptions among the indicators to be taken into account. For the Education indicator, even if the outer weight is not significant, it is possible to consider its absolute contribution through the respective outer loading. Since outer loading is higher than 0.50, we can affirm that Education is "absolutely important but not relatively important" (Hair et al., 2016) and should be kept within the model. The same considerations are valid for the Wood indicator (see table B2). Specifically, the significant outer weights in the Economic and Social Development construct (i.e., GDP and Density) underpins the importance of solid destination management in affecting tourism performance. Outer weights in the Attractiveness construct confirm the importance of the indicators related to cultural, and food & wine tourism. Among the Infrastructure indicators, the crucial role of the accommodation expressed by the number of beds, as well as the importance of the infrastructure in general sense (TPL and Internet) is assessed. For the Sustainability construct, only the consumption of renewable energy has significant outer weight.

One of the problems with FMM is collinearity, as it may create biased measurements. The variance inflation factor (VIF) assesses the presence of collinearity. If the VIF is greater than or equal to 5 it indicates collinearity problems. The results from our model are shown in Table B4 of the Appendix B.

Table 2. *Estimated Outer Weights for the Measurement Model*

Latent Variable	Manifest Variable	Outer Weight	Standard deviation	t- test	P-value
ECONOMIC & SOCIAL DEVELOPMENT (Formative)	GDP	0.647	0.212	3.046	0.002
	Education	0.017	0.182	0.096	0.924
	Density	0.602	0.183	3.282	0.001
INFRASTRUCTURE (Formative)	Beds	0.301	0.115	2.618	0.009
	TPL	0.682	0.121	5.656	0.000
	Internet	0.237	0.118	2.004	0.045
ATTRACTIVENESS (Formative)	Farms	0.741	0.224	3.310	0.001
	Cultoff	0.673	0.154	4.379	0.000
	Museum	-0.419	0.156	2.685	0.007
SUSTAINABILITY (Formative)	Renewable	0.830	0.340	2.442	0.015
	Wood	0.530	0.406	1.305	0.192
TDC (Reflective)	Nights	0.542	0.046	11.870	0.000
	VaT	0.580	0.047	12.460	0.000

5.1. Structural model diagnostics

The next step of the PLS-PM is to evaluate the results of the structural model. The PLS-PM purpose is to maximize the explained variance of endogenous latent variables. It is common knowledge that, in linear model, R^2 measures the predictive capacity of the model and can be defined as the squared correlation between the true and predicted values of the endogenous construct (Hair et al., 2016). Additionally, Adjusted R^2 ($AdjR^2$) is useful for multiple regression estimation because its application respects the parsimony criterion: it reduces the value of R^2 taking into account the number of exogenous constructs and the sample size. The values of R^2 and $AdjR^2$ are respectively 0.713 and 0.702, pointing out the good predictive capacity of the model.

The implementation of the blindfolding procedure defines the Stone-Geisser Q2 values (Q2) (Stone 1974; Geisser 1975): this is a measure of predictive power. This procedure is usually applied to endogenous constructs having a reflective measurement, as in the case of the Competitiveness Construct. The value of Q2 is 0.512, indicating a value greater than zero and ensuring a good predictive relevance of the path model for this construct (Tenenhaus et al. 2005). The omission distance taken into consideration for data analysis is 7.

6. Results

The path coefficients estimated through the PLS-PM algorithm provide a measure of the relationship between the exogenous latent variables and the endogenous latent variables. The Economic and Social Development, Infrastructure, Attractiveness, and Sustainability constructs are considered as exogenous latent variables while the TDC construct is treated as an endogenous latent variable. The bootstrap procedure assesses the significance of the path coefficient. Furthermore, it estimates the standard deviation, the empirical values t, and the respective p-values of coefficients. The estimated path coefficients are reported in Table 3.

Based on the assumptions made in the previous session, it can be stated that Economic and Social Development contributes positively to the TDC (regression coefficient = 0.238), as well as Infrastructure (regression coefficient = 0.547) and Attractiveness (regression coefficient = 0.243), supporting hypothesis 1, 2, 3. What was unexpected is the not significance of hypothesis 4, so the construct Sustainability does not contribute to TDC

Considering each path coefficient, Infrastructure is strongly associated to TDC. Infrastructure is defined as created resources able to achieve a competitive advantage and create a pleasant tourism context (Dwyer & Kim, 2003). The role of infrastructure is to facilitate tourists' approach towards natural and cultural resources (i.e., attractions). Also, the role of Attractiveness is confirmed; it is considered as a driving force of tourism competitiveness and useful to compare the destination in terms of comparative advantage through efficient management of its resources. Economic and Social Development plays a lesser but at the same time an important role than the previous two constructs, as can be deduced by the value of its path coefficient value. A high level of economic and social development enables more investments and government support to local communities.

Lastly, we can observe that there is no significant association between tourism destination competitiveness and environmental aspects linked to sustainability. Indeed, this result is only partly unexpected. Gooroochurn and Sugiyarto (2005) highlighted that this relationship is weak in determining an aggregate competitiveness index, due also to the difficulty in measuring the construct. This difficulty is particularly evident when searching for proper indicators at the provincial level (i.e., NUTS3); and we have to admit that the selected indicators are not specifically linked to the tourism sphere. Unlike our results, Assaker et al. (2013) and Conti et al. (2020) found in their study a significant path coefficient for the sustainability construct, given the different set of indicators employed. In particular, Assaker et al. (2013) considered the impact of the grade of industrialization on the environment (e.g., including indicators that negatively affect sustainability, such as carbon emission or electricity production).

Table 3. *Estimated coefficient for the Structural Model*

	Path Coefficient	Standard Deviation	t - test	P-value
ECONOMIC & SOCIAL DEVELOPMENT → TDC	0.238	0.089	2.674	0.008
INFRASTRUCTURE → TDC	0.547	0.125	4.380	0.000
ATTRACTIVENESS → TDC	0.243	0.113	2.147	0.032
SUSTAINABILITY → TDC	0.019	0.070	0.271	0.786

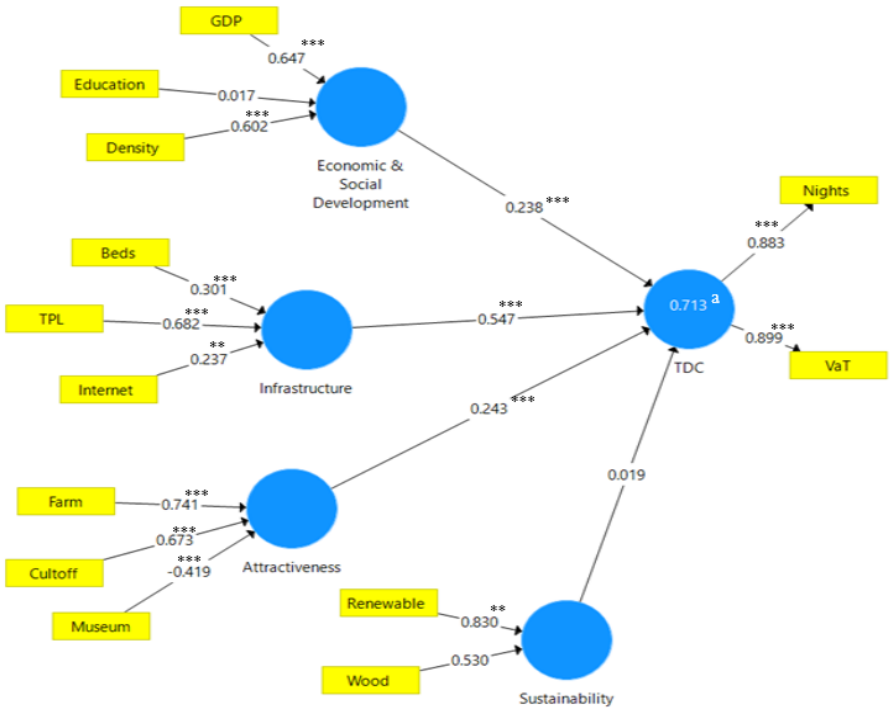

Figure 2. *Coefficients and Significance levels for the PLS-PM of the Provincial Tourism Destination Competitiveness*

Note: Significance levels of 5% (**) and 1% (***)

a. R^2 for the Competitiveness construct is equal to 0.713.

7. Tourism destination competitiveness score

The PLS-PM algorithm calculates the Tourism Destination Competitiveness Score for each province by taking into account the association between presences and added value for tourism services. Table 4 shows the results for the year 2015. Among the first places are Rome, Milan, Venice, Bozen, Naples, provinces characterized by a high-quality infrastructure (both in the tourism sense and in the general sense) and high-performance in destination economic and social development, as emphasized by Assaf and Josiassen (2012) in their study concerning the improvement of the tourism industry.

So, they realized a competitive advantage that allowed them to be recognized worldwide and guarantee vital tourism industries (Assaker et al., 2013). In this study, the competitive tourism destination is a province with a high level of economic well-being characterized by infrastructure management more focused on accessibility and comfort services (such as ground transportation and internet) and addressing the demand for overnight stays through an adequate extension of the accommodation facilities. The cultural and local food and wine aspects (especially the latter) are the most perceived factors of attractiveness. For the cultural aspect, even if a destination does not possess an extensive museum density, the tourist destination's cultural promotion permits to deal with and manage this condition.

Figure 3 shows the Italian provinces according to six intervals. In the first interval, the top ten performing Italian tourism destinations are reported. Noteworthy, the first ten provinces are located mainly in the northern part of Italy, with the noticeable exception of Rome and Naples. In the second interval, the tourism destinations placed between 11-th and 20-th are highlighted. Then, the third interval collects the provinces classified between the 21-st and the 40-th place. The same range is for the fourth and fifth intervals, respectively, ranking the destination from 41-st to 60-th and from 61-st to 80-th. The last interval (i.e., the sixth) collects the remaining classifications ranging from 81-st to 106-th.

Table 4. *Ranking of Provinces Based on their Tourism Destination Competitiveness Score (Year 2015)*

Rank	Province	Destination Competitiveness Score	Rank	Province	Destination Competitiveness Score
1	Rome	5.389	54	Pistoia	-0.349
2	Milan	5.194	55	Macerata	-0.35
3	Venice	3.379	56	Alessandria	-0.354
4	Bozen	2.774	57	La Spezia	-0.361
5	Naples	2.178	58	Sondrio	-0.364
6	Verona	1.594	59	Trapani	-0.368
7	Florence	1.517	60	Sassari	-0.384
8	Turin	1.418	61	Verbano - Cusio - Orsola	-0.385
9	Trento	1.261	62	Brindisi	-0.399
10	Rimini	1.032	63	Pavia	-0.404
11	Brescia	1.008	64	Frosinone	-0.406
12	Genoa	0.586	65	Novara	-0.41
13	Bologna	0.551	66	Ascoli Piceno	-0.412
14	Padua	0.512	67	Arezzo	-0.415
15	Salerno	0.383	68	Taranto	-0.429
16	Livorno	0.355	69	Piacenza	-0.44
17	Perugia	0.192	70	Mantova	-0.444
18	Ravenna	0.184	71	Chieti	-0.445
19	Bergamo	0.181	72	Rovigo	-0.447
20	Palermo	0.145	73	Pescara	-0.457
21	Bari	0.144	74	Catanzaro	-0.457
22	Udine	0.12	75	Siracusa	-0.46
23	Varese	0.106	76	Fermo	-0.465
24	Forlì - Cesena	0.056	77	Trieste	-0.466
25	Treviso	0.013	78	Agrigento	-0.467
26	Lecce	0.001	79	Cremona	-0.469
27	Vicenza	-0.001	80	Vibo Valentia	-0.472
28	Catania	-0.003	81	L'Aquila	-0.489
29	Monza e della Brianza	-0.012	82	Lecco	-0.496
30	Savona	-0.014	83	Viterbo	-0.502
31	Grosseto	-0.037	84	Matera	-0.503
32	Foggia	-0.051	85	Massa Carrara	-0.504
33	Siena	-0.064	86	Prato	-0.509
34	Como	-0.069	87	Gorizia	-0.518
35	Modena	-0.093	88	Potenza	-0.518
36	Cagliari	-0.101	89	Ragusa	-0.519
37	Messina	-0.112	90	Pordenone	-0.523
38	Ancona	-0.134	91	Terni	-0.542
39	Lucca	-0.14	92	Barletta-Andria-Trani	-0.551
40	Belluno	-0.155	93	Avellino	-0.552
41	Pisa	-0.162	94	Nuoro	-0.566

Table 4 (continued)

Rank	Province	Destination Competitiveness Score	Rank	Province	Destination Competitiveness Score
43	Cosenza	-0.189	96	Asti	-0.588
44	Pesaro e Urbino	-0.214	97	Lodi	-0.590
45	Latina	-0.220	98	Campobasso	-0.603
46	Parma	-0.232	99	Biella	-0.616
47	Ferrara	-0.247	100	Oristano	-0.619
48	Reggio di Calabria	-0.257	101	Caltanissetta	-0.623
49	Teramo	-0.259	102	Vercelli	-0.629
50	Caserta	-0.283	103	Benevento	-0.636
51	Imperia	-0.295	104	Rieti	-0.674
52	Reggio nell'Emilia	-0.296	105	Enna	-0.682
53	Aosta	-0.318	106	Isernia	-0.708

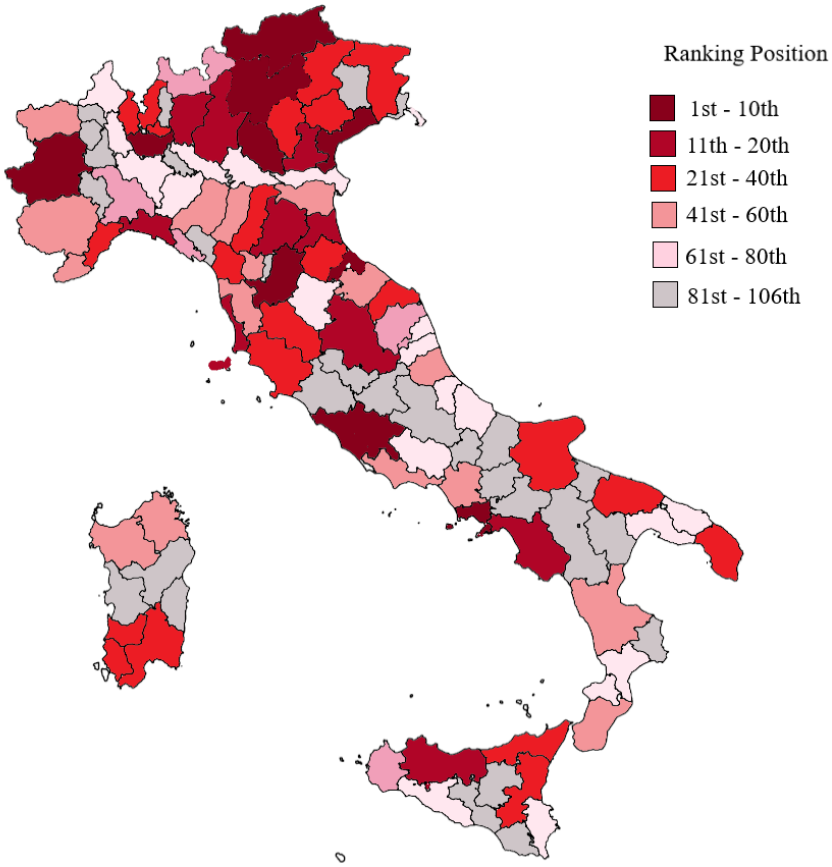

Figure 3. *Provincial Tourism Competitiveness Destination ranking*

The results presented in this study can be compared with those proposed by Cracolici et al. (2008). The authors provided a TDC ranking for 103 Italian Regions (i.e., provinces) for 2001 by performing a data envelopment analysis (DEA) model. The independent variables were regional cultural patrimony, tourist school graduates, and labor units employed in the tourism sector. Conversely, the dependent variable used was the number of bed nights. In their competitiveness ranking, seven provinces appeared to be efficient (Rimini, Oristano, Trento, Bolzano, Venice, and Siena). The best performing provinces in both studies are Venice and Bolzano. Moreover, the order of performance for the areas of Rome, Milan, and Naples is confirmed. In particular, the respective DEA values present in the study by Cracolici et al. (2008) are 0.218 (Rome), 0.110 (Milan), and 0.107 (Naples).

8. Conclusion

Tourism has become fundamental to the growth of the Italian economy and has a positive influence on employment. In this vein, destination managers must coordinate actions to attract tourists to the province by managing efficiently the attributes and services offered. So, measuring and monitoring the tourism performance allows provinces to enhance their competitiveness against their rivals.

At the international level, the measurement of the competitiveness of the tourism destination is carried out by the World Economic Forum: The Tourism and Travel Competitiveness Indicator (TTCI) compares the performance of countries. Unfortunately, nothing similar exists in the Italian tourism framework. The contribution of this paper focuses on identifying the latent dimension of tourism destination competitiveness (TDC) through the use of PLS-PM for the Italian provincial case. Here, Economic and Social Development, Infrastructure, Attractiveness, and Sustainability have been considered as latent constructs related to TDC. The combination of these dimensions determines the potential competitiveness of tourism destination.

Identifying constructs as pieces of a puzzle is suitable to understand such a multidimensional and complex concept, besides defining this phenomenon. For our analysis, the 106 Italian provinces have been investigated to calculate the relative Tourism Destination Competitiveness Score. As a result of this study, there is a significant positive relationship between the Economic and Social Development construct and TDC construct, underlining how the province's economic condition and well-being can be crucial to enhance the TDC's effects. The relationship between the Infrastructure construct and the TDC construct was significant and positive, highlighting its contribution in determining the Italian provincial competitiveness. The relationship between the Attractiveness construct and the TDC construct was also significant and positive. However, destination managers should not develop the passive management of endowed resources but

attempt to understand the needs and expectations of tourists to realize memorable experiences. (Crouch & Ritchie, 1999). Conversely, the relationship between the Sustainability construct and the TDC construct has proved to be not significant. The destination competitiveness is not statistically associated with environmental sustainability, also probably due to the difficulty in its measurement.

A ranking of provinces according to their TDC, identifies Rome, Milan, Venice, Bozen, Naples as the most competitive one, while the provinces of Vercelli, Benevento, Rieti, Enna, and Isernia are placed at the bottom. This condition is due to the province characteristic. As proved by our results, the competitive tourism destination is a province with a high level of economic well-being characterized by infrastructure management more focused on accessibility and comfort services (such as ground transportation and internet) and addressing the demand for overnight stays through an adequate extension of the accommodation facilities. The cultural and local food and wine aspects are the most perceived factors of attractiveness. Hence, destinations that score higher on these attributes are expected to compete better than rivals.

Among the limitations of this study, there is the absence of additional indicators that could have broadened the province's tourism competitiveness frame. For instance, indicators relative to CO_2 emissions or capable of measuring natural resources' aspects, the museum revenues (as a proxy for tourists' degree of preference), or the consumer price index (as a proxy for tourism costs) could have added additional information. To fully understand the phenomenon, the introduction of useful variables on measuring tourists' satisfaction would have generated an added value to the research.

Among the future implications, the use of modern data extraction techniques, such as web scraping, would have permitted to acquire the necessary information directly from tourists. So, the inclusion of a Satisfaction construct made up of indicators related to the level of satisfaction toward accommodation, restaurant, and museum evaluated by the TripAdvisor star rating would be crucial to verify if the tourists' recommendation could influence the provincial competitiveness.

In conclusion, it has not been possible to carry out a more in-depth relationship analysis among the various dimensions identified and the TDC, due to the scarce availability of the data acquired. Nonetheless, this study is still helpful because this research identified factors that have fundamental importance on tourism outcome. This research highlighted the significance for a destination to possess a robust infrastructure network (both in the tourism sense and in the general sense) to address tourists' needs and increase its productivity in terms of added value. Therefore, destination managers must be concerned with enhancing the infrastructure frame without underestimating the environmental impact that could damage its endowed resources (i.e., natural and cultural resources). Following this approach will benefit both residents (as a better quality of life) and tourists who will gain a memorable tourism experience.

Appendix A

Partial Least Square – Path model equations for Measurement Model and Structural Model

Measurement model

Formative Measurement Model (FMM)

$$\begin{pmatrix} \Sigma_1 \\ \Sigma_2 \\ \Sigma_3 \\ \Sigma_4 \end{pmatrix} = \begin{pmatrix} \theta_{1,1} & \theta_{1,2} & \theta_{1,3} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \theta_{2,4} & \theta_{2,5} & \theta_{2,6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \theta_{3,7} & \theta_{3,8} & \theta_{3,9} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \theta_{4,10} & \theta_{4,11} \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \\ x_3 \\ \vdots \\ x_{11} \end{pmatrix} \quad (1)$$

where:

Σ_i = estimated scores for the formative measured constructs,

$\theta_{i,j}$= outer weights for the FMM,

x_j= formative indicators (see Table 1 and Figure 1).

Reflective Measurement Model (RMM)

$$\begin{pmatrix} y_1 \\ y_2 \end{pmatrix} = \begin{pmatrix} \lambda_1 \\ \lambda_2 \end{pmatrix} \Gamma + \begin{pmatrix} \varepsilon_1 \\ \varepsilon_2 \end{pmatrix} \quad (2)$$

where:

y_i = reflective indicators (see Table 1 and Figure 1),

λ_i = outer loading for the RMM,

Γ = estimated score for the Competitiveness construct,

ε_i =error term for the RMM.

Structural Model

$$\Gamma = (\pi_1 \quad \pi_2 \quad \pi_3 \quad \pi_4) \begin{pmatrix} \Sigma_1 \\ \Sigma_2 \\ \Sigma_3 \\ \Sigma_4 \end{pmatrix} + \nu \quad (3)$$

where:

Γ = estimated score for the Competitiveness construct,

π_i = path coefficient,

Σ_i = estimated scores for the formative measured constructs,

ν = error term for the structural model.

Appendix B

Table B1. *Reliability and Validity of constructs*

	Cronbach's α	Goldstein rho	Composite reliability	Average Extracted Variance (AVE)
ECONOMIC & SOCIAL DEVELOPMENT		1.000		
INFRASTRUCTURE		1.000		
ATTRACTIVENESS		1.000		
SUSTAINABILITY		1.000		
TDC	0.741	0.743	0.885	0.794

Table B2. *Estimated Outer Loadings for the Outer Model*

Latent Variable	Manifest Variable	Outer Loading	Standard Deviation	t- test	P-value
ECONOMIC & SOCIAL DEVELOPMENT (Formative)	GDP	0.814	0.127	6.420	0.000
	Education	0.519	0.142	3.642	0.000
	Density	0.771	0.142	5.414	0.000
INFRASTRUCTURE (Formative)	Beds	0.616	0.099	6.237	0.000
	TPL	0.940	0.067	14.104	0.000
	Internet	0.733	0.109	6.736	0.000
ATTRACTIVENESS (Formative)	Farms	0.607	0.199	3.053	0.002
	Cultoff	0.685	0.139	4.939	0.000
	Museum	-0.229	0.134	1.712	0.087
SUSTAINABILITY (Formative)	Renewable	0.848	0.321	2.642	0.008
	Wood	0.559	0.400	1.396	0.163
TDC (Reflective)	Nights	0.883	0.034	26.078	0.000
	VaT	0.899	0.033	26.889	0.000

Table B3. *Results of Discriminant Validity (Fornell – Larcker Criterion)*

	ECONOMIC & SOCIAL DEVELOPMENT	INFRASTRUCTURE	ATTRACTIVENESS	SUSTAINABILITY	TDC
ECONOMIC & SOCIAL DEVELOPMENT					
INFRASTRUCTURE	0.662				
ATTRACTIVENESS	0.181	0.412			
SUSTAINABILITY	-0.151	-0.149	-0.115		
TDC	0.642	0.802	0.509	-0.126	0.891

Table B4. *Results of Variance Inflaction Factor*

Variable	VIF
GDP	1.917
Education	1.813
Density	1.078
Beds	1.163
TPL	1.750
Internet	1.611
Farms	1.092
Cultoff	1.001
Museum	1.094
Renewable	1.001
Wood	1.001

Chapter 3

Assessing museum visitors' satisfaction in Italy: a "social media" investigation

Abstract

As cultural tourism becomes more and more established, the museum visitors' satisfaction is a priority if destinations want to be competitive in the tourism sector. In this study, the perceptions of the visitor-tourist as a reviewer on the TripAdvisor platform are analyzed. Through web scraping, it was possible to collect comments for twelve Italian museums for the year 2019. The analysis was carried out through the content analysis and allowed to qualitatively identify the components of the tourists' satisfaction. Based on the existing literature, the following elements related to satisfaction were identified: permanent and temporary exhibition, museum management, staff, no-core services, motivation, emotional response. The estimation of ordinal regression models allowed us to quantitatively study the association of characteristics of visitors – reviewers with satisfaction ratings. For this aim, we proposed an overall analysis for the twelve museums and analytical comparisons for six museums taken individually. Among the main results, the higher the length of the text, the higher the level of complaint.

Keywords: Satisfaction, Museum visitors, Content Analysis, Gologit, TripAdvisor.

1. Introduction

Cultural tourism is a kind of tourism that focuses on historical aspects of the population and promotes environmental and cultural heritage. According to Silberberg (1995), it refers to "*visits by persons from outside the host community motivated wholly or in part by interest in the historical, artistic, scientific or lifestyle/heritage offerings of a community, region, group or institution*" (p. 361). Nonetheless, there is no real consensus in the definition of cultural tourism (see Ashworth & Tunbridge, 2000; Hughes, 1996; Vergori & Arima, 2020). Particularly, Cuccia and Rizzo (2011) pointed out that "*there are different definitions of cultural tourism ranging from the very narrow, which identifies cultural tourism with the visits of museums and archaeological sites, to a much broader definition that is not able to distinguish cultural tourism from any other tourism experience"* (p. 590). Thus, this statement reflects also the difficulty in defining cultural tourists. Indeed, Silberberg (1995) highlighted the existence of different degrees of consumer motivation for cultural tourism, from which stems four types of cultural tourists, ranging from "greatly motivated

by culture" tourist to "accidental cultural tourists." Although the participation in cultural experiences alone is not sufficient to define the cultural tourist profile (Vergori & Arima, 2020), we found it appropriate to set a less stringent approach on identifying the profile of the cultural tourist as a museum visitor and on his/her main travel motivations. In this paper, we considered cultural tourist as a tourist that visits a museum, even if visiting a museum could not be its principal motivation to see a specific tourism destination. This choice stems from the study aims to measure the visitor's satisfaction with its museum experience.

In recent years, there has been a renewed interest in this type of tourism. In Italy, cultural tourism is the sector that most influences the tourism flow (Brida et al., 2015; Di Lascio et al., 2011) and affects the educational growth of both residents and tourists. Moreover, it is acknowledged as one of the leading resources crucial to counteract tourism destination seasonality (Vergori & Arima, 2020). The richness of Italy's artistic and cultural heritage is mainly concentrated in museums. So, museums are seen as a "generator of culture," aiming to enhance the territorial heritage and create a cultural connection with the surrounding territories. In this framework, visitors are able to understand and interpret the history, the complexity, and the variety of the Italian culture (MIBACT, 2017). The incidence of cultural tourism in Italy is demonstrated by the following data: Italian museum and archaeological sites are annually visited by about 110 million people, museum visitors between 2006 and 2015 increased their presence by 13.7%, and earning ticket revenues of over 300 million euros each year (Banca d'Italia, 2018). Thus, to improve the combination of tourism and culture is useful to consider the museum visitors' satisfaction. Here, the visitor becomes the direct recipient of the services offered by the museum. Then, museums' scope becomes to create memorable experiences for the visitor-tourist to generate a variety of benefits (e.g., desire to return, to suggest to visit that specific museum to other visitors, and so on).

By now, considering visitors as "clients" (Ames, 1992), recognizing their characteristics and needs allows the museum to become more competitive in its market share (Brida et al., 2014). Quoting Sheng & Chen (2012, p. 53): "*In modern times, museums serve the functions of collection, research and exhibition, as well as education and recreation. They have gradually acquired visitor-based roles instead of museum-based roles. Thus, the need for visitor studies has emerged*".

Museums are visited by tourists and residents. In this study, we focused only on tourists to measure the tourism potential of the museum sector. At this regard, helpful information to measure the museum visitors' satisfaction was collected through the comments left on the TripAdvisor web platform by visitors: through this mean, they express opinions on their museum experience. For this task, we decided to use a data acquisition technique, namely Web Scraping, to study tourists' comments through the online TripAdvisor review site. Through user-generated content (UGC),

such as reviews, we analyzed museum's perceived ability to cause satisfaction. On this review, votes or awards reflect the tourists' opinions about their experience (Kozak & Rimmington, 1998) and allow museum managers to plan strategies to improve the quality of services grounding on this information.

Given the recognized importance of museums in the cultural sector, this research analyzed the reviews of tourists who have visited some main museums in six among the main cultural destinations in Italy (namely Turin, Venice, Florence, Rome, Naples, and Palermo), to identify the elements influencing the tourists' satisfaction with museum experience.

Nowadays, museums have a business approach. They need to reach a broader public to guarantee their cultural and social functions against persistent scarcity of resources and high operating costs. So, tourists' experience evaluation becomes crucial for improving the museums' attractiveness (Beeho & Prentice, 1995).

The research objectives are:

1) To define the attributes that characterize museum experience according to visitors;

2) To assess how the characteristics of the visitor-reviewer influence the museum experience perception for the twelve museums chosen;

3) To examine the characteristics of the most satisfied tourists by comparing six of the twelve museums taking into account the geographical distribution.

This paper is structured in the following way: the next section deals with the literature review on museum visitors' satisfaction and the use of UGC to measuring satisfaction. Afterward, we discuss the strengths and weaknesses in using TripAdvisor as a data source, as well as methods chosen to investigate the phenomenon under study. The results of the content analysis and regression analysis are presented in the fourth section. Finally, in the last section, the conclusions and limitations of this study are reported.

2. Literature review

2.1. Museum visitors' satisfaction

Museums allow both the local population and tourists to enjoy the heritage of a destination (Gil & Ritchie, 2009). In the tourism framework, museums can provide several benefits. Nonetheless, museum managers have often to deal with the depletion of state funds (if any) and have to implement alternative incomes to meet conservation and maintenance costs. Recently, museums have developed a special focus on visitors, highlighting their needs (Johnson, 2003): the visitor is

understood as a customer who pays the ticket to enjoy the cultural product. Thus, museum managers must implement a process that can improve core services (mainly temporary and permanent exhibitions) and no-core services (bars, restaurants, shops, cloakrooms, etc.), that may also affect the local tourism sector (Brida et al., 2015). The museum scope becomes to take on board all the typical advantages that tourism provides, such as improved quality of life, higher income, and an increase in the employment rate (Kotler & Kotler, 2001).

Kotler & Kotler (2001) define the type of relationship established between visitors and the museum: the former increases their cultural status at cost (in terms of money, time and distance), and the latter receive monetary benefits. Museums aim to increase visitors' satisfaction and the frequency of visits by offering a customer-focused experience (Ruyter et al. 1997). Here, museum staff aims attention at personal interaction procedures, thus satisfying the various personalized requests of visitors (Ruyter et al. 1997).

Thus, throughout the identification of the needs and preferences of visitors, measuring the museum visitors' satisfaction becomes an important step to make the museum more competitive. If we consider satisfaction as "*consumer's response to the evaluation of the perceived discrepancy between prior expectations (on some norm or standard) and the actual perceived performance of the product offering after consumption*" (Tse & Wilton, 1988, p.204), then enhancement of visitors' satisfaction is critical for the visitors' museum experience (Harrison & Shaw, 2004). Satisfaction is reinforced when a positive image is built in the visitor's mind (Tobelem, 1998; Kotler & Kotler 2001). Quoting Gil & Ritchie (2009), visitor satisfaction is influenced by emotional and cognitive components: the former concerns the emotion that the museum arouses to the visitor while the latter is based on the logical aspect of the visitor. It should be emphasized that the cognitive and emotional aspects are those that characterize the behavior of the modern visitor (Del Chiappa et al., 2014).

There are several drivers for visitors' satisfaction. The classical factors related to the structural quality of the museum that influences visitor satisfaction, are the types of exhibitions (both permanent and temporary), the facilities and services provided by the staff, and the interpretation of the works of art by a guide (Kang et al., 2017).

Motivation also plays an important role: it is linked to the cultural attractiveness of the place visited (Brida et al., 2013). Kotler & Kotler (2001) argue that the main motivations for visiting a museum are "being with people and enjoying social interaction, doing something worthwhile, feeling comfortable with the surroundings, enjoying the challenge of a new or unusual experience; having a learning opportunity, and participating actively". Usually, the high frequency of museum visits is related to groups of visitors: visiting a museum becomes an opportunity for relax shared

with family or friends (Brida et al., 2015), and it generates further stimuli in the consumption of cultural goods (Brida et al., 2013).

Briefly, the more satisfied visitors are, the more benefits they will bring to the museum, mostly in terms of loyalty and reputation (for instance, satisfied tourist are more likely to return and to report to friends and relatives their good feelings). So, museum managers have to transform visitors' satisfaction into loyalty and keep the intention to revisit in the long term (Chang, 2013). As suggested by Litvin et al. (2018) and valid for the museum sector, the benefits for managers of monitoring comments left by visitors are solving visitors' issues, identifying what services need to be improved, and supervising the museum's image.

Greater awareness of managers towards online platforms can allow them a quantum leap in terms of higher benefits for the museum, better management, and greater satisfaction of visitors through the direct identification of their needs. So, the success of appropriate management of comments allows managers to reach these goals by converting a dissatisfied consumer into a loyal consumer (Flôres Limberger et al., 2014). Social media have renewed the museum's approach to communication and marketing, besides revitalizing the learning, entertainment, and fundraising activities (Alexander et al., 2018). Given the nature of the comments as a user-generated comment, the main benefit the satisfied visitor-reviewer brings to the museum is the positive feedback. This mechanism permits to improve the image of the museum, the number of visitors, and may also influence the promotion of public relations with stakeholders.

2.2. User-generated content to measuring satisfaction

Nowadays, UGC are gaining more reliability for the consumer, thus becoming an important input in their decision-making process (Sweney et al., 2008). By the use of UGC, reviewers involve stakeholders and share their views on products, services, and other commercial aspects (Al-Otaibi et al., 2018). Users can directly acquire information based on what is called "electronic word-of-mouth" (eWOM), so they manage the risk of having a bad experience by relying on those who have already experienced the event. Quoting Litvin et al. (2008, p. 459): "*word-of-mouth is the communication between consumers about a product, service, or a company in which the sources are considered independent of commercial influence*".

Then, the word-of-mouth should not be underestimated by organizations because the consumer opinion about a product or experience can trigger competitive benefits and influencing consumer behavior (Wilson et al., 2012). Its advancement into "electronic" permits to reach an increasing number of stakeholders through the use of online platforms. As stated by O'Connor

(2009, p. 756), the Web 2.0 is a phenomenon related to the "*perceived second generation of Web-based services—such as social networking sites, wikis, communication tools and folksonomies—that emphasise online collaboration and sharing among users*". Hence, by the evolution of the web in Web 2.0, the visitor-tourist finds in these social tools a possible ally in reducing the gap between expectations and performance. And so, like the traditional word-of-mouth, the opinion of other users is more reliable than commercial messages to plan a trip. Usually, tourists use UGC to gather information more quickly about a destination or attraction (Cox et al., 2009). Hence, we can observe the importance of Web 2.0 in the tourism sector, thus coining the term "Travel 2.0" (Miguéns et al., 2008). For museum visitor, the reviews on TripAdvisor provides information about the quality of museum services and opinions on the events and exhibitions of the gallery (Su & Teng, 2018).

As stated by Li et al. (2019a), UGC becomes the mean of tourism managers to improve their services and attract new visitors by tourists' preferences and suggestions (but also complaints) expressed. For this, the authors define the "tourist profile" and the "market supervision" terms. The former categorizes the profile of tourists to meet their specific needs, while the latter aims to increase the level of tourists' satisfaction through marketing and management activities. Unfortunately for the "tourist profile", the TripAdvisor platform offers little information about the characteristic of reviewers.

In the tourism sector, UGC gives information on the behavior of tourists and about the performance of the tourism market. Furthermore, it is an adequate tool to study tourists' decision making by their reviews. (Pantano et. al, 2019). UGC is abundantly available online and has become a mine of information in tourism studies. Actually, several studies underpin that TripAdvisor is a useful source of data but limited to small-scale and qualitative analysis (see Alexander et al., 2018; Cassar et al., 2020).

There is a growing number of studies using UGC for assessing tourism satisfaction, while a relatively small number deals with museum visitors' satisfaction. On this side, an interesting contribution has been given by Su & Teng (2018). The paper shed lights on the museum visitors' satisfaction through the use of TripAdvisor reviews of fifteen museums in Taiwan for the year 2015. Their study is based on the causes of service failure, analyzing the 286 reviews with rating one-star. As the authors claim, "*the negative word-of-mouth offered an opportunity to identify museum service failures as a complement to, rather than a contradiction of, visitor satisfaction assessment*" (*ibidem*, p. 221). Here, the authors analyzed twelve service qualities: assurance, reliability, responsiveness, tangibles, empathy, communication, consumables, convenience, "servicescape", purposiveness, contemplation, and firsthand experience. Moreover, the authors found as causes of dissatisfaction: queue management, crowd problem, the difficulty to seek a

compromise between protections for the artworks on exhibition and the distance needed to enjoy them, the inability of the management to combine the intellectual or educational museum practices with visitors' desire about leisure aspects.

Another contribution to museum studies is given by Alexander et al. (2018). In their paper, the authors identified the 19 topics most mentioned in the comments for the year 2014 by visitors. These topics were divided into three groups: descriptive topics, evaluative topics, and museum-specific topics. The dataset consists of 22,940 reviews of 88 London museums for which a multiple correspondence analysis was conducted to study the correlation between the 19 themes and the TripAdvisor star rating. Among the results, the topics related to five-star reviews are "Inspiring, Beefeaters, Fashion, Longer, Exhibition, Hours, Surprised, and Poppies". These topics highlighted the satisfactory performance of core activities. Otherwise, the "Confusing" topic (related to the exhibition presentation and displays) is the one most present in the comments with evaluation one-star.

Other literature contributions can be found on the usefulness of the UGC in the broader tourism field.

In this vein, O' Connor (2010) highlighted the causes of satisfaction and dissatisfaction in the hotel industry through the use of UGC released on TripAdvisor platform. One hundred hotels in London were randomly selected. Then, the five most recent reviews were analyzed by content analysis (for a total of 500 reviews). Among the results, the word frequency analysis identified the themes mentioned by the satisfied and dissatisfied customers. The causes of satisfaction specified by customers were the location of the hotel in the city, the good staff service, the cleanliness and comfort of the hotel room, and the quality of the breakfast provided. The dissatisfied customers mentioned the most the temperature of the room, the carelessness about repairing or cleaning items in the room, the room being noisy, and the bad staff service. The size of the room was an issue for both satisfied and dissatisfied tourists, a condition due to the typical London hotel rooms being small.

The use of the UGC to measure consumer satisfaction was also addressed by Cassar et al. (2020); the authors analyzed TripAdvisor comments to determine the role of wine in the fine dining restaurants. The five top-ranked and the five bottom-ranked restaurants placed in the list of the worlds' best 1000 restaurants provided by *La Liste* (see www.laliste.com) have been considered. From these ten restaurants chosen, six reviews for each restaurant were manually scraped, for a total of 60 reviews analyzed. So, their sample included the thirty reviews of top-ranked restaurants rated as five-star and the thirty reviews of bottom-ranked restaurants rated as one-star and two-star. Through lexical analysis, the critical satisfaction characteristics of tourists' restaurant experience were highlighted. Thus, they identified the importance of food, service, and wine when tourists

write a review on TripAdvisor about their restaurant experience. Here, the most mentioned satisfaction word (without positive or negative specification) indicated by tourist were: restaurant, food, service, course, and wine. Moreover, the authors made a comparison between the five top-ranked and the five bottom-ranked restaurants about terms in reviews: food, service, and wine were the most used terms by satisfied tourists (with five-star rating), while the words related to dissatisfied tourists were service, table, and Michelin (with one-star and two-star rating).

The relevance of opportunities raised by UGC and the scarceness of studies on museums visitors' satisfaction through user-generated contents were among the main motivations to undertake the present study.

3. Data and Methods

3.1. TripAdvisor as a data source

Over the years, TripAdvisor has become a leading element of *Travel 2.0*: it is a web platform that collects user-generated content regarding reviews of hotels, restaurants, bed & breakfasts, and other tourism-related activities. Nowadays, this online platform is one of the most used tools to plan a self-organized holiday experience. The platform collects opinions on 8.7 million accommodations, restaurants, attractions (such as museums), experiences, airlines, and cruises around the world and collects written evaluations from users of the facilities. With more than 860 million reviews and 463 million travelers every month, TripAdvisor is the largest travel site on the web, available in 49 markets and 28 languages (TripAdvisor, 2020). Moreover, it allows users to share opinions of their travels by releasing a comment on the platform and expressing a five-point scale evaluation about the experience. Each user who connects to the site will be able to read the information but must be registered on the platform to leave a comment (Miguéns et al., 2008). Hence, we evaluated TripAdvisor as a powerful data source to study the attributes influencing the museum visitors' satisfaction and the characteristics of the most satisfied reviewers-visitors of the museum experience.

Questionnaires in face-to-face interviews are certainly higher quality data sources for exploring satisfaction with museums and for relating this with socio-demographic characteristic of visitors. However, this is an expensive and time-consuming technique, while using web UGC can be assumed as a "second best" option. Considering the increasing use of "second best" techniques, as an alternative to classical statistical surveys, the web scraping techniques on the online platform TripAdvisor allowed us to acquire data on the museum sector (Li et al., 2019a). Notwithstanding,

some specifications need to be made when using TripAdvisor as a data source: the “population” is inherently biased (particularly it is self-selected) since it concerns only "social visitors” (i.e., those who left a comment on the platform), and even if the visitor has the possibility to publish a comment on it, it is not necessarily that he or she has the will to do it. Hence, visitors uploading reviews on TripAdvisor platforms belong to a particular segment of the population of museum visitors, which limits the extensibility of the results (Heckman, 1990).

Issues of self-selection are frequent at several stages of studies based on web derived information. In their study on the tourists' satisfaction with fine dining restaurants, Cassar et al. (2020) state the impossibility to extend the results of their research to the entire restaurant sector due to the characteristics of the sample. Moreover, they highlighted the self-selection condition caused by the lack of information about tourists who did not publish a comment on the TripAdvisor platform after their dining experience.

In addition to self-selection, there are further common limitations highlighted by the authors in studies based on UGC analysis.

In this respect, the limitations found by O’Connor (2010) in his study were: the use of a relatively small sample due to the collection of reviews through a manual work of copying and pasting; the geographical limitation does not permit to extend the results beyond the London market.

The research limitations identified by Su & Teng (2018), besides the self-selection of the sample due to analysis made only on TripAdvisor's reviews, concerned the evaluation of the reviews considered as strongly negative (one-star rating) and written in English (excluding other ethnic groups), the difficulty in distinguishing tourist visitors from non-tourist visitors (local visitors), and the existence of a misclassification bias generated from qualitative extraction of the dimensions.

Indeed, the abovementioned limitations are present in all studies based on social web contents, including our paper. We analyzed the experience of museum visitors who have voluntarily left a comment while we were not able to acquire information about no-reviewer visitors. Therefore, we are aware that our sample is not representative of the population of museums visitors in Italy nor of that of visitors of the museums that we selected for this study. Nonetheless, due to the randomness of the selection of comments used in this study we can assume our sample has some representativeness for the population of web reviewers in TripAdvisor (as introduced in the following section).

3.2. Data and sample selection

Here, the web scraping technique has been used to harvest reviews on the TripAdvisor platform. Web scraping is the process of extracting data from a website and can manage a large amount of information (Hanretty, 2013). In this study, web scraping techniques via Python environment (Lawson, 2015) were used to drawn data from the TripAdvisor platform on twelve museums.

In order to purse the aims of this paper, we selected some museums from six well well-known Italian cultural tourism destinations: Turin, Venice, Florence, Rome, Naples, and Palermo, covering the geographical variety of the country from the North to the South. In particular, the cultural attractiveness of Rome, Florence, and Venice is consolidated over time while Naples, Palermo, and Turin have seen an increase in the cultural tourists flow in recent years (Banca d' Italia, 2018). The museums were chosen from the top of TripAdvisor's ranking for the cities mentioned above. The availability of an adequate number of tourists' comments for the year 2019 was also considered as a selection criterion. Museums were also chosen on their diversity to ensure a broader framework our analysis, as suggested by Sheng & Chen (2012). From these cities, the twelve selected museums are classified by TripAdvisor (TA) into the following categories: Art Museums, Historical Museums, Historical Sites, and Specialized Museums. Table 1 shows the museums chosen, the city of reference, the geographical area, and the type.

Table 1. *Selected Museum and their characteristics*

Museum	City	Area of Italy	Type of Museum (by TA classification)
Egyptian Museum	Turin	North	Historical museum
Cinema Museum	Turin	North	Specialized museum
Doge's Palace	Venice	North	Historical site
Uffizi	Florence	Central	Art Museum
Accademia Gallery	Florence	Central	Art Museum
Vatican Museum	Rome (Vatican City)	Central	Art Museum
Castel S. Angelo	Rome	Central	Art Museum
Borghese Gallery	Rome	Central	Art Museum
Archaeological Museum	Naples	South	Specialized museum
San Severo Chapel	Naples	South	Historical site
Borboun Tunnel	Naples	South	Historical museum
Norman Palace	Palermo	South	Historical sites

Through web scraping, it was possible to acquire 9,212 reviews for the 12 museums in Table 1. The web scraping procedure for the data collection was carried out in the period between 03/01/2020 and 03/15/2020: the scraped comments are related to the visits made to the museums in 2019.

Notwithstanding the self-selection of the original database (due to the volunteer participation of web reviewers of TripAdvisor) we drawn a probabilistic sample of reviews; this allowed for inferential procedures connecting our sample with the population of all the reviews presented in the online TripAdvisor database in the selected time span.

Particularly, our list is made up of all visitors-tourists who have released a review on TripAdvisor. The process leading to the determination of the sample involved the stratification of the "population of comments", first by museums and then by comment language.

Once the comment has been published on the TripAdvisor platform, the belonging city is displayed below the reviewer's name. So, this information has been used as a criterion to distinguish resident visitors from not – resident visitors (alleged tourists).

Given the availability of comments per list, 50 comments were randomly drawn from each layer. Here, two lists have been identified for each museum (one for reviews written in Italian language and one for those in the English language). From a total of 24 lists, we drew 50 reviews from each list using simple random sampling. By this sampling technique, each individual within the list had the same probability of being part of the sample. Final sample is made by 1,200 reviews. Tables 2 and 3 show the numbers of comments for each list, the survey coverage rate, and the average rating.

Table 2. *Italian reviews characteristics by museum*

Museum	Reviews written in Italian available in 2019	Survey coverage rate	Mean rating given to the Museum in 2019
Egyptian Museum	754	0.07	4.70
Cinema Museum	332	0.15	4.40
Doge's Palace	207	0.24	4.70
Uffizi	821	0.06	4.72
Accademia Gallery	184	0.27	4.51
Vatican Museum	354	0.14	4.25
Castel S. Angelo	112	0.45	4.53
Borghese Gallery	129	0.39	4.46
Archaeological Museum	171	0.29	4.50
San Severo Chapel	951	0.05	4.80
Borboun Tunnel	360	0.14	4.88
Norman Palace	253	0.20	4.52

Table 3. *English reviews characteristics by museum*

Museum	Reviews written in English available in 2019	Survey coverage rate	Mean rating given to the Museum in 2019
Egyptian Museum	121	0.41	4.75
Cinema Museum	83	0.60	4.39
Doge's Palace	1,241	0.04	4.66
Uffizi	682	0.07	4.60
Accademia Gallery	571	0.09	4.57
Vatican Museum	817	0.06	3.98
Castel S. Angelo	256	0.20	4.49
Borghese Gallery	311	0.16	4.56
Archaeological Museum	165	0.30	4.13
San Severo Chapel	128	0.39	4.54
Borboun Tunnel	101	0.50	4.80
Norman Palace	108	0.46	4.02

Noteworthy, a very different number of reviews is available for the twelve museums chosen for the year 2019. This is due to the different amount of visitor flows to each museum (an aspect not explored in this study) and to the potential (but not-estimable) different behavior of visitors with respect to the choice to leave or not a comment on TripAdvisor platform. In the absence of further information, the number of comments of Italian and English reviews to be analyzed from each layer was set at 50, albeit 50 comments were almost half of the comments available for some museums, as can be seen from Table 2 and Table 3.

Now focusing on the quality of data from TA, Alexander et al. (2018) highlight that the data in the reviews do not offer (or offer little) demographic information about the reviewers. For this, the analysis of TripAdvisor reviews focuses mainly on its content, rather than the characteristics of the reviewers. However, some characteristics of the reviewers were deduced indirectly and they are particularly: gender (inferred by the name of the reviewer) and nationality (inferred by the web site used to collect the visitors' comment, i.e., www.tripadvisor.it for the Italian tourists, and www.tripadvisor.com for the international tourists).

3.3. Methods: Content Analysis and Regression analysis

This study pursued two analytical strategies: a) performing a textual analysis of visitors' reviews in order to identify the main causes of satisfaction and dissatisfaction generated by the museum experience; b) modeling satisfaction rating to identify which are the features of the most satisfied tourist-visitors. For this task, a distinction was made between measuring overall satisfaction for the twelve museums chosen and carrying out comparisons one by one for the six specific museums.

The first aim is addressed via a methodology named content analysis. Content analysis detects common causes of satisfaction and dissatisfaction among reviewers (O' Connor, 2010). The strength of content analysis is to deal with very heterogeneous data that are provided directly by people. Through the information collected, we wanted to assess which concepts/words of the content generated by users are the most nominee in the evaluation of museums. User-generated content, such as reviews, provides information on museum visit. In this context, content analysis becomes a useful methodological tool to analyze and manage this type of information. In performing content analysis, nodes are related to a part of the process where data is collected and coded following the belonging core concept based on the existing literature; they can be seen as a logical container (Bazeley & Jackson, 2013). In this research, we defined as nodes the attributes that can affect visitor-reviewer's museum experience, such as permanent and temporary exhibition, museum management, staff, no-core service, motivations, and emotional response. Furthermore, we performed a word frequency analysis to assess which attributes generated satisfaction or dissatisfaction during the visitors' museum experience by counting how many times a concept is present in the comments according to the TripAdvisor rating division (O'Connor, 2010).

In addition to the textual analysis, the generalized ordinal logit (*gologit* in short) model was run to address the second aim of this study. The gologit (Williams, 2006) is an alternative to the ordinal logit when the parallel-lines assumptions are not met (Long & Freese, 2014). Given the scarce information acquirable through TripAdvisor, few variables have been identified, such as the review rating, the reviewer's gender, the reviewer's nationality, the length of the review text, and the number of reviewer's contributions.

In this study, the ordinal dependent variable is the review rating given by each visitor to the museum he/she visited, while the independent variables considered are the characteristics of the visitor – tourists. Unfortunately, there is little information available "automatically" from TripAdvisor. For this reason, it was necessary to do a manual drawn to acquire additional information (for instance, to identify the gender of the reviewer or the total number of comments left on social media) to maximize the usability of the information.

According to TripAdvisor's review rating scale, the ordinal dependent variable was coded as 1=very poor, 2=poor, 3=average, 4=good, and 5=very good. Through the information obtained by TripAdvisor platform, the following independent variables were identified: gender, nationality[2], the number of total comments left on the site as contribution, and the length of the tourist's comment for that specific museum. Otherwise, the latter two variables give us a measure of the visitor's experience level. So, Contribution (the overall number of reviews written on TripAdvisor platform by the user) estimates the reviewer's experience as tourist and Length of the text (how many words review text is composed) measures the accuracy of the museum experience description.

Furthermore, six binary independent variables were deduced through the content analysis nodes as aspects that influenced visitors' satisfaction (i.e., permanent and temporary exhibition, museum management, staff, no-core service, motivations, and emotional response). These binary variables, coded as 1 if the aspect is mentioned in the review and 0 otherwise, measured the significance of that node in affecting the museum visitors' satisfaction. However, this group of content analysis variables was only run for the overall model regression, due to the small sample size in those models regarding the specific museum (i.e., each with n= 100).

Gologit (Mc Cullagh & Nelder, 1989; Fu, 1998) provides the joint estimation of a series of binary logistic regressions, where the categories of the response variable are combined (Williams, 2006). This model is less restrictive than the ordinal logit is. The parallel-lines assumption in the ordinal logit (equation 1), namely ologit, can be written as:

$$P\,(Y_i > j) = g(X\beta) = \frac{exp\,(\alpha_j + X_i\beta)}{1\ +\ \{exp\,(\alpha_j + X_i\beta)\}} \qquad (1)$$

where j= 1, 2, . . ., M – 1 and M is the number of categories of the ordinal response variable. We talk about parallel - lines assumption because all the M-1 regression lines are parallel. So, in our case, since the ordinal variable provides 5 rating evaluations for visitor satisfaction, the categories we will analyze will be four.

[2] Male (coded as 1 = male, 0 = female) and Italian tourist (coded as 1 = Italian tourist, 0 = International tourist) refer to the socio-demographic characteristics of the visitor such as gender and nationality.

While gologit model (equation 2) can be written as:

$$P\ (Y_i > j) = g(X\beta) = \frac{exp\ (\alpha_j + X_i\beta_j)}{1\ +\ \{exp\ (\alpha_j + X_i\beta_j)\}} \tag{2}$$

where j= 1, 2, . . .,M – 1

From the comparison between the two equations, we can note that the α (also called cutpoints) vary in each category for both models, but only the β of the gologit will be different for all the values of j: this happens when the parallel-lines assumption is violated for that variable. Therefore, the gologit gives the βs the possibility to vary freely. However, in this way, the gologit model may determine a huge set of parameters to be estimated. To handle this situation, it may be useful to switch from an unconstrained gologit to its own special case where constraints were applied to only those variables that meet the parallel-lines assumption: the partial proportional odds model (PPO). Here, the gologit/PPO model (equation 3) relaxes the hypotheses of the ologit model, ensuring rather intuitive results to interpret (Williams, 2016).

$$P\ (Y_i > j) = \frac{exp\ \left(\alpha_j + X_{1i}\beta_1 + X_{2i}\beta_2 + X_{3i}\beta_{3j} + X_{4i}\beta_4\ \right)}{1\ +\ \{exp\ (\alpha_j + X_{1i}\beta_1 + X_{2i}\beta_2 + X_{3i}\beta_{3j} + X_{4i}\beta_4)\}} \tag{3}$$

where j= 1, 2, . . .,M – 1

In this example of the PPO equation, the (constrained) β of variables X_1, X_2, and X_4 are the same for all regressions, while the only β to vary is the one related to variable X_3. Given Y is the rating, X_1 is the “Male” variable, X_2 is “Italian tourist” variable, X_3 is the “Length of the review” variable, and X_4 is the “Contribution” variable. Our model is given by the above equation 3.

Stata's *gologit2* command was used for the analysis. A test to check whether the parallel-lines assumptions have been violated was performed. Here, the acceptance of the null hypothesis confirms the respect of this constraint. In this study, the *autofit* option allowed us to verify the hypothesis on the constraint. Additionally, it easily identified if the gologit was the best method to ensure greater accuracy in the interpretation of the data. Here, the gologit was carried out iteratively. The *autofit* option ran in the first step the estimation of an unconstrained model while in the next step a series of Wald tests were performed to verify if the coefficients met the parallel-

lines assumptions, i.e., the coefficients are the same among the equations. If one of the variables is not significant, it will be constrained and the related beta coefficient will be the same in all equations. In the third step, the original unconstrained model is refitted with constraints and will be repeated until no other variable respects the parallel - lines assumption. Finally, in the last step, a global test is performed on the final constrained model against the original unconstrained model by the Wald test: if the test result is not significant, then the final model does not violate the parallel-lines assumption. Therefore, if the test accepts the alternative hypothesis, all variables will not respect this assumption and their β will vary between the categories of the response variable. The default results of the *gologit2* command provide the estimation of a series of binary logistic regressions where: the first panel contrasts category 1 with categories 2, 3, 4, and 5; the second panel contrasts categories 1 and 2 with categories 3, 4, and 5; the third panel contrasts with categories 1, 2, and 3 with categories 4 and 5; the fourth panel contrasts with categories 1, 2, 3, and 4 with category 5. So, we analyzed four logit models.

For the sign of the coefficients, a positive coefficient means that a unit increase (or the shift from baseline category) in the explanatory variable leads to a higher probability that the visitor will be in a higher category of the dependent variable (that is more satisfied) than the present one, while a negative coefficient means that when the explanatory variable increases, there is a greater propensity for visitors to find themselves in the current or lower category (William, 2005).

A recap of analytical strategies used in this study is provided by figure 1.

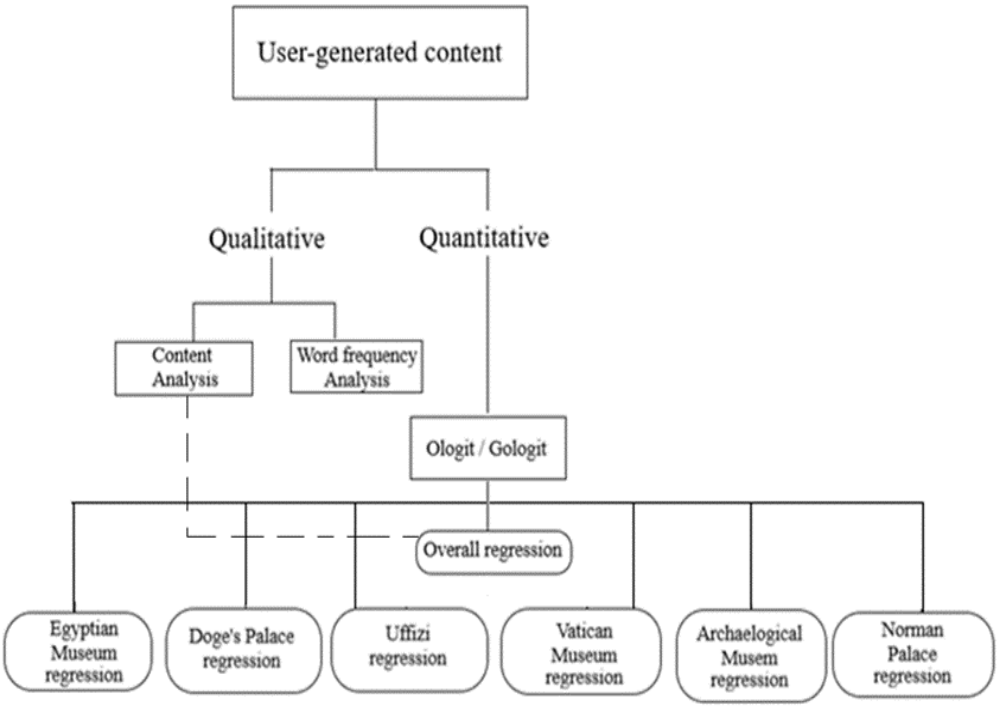

Figure 1. *Research methodology flow-chart*

4. Results

4.1. Content Analysis results

Content Analysis has been carried out through the NVivo 12 software (Coppola, 2010). It assigns a part of the comment to specific nodes, divided by topic. Specifically, *"nodes provide the storage areas in NVivo for references to coded text. Each node serves as a container for everything that is known about one particular concept or category. Nodes can be used also as a tool to organize qualitative data in particular ways, to be discussed later"* (Bazeley & Jackson, 2013, p. 17). Thus, Nvivo allows researchers to collect data, analyze it to identify groups, and then make queries summarized in reports. Nodes are the part of the analysis related to data collection on the fundamental concepts. In this outlook, reviewers' comments in NVivo are stored as nodes. We compared what different museum visitors' groups have said about an experience, attitude, or issues by dealing with this type of data. In brief, the nodes are containers where the parts of the comment text compatible with the aspect to be investigated are enclosed. Based on the literature referred to above (particularly Ruyter et al. 1997; Kotler & Kotler, 2001; Gil & Ritchie, 2009), the following nodes have been defined:

1) Permanent and temporary exhibition: this category includes impressions related to exhibitions;

2) Museum management: this category highlights the elements of visitor evaluation about museum management (ticket price, queues, waiting times, marketing actions, etc.);

3) Staff: this category includes visitors' impressions of the staff to satisfy directly their needs (wardrobe, interpretation of artworks by a guide, ability to provide personalized information, etc.);

4) No-core service: this category collects the ratings of the structure and services (shops, cafes, restaurants, etc.);

5) Motivations: this category collects the reasons why the reviewer visits that museum (to be entertained, to learn, as a part of their holiday, to visit the museum with their family, to go to a particular exhibition);

6) Emotional response: this category describes the visitors' feelings, their visit experience, and the assessments on the overall museum product.

The nodes mentioned above represent the attributes that influence the museum experience. In this way, it was possible to identify which aspects were mentioned (referred to) most by visitors. Noticeably, a comment can appear in several nodes: a reviewer can mention more than one aspect in a comment. A comment deals with an average of 2.10 nodes (standard deviation of 0.94). As mentioned in Section 3.2, two different samples for Italian comments and English comments have

been created. In this way, we can highlight points of agreement and disagreement between the two types of tourists. The coding procedure works on the assignment of parts of the text of the comment to the specific node (Bazeley & Jackson, 2013). The coding of the 1,200 comments and their division according to the rating between the Italian and English sample are shown in Figures 2 and 3.

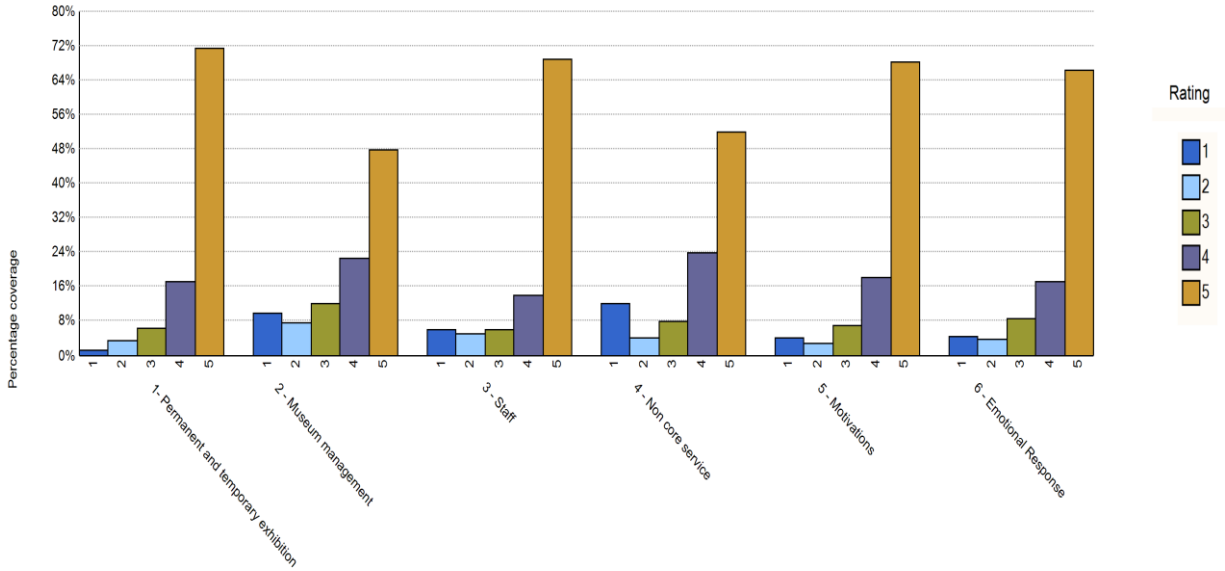

Figure 2. *Nodes coded by rating for the sample of Italian comments*

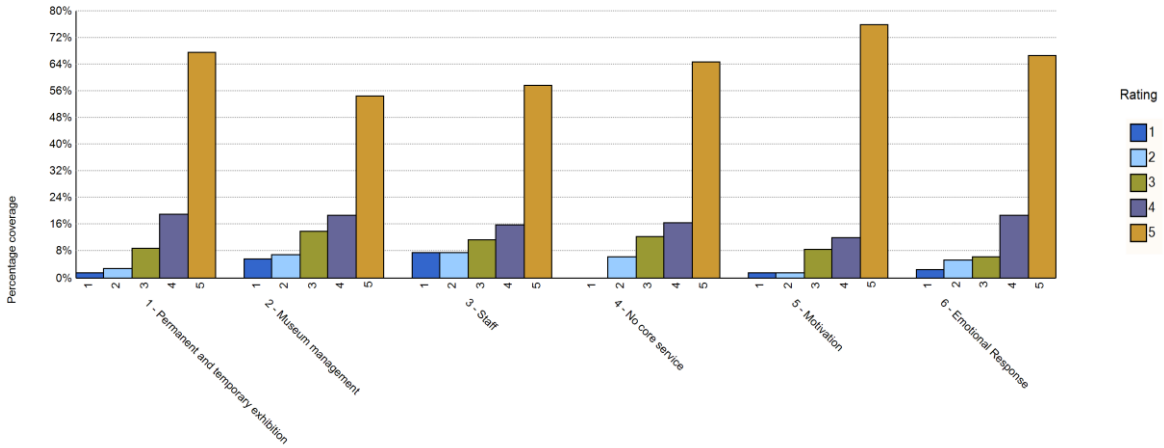

Figure 3. *Nodes coded by rating for the sample of English comments*

We can observe that most of the coding procedure is related to the comments with a five-point rating, given the greater presence of this type of rating compared to lower ratings. The percentages in the figures express how the single node is composed according to the rating of the comment.

Here, the coding procedure gave us information on the whole structure of the comments concerning the opinion expressed by the visitor on that specific node.

At first glance, it seems there are differences in the review topics mentioned between the two types of visitors. To verify whether this difference exists, a t-test for two independent samples (Italian and foreign reviews) was performed. For this comparison, the number of "*references*" has been used. The *reference* describes how many times an aspect has been mentioned in the overall comments. Briefly, if a comment deals with a specific aspect, that part of the text is then coded and associated with the respective node. Thus, we analyzed the difference in the number of references between English and Italian comments related to each node. The results are shown in Table 4. For each node, the test result states that there were no significant differences in coding between the two samples. Therefore, there were no differences in the semantic coverage of Italian and foreign visitors' comments concerning their museum experience.

Table 4. *Testing differences between English and Italian written reviews (t-test)*

Node	Mean (differences)	Std. Err. (differences)	t	P-value
Exhibitions	0.383	1.484	0.258	0.797
Management	0.350	0.954	0.367	0.714
Staff	-0.183	0.870	-0.211	0.834
No-Core service	0.400	0.255	1.571	0.119
Motivation	-0.233	0.352	-0.662	0.509
Emotional Response	-0.700	1.681	-0.416	0.678

In the comment analysis process, a key role is played by the word frequency analysis. The word frequency analysis defines the main attributes that generate satisfaction or dissatisfaction by counting how many times a concept is present in the comments according to a rating division. Tables 5 and 6 show the most common concepts/words mentioned by visitors divided by rating. The distinction between the Italian and English samples identified the strengths and weaknesses of the museum found by the two types of tourists. The concepts are sorted according to their total frequency. However, to reduce the ambiguity of some terms, it was considered appropriate to specify the interpretation given to the element examined.

Table 5. *Most common concepts found in Italian comments by rating assigned to the museum visit*

Concept/words	Rating 1 (lowest satisfaction)	Rating 2	Rating 3 (average satisfaction)	Rating 4	Rating 5 (highest satisfaction)	Total
Visit	11	12	21	40	149	233
Guide	6	8	8	15	74	111
Tour	4	6	10	14	75	109
Queue (long)	16	5	8	6	5	40
Exhibition	3	6	4	8	34	55
Ticket (booked)	8	7	0	18	16	49
Sculpture	2	1	1	3	26	33
Staff (bad service)	16	2	3	4	4	29
Staff (good service)	3	0	2	4	19	28
Ticket (expensive)	10	4	2	4	8	28
Audio guide	5	1	4	6	9	25
Experience	0	1	1	1	20	23
Collection	1	2	5	4	9	21
Crowded	0	4	1	2	7	14
Cafeteria	0	0	1	6	4	11
Information	1	0	0	3	5	9
Queue (short)	1	0	2	10	36	49
Shop	1	0	1	0	1	3

Table 6. *Most common concepts found in English comments by rating assigned to the museum visit*

Concept/word	Rating 1 (lowest satisfaction)	Rating 2	Rating 3 (average satisfaction)	Rating 4	Rating 5 (average satisfaction)	Total
Tour	15	13	18	31	144	221
Visit	12	10	17	31	117	187
Guide	9	5	15	15	85	129
Collection	4	3	7	10	52	76
Ticket (booked)	7	2	0	9	43	61
Audio guide	5	4	7	11	32	59
Experience	4	8	7	2	31	52
Ticket (expensive)	9	13	3	16	11	52
Queue (long)	15	6	12	4	10	47
Staff (good service)	2	6	9	9	21	47
Staff (bad service)	18	6	12	7	0	43
Exhibition	1	2	3	5	21	32
Queue (short)	0	0	1	5	23	29
Sculpture	0	2	2	4	18	26
Information	1	0	6	5	12	24
Cafeteria	0	0	3	6	15	24
Crowded	8	8	0	0	2	18
Shop	1	0	0	1	6	8

Tours, *visits*, and *guides* are the most mentioned words by fully satisfied visitors (rating 5) both for the Italian and English samples. The satisfaction factors considered in this study are guides, tickets booked, good service by the staff, and the use of the audio guide. A unified count for guides and audio guides in Italian and English samples has been carried out. Here, the few cases of negative ratings are limited to the worst ratings, so there was no need to make a distinction between "bad" and "good" approach to the attribute. From the word frequency analysis, we can state that both elements are considered as satisfaction factors. Another satisfaction element is the *short queue*: it stems from the efficiency of museum management. Moreover, it concerns cases in which a very short queue was found, none, or was able to avoid the queue through booking. The considerations made so far apply to both foreign and Italian tourists.

On the other hand, the expensive cost of the ticket, the unprofessional behavior of the staff, and the long queue have been identified as dissatisfaction factors for both tourist types. However, complaints about the queue at the entrance are also found in the comments whose overall rating is high. From the comparison between Table 5 and Table 6, we observe that the only difference between the museum experience of Italian and foreign-speaking visitors is the degree of crowd

tolerance: foreign tourists manage a crowded museum with more difficulty than Italian tourists. This condition is evident because the presence of this lemma in the low-rated categories is more frequent in the English language comments. The term crowded has undoubtedly a negative definition. However, Italian tourists say that crowds are seen as a small issue in need of improvement, but this does not adversely affect the museum experience.

For the analytical study, six of the twelve museums were chosen, ensuring adequate geographical coverage and assessing their relevance. The selected museums are Egyptian Museum (Northern Italy), Doge's Palace (Northern Italy), Uffizi (Central Italy), Vatican Museum (Central Italy), Archaeological Museum (Southern Italy), and Norman Palace (Southern Italy). Here, the aspects (nodes) most discussed by visitors to that museum are identified. Again, the number of "references" allowed us to make comparisons between museums. Since there are no significant differences between Italian and foreign tourists, assessed by a t-test, Table 7 shows the percentage of nodes treated for each museum with no distinction for the language in which the comment is written. Here, the references are listed for each museum as a percentage. Then, the "references per nodes" of each museum were reported in percentage. So, each percentage is defined as the ratio of references associated with that node on overall coded references. In this way, we determined the weight of each node to make some distinction between the museum elements mentioned in reviews.

Table 7. *Percentage distribution of the number of references by node (column percentage by museum)*

	Museum					
Node	Egyptian Museum	Doge's Palace	Uffizi	Vatican Museum	Archaeological Museum	Norman Palace
Exhibition	19.1	25.51	23.4	18.69	29.74	31.84
Management	29.65	31.12	22.34	33.33	23.28	21.39
Staff	9.55	7.14	9.57	12.12	5.6	3.48
No-core services	3.52	3.06	5.32	3.03	2.16	1
Motivation	7.54	1.02	8.51	3.54	8.62	3.48
Emotional response	30.65	32.14	30.85	29.29	30.6	38.81
	100	100	100	100	100	100

For all the museums analyzed, the museum aspects most present in the comments relate to the presentation of permanent and temporary exhibitions, museum management, and the overall emotional aspect of the visit.

The greater presence of these aspects is consistent with main literature: the museum must be able to enhance the artworks on display, to make the exhibition more attractive to visitors, and to offer an experience as close as possible to visitors' expectations (Ruyter et al. 1997; Gil & Ritchie, 2009). Jeong & Lee (2006) state that the exhibition environment positively influences the emotional aspect. Here, museum managers have to take action on this relationship, starting from correct management and conservation of the artworks and avoiding situations that lead to tourist disappointment such as the undue crowding of visitors, the complex exhibition path or the difficulty in the way of visiting or booking the museum (Kotler & Kotler, 2001; Jeong & Lee,2006).

Considering other nodes, the staff plays a fundamental role in the service delivery but must ensure a higher level of quality. Here, the high frequency of the terms staff and guides in the word frequency analysis underlines this statement, as reported in Tables 5 and 6. Among the motivations, the most frequent ones are visiting with family or friends, going to a specific exhibition, and following the advice of people or media. As we can see, the motivations may be different and multiple. Those that emerged in this study coincide with those suggested by Gil & Ritchie (2009).

The no-core services provide an additional and important source of revenue for the survival of the museum. Quoting Ruyter et al. (1997), customer satisfaction can be achieved if shops provide specific items for that particular exhibition. Given their marginal nature, they are mentioned fewer times in the comments than the other nodes. The no-core services present in the comments were (with positive votes) shops and cafeteria. All the no-core services of museums generated a turnover of around 58 million euros in 2017 (Banca d' Italia, 2018), highlighting the importance of investing in this sector to increase the revenues obtained by "culture clients" (Ruyter et al., 1997). Therefore, museum managers should develop appropriate marketing activities to ensure a higher level of comfort and attractiveness in the services offered (Kotler & Kotler, 2001).

4.2. Gologit results

In this study, seven regressions were run: in the overall model, the twelve museums were jointly considered (hence n=1,200), while six regressions (each with n= 100) for each of the six museums were estimated, following the considerations set out in the previous section.

For the analytical analysis, the six museums examined were: Egyptian Museum (in Turin), Doge's Palace (in Venice), Uffizi (in Florence), Vatican Museum (in Rome), Archaeological Museum (in Naples), and Norman Palace (in Palermo). As described in Section 3.3, the Wald test to verify whether the parallel-lines assumptions are met were performed by using the *autofit* option. Here, if the test accepts the null hypothesis for one specific explanatory variable, the gologit will

report similar results to the ologit (Williams, 2016). Results show that both the overall model and the model for the Vatican Museum did not meet the parallel-lines (P-L) assumption for some variables, while the regressions for the remaining five museums did. Hence for these museums, regression models were estimated using an ologit specification. This last group of museums can be called the "P-L museums" as they did not violate the constraints. Furthermore, a test of parallel lines assumption for the final model had been carried out for the seven models. We can affirm that all models accept the null hypothesis, so not all variables violate the parallel-lines assumption (see Table 8). Thus, these results confirm the correct use of the gologit specification of partial proportional odds model, as explained in Section 3.3.

Table 8. *Test of parallel-lines assumption for the final model using the 0.05 level of significance by Wald test*

Model	χ^2	P-value
Overall	18.30	0.1070
Egyptian Museum	5.52	0.9382
Doge's Palace	4.47	0.9542
Uffizi	4.80	0.9643
Vatican Museum	0.19	0.9992
Archaeological Museum	11.93	0.4509
Norman Palace	9.33	0.6744

In the overall model, six explanatory variables out of ten did not meet the parallel-lines assumption. Thus, the beta estimate for the effect of the gender, the number of reviews by the visitors, the length of his/her comment, presence of the aspect related to the exhibition, staff and emotional response nodes will differ in each category of the dependent variable (that is the satisfaction rating). Conversely, the variables on which the constraints were applied are the dummy for the nationality of the reviewer (“Italian tourist”) and those related to the management, no-core, and motivation nodes: their coefficients will be the same between the various categories of the dependent variable. Table 9 shows the results of the gologit for the overall model. Here, a series of binary logistic regressions are carried out simultaneously, with sliding cut-points. Among the variables that met the parallel-line assumption, only "management node" and "motivation node" were found to be significant. Specifically, the management coefficients' negative sign indicates that the greater propensity to mention this node is related to high dissatisfaction levels. In contrast, the positive sign connected to the motivation coefficient highlights how motivation is indeed a driver of satisfaction.

For what concern the variables that do not meet the parallel-lines assumption, the variable “Length of the review” is significant: the coefficient always keeps the negative sign. The variable

“Contribution” was significant from category 2 and above: this underpins that the greater the experience of the reviewer-tourist, the greater will be the propensity to be in higher categories than the one he/she belongs to. The opposite is the case for the gender variable: it was significant at the 10% and only for category 1. Here, women complained more about their museum experience than male visitors. For the "staff node" variable, the coefficient was significant for category 1. The negative sign of the estimated beta highlighted that the greater presence of comments on this aspect will lead to a higher level of dissatisfaction, other characteristics being equal. Finally, betas for the variables "exhibition node" and "emotion node" were positive and significant. Hence, the presence of these aspects in the comments is associated to a greater the visitors' satisfaction level, other things being equal.

Table 9. *Overall model - Generalized ordered logistic regression of satisfaction ratings (beta estimates).*

	Logit on ratings (1) vs. (2,3,4,5)	Logit on ratings (1,2) vs. (3,4,5)	Logit on ratings (1,2,3) vs. (4,5)	Logit on ratings (1,2,3,4) vs. (5)
Variable	Coefficient	Coefficient	Coefficient	Coefficient
Male	-0.5565*	0.1107	0.2460	-0.0468
Italian tourist	-0.5311	-0.5311	-0.5311	-0.5311
Contribution	-0.0004	0.0012**	0.0006**	0.0003**
Length review	-0.0179***	-0.0131***	-0.0118***	-0.0057***
Exhibition node	1.8553***	1.2539***	1.1955***	0.5851***
Management node	-0.9153***	-0.9153***	-0.9153***	-0.9153***
Staff node	-0.7897**	-0.2695	0.0158	0.2361
No-core node	0.9989	0.9989	0.9989	0.9989
Motivation node	0.5968***	0.5968***	0.5968***	0.5968***
Emotion node	1.4688***	0.5048**	0.7518***	0.3137**
Constant	4.0458***	2.8094***	1.5184***	0.7811***
N	1,200	1,200	1,200	1,200

Note: Significance levels of 10% (*), 5% (**) and 1% (***) for Coefficients by z- test

For the analytic six regression, only the variable obtained by the TripAdvisor platform (i.e., Male, Italian tourist, Contribution, Length review) have been employed (see Section 3.3).

Table 10 shows the association between visitors-reviewers’ characteristics and satisfaction rating for the Vatican Museum in 2019. As explained above, in the case of the Vatican Museum, we estimated a gologit model. The only variable that did not meet the parallel-lines assumption is the gender of the reviewer. As shown in Table 10, estimates of Male coefficient in the model contrasting ratings up to 3 vs. higher ratings (4 and 5) is highly significant: male tourists appreciate

the visit to the Vatican museum more than women, other things being equal. This result indicates that men are more likely to be in one of the two highest categories (4 and 5) than women. In 1, 2 vs. 3, 4, 5 and 1, 2, 3, 4 vs. 5, the coefficient is significant at 10% and positive: the same considerations apply as in the previous case. The constrained variable “Length” of the review also is significant and with a negative sign coefficient: the longer the text of the comment, the greater the probability that the visitor is not satisfied with the visit, other characteristics being equal.

Table 10. *Vatican Museum - Generalized Ordered logistic regression of satisfaction ratings (beta estimates).*

	Logit on ratings (1) vs. (2,3,4,5)	Logit on ratings (1,2) vs. (3,4,5)	Logit on ratings (1,2,3) vs. (4,5)	Logit on ratings (1,2,3,4) vs. (5)
Variable	Coefficient	Coefficient	Coefficient	Coefficient
Male	-0.7289	0.9248*	1.3883***	0.7813*
Italian tourist	0.1297	0.1297	0.1297	0.1297
Contribution	0.0011	0.0011	0.0011	0.0011
Length review	-0.0127***	-0.0127***	-0.0127***	-0.0127***
Constant	3.8871***	1.8755***	0.8831	0.6202
N	100	100	100	100

Note: Significance levels of 10% (*), 5% (**) and 1% (***) for Coefficients by z-test

In the group so called "P-L museum", five ordered logistic regressions were estimated separately to compare the relationships existing between the response variable and the explanatory variables for each of the five museums (Table 11). Results showed that for the Egyptian Museum, Uffizi, Archaeological Museum, and Norman Palace the length of the comment was significantly associated to satisfaction rating expressed: the greater the length of the comment, the greater the probability to express a negative rating. This is due to the negative sign of the coefficient. The tourist nationality was significant for the Egyptian Museum, the Doge's Palace, and Norman Palace: for the former, foreign tourists are more satisfied than Italian tourists (other things being equal), while the opposite case happens to the other two museums. The number of reviews (Contribution) was significant only for the Norman Palace, stating that the most experienced tourists-reviewers are those who can appreciate the museum product more. Finally, among the Archaeological Museum, men were more satisfied than women, while no significant gendered differences were appreciable for the visitors-reviewers of other museums.

Table 11. *Ordered logistic regression by P-L museums (beta estimates)*

	Egyptian Museum	Doge's Palace	Uffizi	Archaeological Museum	Norman Palace
Variable	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Male	-0.2603	-0.2111	-0.1607	0.6593***	0.4031
Italian tourist	-1.1074***	0.7833**	-0.2295	-0.3734	0.8407**
Contribution	0.0004	-0.0001	0.0010	0.0014	0.0009***
Length	-0.0146***	-0.0034	-0.0345***	-0.0065***	-0.0093***
Constant (1)	-5.1050***	-3.0086***	-5.6065***	-3.1184***	-2.8567***
Constant (2)	-4.1131***	-1.9448***	-4.5216***	-2.4514***	-2.0307***
Constant (3)	-2.8313***	-1.1604***	-3.4307***	-1.2734***	-1.0344**
Constant (4)	-1.8185***	-0.1183	-2.6539***	-0.2031	0.0572
N	100	100	100	100	100

Note: Significance levels of 10% (*), 5% (**) and 1% (***) for Coefficients by z-test

5. Conclusion

Italy is the first country in the world for the number of cultural sites listed on the UNESCO World Heritage List (54 out of 845) and Italy's artistic and cultural heritage is second in size only to Germany (Banca d'Italia, 2018). Cultural tourism is defined as an essential source for the tourism destination to attract both national and international tourists, especially for the Italian case. Thus, understanding the needs of the cultural tourists can enhance cultural tourism vocation of the destination.

Six among the most prestigious Italian cultural tourism destinations were selected: Rome, Turin, Venice, Florence, Naples, and Palermo. Here, museums have been detected as the ideal site to measure cultural tourism.

The contribution of this paper was to assess the museum visitors' satisfaction via comments released by museum visitors on one of the most worldwide used web platform for sharing user-generated content, i.e., TripAdvisor. The reviews shared on TripAdvisor have been acquired through the web scraping technique, which allowed us to speed up the data collection step. Firstly, reviews written by the visitor-tourists were analyzed by the content analysis, according to a qualitative approach. Secondly, following a quantitative approach, and using some results from the content analysis, we modelled satisfaction ratings via ordinal regression models.

Content analysis showed how the aspects most frequently mentioned in the comment are those related to exhibitions, management, and emotional response. The word frequency analysis allowed

us to identify the factors of satisfaction and dissatisfaction. Satisfaction factors include the guide, pre-booked tickets, good staff service, use of the audio guide, and the short queue. On the other hand, the visitors' dissatisfaction stems from the ticket price, the uncooperative behavior of the staff, the crowd in the museum, and the long queue.

Regression analysis on the overall dataset (including all of the twelve museums) put evidence on the "Length of the text": this variable was found to be significantly associated with ratings related to the reviewer's attitude to post comments on TA. Here, the negative sign highlights that the longer the text, the greater the tendency to express negative opinions on the museum experience. Considering the museum offer as a whole, the propensity of the "skilled" tourists (namely, tourists who are used to review on TripAdvisor) to positively evaluate their museum visit stands out. This result confirms how the use of social media, especially by the expert reviewers, becomes a useful means to share opinions about their museum visit since there is a strong association between the rating and the "social" visitors. Focusing on the node variables, the aspect related to the permanent and temporary exhibition, the motivation, and the emotional response, all positively affected the museum visitors' satisfaction, while the inclusion of the museum management aspect in the comment is related to a high level of complaint.

The comparison among the six museums (Egyptian Museum, Doge's Palace, Uffizi, Vatican Museum, Archaeological Museum, and Norman Palace) let us understand the differences in the museum experiences. The variable "Length of the text" was found significant with a negative sign of coefficient for five of six analytical regression models (except for the Doge's Palace in Venice). When visiting the Doge's Palace or Norman Palace, Italian tourists were more satisfied than foreign tourists. Foreign tourists enjoyed the experience at the Egyptian Museum more than Italian tourists, other things being equal. For the other museums, there were no differences in the experience evaluation considering the visitor's nationality: both types of tourists shared similar opinions. From the gender point of view, both for visits to the Vatican Museum and the Archaeological Museum, men had a more pleasant experience than women. Differently, for what concerns the other museums, male and female visitors had similar opinions about their experiences. Only for the visit to the Norman Palace, tourists with more experience were able to appreciate it.

For managerial implications, the information acquired by reviewers (but also provided to stakeholders) through social media allows managers to improve marketing activities to compete with rivals. This study underlines the importance of creating a set of activities stemming from user-generated content in order to increase the loyalty of the visitors, enhance the museum reputation, and attract new visitors to the museums.

Generally, frequent social media reviewers use different social networks simultaneously to share their experiences (Li et al., 2019b). By exploiting this "propagation" effect, museum

managers must use social media to publicize their exhibitions (not only through TripAdvisor but also using Facebook, Instagram, and so on). Here, the two-fold function of social media to provide and acquire information for managers is emphasized. For example, on the official Instagram page of several museums, the posts about the artworks contain relevant information for the (prospective) visitors, written both in English and Italian.

By now, the identification of the tourist as a customer both in scientific literature and management practices is well established. Good feedbacks provided by electronic word-of-mouth to the museum product will also generate benefits for the local community and increase the tourism potential of the destination. In this respect, cultural tourism destinations can compete with other destinations with different tourism specifications (for instance, characterized by recreational tourism, especially in the form of seaside tourism). As a consequence of effective management, cultural tourism destinations might attract more visitors, increasing their tourism flow and return opportunities. Thus, improving marketing activities on the cultural heritage of tourism destinations becomes critical to attract Italian tourists, but above all, to become more internationally competitive.

Therefore, museum managers should not underestimate the importance of always being up to date on the needs, expectations, and requests of the visitor (Liu, 2008).

Among the limitations of this study, one of the main is on the non-representativeness of reviewers on TripAdvisor with respect of the wider population of tourists vising Italian museums. Reviewers on TripAdvisor are self-selected. As a consequence, the analysis of their comments is subject to a bias in no quantifiable way. Thus, it follows that even the description of the museums taken into consideration can be inaccurate and even misleading. Furthermore, the results are not extendable to all museums, as argued in Section 3.2. Besides, to better study the characteristics of the most satisfied reviewers, it would have been appropriate to use information related to age (e.g., to understand whether a specific age group may be more attracted by a particular type of museum) and education (to verify, for instance, whether the most satisfied visitors are the most educated or conversely). Unfortunately, TripAdvisor does not gather this information.

Despite all its limitations, this study can still be useful, supplementing statistical analysis better based on probability sampling and availability of more information. Among its advantages, the possibility for managers to quickly and easily monitoring the museum's performance periodically and with high frequency. Furthermore, it does need less money and time than a structured survey on visitors.

Further development of this study is about differentiated analysis by museum typology (historical, art, specialized, etc.), also considering the specificity and features of museum structures.

A deeper understanding of the museum characteristics would be useful to explore more in-depth the impact of the museum backgrounds on visitors' experience evaluation.

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