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# Tourism Destination Management

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Edited by  
Manuel Rodríguez-Díaz and Tomás F. Espino-Rodríguez  
Printed Edition of the Special Issue Published in *Administrative Sciences*

# **Tourism Destination Management**



# Tourism Destination Management

Special Issue Editors

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## About the Special Issue Editors

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Article

# Information Clues and Emotional Intentions: A Case Study of the Regional Image of the Cultural and Creative Community

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**Abstract:** In order to capture the value of cultural creativity, this study explored regional cultural creativities with different creative forms to understand how people interpret and interact with various regional cultural creative images. This was done by analyzing the abstract (performance) type of cultural creativity and the figurative (commodity) type of cultural creativity, in order to understand how existing regional cultural creativities operate information threads in social media, and how the different forms of content may lead to different levels of participation and feedback. The Cloud Gate Dance Theater can be taken as an example of an abstract cultural creation (performance type), and Green-in-hand as an example of a figurative cultural creativity (commodity type). In this study, all user page content for the period 1 January 2011, to 31 December 2018, and the number of user comments for each post were analyzed, for a total of 4784 posts. Computer science, data mining, big data, and social network analysis were combined to verify the findings of the analyses. Through an application programming interface (API), data and information in social media is extracted. Then data filtering, storage, and analysis is performed with meaningful information extracted for interpretation and for use in text mining to explore the relationship with the public based on content attributes. This study first verifies that the regional image is consistent with the social image location. Second, the information cues results found that information cues could be organized into region personality through any direct or indirect contact. Third, emotional clues can evoke emotions and self-expression, which is seen as an important clue to region emotions. In addition, this study also provides a conceptual framework for understanding how different forms of information, in regards to social management of existing regional cultural creativities, leads to varying levels of participation. Understanding the form of information is a key factor in the acceptance of information by the public. It is a reminder for cultural and creative institutions of the importance of text and images, and of figurative and abstract information planning in social content. In order to improve the competitiveness of the destination, using content interaction through social media to create and enhance a strong brand image is important.

**Keywords:** social media content exploration; regional image; abstract and figurative clues; cultural and creative community

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## 1. Introduction

Culture uses experiences to convey meaning (Dewey 1934), which can be achieved through demonstrations or everyday experiences (Newman et al. 2012). Culture may come from any part of life with the experience is shared, such as by common symbols, texts, or information, by any group, thus conveying beliefs, customs, values, and other figurative or abstract practices that confirm the cultural common identity (Throsby 2001). Cultural creativity can be regarded as a combination of experience and art. It is a kind of understanding of the meaning of culture to individuals or people, such as the

recognition and interpretation of information, and the meaning of symbols (Throsby 2001). The latter may be integrated into the arts and create a dialogue within the culture, just as individuals participate in cultural creation while sharing experiences (McCarthy et al. 2001). It also represents the value of cultural creativity in people's lives (Throsby 2001). Therefore, in order to capture the value of cultural creativity, this study explored regional cultural creativities with different creative forms to understand how people interpret and interact with various regional images of cultural creativity (Gray 2010). This study also explored how subjective thinking produces a regional image after being influenced by the text and images (Tribe and Xiao 2011). However, as the composition of the regional image is very complex, Gallarza et al. (2002) considered it to be a complex, multi-dimensional, and dynamic combination that cannot be explained by a simple facet (Gallarza et al. 2002). Therefore, the regional image of cultural creativity discussed in this study is an example of images and words in social content. By subjectively judging the masses in order to generate behavioral interactions between emotions and intentions, it produces a specific figurative or abstract impression (Baloglu and McCleary 1999). In order to conceptualize the regional image (Canally 2010), this study applies the concept of converting a vague regional image into a concrete symbol (Therkelsen 2003). This is an issue that is highly valued in many image studies. For example, assessing the individual attributes of the regional image and obtaining specific factors that influence the regional image (Jenkins 1999). The common definition of the regional image refers to the potential ideal image in the minds of the masses (Mak 2011). Information obtained through television, the internet, books, and magazines can be transformed into figurative or abstract concepts (Gartner 1994; Jenkins 1999). Moreover, information from different media is often used to guide the masses in a systematic manner (Ekinci 2003). Many ideas and concepts induced by secondary images have caused prejudice before the actual contact with the region (Gartner 1994). Therefore, in order to explore the individual's information perception, it is necessary to analyze the mass perception of the region image and the primary and secondary image relationships in the minds of individuals which can help to adjust the correct positioning of the region to the masses (Fesenmaier and MacKay 1996).

In view of this, this study refers to the above literature, by analyzing the abstract (performance) type of cultural creativity, and the figurative (commodity) type of cultural creativity, in order to understand how existing regional cultural creativities operate information threads in social media, and how the different forms of content may lead to different levels of participation and feedback. In addition, this study focuses on the relationship between content participation, information cues, and emotional cues, which attempt to amplify information issues in social business strategies. When the text content is different from the image content, there may be negative emotions and behaviors. This study will discuss the social content marketing perspective in regards to cultural creativity, and examine the image positioning and actual information benefits of cultural creativity. Taking the Cloud Gate Dance Theater as an example of an abstract cultural creation (performance type), and Green-in-hand as an example of a figurative cultural creativity (commodity type), the research presented herein combines abstract cultural creativity and figurative cultural creativity to interpret these two completely different regional cultural creativities. This study examines the characteristics of constructing text and image content, and seeks to grasp the characteristics or problems of the current regional cultural creativity's information management from the actual behavior data. It will be investigated if there will be a gap in thinking for social content in the public because of their own tonal differences. It is hoped that the results of this study can be used as a reference for future cultural creations or related cultural institutions in social marketing.

There are three research purposes for this study. First, this study is different from other business types of region research, as it simply targets non-profit regional cultural creativities as the object, using social media content exploration technology to collect post content, mass behavior, and emotional data for analysis. By comparing figurative cultural creativity and abstract cultural creativity how region socialization succeeds in achieving complex cultural and creative ideas and images through clear image positioning can be understood. Secondly, this study explores the relationship between information,

mass emotions, and behavior using a clear behavioral model. While existing research enriches our understanding of mass behavior (Kohler et al. 2011; Nambisan and Baron 2007), in the face of changing social media, this study uses social information (text, photo, video) and mass emotions ('Love', 'Haha', 'Wow', 'Sorry', 'Anger'), correlated with variables, such as behaviors (likes, comments, shares), to explain the relationship between social information and mass participation. Thirdly, an attempt is made to find poor information positioning and determine how to transform the content, enhance the public's perception and emotions, and enhance public participation in order to achieve a more effective social dialogue. The framework developed in this study will effectively examine the motivations and behavioral responses of the masses to social media participation in cultural institutions.

The second section of this study briefly describes the relevant literature and theories of regional image, information clues, and emotional clues at the present stage of research on this topic. Section 3 proposes the cultural creative powder specialization, from the perspective of text and image content, to explore relevant assumptions between content and mass participation, and uses this to assess the impact of information clues on the mood and behavior of the masses. Section 4 focuses on the methodology of the research process, with Section 5 presents the data analysis. Section 6 discusses the results, suggesting how to use this model to carry out the content management of the relevant cultural creative social media and develop the ideal content marketing plan.

## 2. Theoretical Background

### 2.1. Regional Image Analysis with Content Exploration

The regional image can effectively drive the perception of the masses (Guthrie and Gale 1991), representing the impressions and concepts of the masses on the target (Baloglu and McCleary 1999). Since the image can express the objective psychology of the masses (Myers 1968), Crompton (1979) suggested that using images to guide images is the most effective method (Crompton 1979). Embacher and Buttle (1989) also pointed out that the regional image represents an individuals' personal thoughts and impressions (Embacher and Buttle 1989), so the image is not only transformed into the cognition of the masses, but also can be influenced by various means (Baloglu and McCleary 1999; Chon 1990; Gallarza et al. 2002; Prayag and Ryan 2012). Beerli and Martín (2004) extends the regional image to represent individuals, groups, knowledge, impressions, prejudice, and emotional performance of specific goals, by combining cultural and social attributes (Beerli and Martín 2004), or combining history, politics, economics, and other different aspects that have an impact (Gartner 1994). Therefore, the constituent elements of the regional image may mainly include social and cultural factors, projection factors, media factors, and mass-generated content factors (Gartner 1994; Jenkins 1999). These factors do have an irreplaceable influence on the formation of the regional image. Images that represent the regional image, whether figurative or abstract, provide hints of the mass audience's more targeted experience. The content delivered will also have an impact. For example, formal and informal content, communicated through the media or spoken language, will indirectly affect the comments and reactions of potential visitors.

After consolidating the current literature on the regional image, it is found that discussion has not been limited to the regional image concept (Gallarza et al. 2002), the regional image composition (Baloglu and McCleary 1999), and the regional image influence (Bigné et al. 2001; Echtner and Ritchie 1993). Significant research has been performed on the decision-making of the regional image to the masses (Heitmann 2011), and the survey of the differences in outcomes caused by the regional image (Goodrich 1978; Hosany et al. 2006). Further research on the online text of the regional image found that most of the research focused on the calculation and measurement of the regional image (Choi et al. 2007; Govers et al. 2007; Pan 2011; Stepchenkova and Morrison 2006), the test of regional image theory (Papathanassis and Knolle 2011), as well as regional image case analysis and measurement, etc. (Li et al. 2015). Most of the regional image online text measurement research used word processing software to process the online text information of the regional image,

and then determined the relationship between various word frequencies and regional image. In the field of cognitive psychology, many studies have attempted to distinguish between cognitive and emotional associations in different types of images (Burns et al. 1993). Images trigger multiple sensory perceptions, such as smell, hearing, touch, and taste, so images and human visual perceptions have complex interactions.

Among them, the presentation of the content of the regional image is more likely to attract the attention of the masses, and directly generate the perception and impression of the image (Mackay and Fesenmaier 1997). Since images can freely transform personal experiences and shape the unique image of the target (Chalfen 1979), images can be used to construct symbolic effects in memory by shaping the perception and imagination of the target (Haldrup and Larsen 2003) and providing a direct sensory response in the audience (Hum et al. 2011). In particular, images in social media can increase the familiarity and trust of specific targets for potential people (Trauer and Ryan 2005). It can be explained that images are like providing an ideology (Liesch 2011), so a visual analysis of online regional images will help managers grasp the respective dimensions of the image, such as text or image dimensions, abstract and figurative dimensions, etc. (Kim and Stepchenkova 2015; Pan et al. 2014). At the same time, this is combined with social media sharing, viewing, and message features (Vu et al. 2015), so as to promote content sharing (Lo et al. 2011; Stepchenkova and Zhan 2013), or social information analysis of image communication (Lo et al. 2011). Therefore, in addition to text, it is also important to include region image-assisted content presentation (Hancock and Toma 2009). Using symbolic representations of the content, image visualization can be performed to enhance the value of images in region dialogue (Hunter 2015). Matteucci used images to explore the perception of the regional image (Matteucci 2013), while Pennington compared online images generated by marketers of the same region to verify the need for image content for the regional image (Pennington and Thomsen 2010).

Unfortunately, there is currently little research on content targeting and regional images (Gallarza et al. 2002). Considering that today's information content is becoming more and more extensive, there is still a lack of research on the effect of multiple sources of information and different media types. Therefore, this study specifically refers to the influence research of the above regional image (Baloglu and McCleary 1999; Echtner and Ritchie 1991), and related research on social media, which rethinks the relationship between the regional image and social content (Baloglu and McCleary 1999; Pike 2002). Through content analysis applications, the regional image in text and images is more widely explored, and comprehensive measurement of text, image, or multimedia information is achieved.

## *2.2. Task Clues and Emotional Clues in Information*

The frequency of interaction between the masses and regional cultural creativities in social media often involves the reconciliation of information positioning (Animesh et al. 2011). The so-called reconciliation refers to whether the masses have the willingness to participate actively in social media, interpreting the information and indirectly reflecting the degree of region recognition of the masses (Jiang et al. 2010). Eroglu et al. suggested that common information cues can be divided into task cues and emotional cues, mainly by examining the level of demand for social cues (Eroglu et al. 2001; Parboteeah et al. 2009; Zhang 2013). This is because the degree of reference for the public is mainly influenced by task clues and emotional clues (Wang and Zhang 2012). Task clues represent the usefulness of information and the time the people take to process the information and make decisions (Parboteeah et al. 2009). Eroglu et al. verified the importance of information cognition for feedback, and the results confirmed that high cue clues and low cue clues have different effects on mass purchasing behavior (Eroglu et al. 2001). Parboteeah suggested that information cognition could assess the appropriateness of information presentation, such as the degree of visual or functional attraction. It was also found through experimental results that high-quality information clues could effectively increase the possibility of online impulse purchases (Parboteeah et al. 2009). In recent years, there have been many image studies turning to social media to collect data and explore the value of images in social media (Mariani et al. 2016; Molinillo et al. 2018). For example, Munar and Jacobsen obtained data

from TripAdvisor and Flickr to explore the interaction between time structure, communication scope, number of social threads and content richness (Munar and Jacobsen 2014). Clore et al.'s assessment of region awareness and sentiment found that the way people deal with social information affects the attitude and evaluation of subsequent messages (Clore et al. 2001; Schwarz et al. 1991).

Information cues are often used to enhance information cognition. For example, video may be used due to its strong visual attraction and relative ease in improving information understanding and response because of the high degree of information integrity (Loiacono et al. 2007). Therefore, the cognition and emotional response of the masses to visual elements can be used as a reference for judging whether the information meets the task (Eroglu et al. 2001). Language or content clues can reflect the degree of mastery of information (Zhang 2013), while emotional clues tend to be emotional in information (Zhang 2013). For example, music on video sites (Wu et al. 2008), images, or animated content, all have unique emotional clues (Chowdhury et al. 2008; Park et al. 2008), or elements that affect emotional processing (Zhang 2013), in order to make viewers have a pleasant experience (Eroglu et al. 2001). Visual elements, images, and videos enhance information performance and actively stimulate public sentiment (Parboteeah et al. 2009). Moreover, results show that information clues and emotional clues are complementary to each other. In addition to satisfying the information transmission, it is desirable to create a sense of happiness for viewers.

At present, there are many surveys and analyses related to content and emotions on the topic of social media. Most of the methods transform the original data into useful information and knowledge, and then interpret the data with appropriate techniques and methods (Abrahams et al. 2013). Among them, the classification of unstructured data is especially suitable for social media research. For example, Chen et al. suggest that keywords and high-frequency words are strong indicators for social media topics (Chen et al. 2013). Classification techniques for different topics also provide an unprecedented advantage for behavioral prediction (Chen and Liu 2004). Researchers and analysts can find with the optimal social media action by discovering research on social content issues (Barbier and Liu 2011). For example, He et al. used text mining to analyze the content and unstructured information of Facebook and Twitter in the three major US pizzerias, comparing the differences between the two social media platforms (He et al. 2013), and collecting social media data and data cleansing for text mining and content analysis. Key topics or classifications were explored and extracted from which important classification paths between data was found (He et al. 2013). At the same time, through the comparison and application of two different social media platforms, the content of the social media information was understood (He et al. 2013). Referring to the above literature, this study attempts to further expand the discussion of information clues and emotional clues. First, different types of regional cultural creativities are focused on, with an analysis of how their social information influences the masses. Then through the masses' perceptions, emotions, and behaviors, an information benefit evaluation is carried out with details, such as the presentation form and information frequency. Finally, the classification information is used to propose the cause of the behavior gap due to the difference between the text and the image content.

### **3. Research Model and Hypothesis**

#### *3.1. Textual Imagery and Graphic Imagery in the Regional Image*

The regional image has a considerable role in individuals' decision-making process (Baloglu and McCleary 1999; Beerli and Martín 2004), which directly affects the follow-up assessment and behavioral intentions of individuals. Current research defines the characteristics of the regional image in various ways. Gallarza et al. define the impression, perception, and feeling of the masses on the target (Gallarza et al. 2002; Zhang et al. 2014), which includes different levels of cognition, knowledge, thought, and emotion (Baloglu and McCleary 1999; Beerli and Martín 2004; Chew and Jahari 2014). Baloglu et al. assessed the effects of cognitive and emotional interactions by assessing cognition, emotion, and intention (Baloglu and McCleary 1999; Tseng et al. 2015). This model is also widely used as the

regional image theory framework for follow-up research. The theoretical framework mainly evaluates the relationship between cognitive impression and emotional impression (Chew and Jahari 2014). Cognitive impression refers to the cognition and knowledge about the target, which is related to the characteristics of the target. For example, the theme or symbol is based on the cognitive response of the regional image (Wang and Hsu 2010), while the emotional impression refers to the emotions and feelings felt by the public about the target, and the intention represents the future actions or intentions. These actions may involve different behavioral responses such as comments and actual participation (Gartner 1994). Gartner further proposes a hierarchical causal model, in which cognition affects emotions and intentions, and emotion also affects the depth of cognition. Cognitive and emotional components are interrelated and largely depend on the informational influence of cognitive sources (Baloglu and McCleary 1999), and the type or form of information is an important reason for guiding cognition (Beerli and Martín 2004; Li et al. 2010; Stern and Krakover 1993).

In addition, in research on regional images and emotional responses, Lee et al. particularly emphasized the perceived value in the regional image (Lee et al. 2005), especially for satisfaction (Prayag 2009) and the will to visit (the region). Intentions can have an impact (Chew and Jahari 2014). Tseng et al. further divided the composition of the regional image into three phases (Tseng et al. 2015). The first phase is mainly to induce and modify the induced image stage, which tends to be the basic construction of cognitive impressions (Gunn 1988). The second stage is the cognition during the perception by the public, which is transformed into the constructive emotional stage and intention in the emotional impression. This becomes the common theoretical framework of the follow-up regional image. In the third stage, the regional image is directly linked to the image positioning, and the interaction between the two is reviewed (Pike 2002). In reference to the above-mentioned theory of emotion and behavior, it is evident that the presentation of information and the impact of targeting on individuals are important, and regional cultural creativities are more focused on what kind of text or image content to set. Therefore, this study focuses on the cultural and creative art of the figurative (commodity) and the abstract (performance) cultural and creative art regional cultural creativities. The analysis of the text and image content of the region community may have different emotional impact and behavioral participation of the masses (Figure 1). The hypotheses are as follows:

**Hypothesis 1 (H1).** *Regional cultural creativities use the regional image for packaging, and its link post (LP, pure text) has an impact on the emotional and behavioral participation of the social masses.*

**Hypothesis 1a (H1a).** *Performance culture and its link post (LP) have an impact on emotional social participation.*

**Hypothesis 1b (H1b).** *Performance culture and its link post (LP) have an impact on the social participants' behavioral participation.*

**Hypothesis 1c (H1c).** *Merchandise culture and its link post (LP) have an impact on the emotional participation of social people.*

**Hypothesis 1d (H1d).** *Merchandise culture and creativity and its link post (LP) have an impact on the social participants' behavioral participation.*

**Hypothesis 2 (H2).** *Regional cultural creativities use the regional image for packaging, and their photo posts (PP, image and text) have an impact on the emotional and behavioral participation of social masses.*

**Hypothesis 2a (H2a).** *Performance culture creative photo posts (PP) have an impact on the emotional participation of social masses.*



**Hypothesis 2b (H2b).** Performance culture and its photo posts (PP) have an impact on the social participants' behavioral participation.

**Hypothesis 2c (H2c).** Merchandise culture creative photo posts (PP) have an impact on the emotional participation of social masses.

**Hypothesis 2d (H2d).** Merchandise culture and creativity and its photo posts (PP) have an impact on the social participants' behavioral participation.

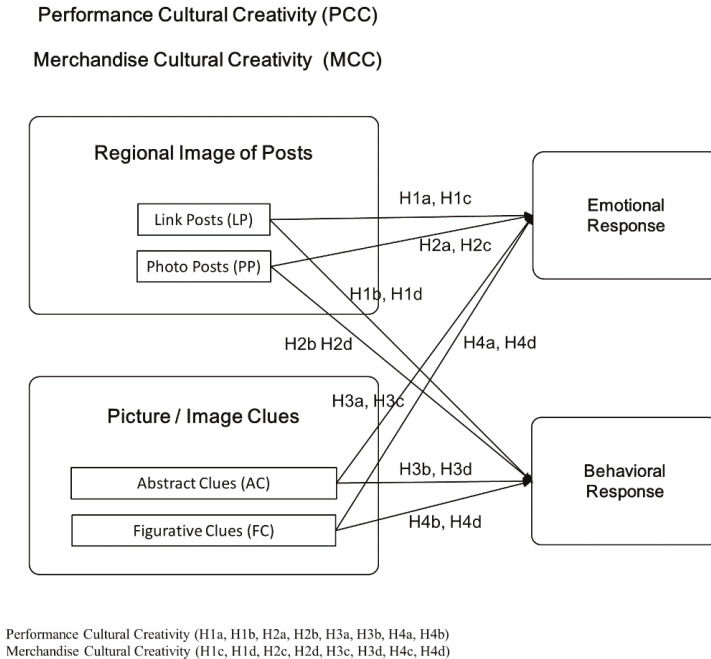


Figure 1. Extended research model.

### 3.2. Abstract Clues and Figurative Clues in Image Information

According to the current research related to information, social postings have different information characteristics. For example, Rauschnabel et al. (2012) classify social content with different characteristics, such as text frequency, media elements (such as images), and perception surveys (Rauschnabel et al. 2012). De Vries et al. used six common functions in addition to content, distinguishing the possibility of features that guide reading, such as posting on the page, as well as using the reaction after reading. These investigators suggested that interactive, information rich, vivid, and interesting content is critical (De Vries et al. 2012). In addition, based on the psychological model (Hansen 1976), the posting can be classified into different forms such as cognitive information, emotional information, and service information (De Vries et al. 2012).

Regardless of the type of information, its image will undoubtedly affect reactions to the image (Mehrabian and Russell 1974). From prior studies discussing e-commerce, it is evident that information has a positive impact on the perception of the masses (Parboteeah et al. 2009). The diversified information is easy to satisfy public region curiosity, and may even provide greater entertainment for people (Muniz and O'Guinn 2001). Of course, if the integrity of the information is higher, the probability of achieving the task will be relatively higher, and the emotional response of the group will also increase

(Nambisan and Baron 2007). For example, Animesh et al. have confirmed that abstract information helps to construct entertainment value, and the more clearly information is positioned, the easier it is for people to have a pleasant experience (Animesh et al. 2011; Schau et al. 2009). Therefore, after reference to the information and reaction-related literature (Heijden et al. 2003; Parboteeah et al. 2009), this study presumes that image information can indeed drive people to generate emotional or behavioral responses. However, the focus needs to be on the assessment of informational content, i.e., whether there is a difference in participation due to the representation or abstraction of the presentation. The classification proposed in this study is based on using image analysis technology for the visual elements in the content, exploring the concrete task clues and abstract emotional clues, and the differences in the emotions and intentions of the recipients. The hypotheses are as follows:

**Hypothesis 3 (H3).** *The information content of the regional cultural creativity presents images of abstract (feeling) clues, which have an impact on the emotional and behavioral participation of social masses.*

**Hypothesis 3a (H3a).** *The content of performance culture and creativity presents images of abstract (feeling) clues, which have an impact on the emotional participation of social masses.*

**Hypothesis 3b (H3b).** *The content of performance culture and creativity presents images of abstract (feeling) clues, which have an impact on the behavioral participation of social masses.*

**Hypothesis 3c (H3c).** *The content of merchandise culture and creativity presents images of abstract (feeling) clues, which have an impact on the emotional participation of social masses.*

**Hypothesis 3d (H3d).** *The content of merchandise culture and creativity presents images of abstract (feeling) clues, which have an impact on the behavioral participation of social masses.*

**Hypothesis 4 (H4).** *The information content of the regional cultural creativity presents images of figurative (task) clues, which have an impact on the emotional and behavioral participation of social masses.*

**Hypothesis 4a (H4a).** *The content of performance culture and creativity presents images of figurative (task) clues, which have an impact on the emotional participation of social masses.*

**Hypothesis 4b (H4b).** *The content of performance culture and creativity presents images of figurative (task) clues, which have an impact on the behavioral participation of social masses.*

**Hypothesis 4c (H4c).** *The content of merchandise culture and creativity presents images of figurative (task) clues, which have an impact on the emotional participation of social masses.*

**Hypothesis 4d (H4d).** *The content of merchandise culture and creativity presents images of figurative (task) clues, which have an impact on the behavioral participation of social masse.*

#### 4. Research Methodology

Social Media Content Exploration (SMCM) refers to collecting social media platform content, text, or data (He et al. 2013), including text mining, to explore models or trend relationships. SMCM refers to using content mining to capture images, videos, relevant information, or data, such as multimedia, and discussing data processing of non-text structures (Kaplan and Haenlein 2010). An example is using Facebook tools and technology to collect and filter social media content (Fayyad et al. 1996; Liu and Park 2015). The development of social media has continually led to an in-depth analysis of content exploration (Zeng and Gerritsen 2014). First, through an application programming interface (API), data and information in social media are extracted. Then data filtering, storage, and analysis is

performed with meaningful information extracted for interpretation based on the analysis of data results (Filiari and McLeay 2014). The SMCM application provides a variety of social content characteristics recognition patterns that understand the causes and meanings of human behavior in terms of functions, information, and themes. Qualitative and quantitative analysis is carried out as a basis for judging the trend of unstructured content. Social media data can be collected in an instant, thus allowing managers to react quickly and relocate resources. SMCM uses tools, such as collection, exploration, and visualization, to detect and analyze social media data (Tang and Yang 2017). Regardless of the use of manual modeling or computational techniques for semi-automatic modeling, SMCM is one of the most common methods (Chanana et al. 2004). Therefore, it is often used in theoretical research on social content or through text mining to explore the relationship with the public based on content attributes (He et al. 2013; Chandrasekaran et al. 1999).

The implementation of social media content exploration in this study is described below. First, the application program (API) is used to extract data from social media, then information and data collation, integration, and storage are executed. Finally, the image analysis technology “Jumputuit” of Google Cloud Vision is used to automatically detect the image elements, such as characters and objects in images or films, which includes optical character recognition, interactive label detection, document text detection, face detection, web detection, and logo detection. Then, these data are automatically classified and integrated in the database through machine learning. Moreover, the application of artificial intelligence technology, combined with image analysis and machine learning technology, can analyze the facial expressions and emotions of the portrait according to the category of search. In order to integrate the needs of region image research, web detection and logo detection are especially adopted to analyze the collected community images, and then filter and integrate the important analysis results.

The Cloud Gate Dance Theater and Green-in-hand are two of the few cultural and creative institutions authorized and promoted by the Executive Yuan and the Ministry of Culture. Therefore, its brand image and popularity are highly recognized by the government and the public. According to our observations, this institution is also more active in community content planning and interaction with the audience. Therefore, given that it is easier to obtain sufficient data sources for this institution, samples from the Cloud Gate Dance Theater and Green-in-Hand were selected for analysis in this study. Previously, the issue considered in this study was tested with a 2018 posts. However, it was found that the test results were not significant due to the small number of posts, so it was decided to increase the time range of the posts under consideration. Since 2011, the tested samples began to have a relatively stable frequency of postings. Therefore, it was decided to collect all the post materials from 2011 to 2018 on a yearly basis. Using a stable post frequency and the largest number of fans, a social media content analysis was performed for both Taiwan’s Cloud Gate Dance Theater and Green-in-hand, two different regional cultural creativities. We collected all user page content for the period 1 January 2011 to 31 December 2018, and the number of user comments for each post. There were a total of 4784 posts. Of the posts, 1299 were links, and 3485 had photo content. Of the interactions, there were 921,487 Likes, 11,861 Comments, and 69,661 Shares. Of the emotional responses, there were 7558 for Love, 674 for Haha, 1080 for Wow, 583 for Sorry, and 20 for Anger (Table 1).

Table 1. Total number of posts.

	Post (N)	Likes	Comments	Shares	Behavioral Participation	Love	Haha	Wow	Sorry	Anger	Emotional Participation	
<b>Artist positioning brands (AP)</b>												
Link post	910	39,428	1098	3498	44,934	365	83	177	22	9	656	
Photo post	4052	343,965	7802	22,632	378,451	3161	1312	1323	95	25	5916	
<b>Ordinary people positioning brands (OP)</b>												
Link post	738	198,371	3706	14,011	216,826	1105	431	1078	81	31	2726	
Photo post	5476	2,195,549	27,449	68,587	2,297,061	5856	4137	3033	620	193	13,839	
Sum	11,176	2,777,313	40,055	108,728	2,937,272	10,487	5963	5611	818	258	23,137	

## 5. Data Analyses and Results

### 5.1. Reliability and Validity

In this study, factor analysis was performed to assess the reliability and effectiveness of the data. The KMO value obtained in this study was 0.741, with Cronbach's  $\alpha$  being found as 0.722. The factor load is close to or higher than 0.7, indicating good convergence and discriminant validity. Two statistical analyses, namely simple correlation analysis and linear regression analysis, were performed in this study. In addition, this study conducted multiple tests to examine the correlation between independent variables. A variance inflation factor (VIF) exceeding 10 indicates multiple collinearity problems. In this study, the value of VIF is exclusively lower than 10, indicating that there was no multicollinearity.

### 5.2. Hypothesis Testing

First, we tested Hypothesis 1, that regional cultural creativities use the regional image for packaging, and its link post (LP, pure text) (Table A1), has an impact on the emotional and behavioral participation of the social masses. Of these, H1a, performance culture and its link post (LP), and H1c, merchandise culture and its link post (LP), having impacts with the emotional participation of social media users, are partially supported. H1b, performance culture and its link post (LP) having an impact on the social participants' behavioral participation, is also partially supported. However, H1d, merchandise culture and creativity and its link post (LP) having an impact on the social participants' behavioral participation, is marginally supported.

Second, we tested Hypothesis 2, that regional cultural creativities use the regional image for packaging, and their photo posts (PP, image and text) have an impact on the emotional and behavioral participation of social masses. It was found that H2b, performance culture creative photo posts (PP), and H2d, merchandise culture and creativity and its photo posts (PP), having impacts with the behavioral participation of social media users, are supported. H2a, performance culture creative photo posts (PP) having an impact on the emotional participation of social masses, is also supported. However, H2c, merchandise culture creative photo posts (PP) having an impact on the emotional participation of social masses, is partially supported

Next, we tested Hypothesis 3, that the information content of the regional cultural creativity presents images of abstract (feeling) clues, which have an impact on the emotional and behavioral participation of social masses. The results show that H3a, the content of performance culture and creativity presents images of abstract (feeling) clues, and H3c, the content of merchandise culture and creativity presents images of abstract (feeling) clues, having impacts with the emotional participation of social media users, are both marginally supported. H3b, the content of performance culture and creativity presents images of abstract (feeling) clues, and H3d, the content of merchandise culture and creativity presents images of abstract (feeling) clues, all having impacts with the emotional participation of social media users, are supported.

Finally, we tested Hypothesis 4 that the information content of the regional cultural creativity presents images of figurative (task) clues, which have an impact on the emotional and behavioral participation of social masses. H4a, the content of performance culture and creativity presents images of figurative (task) clues, which have an impact on the emotional participation of social masses, is partially supported. H4b, the content of performance culture and creativity presents images of figurative (task) clues, which have an impact on the behavioral participation of social masses, is supported. However, H4c, the content of merchandise culture and creativity presents images of figurative (task) clues, which have an impact on the emotional participation of social masses, and H4d, the content of merchandise culture and creativity presents images of figurative (task) clues, which have an impact on the behavioral participation of social masses, are both marginally supported (Table 2).

**Table 2.** Summary of findings.

ID	Hypothesis	Verdict
H1.	The link posts (LP, pure text) have an impact on the emotional and behavioral participation of people.	
H1a.	The link posts (LP) of “artist” positioning have an impact on the emotional participation of people.	Marginally supported
H1b.	The link posts (LP) of “artist” positioning have an impact on the behavioral participation of people.	Marginally supported
H1c.	The link posts (LP) of “ordinary people” positioning have an impact on the emotional participation of people.	Partial supported
H1d.	The link posts (LP) of “ordinary people” positioning have an impact on the behavioral participation of people.	Partial supported
H2.	The photo posts (PP, image and text) have an impact on the emotional and behavioral participation of people.	
H2a.	The photo posts (PP) of “artist” positioning have an impact on the emotional participation of people.	Supported
H2b.	The photo posts (PP) of “artist” positioning have an impact on the behavioral participation of people.	Supported
H2c.	The photo posts (PP) of “ordinary people” positioning have an impact on the emotional participation of people.	Supported
H2d.	The photo posts (PP) of “ordinary people” positioning have an impact on the behavioral participation of people.	Supported
H3.	The abstract implication (emotional) pictures have an impact on the emotional and behavioral participation of people.	
H3a.	The abstract implication (emotional) pictures of “artist” positioning have an impact on the emotional participation of people.	Marginally supported
H3b.	The abstract implication (emotional) pictures of “artist” positioning have an impact on the behavioral participation of people.	Supported
H3c.	The abstract implication (emotional) pictures of “ordinary people” positioning have an impact on the emotional participation of people.	Partial supported
H3d.	The abstract implication (emotional) pictures of “ordinary people” positioning have an impact on the behavioral participation of people.	Supported
H4.	The concrete implication (missionary) pictures have an impact on the emotional and behavioral participation of people.	
H4a.	The concrete implication (missionary) pictures of “artist” positioning have an impact on the emotional participation of people.	Supported
H4b.	The concrete implication (missionary) pictures of “artist” positioning have an impact on the behavioral participation of people.	Supported
H4c.	The concrete implication (missionary) pictures of “ordinary people” positioning have an impact on the emotional participation of people.	Partial supported
H4d.	The concrete implication (missionary) pictures of “ordinary people” positioning have an impact on the behavioral participation of people.	Supported

## 6. Discussion and Implications

### 6.1. Discussion of Findings

This research produced some interesting findings. The results show that the planning of the contents of the social media pages of the regional cultural creativities significantly affected the users' emotional responses to the content and behavioral participation (Figure 2).

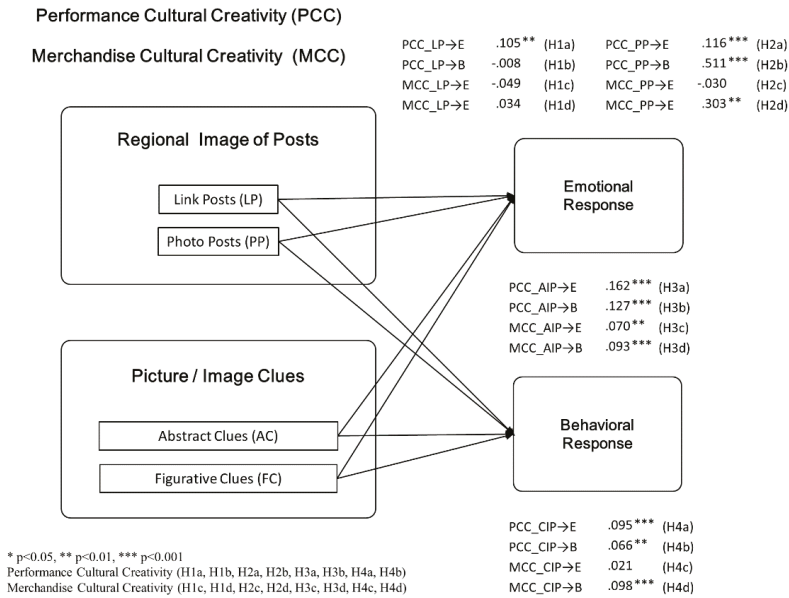


Figure 2. Model results.

First, we tested Hypothesis 1, that the image of regional cultural creativities with link posts (LP, pure text), have an impact on the emotional and behavioral participation of people. For the emotional participation of users, the performance culture and its link post (LP) had values of  $\beta = 0.104$ ,  $t = 3.097$ , and  $p < 0.001$ , and the behavioral participation of users had values of  $\beta = -0.008$ ,  $t = -0.242$ . For the emotional participation of users, the merchandise culture and its link post the LP had values of  $\beta = -0.049$ ,  $t = -1.022$ , and the behavioral participation of users had values of  $\beta = 0.034$ ,  $t = 0.707$ . All three regional cultural creativities have statistically significant results.

Second, we tested Hypothesis 2, that the image of regional cultural creativities with photo posts (PP, image and text), have an impact on the emotional and behavioral participation of people. For the emotional participation of users, the performance culture creative photo posts (PP) had values of  $\beta = 0.115$ ,  $t = 4.810$ , and  $p < 0.001$ , and the behavioral participation of users had values of  $\beta = -0.155$ ,  $t = -6.487$ , and  $p < 0.001$ . For the emotional participation of users, the merchandise culture creative photo posts (PP) had values of  $\beta = -0.079$ ,  $t = -3.359$ , and  $p < 0.005$ . All three regional cultural creativities have statistically significant results.

Next, we tested Hypothesis 3, that the image of regional cultural creativities with the abstract implication (emotional) pictures, have an impact on the emotional and behavioral participation of people. For the emotional participation of users, the content of performance culture and creativity presents images of abstract (feeling) clues had values of  $\beta = 0.162$ ,  $t = 6.765$ , and  $p < 0.001$ , and the behavioral participation of users had values of  $\beta = 0.127$ ,  $t = 5.291$ , and  $p < 0.001$ . For the emotional participation of users, the content of merchandise culture and creativity presents images of abstract (feeling) clues had values of  $\beta = 0.069$ ,  $t = 2.962$ , and  $p < 0.005$ , and the behavioral participation of users had values of  $\beta = 0.092$ ,  $t = 3.925$ , and  $p < 0.001$ . All three regional cultural creativities have statistically significant results.

Finally, we tested Hypothesis 4, that the image of regional cultural creativities with the concrete implication (missionary) pictures, have an impact on the emotional and behavioral participation of people. In terms of the emotional participation of users, the content of performance culture and creativity presents images of figurative (task) clues had values of  $\beta = 0.094$ ,  $t = 3.914$ , and  $p < 0.001$ , and

the behavioral participation of users had values of  $\beta = 0.066$ ,  $t = 2.740$ , and  $p < 0.01$ . For the emotional participation of users, the content of merchandise culture and creativity presents images of figurative (task) clues had values of  $\beta = 0.020$ ,  $t = 0.878$ , and the behavioral participation of users had values of  $\beta = 0.097$ ,  $t = 4.154$ , and  $p < 0.001$ .

## 6.2. Theoretical Implications and Limitations and Future Research

The results of this study found that, first of all, pictures with text could elicit better emotional and behavioral responses (Tables A2 and A3). Especially for abstract cultural ideas of expression classes, image-type posts have a significant relationship in terms of emotions. The figurative cultural creativity of goods, using images, can produce significant results in behavioral responses, such as message or sharing. Therefore, in regards to the information clues and emotional reactions, we find that the most common emotion caused by cultural creative powder is Love, followed by Haha and Wow. In particular, the emotional response of the graphic form will be greater than the simple text content. The reason is that the information in graphic form is the most direct and the most informative, so it is the easiest to stimulate the understanding and input of the masses (Keller 1993).

Secondly, whether it is performance culture or commodity culture, if the image content contains a smile, there will be obvious significant results in the interactive results of the sharing. Further examination of the emotional response reveals that performance-based cultural creativity has results that are more significant for Wow and Sorry in terms of emotions, while commodity-based cultural creativity tends to favor positive emotions, such as Love and Haha. This shows that mastering the characteristics of two completely different regional cultural creativities can indeed lead the public to respond more effectively to the corresponding emotions. Information clues are the benchmarks for the masses to judge the image. Emotional clues are opinions or likes and dislikes that the masses have on the image based on the content received. The masses interpret different regional cultural creativities (Netemeyer et al. 2004) for informational experience, such as region knowledge, region feedback and region impressions, etc. (D. A. Aaker 1996).

Finally, this study analyzed the abstract and figurative imagery of the image, and found that the performance culture has achieved remarkable results due to its abstract image and the region name or performance image in the emotional clue (Tables A4–A6). Commodity culture and creativity are also based on the characteristics of the region. The more obvious the region symbol for the image clues presented by the information clues, the easier it is to have dialogue with the public, resulting in feedback behavior, such as Likes and Shares, as well as a performance culture. Therefore, understanding the region characteristics and presenting the figurative or abstract representation of the image is the key to content marketing. When the public experiences social media, they immediately respond to the acceptance of the social information, and reflect their satisfaction in emotions and behaviors (Jiang et al. 2010). Therefore, consistent with previous studies, it is confirmed that entertainment is a key factor influencing social behavior (Lin and Lu 2011; Sledgianowski and Kulviwat 2009). This is because information rich in entertainment elements is more likely to trigger positive comments from the masses and even stimulate a higher likelihood of individuals' revisiting (Raney et al. 2003).

This study suggests that the graphical information and social content management of regional cultural creativities can be evaluated for the following three points.

First, regardless of any type of region, it is important for text to match images for social content, so that informational clues can effectively match emotional clues and improve the efficiency of information dissemination.

Second, the regional cultural creativity of the performance type can use graphic and textual communication for emotional clues, and the cultural creativity of the commodity type can enhance the figurative region or product information according to its own figurative characteristics, so that the visual and region image are consistent. This enhances communication skills.

Third, if you want to enhance the expression of human nature, you can try to add a portrait or a smiling face. According to the image analysis results of this study, it can be seen that the presentation



of smiley symbols has a significant auxiliary effect on the positive emotions of the masses and the willingness to share content.

### *6.3. Academic Contribution/Practical Contribution*

On the academic level, this study has the following contributions.

This study first verifies that the regional image is consistent with the social image location. The regional image reflects the degree of influence and informational experience (Kent and Allen 1994). The key is whether information associations can be evoked in individuals' memory and become the interpretation adopted by the public. Familiar information is clearly easier to recall than unfamiliar. Therefore, the information-familiar and visually relevant hypothesis model has been specifically demonstrated in advertising images and memory recall studies (Campbell and Keller 2003). Whether it is from information organization theory or information processing-related research, it has been repeatedly shown that information familiarity is highly correlated with memory recall (Campbell and Keller 2003). The complete and clear content of the clues can preserve more powerful region memories and make it easier to activate memories for region links (Kent and Kellaris 2001).

Second, the information cues results found that information cues could be organized into region personalities through any direct or indirect contact (Plummer 1985). It is generated through different marketing programs, such as product-related attributes, prices, advertisements, etc. (Batra et al. 1993), and further becomes a region identity (Fournier 1998). Of course, information can also be used to motivate the masses to act (Fournier 1998). Cognition not only represents the beliefs and ideas of the masses, but also represents their emotional responses (Bagozzi 1978). In general, emotional or behavioral responses are often seen as the basis for information location (Srull and Wyer 1989) and can be effectively used as the primary analytical tool for social content.

Third, emotional clues can evoke emotions and self-expression (Donahay and Rosenberger 2007), which are seen as important clues to region emotions (Freling and Forbes 2005). The emotional identity of the region can be used to check the integrity of the image information in the regional image (Baloglu and McCleary 1999), for example, whether the figurative or abstract elements in the image can be clearly conveyed. The emotional identity is a key factor that may also affect the subjective formation.

In addition, two primary contributions result from this study.

First, this study validates the importance of information cue and emotional cue models for region images, and changes with figurative and abstract perceptions (Keller 2001). Social media provides marketers with the opportunity to increase region exposure, and it is necessary to strengthen the region image to enhance the region knowledge of the masses. Regional cultural creativities and people communicate with each other without time, place, or media restrictions, forming a two-way interaction between the public and regional cultural creativities (Vargo and Lusch 2008). Communication cannot only enhance image and mass relationships (Kim and Ko 2012), the active participation of the public will also affect the content participation and perceived value by the public (Christodoulides et al. 2012). Therefore, frequent information experience and communication, region associations and attitudes towards the public will have a positive impact (D. A. Aaker 1991). In particular, based on image information, social media activities are continuously constructed to reduce misunderstandings and prejudice against regional cultural creativities and, thus, enhance positive value in regional cultural creativities through information exchange (Kim and Ko 2012).

Second, this study used experiments to measure the public after receiving the information, to assess the interaction between the public and different regional cultural creativities, to examine why the media information is out of balance with the needs of the public, and to verify the importance of using informational clues to influence public participation (J. L. Aaker 1997). It is recommended that managers stimulate the public to generate region identity and participation by strengthening information with emotional content. Moreover, in terms of the special type of fan page data calculation, the enhanced behavioral response of Comment and Share will be better than Likes. The efficient use of information leads to effective interactions, raising people's message and sharing behaviors, and stimulating the

further reach of content (Hoyer et al. 2010). In addition, this study also provides a conceptual framework for understanding how different forms of information, in regards to social management of existing regional cultural creativities, leads to varying levels of participation. Understanding the form of information is a key factor in the acceptance of information by the public. It is a reminder for cultural and creative institutions of the importance of text and images, and figurative and abstract information planning in social content.

#### *6.4. Research Limitations and Recommendations*

A primary research limitation lies in the classification method of information clues. The method used only uses Facebook's existing link form posts and image type posts, and the analysis results are inevitably limited. In the future, we expect relevant research to be able to target more detailed categories, such as announcement-type information, promotional information, or interactive information, etc., to determine what information the region should provide in order to more easily respond to today's changing needs.

Secondly, in view of the application of images in the cultural and creative industries, it must be considered that the culture is composed of many complex beliefs, values, and ideas, resulting in differences in attitudes and approaches. Therefore, communication strategies and region statements in cultural creativity should be chosen as a communication tool that easily extends the impression and creates benign communication (Harvey 1993; Mueller 1992). It is also encouraged to attempt to analyze image-specific image positioning (Sriram and Gopalakrishna 1991), combining cultural creative features with social image content exploration as an important operational tool (Dunn 1976). According to different media characteristics, different levels of element cutting are better for the information needs of the public (Green et al. 1975; Pollay 1986).

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Appendix A. Measurement and Items

Table A1. Total number of text frequencies and implication frequencies.

Text Frequencies of Photo Post			Artist Positioning Brands (AP)			Ordinary People Positioning Brands (OP)			Text Frequencies of Link Post			Implication Frequencies of Picture			Text Frequencies of Photo Post			Text Frequencies of Link Post			Implication Frequencies of Picture		
N	Text Frequencies of Photo Post	N	Text Frequencies of Link Post	N	Implication Frequencies of Picture	N	Text Frequencies of Photo Post	N	Text Frequencies of Link Post	N	Implication Frequencies of Picture	N	Text Frequencies of Photo Post	N	Text Frequencies of Link Post	N	Implication Frequencies of Picture	N	Text Frequencies of Photo Post	N	Text Frequencies of Link Post	N	Implication Frequencies of Picture
6428	Huashan	1747	Huashan	1828	design product	4708	Barge two art	1828	Barge two art	4708	design product	642	Barge two art	1828	Barge two art	4708	design product	642	Barge two art	1828	Barge two art	4708	design product
3131	Http activity	1244	Http activity	976	art	4312	warehouse design	976	warehouse design	4312	art	546	art	976	warehouse design	546	art	976	warehouse design	976	warehouse design	976	art
2855	time	795	Goo.gl	847	Creative park	2067	Wenchuang Report time	719	Wenchuang Report time	2067	art	476	Kaohsiung	847	Kaohsiung	476	product font	476	Kaohsiung	847	Kaohsiung	476	product font
2003	Kyrgyzstan	481	Wenchuang	667	Huashan	2001	Report time	667	Wenchuang	2001	park	981	center	2947	Http	981	font	2947	Http	2947	Http	2947	center
1492	art	462	Report time	576	Huashan	1492	art	576	Wenchuang	1492	Huashan	829	Pier2	2297	we	829	center	2297	we	2297	we	2297	center
1491	life	451	Taiwan	538	tree	1491	life	538	Wenchuang	1491	Huashan	760	Pier2	1826	warehouse	760	center	1826	warehouse	1826	we	760	center
1314	Show Park	435	Taiwan	448	illustrator	1269	we	448	Wenchuang	1314	tree	708	Graphic Brand	1748	everyone	708	Pier2	1748	warehouse	1748	we	708	center
1208	we	426	design art	402	Graphic house	1208	we	402	Wenchuang	1208	illustrator	526	Brand	1700	artist	526	Graphic Brand	1700	warehouse	1700	we	526	center
1191	Taiwan location	380	design Park	389	house sky	1191	we	389	Wenchuang	1191	Graphic house	518	illustrator	1691	Erbo can	518	Brand	1691	warehouse	1691	we	518	center
1151	everyone exhibition	346	Sign up life	379	sky Brand	1151	life	379	Wenchuang	1151	house sky	504	tree	1570	exhibition	504	illustrator	1570	warehouse	1570	we	504	center
1144	Googl	343	location	282	advertising Street	1144	life	282	Wenchuang	1144	Brand	412	computer	1426	time	412	tree	1426	warehouse	1426	we	412	center
1084	Wenchuang	339	we	258	Public computer	1084	we	258	Wenchuang	1084	advertising Street	398	street	1268	together	398	computer	1268	warehouse	1268	we	398	center
1051	design together	301	share it Creative	255	music	1051	we	255	Wenchuang	1051	advertising Street	378	city	1267	Design section	378	computer	1267	warehouse	1267	we	378	center
943	Exhibition on site	287	everyone Brand	204	line poster	943	we	204	Wenchuang	943	music	360	poster	1227	Google youth	360	design	1227	warehouse	1227	we	360	center
889	Sign up date	277	can exhibition	187	Roof Performing	889	we	187	Wenchuang	889	line poster	347	line	1175	Barge two art	347	poster	1175	warehouse	1175	we	347	center
819	friend creation	248	More jobs	171	area Human	819	we	171	Wenchuang	819	Roof Performing	306	Public group	1063	Refuting art	306	line	1063	warehouse	1063	we	306	center
786	Experience limited	242	Own Exhibition	165	square square	786	we	165	Wenchuang	786	area Human	285	museum culture	963	creation	285	museum	963	warehouse	963	we	285	center
730	can Brand	240	creation culture	159	Facade architecture	730	we	159	Wenchuang	730	square square	260	Logo Tourism	959	Taiwan location	260	culture	959	warehouse	959	we	260	center
715	Brand Creative	234	limited together	156	Interior photography	715	we	156	Wenchuang	715	Facade architecture	258	film	927	Creative jobs	258	Logo Tourism	927	warehouse	927	we	258	center
691	Market One	230	Creative park	154	space cartoon	691	we	154	Wenchuang	691	Interior photography	255	light	883	works	255	film	883	warehouse	883	we	255	center
685	course Own	229	together Reading	149	flower Exhibit	685	we	149	Wenchuang	685	space cartoon	247	Pier2	869	works	247	light	869	warehouse	869	we	247	center
666	course Own	218	Reading illustration	146	Image taipei	666	we	146	Wenchuang	666	flower Exhibit	228	Yellow square	862	Administration	228	Pier2	862	warehouse	862	we	228	center
652	One day story	204	Reading Huashan	144	Facebook taipei	652	we	144	Wenchuang	652	Image taipei	226	Photograph artist	853	Big meaning	226	Yellow square	853	warehouse	853	we	226	center
629	jobs works	199	Show Huashan	138	Facebook taipei	629	we	138	Wenchuang	629	Image taipei	221	Photograph artist	847	News More	221	Yellow square	847	warehouse	847	we	221	center
611	works Rihuashan	195	Taipei story	137	Photograph culture	611	we	137	Wenchuang	611	Facebook taipei	213	Photograph artist	826	One Kaohsiung City course	213	Yellow square	826	warehouse	826	we	213	center
602	story Rihuashan	190	story	136	culture	602	we	136	Wenchuang	602	Photograph culture	211	Human Desktop	802	photography	211	Yellow square	802	warehouse	802	we	211	center

Table A1. Cont.

Text Frequencies of Photo Post		Artist Positioning Brands (AP)					Ordinary People Positioning Brands (OP)					IMPLICATION	
N	Text Frequencies of Link Post	N	Frequencies of Picture	N	Text Frequencies of Photo Post	N	Text Frequencies of Link Post	N	Frequencies of Picture	N	Frequencies of Picture	N	
593	invite	190	text	133	Taiwan	799	Ticket sales	77	Text	206	Text	206	
588	Market	181	Wallpaper	132	life	740	culture	76	Bureau	202	Bureau	202	
585	date	181	group	130	Market	719	remember	76	Government	193	Government	193	
583	works	177	Desktop	126	Design section	697	Through	76	Pattern	190	Pattern	190	
582	music	173	Lecture	125	Nowadays	693	space	73	Government	184	Government	184	
580	Taipei	166	Pattern	119	Contemporary	666	Purchase tickets	72	Government	184	Government	184	
578	friend	165	behavior	116	Penglai	659	what	71	Government	183	Government	183	
576	Curation	164	dance	116	Resident in the village	650	share it	71	Government	178	Government	178	
555	workshop	162	Logo	115	the film	649	friend	71	Image	177	Image	177	
536	industry	162	food	114	One	638	wristband	70	service	177	service	177	

Appendix B. The Results of Independent Sample t Test and Linear Regression

Table A2. The results of independent sample t test (artist positioning (AP)).

	Huashan		Wenchuang				Art				Design				Park				
	F	p-Value	t-Value	p-Value	F	p-Value	t-Value	p-Value	F	p-Value	t-Value	p-Value	F	p-Value	t-Value	p-Value			
	Artist positioning (AP)_link post																		
Comments	2.334	0.127	-0.704	0.482	4.325	0.038	-1.136	0.256	1.369	0.242	0.504	0.615	0.063	2.119	0.146	-0.856	0.399	0.020	0.984
Shares	0.092	0.762	-0.199	0.842	2.744	0.098	-0.974	0.330	2.977	0.085	0.962	0.336	2.119	0.146	-0.896	0.370	0.309	-0.463	0.643
Behavioral	1.601	0.206	-0.620	0.536	4.322	0.038	-1.175	0.281	2.257	0.133	1.048	0.296	0.281	0.596	-0.409	0.662	0.436	0.011	0.991
Love	0.004	0.947	0.224	0.823	0.040	0.842	-0.008	0.993	0.677	0.411	0.652	0.514	0.600	0.439	0.707	0.480	0.540	0.879	0.380
Haha	5.477	0.019	1.941	0.053	3.495	0.062	-0.954	0.340	2.424	0.120	-0.784	0.433	0.895	0.344	-0.491	0.623	2.678	0.102	0.850
Wow	0.706	0.401	0.453	0.651	8.613	0.003	-1.936	0.053	2.159	0.142	-0.720	0.472	0.162	0.688	-0.219	0.827	0.088	0.767	0.380
Sorry	6.320	0.012	-0.898	0.370	6.517	0.011	-1.635	0.103	1.073	0.300	0.524	0.600	4.797	0.029	-1.956	0.051	1.897	0.169	0.689
Anger	13.740	0.000	-1.524	0.129	2.259	0.133	-0.749	0.454	30.519	0.000	1.771	0.078	0.071	0.789	0.136	0.892	1.958	0.162	0.698
Emotional	0.315	0.574	0.566	0.571	5.344	0.021	-1.522	0.128	0.415	0.520	-0.181	0.857	0.110	0.741	-0.049	0.961	0.220	0.639	0.987
Artist positioning (AP)_photo post																			
Comments	22.164	0.000	-1.263	0.207	41.527	0.000	-9.083	0.000	5.853	0.016	-2.351	0.019	46.530	0.000	-10.673	0.000	20.767	0.000	-5.417
Shares	4.335	0.037	-0.970	0.332	0.496	0.481	0.343	0.731	15.501	0.000	1.236	0.217	4.335	0.033	-3.412	0.001	2.093	0.148	0.939
Behavioral	11.474	0.001	-1.075	0.282	3.268	0.071	-1.190	0.234	0.212	0.645	-0.062	0.958	6.328	0.012	-4.004	0.000	0.145	0.703	0.825
Love	0.503	0.478	0.813	0.416	2.470	0.116	-0.953	0.341	1.849	0.174	0.422	0.673	39.253	0.000	-10.190	0.000	14.141	0.000	-4.502
Haha	1.087	0.297	0.541	0.589	12.332	0.000	-3.192	0.001	6.167	0.013	-1.694	0.090	7.976	0.005	-2.997	0.036	0.526	0.468	0.680
Wow	1.199	0.273	0.678	0.498	3.241	0.072	-1.022	0.307	3.276	0.070	0.835	0.404	3.940	0.047	-2.544	0.011	9.071	0.003	-2.283
Sorry	2.224	0.136	-0.747	0.455	7.064	0.008	-1.806	0.071	25.253	0.000	-4.683	0.000	10.434	0.001	-2.660	0.008	0.438	0.598	0.745
Anger	1.040	0.308	-0.515	0.607	12.819	0.000	1.312	0.190	2.152	0.142	-0.733	0.464	2.935	0.087	0.864	0.388	26.659	0.000	1.980
Emotional	0.626	0.429	0.796	0.426	6.532	0.011	-2.465	0.014	0.513	0.474	-0.025	0.980	7.002	0.008	-3.158	0.002	2.550	0.110	-0.871

Table A3. The results of independent sample t test (ordinary people positioning (OP)).

	Pier2			Art			Kaohsiung			Design			Exhibition					
	F	p-Value	t-Value	p-Value	t-Value	F	p-Value	t-Value	p-Value	t-Value	F	p-Value	t-Value	F	p-Value	t-Value	p-Value	
Ordinary people positioning (OP)_link post																		
Likes	0.087	0.768	-0.196	0.845	6.221	0.013	-2.186	0.029	2.218	0.137	1.395	0.163	12.334	0.000	-4.484	0.000	8.163	0.000
Comments	0.921	0.338	0.284	0.776	8.614	0.003	-2.624	0.009	0.775	0.379	0.679	0.497	19.438	0.000	-5.086	0.000	1.466	0.000
Shares	2.438	0.119	-0.473	0.636	19.453	0.000	-3.512	0.000	4.740	0.030	1.169	0.245	10.778	0.001	-3.505	0.000	6.500	0.011
Behavioral	0.015	0.902	-0.222	0.825	7.655	0.006	-2.380	0.018	2.402	0.122	1.420	0.156	13.020	0.000	-4.502	0.000	8.121	0.004
Love	14.477	0.000	3.212	0.001	7.362	0.007	-1.864	0.063	41.702	0.000	-10.103	0.000	7.279	0.007	-1.664	0.097	0.218	0.641
Haha	1.040	0.308	0.634	0.527	1.729	0.189	0.619	0.536	14.043	0.000	-5.217	0.000	7.146	0.008	-2.285	0.023	4.586	0.033
Wow	0.019	0.891	0.137	0.891	7.434	0.007	-2.092	0.037	7.704	0.006	-4.140	0.000	7.428	0.007	-2.938	0.003	2.083	0.149
Sorry	2.547	0.111	0.816	0.415	3.163	0.076	-0.898	0.370	3.459	0.063	-0.940	0.348	5.360	0.021	-2.286	0.023	1.807	0.179
Anger	2.162	0.142	0.735	0.463	10.783	0.001	-2.434	0.015	4.540	0.033	-2.765	0.006	2.220	0.137	-0.746	0.456	2.635	0.105
Emotional	0.838	0.360	1.219	0.223	6.249	0.013	-1.768	0.078	18.163	0.000	-7.019	0.000	10.386	0.001	-3.139	0.002	0.996	0.319
Ordinary people positioning (OP)_photo post																		
Likes	12.884	0.000	-3.545	0.000	139.516	0.000	-16.029	0.000	15.064	0.000	-4.681	0.000	12.201	0.000	-2.426	0.015	66.710	0.000
Comments	0.246	0.620	-0.365	0.715	54.788	0.000	-7.210	0.000	1.732	0.188	-1.363	0.173	3.448	0.063	-1.267	0.205	41.234	0.000
Shares	7.007	0.008	1.475	0.140	0.749	0.387	-1.060	0.289	0.331	0.565	0.706	0.480	0.072	0.788	0.576	0.565	2.399	0.121
Behavioral	9.248	0.002	-3.091	0.002	119.507	0.000	-14.976	0.000	12.457	0.000	-4.312	0.000	10.499	0.001	-2.220	0.027	59.181	0.000
Love	52.633	0.000	-5.724	0.000	0.013	0.909	1.293	0.196	1.203	0.273	1.021	0.307	49.384	0.000	-8.808	0.000	25.713	0.000
Haha	34.418	0.000	-4.457	0.000	3.236	0.072	-1.003	0.316	0.000	0.985	0.001	0.999	16.171	0.000	-6.015	0.000	0.937	0.333
Wow	16.537	0.000	-2.725	0.006	8.608	0.003	-1.718	0.086	0.027	0.869	-0.043	0.965	45.298	0.000	-9.744	0.000	6.443	0.011
Sorry	3.334	0.068	-0.948	0.343	16.954	0.000	-2.741	0.006	1.208	0.272	0.551	0.582	11.862	0.001	-4.972	0.000	0.294	0.587
Anger	8.384	0.004	-2.143	0.032	8.520	0.004	-2.023	0.043	2.405	0.121	-0.779	0.436	2.703	0.100	-0.829	0.407	2.429	0.119
Emotional	52.740	0.000	-5.860	0.000	10.279	0.001	-1.053	0.292	0.122	0.727	0.340	0.734	44.860	0.000	-10.901	0.000	11.364	0.001

Table A4. Linear regression coefficient of determination and beta (link post and photo post).

	R	R <sup>2</sup>	adj. R <sup>2</sup>	AR <sup>2</sup>	ΔF	df1	df2	Sig.	F Change	B	Beta	t-Value	p-Value
Artist positioning (AP)_link post													
Behavioral participation	0.017 <sup>a</sup>	0.000	-0.001	0.000	0.277	1	908	0.599	-1.009	-0.017	-0.526	0.599	0.746
Emotional participation	0.011 <sup>a</sup>	0.000	-0.001	0.000	0.105	1	908	0.746	-0.021	-0.011	-0.325	0.746	
Artist positioning (AP)_photo post													
Behavioral participation	0.093 <sup>a</sup>	0.009	0.008	0.009	35.496	1	4050	0.000	-12.632	-0.093	-5.958	0.000	
Emotional participation	0.015 <sup>a</sup>	0.000	0.000	0.000	0.950	1	4050	0.330	-0.100	-0.015	-0.974	0.330	
Ordinary people positioning (OP)_link post													
Behavioral participation	0.092 <sup>a</sup>	0.008	0.007	0.008	6.240	1	736	0.013	-51.771	-0.092	-2.498	0.013	
Emotional participation	0.064 <sup>a</sup>	0.004	0.003	0.004	3.009	1	736	0.083	-0.904	-0.064	-10.735	0.083	

Table A4. Cont.

R	R <sup>2</sup>	adj. R <sup>2</sup>	ΔR <sup>2</sup>	ΔF	df1	df2	Sig. F Change	B	Beta	t-Value	p-Value
<b>Ordinary people positioning (OP)_photo post</b>											
Behavioral participation	0.135 <sup>a</sup>	0.018	0.018	102.201	1	5474	0.000	-1000.178	-0.135	-10.109	0.000
Emotional participation	0.052 <sup>a</sup>	0.003	0.003	15.036	1	5474	0.000	-0.519	-0.052	-30.878	0.000

<sup>a</sup> Predicted value: (constant), concert.

Table A5. Linear regression coefficient of determination and beta (artist positioning (AP)).

R	R <sup>2</sup>	adj. R <sup>2</sup>	ΔR <sup>2</sup>	ΔF	df1	df2	Sig. F Change	B	Beta	t-Value	p-Value
<b>Artist positioning (AP) abstract implication</b>											
Huashan1914CreativePark											
Behavioral participation	0.043 <sup>a</sup>	0.002	0.002	7.463	1	4050	0.006	-17.549	-0.043	-2.732	0.006
Emotional participation	0.010 <sup>a</sup>	0.000	0.000	0.397	1	4050	0.529	0.194	0.010	0.630	0.529
Design											
Behavioral participation	0.091 <sup>a</sup>	0.008	0.008	33.647	1	4048	0.000	-79.372	-0.091	-5.801	0.000
Emotional participation	0.048 <sup>a</sup>	0.002	0.002	9.218	1	4048	0.002	-1.999	-0.048	-3.036	0.002
Art											
Behavioral participation	0.031 <sup>a</sup>	0.001	0.001	3.863	1	4050	0.049	-31.333	-0.031	-1.965	0.049
Emotional participation	0.009 <sup>a</sup>	0.000	0.000	0.346	1	4050	0.556	-0.450	-0.009	-0.588	0.556
<b>Artist positioning (AP) concrete implication</b>											
Product											
Behavioral participation	0.057 <sup>a</sup>	0.003	0.003	12.971	1	4050	0.000	-66.015	-0.057	-3.601	0.000
Emotional participation	0.058 <sup>a</sup>	0.003	0.003	13.535	1	4050	0.000	-3.234	-0.058	-3.679	0.000
Graphic											
Behavioral participation	0.035 <sup>a</sup>	0.001	0.001	4.856	1	4050	0.028	-44.641	-0.035	-2.204	0.028
Emotional participation	0.033 <sup>a</sup>	0.001	0.001	4.344	1	4050	0.037	-2.025	-0.033	-2.084	0.037
House											
Behavioral participation	0.048 <sup>a</sup>	0.002	0.002	9.534	1	4050	0.002	51.256	0.048	3.088	0.002
Emotional participation	0.052 <sup>a</sup>	0.003	0.003	10.851	1	4050	0.001	2.622	0.052	3.294	0.001

<sup>a</sup> Predicted value: (constant), concert.

Table A6. Linear regression coefficient of determination and beta (ordinary people positioning (OP)).

R	R <sup>2</sup>	adj. R <sup>2</sup>	ΔR <sup>2</sup>	ΔF	df1	df2	Sig. F Change	B	Beta	t-Value	p-Value
<b>Ordinary people positioning (OP) abstract implication</b>											
PierZariCenter											
Behavioral participation	0.038 <sup>a</sup>	0.001	0.001	7.854	1	5474	0.005	-71.410	-0.038	-2.803	0.005
Emotional participation	0.087 <sup>a</sup>	0.008	0.008	42.171	1	5474	0.000	2.211	0.087	6.494	0.000
Design											
Behavioral participation	0.098 <sup>a</sup>	0.010	0.010	52.597	1	5474	0.000	-448.701	-0.098	-7.252	0.000
Emotional participation	0.028 <sup>a</sup>	0.001	0.001	4.193	1	5474	0.041	-1.705	-0.028	-2.048	0.041
Art											
Behavioral participation	0.055 <sup>a</sup>	0.003	0.003	16.793	1	5474	0.000	-179.630	-0.055	-4.098	0.000
Emotional participation	0.007 <sup>a</sup>	0.000	0.000	0.275	1	5474	0.600	0.309	0.007	0.525	0.600
<b>Ordinary people positioning (OP) concrete implication</b>											
Product											
Behavioral participation	0.085 <sup>a</sup>	0.007	0.007	39.478	1	5474	0.000	-516.357	-0.085	-6.283	0.000
Emotional participation	0.028 <sup>a</sup>	0.001	0.001	4.199	1	5474	0.041	-2.264	-0.028	-2.049	0.041
Center											
Behavioral participation	0.038 <sup>a</sup>	0.001	0.001	7.719	1	5474	0.005	-70.670	-0.038	-2.778	0.005
Emotional participation	0.088 <sup>a</sup>	0.008	0.008	42.415	1	5474	0.000	2.213	0.088	6.513	0.000
Graphic											
Behavioral participation	0.075 <sup>a</sup>	0.006	0.006	31.258	1	5474	0.000	-473.516	-0.075	-5.591	0.000
Emotional participation	0.019 <sup>a</sup>	0.000	0.000	1.978	1	5474	0.160	-1.601	-0.019	-1.407	0.160

<sup>a</sup> Predicted value: (constant), concert.

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Article

# Determining the Relationships between Price and Online Reputation in Lodgings

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**Abstract:** Currently, lodgings' competitiveness depends on pricing, based on the online reputation measured by quantitative scales of variables. The purpose of this article is to analyze the different prices set by lodgings by season in relation to the variables that measure their online reputation. This is an essential aspect in determining prices competitively in a constantly changing market. The study analyzes the offer of three tourist destinations (Gran Canaria and Tenerife in Spain and Agadir in Morocco) and online customer reviews on the quality of service, value, and added value obtained from Booking.com. Bivariate regressions with different functions were carried out to determine which one best matches these variables to the prices. The results show that added value has the greater relationship with prices. The cubic and quadratic functions have the best fit between quality of service and added value with regard to lodging prices. Based on the results obtained, it is possible to determine the most competitive prices lodgings can set depending on the quality of service and the added value offered to customers. To the extent that destinations from different countries are analyzed, the research reaches an international scope that is in line with the competitive reality of the tourism market.

**Keywords:** tourism destination; online customer review; lodging; price; service quality; added value

## 1. Introduction

In today's digital age, the competitiveness of tourist destinations and lodgings is conditioned by their online reputation (Rodríguez-Díaz and Espino-Rodríguez 2017a, 2017b). Therefore, competitiveness in tourism develops according to the image transmitted by lodgings and destinations (Govers et al. 2007; Lai and Li 2016; Sancho Esper and Rateike 2010). The intense exchange of information between customers and companies on the Internet generates an online reputation that directly influences consumer behavior and is a source of competitive advantage (Ye et al. 2014; Therkelsen 2003; Yacouel and Fleischer 2012; Chun 2005; Hernández Estárico et al. 2012). Likewise, online reputation also affects revenue level, with the relationship existing between price level and online reputation measured through the quality of service scales on websites specializing in the online opinions of tourism customers (Varini and Sirsi 2012; Kim and Park 2017).

The competitiveness of lodgings depends on their strategic positioning in the market, which is defined by Hooley et al. (1998) as a combination of the company's choice of its target market and the differential advantage that can be exploited to secure that market. In this context, positioning is determined on the basis of consumer ratings that assess companies competing in a market, focusing on certain variables (Lovell 1991). Currently, a large amount of quantitative and qualitative information can be obtained on the Internet that facilitates positioning studies on tourism companies, based on online customer opinions (Rodríguez-Díaz et al. 2015). Quantitative data normally measure the service quality and perceived value of lodgings, whereas the price variable

can be obtained from the lodgings' own websites or specialized webs (Yacouel and Fleischer 2012); Rodríguez-Díaz and Espino-Rodríguez (2017a, 2017b).

Quantitative and qualitative information available in specialized databases generates the online reputation of lodgings, influencing companies' performance (Noone et al. 2011; Ye et al. 2009; Varini and Sirsi 2012; Anderson 2012). From this perspective, Lee and Jang (2013) differentiate lodgings in terms of quality, and rates are probably determined on the basis of their most direct competitors. These authors also point out that, whereas competition between lodgings has been the subject of various studies, price competition between lodgings, and its implications for commercial strategies, has not been addressed as much. Furthermore, according to Masiero and Nicolau (2012a), the identification of patterns in tourists based on their sensitivity to prices contributes to price fixing and to more clearly defining the target segments that lodgings and destinations attract.

In this new environment of Internet communications, tourist accommodation companies need to establish mechanisms to determine whether their pricing strategy agrees with the expectations created by customers at all times (Abrate et al. 2012). They need to apply methods of analysis and pricing in an international competitive environment such as tourist destinations (Crouch 1992). Insofar as online reputation directly influences customer decisions, it is essential to establish whether the strategy of creating value for customers matches the price level offered (Martens and Hilbert 2011; Conti 2013). According to Hernández Estárico et al. (2012), online reputation is based on the evaluations, comments, and images of a good or service that are transmitted on the Internet. In this regard, the value perceived by customers is directly related to quality of service and inversely to price (Holbrook 1994; Rust and Oliver 1994), and these factors are directly related to online reputation (Ye et al. 2009; Rodríguez-Díaz et al. 2015). Jena and Jog (Jena and Jog 2017, p. 1236) establish that "rapid changes can occur in pricing policies (as a reaction to a rival's action) by making it a flexible tool and an influential competitive element". Therefore, price is a tactical marketing variable that has high strategic value because it is essential in defining the competitive positioning of companies and the market segments on which they are going to focus (Lovelock 1991; Lockyer 2005; Hung et al. 2010; Masiero and Nicolau 2012a), due to the fact that room prices affect perceived service quality (Oh 1999, 2000; Oh and Kim 2017) and consumer satisfaction (Mattila and O'Neill 2003; Kim and Park 2017).

The purpose of this article is to determine the relationship between the price level of a lodging and its online reputation, measured by the scale used on the Booking.com website. To accomplish this objective, we have collected information about the opinions of lodging customers of three tourist destinations and the price levels of these destinations in different seasons (high season and low season): South of Gran Canaria (Canary Islands, Spain), South of Tenerife (Canary Islands, Spain), and Agadir (Morocco). In order to determine what relationship fits best, a different type of regression analysis was carried out. In order to achieve the objective established in this article, the study begins with a review of the academic literature and then describes the methodology applied in the research. The next section describes the results obtained, both jointly and individually for each destination. Finally, the article presents the main conclusions reached, limitations, and suggestions for future research.

## 2. Literature Review

One of the main problems faced by lodging managers is how to set prices based on the online reputation determined by customers (Rodríguez-Díaz et al. 2018). From a practical point of view, this is an essential objective that requires technological tools to facilitate constant price updating (Yacouel and Fleischer 2012). Therefore, there are two essential aspects of this research; an aspect associated with prices, on the one hand, and the determination of online reputation, on the other. Cross et al. (2009) explains how the concept and scope of revenue management in lodging has evolved. At first, it basically focused on the task of fixing room prices according to the expected occupancy level, in order to obtain the maximum amount of income. At present, this is a more dynamic task, taking on a more strategic role in tourism companies, including the definition of marketing, sales,

and design, and the selection of sales channels. Thus, the responsibility of revenue management has been extended to include pricing and demand management (Noone et al. 2011; Li et al. 2013). This involves the implementation of a customer-focused approach to attract the necessary demand in terms of volume and specific target segments in a market dominated by Internet communication and mass media (Abrate et al. 2012).

Yacouel and Fleischer (2012, p. 225) studied online travel agencies and their impact on lodging prices, concluding that “since the information on hotels’ past quality is revealed to the guests, the guests are willing to pay higher price to hotels with a good record (hotels that they expect to keep on providing high service quality). This price premium for a good reputation motivates the hoteliers to actually invest in providing high standards of service quality”. Ye et al. (2009) also established the direct relationship between users’ online reviews and hotel sales levels. Furthermore, Kim and Park (2017) demonstrated that the social media rating has greater predictive power of hotel performance than the measure of traditional consumer satisfaction. They point out that it is a more effective procedure for managers to use to determine the performance of the accommodation. Likewise, Xie et al. (2014) concluded in their study that ratings of the hotel’s purchase value, location, and cleanliness are the three important attributes that can influence hotel performance.

Therefore, the relationship between online reputation and price level has been observed by several authors (Varini and Sirsi 2012; Ye et al. 2009; Noone et al. 2011; Yacouel and Fleischer 2012; Mauri and Minazzi 2013; Xie et al. 2014; Kim and Park 2017). However, there has not been much research on the relationship between prices and the online reputation of accommodations, measured in different ways (e.g., quality of service, value, and added value). The research on prices in tourism has focused on analyzing different aspects, such as price asymmetry (Lee and Jang 2013), the identification of factors influencing price evolution (Lee 2011), the effect of discounts (Croes and Semrad 2012; Blal and Graf 2013), dynamic pricing strategies (Abrate et al. 2012), the impact of oil prices on tourism (Lennox 2012), the relationship between hotel room prices and location (Zhang et al. 2011), the impact of advertising on pricing and profit in the tourism supply chain (Jena and Jog 2017), the relationships with the category of lodgings (Israeli 2012; Tanford et al. 2012), price elasticity of the lodging demand depending on advertising (Chen et al. 2015), customers’ price perceptions (Kleinsasser and Wagner 2011; Masiero and Nicolau 2012b), pricing determinants in hotels (Hung et al. 2010; Espinet et al. 2003), the competitive positioning of lodgings (Rodríguez-Díaz et al. 2015, 2018), the importance of price in hotel selection (Lockyer 2005), and the relationship between the room rate and lodging performance (Qu et al. 2002; Enz et al. 2009; Ye et al. 2009; Chen et al. 2011; Noone et al. 2011; Chen and Chang 2012; Xie et al. 2014).

Jena and Jog (2017) regard the seasonality of tourist markets as a decisive factor in the price variable. Prices tend to be altered depending on the occupancy level and the decisions of competitors (Espinete et al. 2003). Hung et al. (2010, p. 378) find tourism demand to be uncertain and fluctuating. In this context, tourism is an unmodifiable service and causes problems due to cancellations or overbooking. Rodríguez-Díaz et al. (2018) show the differences between the prices of lodgings in high season and low season, considering price alterations within each season. All of this means that managers have to make dynamic and constant decisions in order to achieve the desired results. (Abrate et al. 2012). Hence, it can be deduced that the pricing strategy for lodgings can be adapted according to the period of time when substantial changes in demand are detected, either by segment type or total demand.

Because online reputation has a direct influence on prices, the content and scope of this concept should be determined. Online reputation is the idea that is generated from the image, positioning, or assessment of a particular company, brand, or product/service, through the opinions shared by customers through the Internet. This is an activity of shared communication between customers, and/or the company produces a mental image that influences customers’ purchasing behavior. Therefore, it is an interactive process where users share and exchange information through different online communication channels and mass media (Einwiller 2003; Mudambi and Schuff 2010). From this



perspective, companies largely lose control of communication about their goods and services, forcing them to develop new marketing strategies adapted to the digital era (Vermeulen and Seegers 2009; Pantelidis 2010; Ryu and Han 2010; Zhang et al. 2010; Gössling Stefan and Anderson 2016).

The flow of information shared about lodgings over the Internet is a public way of assessing the perceived quality of service and perceived value for clients (Xie et al. 2014; Ye et al. 2014; Hu et al. 2008; Rodríguez-Díaz et al. 2015). Online customer feedback can be shared through qualitative feedback and quantitative assessments of specific attributes or constructs related to the lodgings' activity (Rodríguez-Díaz and Espino-Rodríguez 2017b). Torres (2014) states that service quality is a result that is usually measured quantitatively, whereas customer satisfaction is often measured qualitatively through content analysis (Li et al. 2013; O'Connor 2010). Value is a widely studied concept in the academic literature on marketing and management, because companies must be oriented toward generating the greatest possible value for their clients (Porter 1980; Oh 1999; Grönroos 2007; Payne and Frow 2005; Payne and Holt 2001). In service companies, the subjective characteristic of this construct is highlighted (Zeithaml 1988; Anderson and Narus 1998; Oh 2000; Holbrook 1994; Rust and Oliver 1994) and is directly related to the quality of service and inversely related to the price level of goods and services (Holbrook 1994; Rodríguez-Díaz and Espino-Rodríguez 2017a).

Perceived value has been the object of study in relation to the quality of service, (Parasuraman et al. 1988; Oh 2000; Xie et al. 2014; Sparks et al. 2008; Nasution and Mavondo 2008; Núñez-Serrano et al. 2014) and customer satisfaction (Oliver 1997; Oh 1999; Li et al. 2013; O'Connor 2010). According to Prebensen et al. (2012), the perceived value in tourism is usually assessed through a single variable measuring the "quality-price relationship" or "value for money". However, some authors believe that this way of measuring perceived value is insufficient (Gallarza and Saura 2006; Gallarza et al. 2011; Sweeney et al. 1999), although the reality of the Internet requires the use of scales with very few variables in order to make it easy for users to share their assessments.

Regarding the added value of lodgings (Jeong 2002), Rodríguez-Díaz et al. (2015) proposed an approach to measure it based on online customer ratings, by subtracting the perceived quality of service from the perceived value by customers. The results obtained showed that higher-category lodgings tended to have a lower added value because of higher prices. These results agree with those obtained by López Fernández and Bedia (2004) and O'Connor (2010), showing that the more stars an accommodation has, the more demanding the customers are. This study will analyze the relationships between the price variable and online reputation, measured through perceived value, perceived quality of service, and added value, based on the quantitative information available on Booking.com for lodgings in three tourist destinations. The aim is to establish what type of function and construct obtains a better fit between the analyzed variables.

### 3. Research Methodology

The empirical study of the relationship between price and the dimensions of perceived value, perceived service quality, and added value was carried out using a database of 403 lodgings. These tourism services are located in three tourist destinations specialized in sun and beach tourism that compete with each other: South of Gran Canaria (Canary Islands, Spain), South of Tenerife (Canary Islands, Spain), and Agadir (Morocco). The Canary Islands receive more than 12 million tourists per year, making it one of the main destinations in Europe (ISTAC 2015), whereas Agadir is located in the Moroccan region of Souss Massa Drâa, which receives 4 million tourists a year (ICEX 2011).

The data were collected from the Booking.com website. There were a total of 69,024 customer ratings of the lodgings. Of them, 38,096 were from the destination of Gran Canaria, where 272 accommodations were analyzed. In Tenerife, 82 lodgings with 20,950 comments were studied, whereas in Agadir 49 lodgings were considered, with 9,978 customer evaluations. The information gathered on Booking.com has a strong guarantee of reliability because it corresponds to real customers (Rodríguez-Díaz et al. 2015). The scale used by Booking.com has seven variables measured with 10 points (1 = very low rating; 10 = very high rating). However, this score is not the same as the

one given in the customer survey because, according to Mellinas et al. (2015), only four response alternatives are offered to customers, later transformed into a 10-point scale. Despite the bias of Booking.com, Rodríguez-Díaz and Espino-Rodríguez (2017a, 2017b) show that it is one of the most reliable and valid tools available on the Internet.

The quantitative variables used by web portals to evaluate customer opinions usually measure the quality of service perceived and the perceived value (Rodríguez-Díaz and Espino-Rodríguez 2017b). Booking.com uses a scale that currently consists of seven variables, one that measures perceived value (value for money V) and six that measure quality of service: personnel (S), service/installations (F), cleaning (CI), comfort (Cl), location (L), and wifi (W) (see Table 1). On this basis, Booking.com also calculates an average score for these variables in order to give a global hotel score (HAS). Furthermore, information on lodging categories and their prices is also available on this website. According to authors such as Espinet et al. (2003), Hung et al. (2010), and Jena and Jog (2017), tourism prices change throughout the year depending on fluctuations in demand, the level of competitiveness at any given time, and the market segments to which they are oriented in each period of time.

In the destinations studied, a distinction is made between high season (winter) and low season (summer) because their greatest demand occurs when other competitive destinations are closed in winter. There are also periods of higher demand and prices within each season and vice versa. Therefore, this study differentiates between the highest and lowest common prices in each season. In winter, the highest common prices are usually offered in the months of November, February, and March, whereas the lowest prices are usually offered in the first 20 days of December and April. It should be noted that the highest prices are those paid at Christmas, but it is only one week, and so it is not considered the most common price in winter. On the other hand, the highest prices in the summer season are found in the last ten days of July, August, and October, whereas the lowest are found in the months of May, June, and the first twenty days of July. This information was obtained from interviews with lodging and tour operation managers, and subsequently compared to the prices obtained on the Booking.com website.

**Table 1.** Description of variables.

Variables	Description
Hotel's average score (HAS)	Reviewer's overall rating of the lodging
Hotel staff (S)	Reviewer's overall rating of the lodging staff
Service/facilities (F)	Reviewer's overall rating of the lodging service and facilities
Cleanliness (CI)	Reviewer's overall rating of the cleanliness of the lodging
Comfort (Co)	Reviewer's overall rating of the comfort of the lodging
Location (L)	Reviewer's overall rating of the location of the lodging
Value for money (V)	Reviewer's overall rating of the perceived value of the lodging
Wifi (W)	Reviewer's overall rating of the wifi connection
Minimum price in low season	Minimum price per night in low season
Maximum price in low season	Maximum price per night in low season
Minimum price in high season	Minimum price per night in high season
Maximum price in high season	Maximum price per night in high season
Category	Star rating of the lodging
Quality average (Q)	Average of quality service variables (S, F, CI, Co, and L)
Added value (AV)	Difference between value (V) and quality average (Q)

The study carried out consists of determining the relationship between prices and the variables of perceived value (V), perceived service quality (Q), and added value (AV). The variable value for money included in the Booking.com scale is used to measure the price variable. In order to quantify the average of the perceived quality of service (Q), the average of the personnel (S), service/facilities (F), cleaning (CI), comfort (Co), and location (L) variables were calculated. The wifi variable was not included, because it depends to a large extent on public infrastructure and telecommunications companies external to lodgings. Finally, the value-added variable was established following the

procedure proposed by Rodríguez-Díaz et al. (2015), and is the result of subtracting the average quality of service (Q) from the value (V). This variable can have positive, negative, or zero scores. When the added value of a lodging is zero, it is offering a quality of service in accordance with the price it establishes. If the added value has a positive score, it means that customers think the price to be paid for the lodging is lower than the quality of the service they receive. By contrast, a negative added value indicates that customers think they pay extra for the quality of the service received. The latter is usually the case for higher category lodgings.

The statistical analysis carried out was the regression of curve estimation models using the SPSS statistical program. The regressions were bivariate; prices were the independent variables, and the perceived value (V), the average of the perceived quality of service (Q), and the added value (AV) were dependent variables. The aim of the study was to determine the function with the best fit of the relationships in the different types of prices. To this end, the regression was carried out in the linear, logarithmic, inverse, quadratic, and cubic functions, as described below:

Linear: Model with the equation  $y = b_0 + b_1 \cdot t$ .

Logarithmic: Model with the equation  $y = b_0 + b_1 \cdot \ln(t)$ .

Inverse: Model with the equation  $y = b_0 + (b_1/t)$ .

Quadratic: Model with the equation  $y = b_0 + b_1 \cdot t + b_2 \cdot t^2$ .

Cubic: Model with the equation  $y = b_0 + b_1 \cdot t + b_2 \cdot t^2 + b_3 \cdot t^3$ .

#### 4. Analysis of Results

Bivariate regression analyses were carried out with the information collected on prices in different seasons and time periods, as well as online customer evaluations of the perceived value, perceived average service quality, and added value variables. The aim was to determine which of the three online reputation variables examined was most closely related to price. To this end, all the information from the three tourist destinations together was analyzed first. Subsequently, the same regression analysis was carried out for each of the destinations to find out whether the results were consistent.

##### 4.1. All Destinations

The results of the regressions of the perceived value variable as a dependent variable and the four prices as independent variables are shown in Table 2. It can be observed that all the results have a very low adjusted R2, which shows that there is no significant relationship between perceived value and price. The results for the average quality of service are shown in Table 3 and confirm that the adjusted R2 scores are relevant for a social science study. With regard to minimum prices in low season, the function that obtained the highest R2 (0.2019) was logarithmic, as it was for maximum prices in low season (0.1885) and high season (0.2415). On the other hand, the cubic function obtained the highest R2 (0.2751) for the lowest prices in high season. Finally, the added value achieved much higher results than the previous ones, as Table 4 reveals. Thus, the cubic function obtained an adjusted R2 of 0.3264 for the lowest prices in low season 0.3248 for the maximum prices in low season 0.3208 for the minimum prices in high season, and 0.3171 for the maximum prices in low season. However, the quadratic and logarithmic functions also performed strongly, demonstrating that value added is the variable most closely linked to price. These results are shown in Figure 1, where all the functions analyzed are represented in the variables that obtained the best fit to each type of price.

Table 2. Model summary and parameter estimates of regression analysis in all destinations, with value as dependent variable.

Independent Variable: Minimum Price in Low Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0036	1.3821	1	376	0.2404	7.5623	0.007		
Logarithmic	0.0028	1.0641	1	376	0.3029	7.3075	0.0749		
Inverse	0.0022	0.8438	1	376	0.3588	7.6894	-3.9329		
Quadratic	0.0040	0.7612	2	375	0.4678	7.5404	0.0011	-5.6958E-07	
Cubic	0.0057	0.7271	3	374	0.5363	7.6228	-0.0010	1.074E-05	-9.3633E-09
Independent Variable: Maximum Price in Low Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0027	1.0282	1	376	0.3112	7.5583	0.0006		
Logarithmic	0.0009	0.3406	1	376	0.5597	7.4498	0.0388		
Inverse	0.0009	0.3451	1	376	0.5572	7.6561	-2.4417		
Quadratic	0.0070	1.3237	2	375	0.2673	7.6507	-0.0011	5.4956E-06	
Cubic	0.0080	1.0077	3	374	0.3893	7.7182	-0.0030	1.808E-05	-1.9231E-08
Independent Variable: Minimum Price in High Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0167	4.6237	1	271	0.0324	7.4549	0.0012		
Logarithmic	0.0269	7.5070	1	271	0.0065	6.5605	0.2290		
Inverse	0.0340	9.5592	1	271	0.0021	7.8539	-20.5299		
Quadratic	0.0233	3.2224	2	270	0.0413	7.3272	0.0030	-3.7714E-06	
Cubic	0.0248	2.2881	3	269	0.0788	7.2368	0.0049	-1.245E-05	9.6741E-09
Independent variable: Maximum price in high season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0155	4.2744	1	271	0.0396	7.4634	0.0010		
Logarithmic	0.0182	5.0515	1	271	0.0254	6.7836	0.1745		
Inverse	0.0236	6.5612	1	271	0.0109	7.7946	-17.6062		
Quadratic	0.0157	2.1641	2	270	0.1168	7.4388	0.0013	-6.3579E-07	
Cubic	0.0158	1.4473	3	269	0.2293	7.4137	0.0018	-2.8195E-06	2.3948E-09

Table 3. Model summary and parameter estimates of regression analysis in all destinations with quality average (Q) as dependent variable.

Independent Variable: Minimum Price in Low Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1090	46.0051	1	376	4.5914E-11	74712	0.0043		
Logarithmic	0.2019	95.1389	1	376	3.4700E-20	4.8864	0.7095		
Inverse	0.1950	91.0936	1	376	1.7855E-19	8.5754	-41.0781		
Quadratic	0.1800	41.1597	2	375	6.9132E-17	7.1357	0.0102	-8.6992E-06	
Cubic	0.1971	30.6145	3	374	1.0171E-17	6.8474	0.0178	-4.825E-05	3.2759E-08
Independent Variable: Maximum Price in Low Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1723	78.3070	1	376	3.5001E-17	7.2914	0.0059		
Logarithmic	0.1885	87.3766	1	376	8.1509E-19	5.1368	0.6276		
Inverse	0.1698	76.9322	1	376	6.2321E-17	8.4312	-37.1929		
Quadratic	0.1797	41.0799	2	375	7.3805E-17	7.1559	0.0086	-8.058E-06	
Cubic	0.1870	28.6865	3	374	1.0254E-16	6.9519	0.0144	-4.609E-05	5.8106E-08
Independent variable: Minimum price in high season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1583	50.9744	1	271	8.6048E-12	7.3381	0.0043		
Logarithmic	0.2549	92.7262	1	271	4.5675E-19	4.2449	0.7918		
Inverse	0.2381	84.7115	1	271	9.6659E-18	8.5873	-61.0279		
Quadratic	0.2640	48.4472	2	270	1.0496E-18	6.7607	0.0126	-1.7056E-05	
Cubic	0.2751	34.0419	3	269	1.1043E-18	6.4907	0.0181	-4.2984E-05	2.8905E-08
Independent Variable: Maximum Price in High Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1885	62.9835	1	271	5.5373E-14	7.3108	0.0039		
Logarithmic	0.2415	86.3131	1	271	5.2225E-18	4.5131	0.7129		
Inverse	0.2120	72.9356	1	271	9.7899E-16	8.4935	-59.2934		
Quadratic	0.2330	41.0154	2	270	2.7906E-16	6.9405	0.0088	-9.5376E-06	
Cubic	0.2373	27.9002	3	269	9.6887E-16	6.7628	0.0123	-2.5049E-05	1.7011E-08

Table 4. Model summary and parameter estimates of regression analysis in all destinations with added value as dependent variable.

Independent Variable: Minimum Price in Low Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1463	64.4652	1	376	1.2729E-14	0.0557	-0.0034		
Logarithmic	0.3071	166.7006	1	376	8.0496E-32	2.2425	-0.5959		
Inverse	0.2992	160.5439	1	376	6.9652E-31	-0.8585	34.6494		
Quadratic	0.2652	67.6985	2	375	7.9084E-26	0.3514	-0.0086	7.6674E-06	
Cubic	0.3264	60.4101	3	374	7.2272E-32	0.7720	-0.0184	5.852E-05	-4.2115E-08
Independent Variable: Maximum Price in Low Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.2542	128.1962	1	376	9.0093E-26	0.2163	-0.0049		
Logarithmic	0.3186	175.8707	1	376	3.3872E-33	2.1525	-0.5556		
Inverse	0.2836	148.8921	1	376	4.4354E-29	-0.7605	32.7308		
Quadratic	0.3187	87.7143	2	375	5.6158E-32	0.4895	-0.0103	1.625E-05	
Cubic	0.3248	59.9807	3	374	1.1132E-31	0.6164	-0.0139	3.990E-05	-3.6140E-08
Independent Variable: Minimum Price in High Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1396	43.9818	1	271	1.7902E-10	0.0809	-0.0027		
Logarithmic	0.2524	91.5109	1	271	7.2228E-19	2.1941	-0.5365		
Inverse	0.2162	74.7877	1	271	4.6838E-16	-0.7254	39.6025		
Quadratic	0.3031	58.7304	2	270	6.6579E-22	0.5698	-0.0098	1.444E-05	
Cubic	0.3208	42.3524	3	269	1.8954E-22	0.8017	-0.0145	3.672E-05	-2.4837E-08
Independent Variable: Maximum Price in High Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1805	59.6968	1	271	2.1597E-13	0.1112	-0.0026		
Logarithmic	0.2732	101.8816	1	271	1.5209E-20	2.1651	-0.5163		
Inverse	0.2228	77.7265	1	271	1.4664E-16	-0.6990	41.3926		
Quadratic	0.3103	60.7397	2	270	1.6533E-22	0.5421	-0.0083	1.1099E-05	
Cubic	0.3171	41.6434	3	269	3.8888E-22	0.6947	-0.0113	2.4423E-05	-1.4611E-08

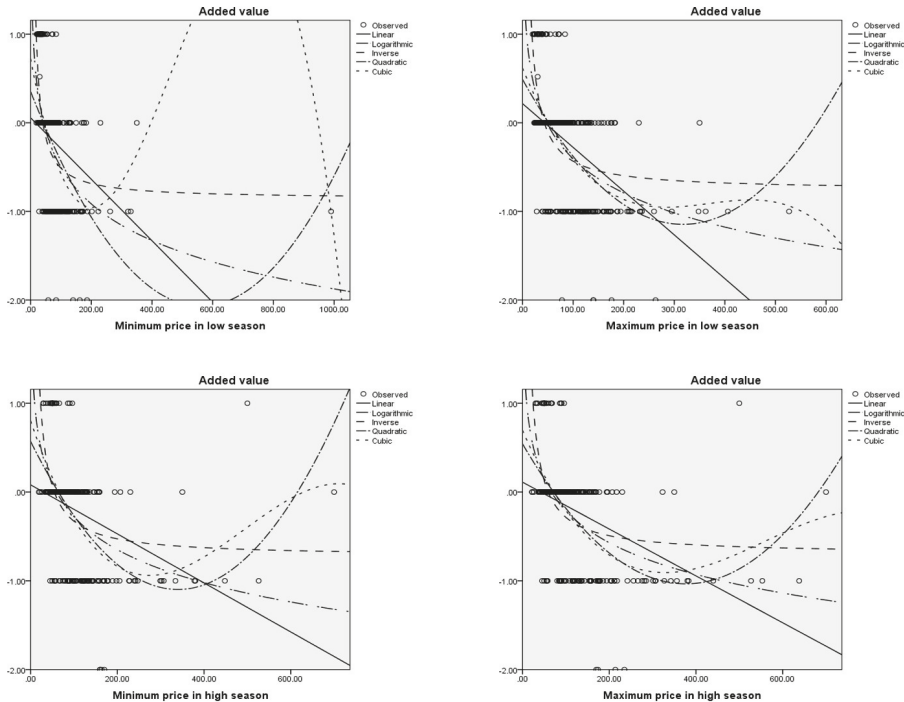


Figure 1. Functions of the regression analysis with the best fit in all destinations.

#### 4.2. Gran Canaria Destination

The study carried out in the destination of Gran Canaria obtained very similar results. Table 5 shows that the models assessed with price and perceived value are not significant, because the adjusted R2 are very low, around zero. However, the average quality of service is directly related to price. The inverse (0.2085), cubic (0.2024), and logarithmic (0.1921) functions obtain the highest adjusted R2 at the lowest prices in low season (see Table 6). For the maximum price in low season, the inverse function obtains the highest adjusted R2 (0.1813), although the rest of the functions obtain similar results. For the lowest prices in high season, the cubic function has the best fit (0.2506), and for the highest prices in high season, the inverse function shows the best fit (0.2174), followed by the cubic function (0.2097). Regarding added value, Table 7 shows that this variable fits the three variables studied best. For the lowest prices in low season, the cubic function obtains the highest adjusted R2 (0.2839), as well as for the maximum prices in low season (0.2692), the lowest prices in high season (0.3410), and the highest prices in high season (0.3152). As the table shows, the adjusted R2 obtained are quite high, and the graphic representation of the functions that obtain the best fit to each type of price is shown in Figure 2.

Table 5. Model summary and parameter estimates of regression analysis in Gran Canaria destination with value as dependent variable.

Independent Variable: Minimum Price in Low Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0035	0.8695	1	247	0.3520	7.7004	0.0005		
Logarithmic	0.0062	1.5510	1	247	0.2141	7.3304	0.1018		
Inverse	0.0061	1.5394	1	247	0.2158	7.8588	-5.8409		
Quadratic	0.0054	0.6692	2	246	0.5130	7.6531	0.0014	-1.1079E-06	
Cubic	0.0054	0.4493	3	245	0.7179	7.6398	0.0018	-3.0232E-06	1.5857E-09
Independent Variable: Maximum Price in Low Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0027	0.6750	1	247	0.4121	7.6836	0.0007		
Logarithmic	0.0035	0.8907	1	247	0.3462	7.4346	0.0738		
Inverse	0.0049	1.2166	1	247	0.2710	7.8330	-4.9993		
Quadratic	0.0027	0.3380	2	246	0.7134	7.6893	0.0006	5.2965E-07	
Cubic	0.0042	0.3504	3	245	0.7888	7.5771	0.0044	-3.1134E-05	6.4340E-08
Independent variable: Minimum price in high season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0046	0.7881	1	168	0.3759	7.6281	0.0005		
Logarithmic	0.0117	1.9975	1	168	0.1594	7.0456	0.1412		
Inverse	0.0191	3.2858	1	168	0.0716	7.9040	-18.1871		
Quadratic	0.0094	0.7959	2	167	0.4528	7.5242	0.0019	-2.5973E-06	
Cubic	0.0179	1.0116	3	166	0.3890	7.3107	0.0059	-2.0666E-05	1.9315E-08
Independent Variable: Maximum Price in High Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0039	0.6708	1	168	0.4139	7.6319	0.0004		
Logarithmic	0.0085	1.4504	1	168	0.2301	7.1710	0.1113		
Inverse	0.0155	2.6478	1	168	0.1055	7.8650	-16.0088		
Quadratic	0.0056	0.4765	2	167	0.6217	7.5730	0.0012	-1.4562E-06	
Cubic	0.0114	0.6397	3	166	0.5904	7.3914	0.0045	-1.5730E-05	1.5117E-08



Table 6. Model summary and parameter estimates of regression analysis in Gran Canaria destination with Q as dependent variable.

Independent Variable: Minimum Price in Low Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0737	19.6726	1	247	1.3844E-05	7.6539	0.0031		
Logarithmic	0.1921	58.7520	1	247	4.0854E-13	5.1916	0.6657		
Inverse	0.2085	65.0814	1	247	3.1271E-14	8.6815	-39.9275		
Quadratic	0.1470	21.2127	2	246	3.1687E-09	7.3081	0.0094	-8.1015E-06	
Cubic	0.2024	20.7297	3	245	5.2888E-12	6.8376	0.0223	-7.5886E-05	5.6123E-08
Independent Variable: Maximum Price in Low Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1364	39.0367	1	247	1.8079E-09	7.4010	0.0063		
Logarithmic	0.1789	53.8448	1	247	3.1178E-12	5.3318	0.6140		
Inverse	0.1813	54.6991	1	247	2.1831E-12	8.5365	-35.8205		
Quadratic	0.1718	25.5246	2	246	8.4552E-11	7.0778	0.0138	-2.9948E-05	
Cubic	0.1778	17.6674	3	245	2.0498E-10	6.8161	0.0228	-0.0001	1.5005E-07
Independent Variable: Minimum Price in High Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0888	16.3776	1	168	7.9019E-05	7.5324	0.0028		
Logarithmic	0.1947	40.6321	1	168	1.7055E-09	4.6540	0.7031		
Inverse	0.2456	54.7196	1	168	6.3123E-12	8.7971	-79.5819		
Quadratic	0.2062	21.6937	2	167	4.2136E-09	6.9027	0.0113	-1.5750E-05	
Cubic	0.2507	18.5166	3	166	2.0697E-10	6.3057	0.0226	-6.6269E-05	5.4002E-08
Independent Variable: Maximum Price in High Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1150	21.8519	1	168	6.0173E-06	7.4829	0.0029		
Logarithmic	0.1907	39.6007	1	168	2.6116E-09	4.8675	0.6429		
Inverse	0.2174	46.6713	1	168	1.4729E-10	8.6620	-73.2698		
Quadratic	0.1933	20.0173	2	167	1.6115E-08	6.9939	0.0092	-1.2090E-05	
Cubic	0.2097	14.6874	3	166	1.5786E-08	6.6191	0.0161	-4.1543E-05	3.1191E-08

Table 7. Model summary and parameter estimates of regression analysis in Gran Canaria destination with added value as dependent variable.

Independent variable: Minimum Price in Low Season										
Equation	Model Summary				Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3	
Linear	0.0989	27.1366	1	247	3.9981E-07	0.0074	-0.0023			
Logarithmic	0.2597	86.6519	1	247	7.3178E-18	1.8825	-0.5068			
Inverse	0.2807	96.4120	1	247	2.0021E-19	-0.7730	30.3368			
Quadratic	0.2008	30.9137	2	246	1.0548E-12	0.2743	-0.0072	6.253E-06		
Cubic	0.2839	32.3848	3	245	1.1467E-17	0.6518	-0.0175	6.0639E-05	-4.5030E-08	
Independent Variable: Maximum Price in Low Season										
Equation	Model Summary				Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3	
Linear	0.2053	63.8447	1	247	5.1439E-14	0.2199	-0.0050			
Logarithmic	0.2618	87.6059	1	247	5.1231E-18	1.8535	-0.4863			
Inverse	0.2544	84.3020	1	247	1.7691E-17	-0.6736	27.7887			
Quadratic	0.2682	45.0901	2	246	2.0731E-17	0.5020	-0.0116	2.6140E-05		
Cubic	0.2692	30.0890	3	245	1.3491E-16	0.5716	-0.0140	4.5770E-05	-3.9887E-08	
Independent Variable: Minimum Price in High Season										
Equation	Model Summary				Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3	
Linear	0.1080	20.3454	1	168	1.2095E-05	0.0692	-0.0020			
Logarithmic	0.2423	53.7399	1	168	9.2012E-12	2.1969	-0.5191			
Inverse	0.2805	65.5119	1	168	1.1125E-13	-0.8324	56.2817			
Quadratic	0.3037	36.4303	2	167	7.4170E-14	0.6073	-0.0093	1.346E-05		
Cubic	0.3410	28.6382	3	166	5.6257E-15	0.9689	-0.0161	4.4061E-05	-3.2712E-08	
Independent Variable: Maximum Price in High Season										
Equation	Model Summary				Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3	
Linear	0.1484	29.2779	1	168	2.1315E-07	0.1133	-0.0022			
Logarithmic	0.2511	56.3402	1	168	3.3973E-12	2.1023	-0.4882			
Inverse	0.2550	57.5214	1	168	2.1694E-12	-0.7447	52.5227			
Quadratic	0.3040	36.4789	2	167	7.1706E-14	0.5696	-0.0081	1.1283E-05		
Cubic	0.3152	25.4768	3	166	1.3093E-13	0.7749	-0.0118	2.7414E-05	-1.7083E-08	

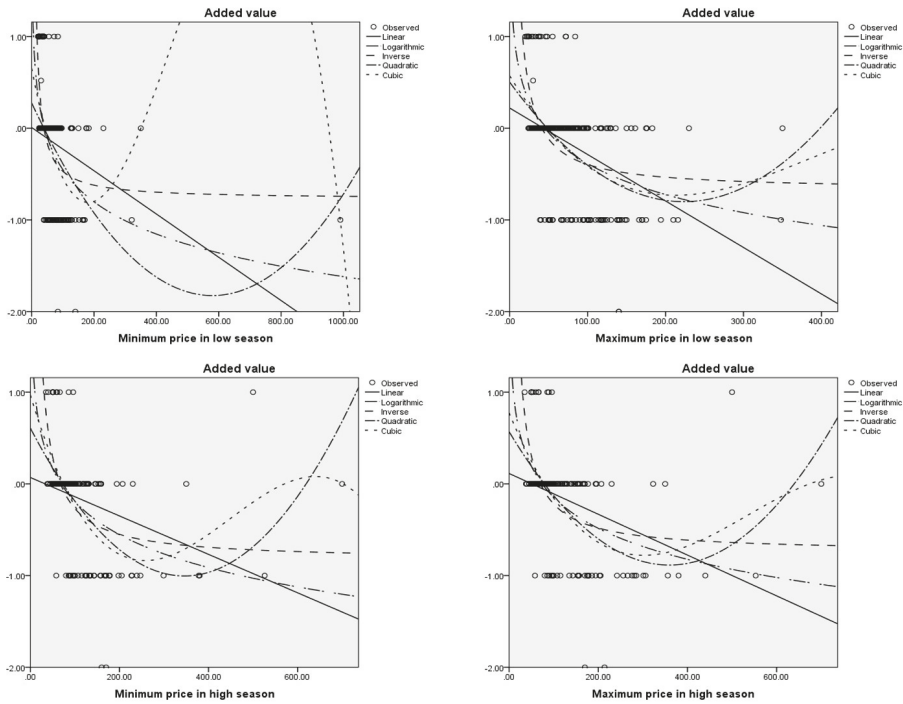


Figure 2. Functions of the regression analysis with the best fit in the Gran Canaria destination.

4.3. Tenerife Destination

The results obtained in the destination of Tenerife differ moderately with regard to the rest of the analyses carried out. In the case of the perceived value, Table 8 shows that it is still not directly related to lodging prices because it obtains adjusted R2 values close to zero. The differences are found in Table 9, where the adjusted R2 of the average service quality perceived is higher than those of value added at the lowest prices in low season (square and cubic function 0.3797), minimum prices in high season (cubic function 0.4982), and maximum prices in high season (cubic function 0.4480). On the other hand, the added value obtains the highest R2 adjusted in the cubic function of the maximum prices in low season (0.3869). However, Table 10 shows that the adjusted R2 obtained by the added value is very similar to those of the average perceived quality of service, as the inverse function obtained an adjusted R2 of 0.3632 in the lowest low season prices 0.4531 in the minimum high season prices, and 0.4411 in the maximum high season prices. The reason the average quality of the service perceived obtained somewhat higher results than the added value may be that the sample from the Tenerife destination was more concentrated in a certain offer of lodgings, whereas in Gran Canaria the types of accommodations and categories were more diverse. Figure 3 shows the graphs with the functions considered in the analysis, with the variables that achieved the best fit in each type of price studied.

Table 8. Model summary and parameter estimates of regression analysis in Tenerife destination with value as dependent variable.

Independent Variable: Minimum Price in Low Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0551	4.5564	1	78	0.0359	7.3191	0.0032		
Logarithmic	0.0390	3.1723	1	78	0.0787	6.3240	0.2953		
Inverse	0.0178	1.4207	1	78	0.2368	7.8319	-15.4348		
Quadratic	0.0552	2.2515	2	77	0.1121	7.3019	0.0036	-1.1524E-06	
Cubic	0.0944	2.6423	3	76	0.0553	8.1653	-0.0208	0.0001	-3.7422E-07
Independent Variable: Maximum Price in Low Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0464	3.8036	1	78	0.0547	7.3960	0.0018		
Logarithmic	0.0241	1.9308	1	78	0.1686	6.7210	0.1954		
Inverse	0.0065	0.5157	1	78	0.4748	7.7236	-9.1209		
Quadratic	0.0480	1.9420	2	77	0.1503	7.4613	0.0009	2.1727E-06	
Cubic	0.0830	2.2949	3	76	0.0845	7.9809	-0.0104	6.2391E-05	-8.0814E-08
Independent Variable: Minimum Price in High Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0498	3.1480	1	60	0.0810	7.4748	0.0021		
Logarithmic	0.0393	2.4608	1	60	0.1219	6.4575	0.2743		
Inverse	0.0204	1.2501	1	60	0.2679	7.9419	-19.9153		
Quadratic	0.0504	1.5657	2	59	0.2174	7.4253	0.0028	-1.8146E-06	
Cubic	0.0651	1.3480	3	58	0.2677	7.8466	-0.0063	5.0819E-05	-7.9687E-08
Independent Variable: Maximum Price in High Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.03917	2.4460	1	60	0.1230	7.5338	0.0012		
Logarithmic	0.0194	1.1888	1	60	0.2799	6.9225	0.1666		
Inverse	0.0043	0.2650	1	60	0.6085	7.8026	-9.0007		
Quadratic	0.0422	1.3029	2	59	0.2794	7.6251	0.0001	1.9679E-06	
Cubic	0.0691	1.4363	3	58	0.2414	8.0664	-0.0077	3.6305E-05	-3.7547E-08

Table 9. Model summary and parameter estimates of regression analysis in Tenerife destination with Q as dependent variable.

Independent Variable: Minimum Price in Low Season											
Equation	Model Summary				Parameter Estimates						
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3		
Linear	0.3713	46.0678	1	78	1.9945E-09	6.9922	0.0101				
Logarithmic	0.3635	44.5452	1	78	3.2608E-09	3.2114	1.0746				
Inverse	0.2919	32.1677	1	78	2.2965E-07	8.9580	-74.403				
Quadratic	0.3797	23.5716	2	77	1.0324E-08	6.7445	0.0149	-1.6596E-05			
Cubic	0.3797	15.5103	3	76	5.7908E-08	6.7462	0.0148	-1.6224E-05	-7.5378E-10		
Independent Variable: Maximum Price in Low Season											
Equation	Model Summary				Parameter Estimates						
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3		
Linear	0.3734	46.4841	1	78	1.7456E-09	7.1680	0.0063				
Logarithmic	0.3633	44.5094	1	78	3.299E-09	3.7748	0.9045				
Inverse	0.2750	29.5949	1	78	5.9330E-07	8.7583	-70.4231				
Quadratic	0.3825	23.8568	2	77	8.6535E-09	6.9768	0.0091	-6.3599E-06			
Cubic	0.3827	15.7075	3	76	4.8399E-08	6.9372	0.0099	-1.0954E-05	6.1659E-09		
Independent Variable: Minimum Price in High Season											
Equation	Model Summary				Parameter Estimates						
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3		
Linear	0.4776	54.8651	1	60	5.0470E-10	7.1396	0.0074				
Logarithmic	0.4872	57.0143	1	60	2.8677E-10	2.9517	1.0990				
Inverse	0.4022	40.3817	1	60	3.1175E-08	9.1423	-100.719				
Quadratic	0.4966	29.1129	2	59	1.5993E-09	6.8076	0.0123	-1.2185E-05			
Cubic	0.4982	19.1975	3	58	9.1091E-09	6.6527	0.0157	-3.1538E-05	2.9300E-08		
Independent Variable: Maximum Price in High Season											
Equation	Model Summary				Parameter Estimates						
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3		
Linear	0.4390	46.9604	1	60	4.4576E-09	7.2973	0.0048				
Logarithmic	0.4250	44.3533	1	60	9.4877E-09	3.7739	0.8880				
Inverse	0.3251	28.6500	1	60	1.4350E-06	8.8753	-87.8931				
Quadratic	0.4474	23.8903	2	59	2.5095E-08	7.1266	0.0069	-3.6785E-06			
Cubic	0.4480	15.6911	3	58	1.3791E-07	7.0554	0.0082	-9.2231E-06	6.0629E-09		

Table 10. Model summary and parameter estimates of regression analysis in Tenerife destination with added value as dependent variable.

Independent Variable: Minimum Price in Low Season										
Equation	Model Summary				Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3	
Linear	0.2571	26.9946	1	78	1.5889E-06	0.2787	-0.0063			
Logarithmic	0.3426	40.6494	1	78	1.1818E-08	3.1244	-0.7820			
Inverse	0.3632	44.5023	1	78	3.3066E-09	-1.1721	62.2094			
Quadratic	0.3349	19.3886	2	77	1.5149E-07	0.8426	-0.0171	3.7783E-05		
Cubic	0.3574	14.0909	3	76	2.1585E-07	1.4275	-0.0337	0.0001	-2.5349E-07	
Independent Variable: Maximum Price in Low Season										
Equation	Model Summary				Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3	
Linear	0.2641	27.9940	1	78	1.0847E-06	0.1739	-0.0039			
Logarithmic	0.3810	48.0112	1	78	1.0748E-09	2.8790	-0.6943			
Inverse	0.3924	50.3826	1	78	5.1228E-10	-1.0560	63.0542			
Quadratic	0.3670	22.3310	2	77	2.2460E-08	0.6541	-0.0109	1.5975E-05		
Cubic	0.3869	15.9918	3	76	3.7423E-08	1.0041	-0.0186	5.6537E-05	-5.4435E-08	
Independent Variable: Minimum Price in High Season										
Equation	Model Summary				Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3	
Linear	0.2956	25.1873	1	60	4.9383E-06	0.2344	-0.0045			
Logarithmic	0.4154	42.6368	1	60	1.5771E-08	3.3415	-0.7922			
Inverse	0.4531	49.7193	1	60	2.0458E-09	-1.2474	83.4526			
Quadratic	0.4178	21.1723	2	59	1.1722E-07	0.8907	-0.0143	2.4089E-05		
Cubic	0.4378	15.0554	3	58	2.3208E-07	1.3262	-0.0238	7.8503E-05	-8.2382E-08	
Independent Variable: Maximum Price in High Season										
Equation	Model Summary				Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3	
Linear	0.2794	23.2725	1	60	1.0019E-05	0.1433	-0.0030			
Logarithmic	0.4146	42.4971	1	60	1.6444E-08	2.9593	-0.6847			
Inverse	0.4411	47.3589	1	60	3.9782E-09	-1.1019	80.1646			
Quadratic	0.4065	20.2055	2	59	2.0691E-07	0.6607	-0.0092	1.1153E-05		
Cubic	0.4314	14.6723	3	58	3.1903E-07	1.0391	-0.0160	4.0592E-05	-3.2191E-08	

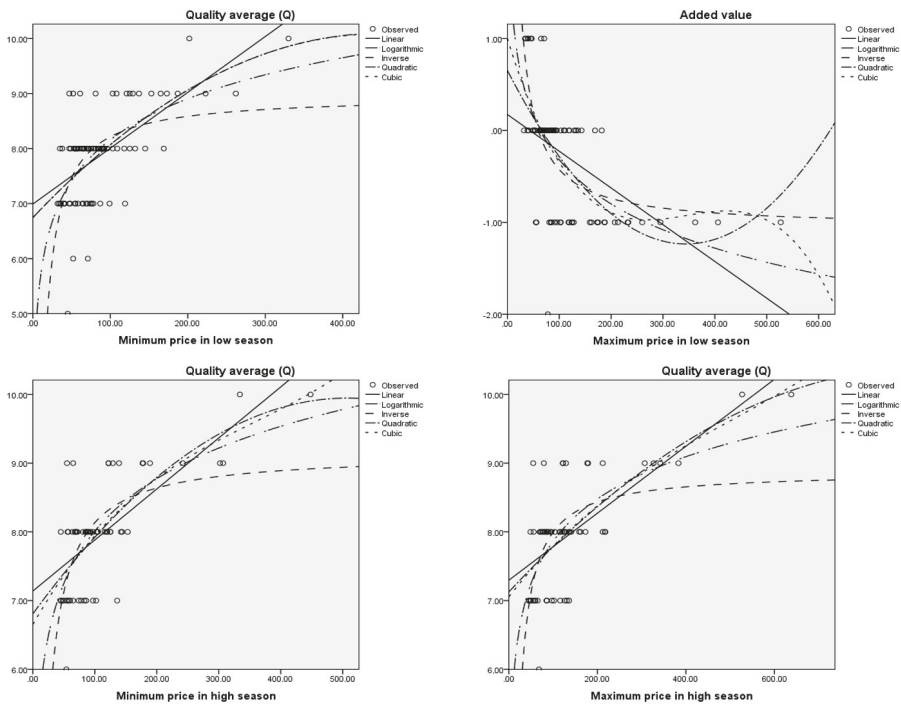


Figure 3. Functions of the regression analysis with the best fit in the Tenerife destination.

#### 4.4. Agadir Destination

Finally, the results obtained from the regression analysis in the Agadir destination highlight the great difference in value added compared to the other two variables studied. In this destination, Table 11 shows once again that the perceived value is not related to the prices studied because the adjusted R2 are close to zero. It should also be noted that the adjusted R2 achieved by the average quality of service were particularly low, with the adjusted R2 of the cubic function for the maximum prices in the low season reaching only 0.1999 (see Table 12). In contrast, the adjustments attained by the added value variable were very high compared to the rest of the regressions carried out. Table 13 shows that the cubic function reaches an adjusted R2 of 0.5419 at the lowest prices in low season, followed very closely by the quadratic (0.5393) and linear (0.5372) functions. For the maximum prices in low season, the cubic function also obtains the best fit 0.5344, as well as for the minimum prices in high season (0.534) and the maximum prices in high season (0.5125). It is necessary to emphasize that the quadratic and linear functions have also acquired some high adjusted R2 close to those of the quadratic function. The graphic summary of the results obtained in the Agadir destination is shown in Figure 4, where the added value is the variable that obtained the best results in all the regressions carried out.

Table 11. Model summary and parameter estimates of regression analysis in Agadir destination with value as dependent variable.

Independent Variable: Minimum Price in Low Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0460	2.2672	1	47	0.1388	7.2969	-0.0049		
Logarithmic	0.0372	1.8179	1	47	0.1840	8.2652	-0.3211		
Inverse	0.0173	0.8313	1	47	0.3665	6.7363	11.6060		
Quadratic	0.0462	1.1158	2	46	0.3363	7.3460	-0.0064	7.9187E-06	
Cubic	0.0574	0.9141	3	45	0.4417	6.7045	0.0231	-0.0003	1.2748E-06
Independent Variable: Maximum Price in Low Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0324	1.5786	1	47	0.2151	7.2255	-0.0031		
Logarithmic	0.0278	1.3479	1	47	0.2515	8.0222	-0.2504		
Inverse	0.0131	0.6259	1	47	0.4328	6.7923	10.1275		
Quadratic	0.0376	0.8988	2	46	0.4140	7.3865	-0.0070	1.6384E-05	
Cubic	0.0768	1.2480	3	45	0.3035	6.5085	0.0265	-0.0003	8.1339E-07
Independent Variable: Minimum Price in High Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0556	2.2971	1	39	0.1376	7.3517	-0.0056		
Logarithmic	0.0447	1.8259	1	39	0.1843	8.4196	-0.3562		
Inverse	0.0161	0.6411	1	39	0.4281	6.7539	11.0641		
Quadratic	0.0581	1.1739	2	38	0.3201	7.5266	-0.0108	2.9510E-05	
Cubic	0.0958	1.3067	3	37	0.2867	6.0971	0.0577	-0.0008	3.3711E-06
Independent Variable: Maximum Price in High Season									
Equation	Model Summary				Parameter Estimates				
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0320	1.2911	1	39	0.2627	7.2459	-0.0033		
Logarithmic	0.0280	1.1249	1	39	0.2953	8.0673	-0.2586		
Inverse	0.0101	0.3992	1	39	0.5311	6.8189	8.9723		
Quadratic	0.0386	0.7633	2	38	0.4731	7.4564	-0.0085	2.3749E-05	
Cubic	0.0568	0.7440	3	37	0.5326	6.7625	0.0182	-0.0002	7.3379E-07



**Table 12.** Model summary and parameter estimates of regression analysis in Agadir destination with Q as dependent variable.

Independent Variable: Minimum Price in Low Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1196	6.3905	1	47	0.0148	6.7114	0.0076		
Logarithmic	0.1372	7.4781	1	47	0.0087	4.8283	0.5935		
Inverse	0.1444	7.9325	1	47	0.0070	7.8788	-32.1967		
Quadratic	0.1261	3.3196	2	46	0.0450	6.4722	0.0148		-3.85953E-05
Cubic	0.1511	2.6707	3	45	0.0587	5.5484	0.0573		-0.000568131 1.83582E-06
Independent Variable: Maximum Price in Low Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.1212	6.4850	1	47	0.0142	6.7468	0.0058		
Logarithmic	0.1332	7.2229	1	47	0.0099	5.0105	0.5269		
Inverse	0.1376	7.5042	1	47	0.0086	7.7873	-31.5490		
Quadratic	0.1215	3.1822	2	46	0.0507	6.7097	0.0067		-3.7774E-06
Cubic	0.1999	3.7491	3	45	0.0173	5.5146	0.0525		-0.0004 1.1072E-06
Independent Variable: Minimum Price in High Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0636	2.6516	1	39	0.1114	6.8712	0.0059		
Logarithmic	0.0601	2.4954	1	39	0.1222	5.6161	0.4076		
Inverse	0.0651	2.7186	1	39	0.1072	7.7073	-21.9129		
Quadratic	0.0712	1.4568	2	38	0.2456	7.1674	-0.0029		4.9962E-05
Cubic	0.1026	1.4112	3	37	0.2548	5.8773	0.0589		-0.0007 3.0422E-06
Independent Variable: Maximum Price in High Season									
Equation	Model Summary			Parameter Estimates					
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.0810	3.4414	1	39	0.0711	6.8440	0.0052		
Logarithmic	0.0637	2.6548	1	39	0.1112	5.6442	0.3847		
Inverse	0.0577	2.3909	1	39	0.1301	7.6374	-21.1370		
Quadratic	0.1012	2.1413	2	38	0.1314	7.2081	-0.0038		4.1054E-05
Cubic	0.1147	1.5981	3	37	0.2063	6.6211	0.0188		-0.0001 6.2069E-07

Table 13. Model summary and parameter estimates of regression analysis in Agadir destination with added value as dependent variable.

Independent Variable: Minimum Price in Low Season									
Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.5372	54.5699	1	47	2.1206E-09	0.6031	-0.0131		
Logarithmic	0.5129	49.5062	1	47	7.2063E-09	3.4867	-0.9322		
Inverse	0.4050	31.9954	1	47	8.8775E-07	-1.1630	43.8132		
Quadratic	0.5393	26.9345	2	46	1.8051E-08	0.7149	-0.0165	1.8054E-05	
Cubic	0.5419	17.7458	3	45	9.5782E-08	0.9537	-0.0275	0.0001	-4.7446E-07
Independent Variable: Maximum Price in Low Season									
Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.5206	51.0516	1	47	4.9270E-09	0.5250	-0.0098		
Logarithmic	0.4963	46.3173	1	47	1.6117E-08	3.1954	-0.8265		
Inverse	0.3849	29.4180	1	47	1.9809E-06	-1.0373	42.8646		
Quadratic	0.5310	26.0459	2	46	2.7282E-08	0.7044	-0.0142	1.8262E-05	
Cubic	0.5344	17.2170	3	45	1.3727E-07	0.5035	-0.0065	-5.5315E-05	1.8612E-07
Independent Variable: Minimum Price in High Season									
Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.4724	34.9318	1	39	6.8996E-07	0.5043	-0.0118		
Logarithmic	0.4074	26.8126	1	39	7.1292E-06	2.8760	-0.7818		
Inverse	0.2934	16.1975	1	39	0.0002	-0.9791	34.2648		
Quadratic	0.4878	18.1005	2	38	3.0067E-06	0.1927	-0.0025	-5.2558E-05	
Cubic	0.5125	12.9684	3	37	6.1163E-06	1.0345	-0.0429	0.0004	-1.9850E-06
Independent Variable: Maximum Price in High Season									
Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	0.4676	34.2571	1	39	8.2890E-07	0.4580	-0.0092		
Logarithmic	0.3903	24.9659	1	39	1.2659E-05	2.6687	-0.7016		
Inverse	0.2683	14.3017	1	39	0.0005	-0.8789	33.5680		
Quadratic	0.4753	17.2124	2	38	4.7643E-06	0.2925	-0.0051	-1.8664E-05	
Cubic	0.4760	11.2036	3	37	2.2535E-05	0.1948	-0.0013	-5.6289E-05	1.0326E-07

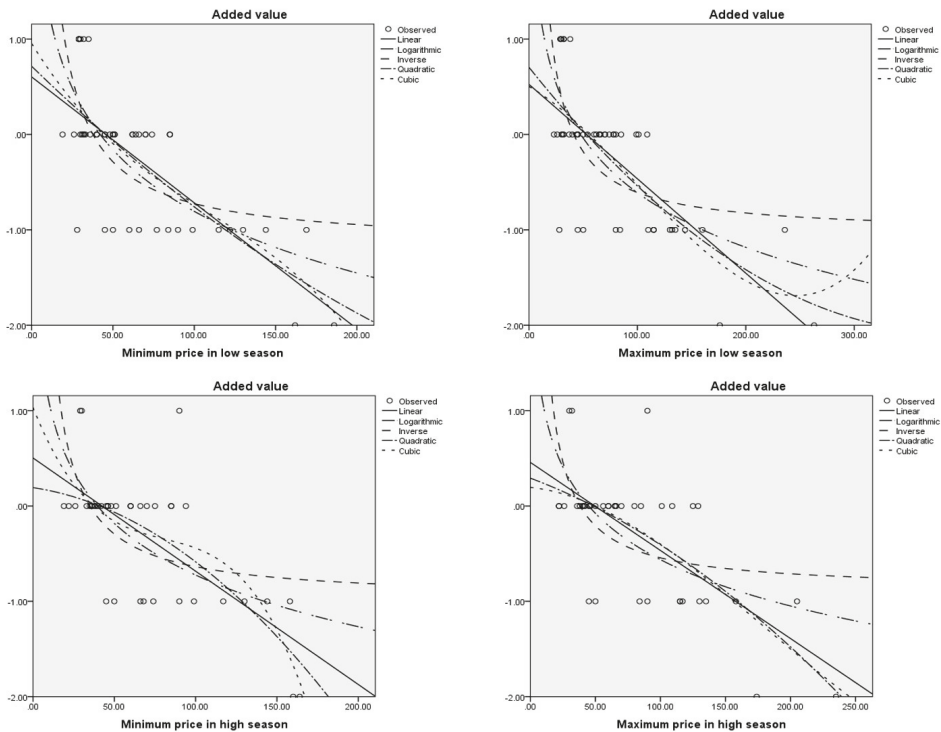


Figure 4. Functions of the regression analysis with the best fit in the Agadir destination.

5. Conclusions

The study presents a method for determining which online reputation variables are most closely related to lodging prices. This is a critical factor in the pricing process in the highly dynamic and competitive environment of the digital age. Online reputation has a direct influence on consumers’ buying behavior and, therefore, on the demand for each lodging. At the same time, a price that does not match the quality of service level offered can have an impact on the creation of customer expectations, which, when frustrated, will reinforce the devaluation of online reputation.

Price is a variable that is inversely related to perceived value (Holbrook 1994) and, consequently, to added value, which is calculated by subtracting the average service quality perceived from the perceived value (Rodríguez-Díaz et al. 2015). However, price is also directly related to average quality of the service perceived because an increase in quality offered by a lodging normally involves a higher cost, which affects prices. This is the starting point for the study carried out in this article, to try to determine which online reputation variable is most related to price. In the tourism sector, demand tends to fluctuate over different periods of time, which is the reason for obtaining information about maximum and minimum prices in high season and low season.

The results demonstrate that added value is the variable with the best fit in the different statistical analyses carried out. The only exception was in the destination of Tenerife, where the average quality of service showed the best fit in three of the four types of prices studied, possibly because the lodgings analyzed in Tenerife may be more focused on similar competitive characteristics. However, this is a hypothesis that should be studied in future research. Another result that must be highlighted is that in the Agadir destination, the added value variable obtained a much higher adjusted R2 than the other variables. The finding that the perceived value variable did not maintain a relationship with price was unexpected. Moreover, all adjustments were close to zero, whereas added value, which is calculated

on the basis of perceived value minus perceived service quality, was not only related to price but was also higher than average quality of service. Future research should contrast these results, because perceived value should also be related to lodging prices.

The functions that obtained the best results are cubic and quadratic. However, the results of logarithmic and inverse functions also achieved significant adjustments. The linear function obtained disparate results, whereas in all destinations and Gran Canaria it did not obtain satisfactory results, and in the destinations of Tenerife and Agadir it achieved high fits for the variables of average perceived quality of service and added value. Therefore, it can be concluded that the added value variable is the one most closely related to the different types of prices and tourist destinations, with cubic and quadratic functions being the most suitable. However, logarithmic and inverse functions can also be used to determine the relationship between prices and value added and average quality of service of lodgings in the tourist destinations analyzed.

This study makes a contribution from the competitive perspective of lodging, trying to determine the relationship and possible functions that best represent the relationships between prices and online reputation. In this context, it is of great interest the results obtained insofar as the methodology can be used in order to develop an artificial intelligence that determines the competitive prices at every moment of the accommodations. However, it has limitations that should be taken into account in future research. First, four types of prices were considered, differentiating between the high season and low season. However, prices may have more modifications than those studied, and so future research could analyze this aspect in more detail. Second, three competing tourist destinations in the sun and beach segment were examined. In this context, it would be interesting to carry out investigations in destinations with other characteristics, in order to determine whether there are significant relationships between price and online reputation. Third, the study did not differentiate the lodgings by category, which is also a highly price-related variable. It is possible that differentiating lodgings by category would produce different results where the average perceived service quality achieved the best fit, as occurred in the destination of Tenerife. Finally, value added is a new variable that has shown a strong relationship with price. It would be very interesting if this close relationship could be verified in other destinations and price levels.

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Article

# How to Carry out the Transition towards a More Circular Tourist Activity in the Hotel Sector. The Role of Innovation

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**Abstract:** Tourism causes important environmental impacts and can generate great pressure on local resources, such as land, water, energy and food, generating large amounts of waste, as well as problems of congestion, noise and air pollution. The circular economy is presented as an alternative model to the linear model, which recognizes the fundamental role of the environment, its functions and the interaction between the environment and the economic system. The hotel sector and the tourism sector in general, have been criticized for not adequately addressing environmental problems and global warming. In order to carry out the transition to a circular economy (CE), it is essential to innovate in business models, designing a circular business model. The objective of this work is to design guidelines on possible actions and opportunities that allow us to carry out a successful transition towards a circular model in hotel companies, as well as to design a model for this transition in a tourism destination, analyzing the roles of the different agents in this transition. Findings identified the main opportunities and benefits of this transition in the hotel sector and describes a three-axis model to carry out this transition in a tourism destination, identifying the roles of public administrations and DMOs, resident population and the tourism sector. Future research implications are also discussed.

**Keywords:** sustainable tourism; circular economy; innovation; hotel sector's competitiveness

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## 1. Introduction

Until now the tourism sector has not received much attention in the circular economy literature and development framework. However, the CE has a great potential for the tourism industry to achieve a sustainable development and greater profitability mainly in the provision of services in different sectors (hotel sector, food and beverage sector, leisure sector) and the flow of materials related to construction, energy, food, water, etc. In addition, tourism has the potential to contribute to employment and economic growth, as well as to the development in rural, peripheral or less developed areas ([World Tourism Organization \(WTO\) \(2017\)](#)). Indeed, infrastructure created for tourism purposes contributes to local development, while jobs created or maintained can help to counteract industrial or rural decline.

However, tourism causes important environmental impacts and can generate great pressure on local resources, causing negative externalities. In addition to the use of land, it requires resources such as water, energy and food, producing large amounts of waste (solid waste and wastewater), as well as congestion on roads, noise and air pollution, and hence, CO<sub>2</sub> emissions ([Rico et al. 2019](#)). In fact,

Saito (2013) through a survey of resource use and waste generation by the tourism industry on the Big Island of Hawaii (considering five sectors: Accommodations, food and beverages, golf courses, tour services and rental cars) estimates that the tourism sectors accounted for 21.7% of the island's total energy consumption, 44.7% of water consumption and 10.7% of waste generation. Rico et al. (2019) demonstrate that the average carbon footprint of a tourist in Barcelona is 111.6 kg CO<sub>2</sub> eq/day and 43.0 kg CO<sub>2</sub> eq/day for a day-tripper, much higher than the value for a Barcelona citizen (5.8 kg CO<sub>2</sub> eq/citizen-day on average). Additionally, Pablo-Romero et al. (2017) demonstrate an increasing positive relationship between the hospitality sector electricity consumption and overnight stays in Spanish provinces. Furthermore, in some destinations all these problems and negative externalities are aggravated by the concentration of visitors in time and space due to the seasonality of the tourist activity, combined with the fact that some destinations may not be designed to withstand such pressures.

Even though the concept of circular economy (CE) has received an increasing attention between policy makers and stakeholders worldwide, the CE literature on tourism is very scarce, and in fact, a systematic literature review on sustainability and related concepts through the Scopus database, Niñerola et al. (2019) demonstrate that the keywords circular and blue economies do not give rise to many papers. Furthermore, literature does not include previous studies that identify the specific guidelines to carry out the transition of the tourist sector towards a circular economy as we can find in other sectors such as the industrial one; however, the guidelines established for other sectors are applicable to tourism given that the flows of resources and materials used are the same as those needed by other sectors and therefore, these constitute a reference for the tourism sector (Manniche et al. 2017).

In order to carry out the transition to a circular economy, it is essential to innovate in business models, designing a circular business model. However, literature on innovation has focused mainly on studying the phenomenon of innovation in tourism sectors, in measuring the degree of innovation of tourism companies in certain tourist destinations (e.g., Hjalager 2010; Jacob et al. 2003; Orfila-Sintes and Mattsson 2009; Orfila-Sintes et al. 2005; Souto 2015; Sundbo et al. 2007); in identifying the determinants of innovative activity in hotel companies (e.g., Divisekera and Nguyen 2018; Martín-Rios and Ciobanu 2019; Nieves and Haller 2014; Nieves and Segarra-Ciprés 2015; Souto 2015); in measuring impacts of innovation on business performance (e.g., Hu et al. 2009; Martínez-Román et al. 2015; Shin et al. 2019; Tugores and García 2015; Verreyne et al. 2019); and few papers specifically on environmental innovations or eco-innovations and management and/or environmental and green practices in hotels or restaurants (Alonso-Almeida 2013; Alonso-Almeida et al. 2016; Bastič and Gojčič 2012; Chou 2014; Jacob et al. 2010; He et al. 2018; Horg et al. 2013; Kularatne et al. 2019; Le et al. 2006; Mak and Chang 2019; Martínez-Martínez et al. 2019; Radwan et al. 2011; Teng and Chang 2014; Vourdoubas 2016). For example, Vourdoubas (2016) demonstrates that the average annual CO<sub>2</sub> emissions in five operating summer hotels in Crete was estimated at 12.1 kg CO<sub>2</sub>/p.n.s. and they use several renewable energy sources including solar thermal energy, solid biomass and low enthalpy geothermal energy. Radwan et al. (2011) analyzed solid waste management (SWM) practices in green accredited and non-green small hotels in Wales. Findings showed that green small hotels used landfill as a last resort for the disposal of waste and preferred other waste hierarchy options.

What differentiates a circular business model from a sustainable business model is that, in the circular economy approach, based on systemic thinking, nature is not understood as a place or domain separate from that of society; both are seen as interconnected in complex systems that makes it difficult to distinguish one from the other. It is not about achieving a zero impact (objective of the sustainable development approach), but about designing solutions with a positive impact on the system (Manniche et al. 2017).

The objectives of this work are first, to design guidelines on possible actions and opportunities that allow us to carry out a successful transition towards a circular model for accommodation companies within the tourism sector, and second, to design a model for this transition in a tourism destination.

This study focus is in the hotel sub-sector and in a mature destination: The Balearic Islands, where there is a huge pressure on resources (energy, water, land and materials such as fossil fuels, minerals,

metals and biomass), food waste, and negative externalities due to tourism (congestion problems, loss of biodiversity, CO<sub>2</sub> emissions and pollution) and hence, hotel companies and destinations need to do this transition towards a CE. In fact, the Balearic Islands leads the classification of Spanish autonomous communities in terms of waste production per inhabitant (INE 2018<sup>1</sup>) with 740.2 kg per inhabitant/year compared to a national average of 471 kg per inhabitant/year, the transition to a circular destination would bring great economic, social and environmental benefits to the destination. Indeed, in the Balearic Islands, according to data from the INE (2018), this percentage rises significantly: If we consider a resident population of 1,176,627 inhabitants, and an entry of 14,037,640 tourists with an average stay of 5.88 days, we would obtain that tourists are responsible for more than 30% of Balearic waste. In fact, Mateu-Mateu-Sbert et al. (2013) estimate that an additional tourist on the island of Menorca generates 1.31 kg/day of waste, a figure higher than that of a habitual resident inhabitant.

For this, after the introduction the paper is structured as follows: In the second section a literature review is presented where we first focus on the new rules of CE and the three main principles; second we describe what are the potential benefits that the transition from a linear business model to a circular business model would bring to the hotel sector; and third, we analyze what type of factors drive and/or slow down this process and specially, the role of innovation; the third section evaluates the opportunities and benefits for the hotel sector of carrying out the transition towards a circular model, examining some examples of circular strategies in the hotel sector; the fourth section presents a three-axis model for a circular destination, analyzing the case of the Balearic Islands; and finally, the main conclusions of this analysis and future research implications are described.

## 2. Literature Review

### 2.1. Circular Economy: New Rules of the Game

The current economy is based on a linear economic system, focused on manufacturing without trying to optimize the materials to avoid their depletion and favor their recycling or recovery, generating garbage and waste, causing the depletion of resources and the generation of an excess of pollution and landfills, something which is unsustainable. Additionally, natural demographic trends and the consequences of global warming<sup>2</sup> pose a series of challenges. These challenges are the consequence of migratory flows, or the concentration of the population in large cities; in fact, we will have to decide what to do with the amount of waste that this increasing population will generate- which has been estimated to double from five billion to ten billion persons in the next century as most natural and artificial wastes finally reach the sea floor with time (NOAA 2019a). With this increase in demand, coupled with an increasingly reduced supply, a significant increase in the price of raw materials as well as in energy sources and materials can be envisaged. This can cause a serious instability of the socioeconomic system, if you do not have the necessary tools and mechanisms to guarantee supply provisions, correct consumption patterns, and facilitate the transition to a new sustainable and fair production model for future generations. Therefore, the situation of the planet indicates that we must face the problem and try to see it as an opportunity (resilience) to improve and reverse the situation and in order to achieve this the economic rules of the game will have to change, a change that will guarantee sustainability from the beginning to the end of the production process, becoming sustainability the heart of business and company mindset. Not only the products have to be sustainable, but the entire company and its business strategy. The goal is integral sustainability (Zhexembayeva 2014).

Faced with this reality, the circular economy is presented as an alternative model both from a theoretical and practical point of view in which the fundamental role of the environment is recognized, including its functions and the interaction between the environment and the economic system. Its

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<sup>1</sup> INE: National Statistics Institute; Spain.

<sup>2</sup> According to NOAA (2019b), without a natural greenhouse effect, the temperature of the Earth would be about zero degrees F (-18 °C) instead of its present 57 °F (14 °C).

objective is to minimize the ecological and environmental impact of economic activity through a process of disruptive innovation and sustainable competitive advantages (launch new products, new business models, new markets and all this generating profits).

Therefore, the CE is a systemic transformation that involves transforming production, services and consumption, both within global value chains and in different value chains, thus closing circles of resources in the whole set of economic activities (Hislop and Hill 2011).

Comparing both models (linear and circular), the production and creation of value in the linear model take place mainly along unidirectional supply chains, while the creation of value in a circular economy is related to continuous cascades of related activities and resource flows, totally hiding the up/down direction of linear supply chains.

Therefore, we need New Rules of the Game (Zhexembayeva 2014) which are described in Table 1.

**Table 1.** New rules of the game.

From linear to circular	New vision of the value chain; behaving like nature “from cradle to cradle (McDonough and Braungart 2002)
From vertical to horizontal; new business vision	New vision of business. Go beyond the limits of our own company and our sector. Include intermediate segments as suppliers and customers
From growing to growing differently	Be able to create more with less. Motivation to innovate
From plans to models; move from business plans to business models	Agile, evolutionary models open to change
From partial thinking to overall global vision	Change mentalities, be creative. CE is regenerative by design (Ellen MacArthur Foundation 2012). Rupture with programmed obsolescence; avoid waste and the generation of waste

Source: Zhexembayeva 2014.

Ghisellini et al. (2015) carry out a review of the literature of the last two decades, on the origins, principles and characteristics of the CE, focusing on the future perspectives of the implementation of the CE model, as well as its advantages and disadvantages. It highlights the different ways to implement the model with reference to the case of China and other areas such as the EU, Japan and the US. In China it is proposed as a top-down national policy objective while in the European Union, Japan and the United States, its implementation aims to design environmental systems and waste management policies. The ultimate goal in all cases is to decouple economic growth from the use of resources, for which it is necessary to involve the different actors at the macro, meso and micro levels, that is, the participation of all the actors in society, involved in the adoption of cleaner production standards at the company level, increased responsibility and awareness among producers and consumers, the use of renewable technologies and materials, and the adoption of adequate, clear and stable policies and tools to achieve an integral sustainable development. After conducting this extensive literature review on CE from the late 90s until mid-2017, Ghisellini et al. (2015) consider that CE emerges mainly through three main actions, the so-called 3R principles: Reduce, Reuse and Recycle (Table 2).

**Table 2.** 3R Principles.

Reduce	Overcome rebound effect of eco-efficiency and eco-sufficiency strategies
Reuse	Maximum reusability of materials; repair, remanufacture
Recycle	Make another product with the waste; business opportunities turning garbage into money.

Source: Ghisellini et al. (2015).

As indicated by Ghisellini et al. (2015), CE is a means to increase productivity, optimize the use of natural and human resources and increase efficiency in resource management. However, it has not

been generalized in industry or in academic research. Indeed, although the CE concept has received an increasing attention between policymakers and stakeholders worldwide, the CE literature on tourism is quite limited. It has been carried out mostly in China (McDowall et al. 2017), focusing mainly on general issues related to the incorporation of the concept of CE to tourism (Pattanaro and Gente 2017). Although the CE concept has received an increasing attention between policymakers and stakeholders worldwide, the CE literature on tourism is very scarce (Niñerola et al. 2019) and mostly carried out in China (McDowall et al. 2017) and focused on issues related to the incorporation of the concept of CE to tourism (Pattanaro and Gente 2017). In the academic literature the study of the importance and role of CE in the hotel industry is very limited (Manniche et al. 2017), although its application to the hotel sector can accelerate the business itself (environmental and financial benefits) and advance in sustainability, involving all the actors implicated in industry and tourism (Van Rheede 2012).

2.2. Benefits of the Transition from a Linear Business Model to a Circular Business Model

For CE to take place, a consumer demand for reused and remanufactured products is important, hence the importance of designing durable products for multiple cycles; combined with incentives for companies to choose business models based on returned or remanufactured products (Prendeville et al. 2014; Ghisellini et al. 2015).

Therefore, in the transition to a circular economy it is essential to innovate in business models, designing a circular business model. Thus, if in the linear business model based on “basic resources-product-final consumer” we include sectors and segments of the intermediate value chain as suppliers and customers, we are going beyond the limits of our company and sector, considering the opportunities offered by the environment and seeking new and more dynamic business opportunities.

To facilitate the change in the conceptual framework, the Ellen MacArthur Foundation and McKinsey Center for Business and Environment (2015) develops a business action framework to guide companies from a conceptual point of view in their search for where and how to start taking measures towards the CE. The framework is called Resolve and implies (Table 3).

Table 3. The Framework Resolve.

REGENERATE	Regenerate the change to renewable energy and materials; reclaim, retain and regenerate the health of ecosystems; and return recovered biological resources to the biosphere.
SHARE	Share. Shared resources (for example, cars, rooms, appliances); reuse or use second-hand; prolong life through maintenance, design for durability, upgrade capacity, etc.
OPTIMISE	Optimize. Increase product performance/efficiency; eliminate waste in the production and supply chain; take advantage of big data, automation, remote sensing and management.
LOOP	Reuse products or components in loops; recycle materials; digest anaerobically; extract biochemicals from organic waste
VIRTUALIZE	Virtualize books, music, travel, online shopping, autonomous vehicles etc.
EXCHANGE	Change. Replace the old made with advanced non-renewable materials; apply new technologies (for example, 3D printing); choose new product/service (for example, multimodal transport

Source: Ellen MacArthur Foundation and McKinsey Center for Business and Environment 2015.

The implementation of circular business models in the tourism industry will help it to achieve a sustainable development and greater profitability mainly in the provision of services in different sectors (hotel sector, food and beverage sector, leisure sector) and the flow of materials related to construction, energy, food, water, etc., because many CE solutions can be applied to tourism businesses and destinations to reverse the trend and reduce consumptions of natural resources, waste and CO<sub>2</sub> emissions.

### 2.3. What Factors Facilitate or Difficult This Transition Process towards a Circular Business Model

The transition process from a linear model to a circular model is a multilevel process in which we can distinguish three different levels (macro, meso and micro) in which the processes of change occur (Geels 2002).

This multilevel transition perspective implies that the macro, meso and micro levels are organized in a nested and hierarchical manner, which means that the meso level is integrated within the macro level and the micro level within the meso level. Thus, the macro level (external context) includes factors such as the price of oil, economic growth, wars, emigration, globalization, political coalitions, cultural and normative values, environmental problems such as climate change and scarcity of resources, etc.; the meso level (institutional framework) refers to the rules that allow and limit activities within the community. The macro level is an external structure or context (Geels 2002) which is very difficult to change, while the meso level allows to generate with certain frequency incremental innovations, through R & D but, where the radical innovations characteristic of a CE model is at the micro level (market), for a given macro and meso context, responding to its problems rules and specific capabilities. It is the ideal framework for social learning processes such as those mentioned above (i.e., learning by doing, learning by using and learning by interacting), interacting through social networks that support innovations, supply chains and user-producer relations. Consequently, the micro level is crucial for the socio-technological transition because they provide “the seeds for change” (Geels 2002).

This perspective of a “multilevel transition” helps to understand the continuous development and dissemination of innovations based on the principles of CE. In effect, these innovations take place in multiple smaller niches of companies, networks and supply chains in various industries and fields of activities, requiring the participation of actors at different levels, advisors and sectoral organizations and also intersectoral and inter-institutional collaboration.

In this multilevel framework we can distinguish several factors that facilitate and/or hinder the transition to a circular model. Vanner et al. (2014) found that there is rarely a single driver in a sector or value chain. In general, several factors are at play and often these factors influence each other. However among the facilitating factors we can distinguish:

- At the macro level, global political agreements to reduce climate change, the globalization of economies and the development of new consumer cultures based on new social networks, promote and allow innovations in companies and industrial and technological networks (micro level)
- At the meso level, policies to promote innovation at the micro level and economic incentives aimed at companies and individual markets (support for renewable energies, recycling in construction, ... )

It is at the interface between the meso level and the micro level that new circular markets and business models emerge; new networks of collaboration and industrial networks, as well as supply chains, and new presumptions and demands on the part of consumers, which facilitate the transition to a circular model. Therefore, the element that promotes all this is the innovation in the business model and the element that slows it down is the institutional framework (the policies).

### 3. The Transition towards a Circular Model in the Hotel Sector

Defining tourism as the temporary stay of a person in a geographical location different from his/her home, involves the consumption of services and experiences based on assistance and, therefore, an interpersonal relationship between the host and the guest/consumer (Manniche et al. 2017).

This interpersonal relationship provides the opportunity for the place of lodging to have an impact on the value that the guest will give to the accommodation service and, therefore, may influence his way of thinking and behaving not only during the stay but also afterwards.

### 3.1. Opportunities and Benefits of the Transition towards Circular Business Models in the Hotel Industry

Awareness of and responsiveness to environmental issues is in fact imperative for the hotel firms (Martínez-Martínez et al. 2019). Since the end of the last century, the hotel sector has introduced several environmental innovations and practices that save resources (energy, water, etc.) and hence, reduce costs for hotels, such as choosing not to remove towels daily. Furthermore, Teng and Chang (2014) indicate that hotel eco-friendly programs that are occurring in the distant future will be more effective if customers sign an environmental protection petition as a way to environment's commitment and hence, this will enhance customer intention to pay a premium price for an eco-friendly room or service.

The introduction of eco-innovations in hotels are a good first step, towards more circular business models but they are not enough. The CE goes further, it can become a central part of the host-guest relationship by including and involving guests not only from an environmental perspective, but also by making them participants in their actions to contribute to sustainability. In this way, tourism is presented as a unique opportunity to reconfigure the way people live, if only for a brief period of time, by immersing them in new environments and socio-technical configurations, allowing us to experiment with the way they organize the daily life of the individual (Manniche et al. 2017).

Thus, tourists enter "living laboratories", where they can experiment, play and radically modify the organization of their daily life, which is not only very interesting from a social perspective, but also from the commercial point of view, since it represents a market opportunity for companies, operators and tourist destination organizations, which act as facilitators in the process of transformation towards the circularity of linear tourism markets, emphasizing spending, hedonism and the unlimited use of resources, by using vacations as experiments in circularity, selling the destination as a window into the future, and differentiating itself from the rest of competitors (Manniche et al. 2017).

In this way, tourism influences the personal responsibility of each guest in the use of resources, helping guests and the industry itself become aware that they can take a vacation and at the same time reduce our ecological footprint and so it is likely that this attitude becomes a status symbol.

A specific way to encourage change is through guaranteeing user commitments. Thus, instead of designing, for example, hotel rooms as spaces of unlimited use of resources, hotels can provide an aggregate scoring system on guest behavior in relation to the use of resources (through a system of monitoring based on the internet of things) and reward those who are more aware, either financially, with loyalty bonuses or simply with good conscience (Manniche et al. 2017).

For this change to be successful, the interaction between the guest and the hotel staff (cleaners, receptionists, waiters, etc. . . .) is important, as a happy, well-paid employee will have a greater predisposition to participate in circular practices and strategies in order to create an environment of learning and social innovation between the guest and the staff.

Therefore, in addition to establishing sustainable growth strategies for companies and destinations, circular practices cover many areas such as: Respecting the limitations of the destination (minimizing the impact on nature and culture); support the local economy; carry out environmentally sustainable activities; actively contribute to the conservation of nature and culture; etc. Circular strategies would involve, for example, improving the development of tourism infrastructures and the quality of services as a tourist destination, as well as reducing the seasonality of tourist services, diversifying tourism activity (cultural tourism, business tourism, health tourism, ecological tourism . . .) with a circularity approach. To make this possible, a holistic approach is important to allow transitions to be made.

Focusing on the hotel sector, a circular strategy would be to strengthen cooperation in the hotel industry, for example, through local organizations and networks that seek to promote CE solutions such as: Measures to prevent food waste; green certificates, increasing use of capacity through shared economy platforms, self-sufficiency in terms of sustainable energy, implementation of circular agricultural practices that involve local farmers. In the latter case, greater self-sufficiency would be achieved with respect to local foods, local bio-waste would be transformed into fuels and fertilizers, establishing circular synergies between tourism and local agriculture, as well as job creation and new business strategies circular.

For these types of practices to be feasible, it is desirable to have an institutional and governance framework for innovation in relation to sustainability issues and environmental aspects stable and unique among countries and regions.

In this way, a systemic transition of CE would imply that the hotel sector would be understood as a set of circular flows of interrelated and more or less closed materials, allowing a cascade display of the materials between activities or services (accommodation, restaurants, well-being and leisure, etc.). (Manniche et al. 2017). Thus, for example, within “accommodation” we would have a circular construction, circular restoration, accommodation operation, implementation of circular management systems between the management, the staff in interaction with the guests. In the field of restoration; set of flows of biological material in food products, its packaging, transportation, food preparation, cleaning, storage flows and, circular handling of food waste. In the field of leisure and well-being; energy and water flows, chemical flows, circular handling of gray water, etc.

Some of these practices are carried out today, for example the improvement of waste materials for use in the construction sector, including the use of secondary raw materials; the design for the dismantling and prevention of waste, by means of which the buildings and products are flexible and allow the reuse of components and products; non-toxic building materials; as well as clean technologies on the material content and details of the construction and optimization of cooperation, to cover the entire construction process through the reinvention of supply chains and business models (State of Green 2016).

However, energy saving is not only possible thanks to the use of higher quality construction materials, but also depends on the technologies involved in improving the energy performance of buildings (Winans et al. 2017).

Finally, based on the 3Rs that characterize the CE, reuse is better than recycling in most cases, since recycling often means destroying, while reuse preserves the material in its original form and uses the article again and again for the same or different purposes. Thus, different circular practices via reuse could be implemented in the hotel sector, such as:

- ✓ Reuse of textiles: Reuse broken sheets, towels, aprons, tablecloths to make laundry bags, aprons, children’s bedding, small covers, etc. Replace single-use items such as napkins, tablecloths and hand towels for reusable items.
- ✓ Reuse of containers: Implementation of reusable container systems to reduce freight costs, etc.
- ✓ Reuse of bottles and glasses: Bulk drinks or bottles for reuse (Legrand et al. 2016).

In this framework, having local business partners on issues of more global distribution and redistribution systems would make the model more circular, since one of the objectives of the CE is to boost the local economy and generate employment.

### 3.2. Some Examples of Circular Strategies in the Hotel

Gaglia et al. (2007) and Pieper (2015) consider that hotels that incorporate energy management systems to establishments demonstrate a high awareness of environmental sustainability. However, these additions are incremental and non-circular innovations per se. A more circular behavior would reduce and optimize the use of energy within the company. It would be desirable that when a hotel is designing its facilities takes into account that this can affect the management of resources and the possible elimination of waste and therefore the environmental management of it. For this it is necessary to adopt a strategic management plan with energy audit, systemic reviews of consumption and minimization objectives thereof. New technologies would help achieve these objectives allowing a more rational use of energy and a reduction in consumption (Sloan et al. 2013).

Therefore, a change towards circularity implies a process of radical innovation. However, this can be carried out in stages, allowing the passage of sustainable green measures towards circular green measures. For this, it is necessary to change the value chain and interact with other companies to ensure that resource flows are circular, creating what could be defined as the “circular infrastructure”, that is,



access to renewable energy sources, circular systems for the treatment of water, access to suppliers and users who base their commercial models on leasing, circular designs, exchange platforms, and above all an adequate institutional framework. If our objective is only to control the flows of resources within the company, we will never take the step towards a circular sustainable model (Legrand et al. 2016).

In addition, as we mentioned above, the change to a circular business model in hotel companies implies a system of treatment and administration of personnel related to the use of services and waste management, aware, trained and in constant interaction with the supply chain. That is, circular business models require interaction between companies and long-term relationships between suppliers and users (along the entire product/service value chain).

Moving from a linear business perspective to a circular one is a slow process, which begins with the application of sustainable practices that are transformed into circulars year after year, until the development of a “circular infrastructure” through the development of business relationships is completed; in the long term with suppliers and external agents; which will lengthen the useful life of resources.

In the academic literature there is nothing about circular opportunities applied to the hospitality and/or food sector, probably due to the complexity of the food supply chain as indicated by Genovese et al. (2017), without forgetting that the research on the development of CE models that focuses on the tourism sector and hospitality is practically non-existent today.

Stahel (2013) or Ghisellini et al. (2015) argue that, in terms of resource efficiency and profitability, reduction and reuse are more circular and sustainable than recycling. This could be an important prioritization to guide the possible steps of CE in the tourism sector. Thus, we distinguish three levels: At the organizational level of the company; business context; external context (Manniche et al. 2017).

- Waste management business models relevant to the hotel sector. They consist of adopting business models of waste management as part of their product line. Hotels can sell used textiles and bedding, hotel restaurants can sell food waste, grease from their sewage sludge and other cooking resources, while spas can sell gray water with specific qualities and chemicals.
- Ecodesign business models. Ecodesign as a business model can be applied to all furniture and products and devices related to energy. The ecological design in the renovation of hotels and in new constructions is treated in more detail when we analyze the potentials of CE in the hotel services.
- Leases of products. The tourism industry already offers that type of leasing services for tourists, who leave everything that cannot fit in a suitcase/car at home and rely on provision frames in their place of accommodation or destination. This can be a thriving opportunity for the hotel industry to take a step forward.
- Remanufacturing, although it is more advantageous for large companies; however, the tourist SMEs can conceptualize themselves as an important group of consumers.
- Collaborative commerce in tourism. Use of online platforms for loans of goods that tourists decide not to take with them to the destination such as: Bicycles, canoes, hair dryers, etc. with the local population. An example of this is the Dutch platform *Thuisafgehaald* (Shareyourmeal) that allows to share homemade food, reducing food waste and strengthening social relationships between foreigners and locals. Another activity is to establish a system through which tourists are invited to the homes of local residents, thus fostering cultural exchange.
- Other relevant circular business models. Hotels can be important consumers of remanufactured products, which helps create demand for those products. They may consider renting laundry or kitchen equipment, and thus obtain the most advanced technology and save on the related maintenance costs (water, electricity, etc.). The reuse of equipment, furniture, cutlery, etc., can be taken into account in the redesign of a hotel or restaurant.

#### 4. A Three-Axis Model for a Circular Destination: The Case of the Balearic Islands

We can say that the transition model to a circular destination focuses on three main axis: The public administration and/or destination management organizations (DMOs), the tourism sector and the resident population. Each of them has a differentiated role in this transition, specifically (Figure 1):

Role of the Public Administration and/or DMOs.

- To design incentives to promote the implementation of CE measures in the tourism sector (i.e., Tax deductions for investment in CE measures/technologies).
- To design laws and regulations that reduce the obstacles to the application of CE measures in tourism businesses.
- To involve the tour operators in the design of a program of awareness and changes in tourist habits.

Role of the tourism sector (hotel)

- To design a branding strategy that enhances the social and environmental benefits of circular practices in the hotel establishment. This will lead to an increase in the reputational value of hotels.
- To raise awareness, train and involve hotel human resources in the design of a circular strategy for the hotel business.

In fact, [Kang et al. \(2012\)](#) demonstrate that the intention to implement green practices in the hotels sector is the result of the three environmental triggers (environmental knowledge, environmental awareness, and environmental concern) and ecological action, and that hotel employees with greater ecological behaviour are more likely to implement green practices. Furthermore, [Mahachi et al. \(2015\)](#) find that the availability of a comprehensive environmental sustainability program and strong environmental management values were the key factors for renewable energy adoption in two hotels in Botswana.

Role of the resident population

- To involve the resident population in the change towards a CE of the tourist destination.
- To promote social awareness about social and environmental benefits.
- To design a system of incentives/penalties to increase awareness and change in the consumption habits of the resident population towards a CE model.

Obviously, the development of these roles and their interaction at the destination level will lead to some impacts on tourists in terms of increase of reputational value of hotel companies and increase of environmental awareness when they are at the destination. This opens up opportunities for the revenue management departments to charge a premium price for circular services, for example, eco-rooms, etc.

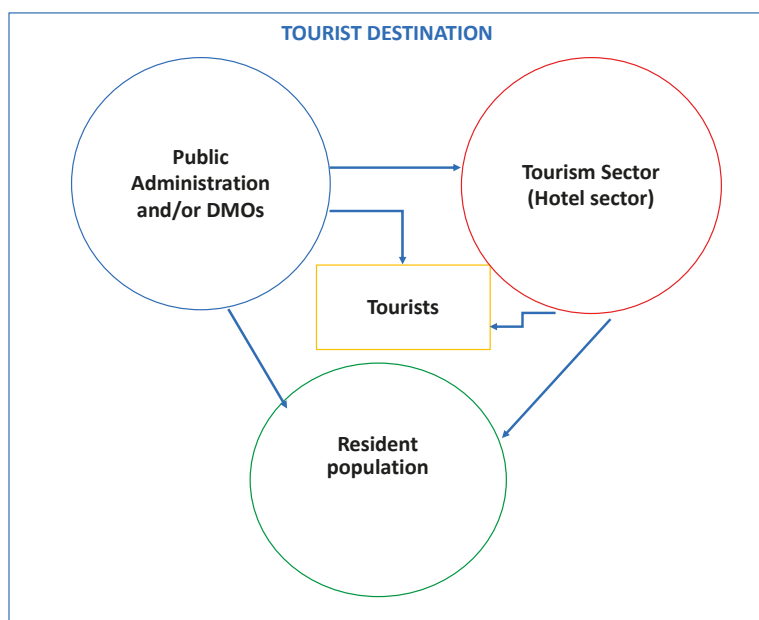


Figure 1. Three-axis model. Source: Own elaboration.

Public administrations and DMOs, both locally and nationally, play a crucial role in the transition to a circular destination. Indeed, they face important planning challenges related to the protection of natural resources, water supply; the promotion of renewable energies, and the reduction of pollution, among others; and at the global level, the role of national tourism policies is decisive in facilitating the implementation of more circular practices. An example of a destination which has implemented a strategy to begin the transition towards a circular destination is the Balearic Islands where different lines of action have been implemented by the regional government and the hotel sector in order to achieve this goal in the near future, taking into account the resident population as well. In fact, they have considered the three-axis model described above, specifically:

Role of Public administration and/or DMOs, with the following measures designed and implemented:

- New Llei de Residus i Sòls Contaminants of the Balearic Islands (New Waste Law).
- Aid programs for the implementation of environmental quality certifications:
- Awarding of prizes to encourage the creation of ideas and innovative projects that can contribute to the achievement of the circular economy objectives

Role of Hotel and tourism sector

- Many multinational hotel companies of Balearic origin have designed and implemented CE measures within the corporate social responsibility (CSR) strategies.
- In the agri-tourism sector, due to environmental awareness sustainable and CE measures (reuse, waste minimization, use of local products, . . . ) have been developed and implemented, that leads to an increase in reputational value.
- Implementation of the international Cradle to Cradle certification in many hotel establishments (and when they have internationalized in other destinations) that contemplates measures on both water, energy and on the raw materials used in the construction and conservation of hotel establishments whether they are conveniently recycled when the property goes into obsolescence.

- Demand segment via tour operators (TOs): TOs increasingly contemplate that those hotels that do not implement environmental measures do not enter into their offer catalog and those hotels that have more radical sustainable measures can be distributed at higher prices.
- Growing online demand segment: There is a growing importance of the hotel image in environmental terms that may allow price differentiation to be applied by the Revenue Management Department of hotel companies.
- ESADE study 2018<sup>3</sup> indicates that more and more tourists are not willing to choose a hotel that does not have a distinctive environmental quality, and even those hotels with CE certifications have rates 20% higher than the competition.

#### Role of Resident population

- The regional government started a citizen participatory process on the new Waste Law to promote resident awareness on the need to transit to a circular economy.

This perspective of theoretical multilevel transition is important for understanding the dynamics through which the CE is developed, since it helps to focus attention on how to implement the CE in the tourism sector, currently in an incipient phase which will require the participation of actors at many different levels, including companies, their advisors and sectoral organizations, but will also require intersectoral and inter-institutional collaboration.

## 5. Conclusions

Tourism generates important environmental impacts, a great pressure on local resources, producing large amounts of waste and CO<sub>2</sub> emissions, hence it is a sector where CE opens up enormous opportunities for business models. Although the circular economy has become a popular topic among policy makers and stakeholders worldwide, the CE literature on tourism is very scarce, and does not include previous studies on the transition of the tourist sector towards a circular economy or in how to design circular businesses in tourism.

Thus, this work focuses on analyzing how to carry out the transition from a linear model to a circular model in the hotel sector through the analysis of real practices. The objective is to design guidelines on possible actions and opportunities that allow us to carry out this successful transition towards a circular model in hotel companies, as well as to design a model for this transition in a tourism destination. The review of existing literature and empirical evidence on CE and environmental innovation in the hotel sector leads to the following conclusions:

- The tourism sector offers many opportunities to use vacations as experiments in circularity since normally a tourism trip invites to spend more and to use the services contracted as one desires.
- There is a large field in which to develop circular practices that help to raise awareness among tourists and in the company itself, not only with the sole objective of being more sustainable, but also with a greater awareness that leads to the design of tourism products and services based on the objectives of circularity.
- Hence, tourism acts as a living laboratory, where tourists and company staff experience new habits and more sustainable forms of organization, which will have not only a great social impact but also on the market (companies, operators and tourist destination management organizations) in terms of greater profitability and competitiveness.

This transition towards a circular model is a multilevel process in which all the actors interact (at the macro, meso and micro levels), although where the change really occurs is at the micro level. Therefore, truly circular business models do not involve a single company, that is, they cannot be

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<sup>3</sup> ESADE: Business School. Barcelona. Spain.

implemented by individual businesses without interaction with external actors, this implies not only technological changes, but also changes in regulations, laws and infrastructures, industrial networks, consumer cultures, etc. Findings identified the main opportunities and benefits of this transition in the hotel sector and at the destination level, and a three-axis model to carry out this transition in a tourism destination is described, identifying the roles of public administrations and DMOs, resident population and the tourism sector, as a support framework that allows us to promote this transition process. In particular, the hotel sector can:

- Design awareness programs for tourists about their consumption of resources and environmental impacts of their consumption. For example, informing tourists about the amount of resources consumed and the need of infrastructure to provide the services they purchased,
- Design programs for customers encouraging a change of attitude in aspects such as the generation of waste and possible recycling or reuse thereof.

The transition to a circular economy is not a win-win situation with all-inclusive, but a situation that, at least in the transition phase, will generate winners and losers.

The paper also describes an example of a destination which has implemented a strategy to begin the transition towards a circular destination (the Balearic Islands) following a three-axis model taking into account the role of the public administration, of the tourism sector and of the resident population as well. This example is a pioneering model, especially with the approval of this precursor and courageous law at the European level to promote “a change of model” that requires the commitment of citizens, administrations and firms.

Future research could focus on the study of how specific companies within the industry are adopting the CE and what are the challenges and barriers they face throughout their supply chain as well as in demand, attending fundamentally to the perceptions of the consumers that imply changes in the consumption process. In this context, information technologies in tourism and hospitality are increasingly important, playing a key role of sustainability in data management in terms of monitoring, providing information that allows us to define a series of indicators to be able to measure the degree of circularity in the transition process. Among the future lines of research is firstly the empirical application of the three-axis model presented to a specific destination, it will enable us to establish the synergies and symbiosis between the different sectors of the local economy and the conflicts between the interests of tourists and residents, allowing us thus, to harmonize economic, social and environmental objectives. The ultimate goal would be to optimize, reconciling the tourism sector and the sustainable management of resources, by reducing, reusing and recycling. For this, we will need to design evaluation and monitoring tools, defining indicators capable of expressing the synergistic effects that allow us to measure and quantify the progress in the transition and the positive as well as negative impacts.

Secondly, when focusing on the implementation of a circular business model in the hotel sector, a future research line is for example, the analysis of a real case of implementation of a circular strategy in a hotel, through a cost-benefit analysis, identifying barriers to that change. In this way, we could advance in the first steps of this transition process and identify good practices for the design of future circular strategies in the hotel sector.

Finally, to this day, circular development initiatives in tourism do not seem to have a strategic priority and organizations have to rely mainly on bottom-up initiatives carried out by actors and local government companies. That is, the change begins at the micro, local level, from bottom to top, not the other way around. Further research could focus on defining a circular strategy for a hotel establishment and on designing circular certifications for hotel establishments.

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Article

# The Role of the Geographical Textbooks in Grounding Negative Stereotypes of a Tourism Destination—The Case of Upper Silesian Conurbation in Poland

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**Abstract:** Tourists' decisions on selecting their destinations are driven by their imagination of available offers, rather than by the real offers. The special role of the image of tourism destination in the process of building a competitive position result, among other things, comes from the fact the image is a factor of competitiveness influenced by both intentional and accidental actions of entities, whom are active in a particular tourism destination as well as environmental elements, which are beyond the influence of these entities. The cities of the Upper Silesian Conurbation were for many years perceived as completely dominated by heavy industry. Nowadays, after significant changes in their economy and environment, local authorities are struggling to fight that negative perception. The aim of the paper is to examine if the negative image of the Conurbation is grounded by the textbooks for geography for secondary schools in Poland. The textbooks were studied using the content analysis as an example of important autonomous sources of information. Particular stress was put on analysis of the heading and pictures in the chapters on the Conurbation. The results prove that industrial image of the region is being grounded by the geography textbooks. It was discovered that the picture of Upper Silesian Conurbation that might be found in researched textbooks is almost identical with what was previously presented in the literature as tourists' perception of the Conurbation. The results prove the role of the textbooks and the whole school education as factors shaping the image of particular places that people have also as adults. That role was neither researched nor clearly stated in the literature so far.

**Keywords:** destination image; negative stereotypes; post-industrial cities development; Upper Silesian Conurbation

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## 1. Introduction

Different places compete on the tourism market to attract visitors (Crouch and Ritchie 1999). Creating an attractive, competitive offer is not an easy task, as potential customers do not have extended knowledge about competing destinations and do not have opportunity to test the product offered before consuming it (Enright and Newton 2004). So, tourists' decisions on selecting their destinations are driven by their imagination of available offers rather than by the real offers (Kock et al. 2016). Establishing distinctive and competitive image became crucial for destinations competing to attract visitors (Chi and Qu 2008; Pike and Mason 2011; Pike 2018) and destinations' marketers attempted to influence that image (Selby and Morgan 1996; Chen and Tsai 2007; Lai and Vinh 2012). However, establishing the desired image is difficult due to a series of reasons (Echtner and Ritchie 1991; Gallarza et al. 2002; Pike 2018). Among them, the fact that a destination image is based on both information dependent and independent from purpose marketing actions, is one the most important

(Tasci and Gartner 2007). Potential tourists learn about features of particular places during their education, from media and from friends and relatives, and those messages are completely independent from the destination and their marketing strategies. The tourists' low level of knowledge (Tapia 2017) and the simplified messages sent through mass (including social) media, make stereotypes about particular places even more firmly rooted. Those stereotypes do not often make attracting visitors easier, as they present particular places in a very simplified (Chen et al. 2016; Avraham 2018), one-dimensional and often negative way (Muhwezi et al. 2016). Making an image of a destination more firmly rooted and/or changing it is a difficult and time-wasting task, which influences the rooted needs of the stereotypes with even more effort and time (Chen et al. 2012). It can even happen that the feature of the place, which is the base for the stereotype, was weakened or even disappeared from the real world, while the stereotype still exists in people's mind although the place representatives undertake actions to communicate the change.

The paper is devoted to analysis of a region where this really happens. The cities that are the part of Upper Silesian Conurbation were perceived for many years as completely dominated by heavy industry, and, in particular, coal mines, and that image was right. However, after systemic changes in Poland in the early nineties, coal mining and the heavy industry as a whole became economically less profitable; these cities started changing their economy and landscape step by step. Nowadays, in particular Katowice, the capital city of the region, is a modern and dynamic city, similar to many other cities of the same size in Poland and the industry here is modern and plays a secondary role in its economy, after services and new technologies. However, the situation is more differentiated in other cities of the Conurbation, and in some of them, coal mines and ironworks are still playing an important role in their economies and societies.

The industrial image of particular cities and of the Conurbation as a whole brought many associations which are extremely undesired for the image of an attractive tourist destinations. Those associations are usually connected with dirt, pollution and the general perception of an unattractive place to spend the time. Authorities of Katowice and of other cities, as well as regional authorities of Silesian Voivodeship, spent a lot of effort to communicate a new, modern and attractive nature of the Conurbation, but the research presented in the literature proves that these actions are far from being efficient (TNS Polska 2014; Hendel and Żemła 2015; Szubert and Żemła 2019). For example, young people who study in Krakow, located less than a 100 km from Katowice, presented a rather negative image of the Conurbation as a tourism destination and their responses proved that an industrial, negative stereotype of the region is still deeply rooted (Szubert and Żemła 2019). The aim of the paper is an attempt to examine if the negative image of the Conurbation is grounded, among others, by the school textbooks for geography in Poland. The textbooks were studied using the content analysis as an example of important autonomous sources of information. Apart from the destination image and stereotype literature review, which was the starting point of the paper and a short description of the Conurbation, it contains three major parts. The first one is connected with the results of researches of the image of the Conurbation which were already presented in the literature. The second one is an analysis of marketing actions and strategies implemented by local and regional authorities in order to make the Conurbation an attractive and competitive tourist destination. Finally, the third and most important one, is a presentation of the results of the content analysis of school textbooks that shows how the Conurbation is presented to pupils in the school education.

## **2. Tourism Destination Image and Its Formation Process**

An image is perceived as a very important element of contemporary marketing. After gaining a big popularity on traditional tangible goods and services markets, the issue of an image also became a point of interest, and later on it even became a focal point in place marketing, including tourism destinations marketing. According to a widely cited definition by John Crompton (Crompton 1979, p. 18), "destination image" is "the sum of beliefs, ideas and impressions that a person has of a destination". Tourism researchers have frequently examined the concept of destination image (Pike and Ryan 2004).

A number of tourism studies have shown the theoretical and practical importance of destination image (Beerli and Martín 2004; Echtner and Ritchie 1991; Souiden et al. 2017; Pike 2018); however, most tourism researchers also agree that the nature of destination image is too complex to be fully understood (Beerli and Martín 2004; Gallarza et al. 2002; Chen et al. 2012).

Therefore, an image can be an essential factor that builds the market position of the tourist reception area (Enright and Newton 2004). On the other hand, an unfavorable image may also be a significant limitation in tourism development in a given tourism destination. In some destinations that meet all conditions to serve tourism, it is particularly easy to see that these areas are still relatively unknown to potential tourists who are driven by unfavorable stereotypes (Avraham and Ketter 2017) rather than by real facts. Stereotypes of this kind are also the case on the international tourism market where most potential tourists are aware that there are many attractive countries and regions, but what they really know about their tourist offer, natural conditions and the history of all these countries is much too little.

The special role of the image of tourism destination in the process of building a competitive position results, among other things, comes from the fact that image is a factor of competitiveness influenced by both intentional and accidental actions of entities who are active in a particular tourism destination, as well as environmental elements that are beyond the influence of these entities (Chen et al. 2017). One of the issues that are particularly important for using the image in building a competitive position of tourism destination properly is to understand the nature of dependent and independent factors in the process of image formation of tourism destination. The process of image formation of tourism destination is defined in literature as creating a mental ideas image, representation of tourism destination based on information cues provided by image formation agents and selected by a specific person (Tasci and Gartner 2007). As part of the research on the process of image formation of tourism destination, according to Baloglu and McCleary (1999), Gallarza et al. (2002) indicate two approaches used in the literature. Numerous researchers referred to a strong positive relationship between both the image of individual attributes with the holistic image of tourism destination and the behavior of the buyer both before, during and after the tourist trip. (Ross 1993; Chen and Kerstetter 1999; Chen and Hsu 2000).

The model of image formation of tourism destination, which takes into account both the causes and the effects of the image of tourism destination, was presented by Tasci and Gartner (2007). The basic assumption underlying the model discussed is the statement that the image of tourism destination consists of elements originating from an individual and from elements of tourism destination. Three sources of factors that shape the image of the tourism destination were distinguished: the destination itself, independent sources and the recipient. A similar concept was presented earlier by (Gunn 1972) who identified two levels for the image of a tourist destination based on the type of information transmitted to the tourist—organic and induced images. According to (Gunn 1972), during the process of destination-image formation, organic images are first formed based on non-commercial information sources. That of organic and induced destination image was later used by numerous researchers (Chung et al. 2016).

An organic image is created by all information transmitted unintentionally. This information may be transmitted either via television, radio, books on geography or history, newspapers, magazines, or by people living at a tourist destination. As people tend to consider information from non-commercial sources as credible knowledge, organic images have a strong influence on how people evaluate a tourist destination image (Gartner 1994; Fakeye and Crompton 1991; Tasci and Gartner 2007; Chung et al. 2016; Chen et al. 2017). An induced image is an image formed by promotions and communications of the tourism organizations involved in a particular region. In this context, it is naturally true that both reference or membership groups and opinion leaders can powerfully influence the way tourists perceive a particular destination (Lopes 2011, p. 310). This statement also indicates not only that the promotional message of tourism destination should be carefully prepared, but also indicates that

it should be followed how it is presented in independent messages, in the media, in the education process and other processes.

As it is noticed by Charlotte Echtner and Brent Ritchie (Echtner and Ritchie 1991, p. 38), a greater part of majority of products and services, information sources is of commercial nature. Destination images, however, seem to be derived from a much wider spectrum of information sources. This means that the information gleaned from non-commercial sources concerning various historical, political, economic and social factors is incorporated into destination image and plays an important role, which is much more substantial than it is for many other products. This is also the reason why it is so important to analyze the formulation of the organic image of a destination. However, there are not too many examples of scientific analysis of an organic image of a tourism destination as well as of marketing practices used to reconstruct the image based on an analysis like this. Among rare examples, works by Selby and Morgan (1996), Lepp et al. (2011) and Choi et al. (2007) can be pointed out.

The image that prospect visitors derive from autonomous sources, both media, education and private ones (friend, relatives) can stimulate rooting of positive or negative stereotypes of a particular destination. Additionally, the existing stereotypes might also become rooted more firmly that way. Negative stereotypes created and being sustained that way might be extremely difficult to get rid of for destination marketers and their commercial messages. Still, the issue of sources of these negative stereotypes, of their influences on a destination image and finally on customers' market behavior were not studied thoroughly so far (Avraham 2018). Single works dealing with that issue like works by Di Marino (2008), by Avraham (2018), by Chen et al. (2012) and by Fu et al. (2016) deal rather with images of particular countries on the international tourism market rather than with images of regions on the domestic market.

### 3. Upper Silesian Conurbation

The Upper Silesian Conurbation is located in southern Poland, in the central part of the Silesian Voivodeship. It is the largest urban-industrial area in Poland. The cities of today's Conurbation were formed along with the GOP [Górnośląski Okręg Przemysłowy—Upper Silesian Industrial District]. Its origins and development since the end of the 18th century was associated with coal mining and ferrous metallurgy. The Conurbation consists of 19 cities inhabited by 2011.3 thousands of persons on the surface of 1468 km<sup>2</sup> (Table 1). Katowice is the largest city of the Conurbation and the capital of the province (Figure 1). This is the area with the highest population concentration in Poland. The average population density is 1370.1 persons/km<sup>2</sup>.

**Table 1.** Cities of Upper Silesia Conurbation by number of inhabitants in 2017.

No.	City	Number of Inhabitants in Thousands	Area in km <sup>2</sup>	Density of Population People/km <sup>2</sup>
1	Katowice	298.1	165	1806.7
2	Sosnowiec	205.9	91	2262.7
3	Gliwice	182.2	134	1359.7
4	Zabrze	175.5	80	2193.8
5	Bytom	169.6	69	2458.0
6	Ruda Śląska	139.1	78	1783.3
7	Tychy	128.4	82	1565.9
8	Dąbrowa Górnicza	121.8	189	644.4
9	Chorzów	109.4	33	3315.2
10	Jaworzno	92.5	153	604.8
11	Mysłowice	74.6	66	1130.3
12	Siemianowice Śląskie	67.9	25	2716.0
13	Tarnowskie Góry	61.2	84	728.6
14	Bedzin	57.6	37	1556.8
15	Piekary Śląskie	56.0	40	1556.8
16	Świętochłowice	50.6	13	3892.3
17	Knurow	38.7	34	1138.2
18	Mikolow	40.1	79	507.6
19	Czeladz	32.1	16	2006.3
	Total	2011.3	1468	1370.1

Own study based on (2017).

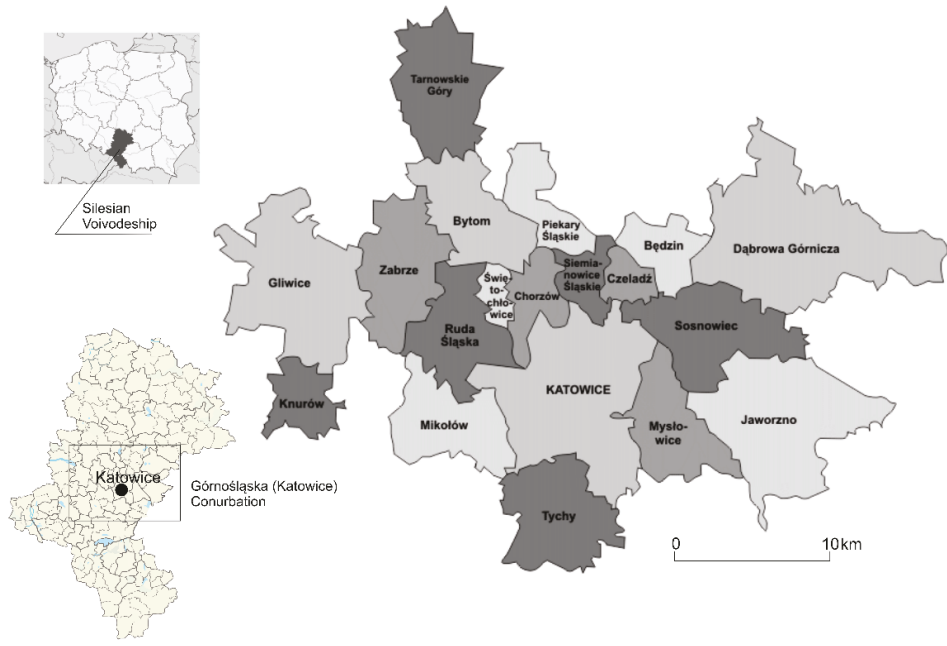


Figure 1. Upper Silesian Conurbation.

On the verge of the economic transformation, in 1989, the GOP was dominated by the extraction industry and the heavy industry. 38 coal mines with 228,200 people employed were operating there, which accounted for 44.8% of the total employment in the industry. City of Katowice was the largest mining center. 16 ironworks employing 68,000 employees were operating in the same year, which accounted for 13.3% of people employed in the industry. The largest metallurgical centers were Dąbrowa Górnicza, Bytom, Gliwice and Katowice (Tkocz 2015). For over 25 years of the GOP restructuring, the economy of this district underwent profound transformations. In 2012, 35.3% of all employees were employed in the heavy industry and construction industry, while the share of other sectors, especially services, increased to 64.7%. The production of cars and products for automotive industry, cement, glass, plastics, wood products, food and electrical equipment was developed. IT companies were also created (Tkocz 2015). As the metropolitan functions were developed, the urban landscape has changed; the cultural potential of cities has increased and specialized services of a higher order were provided in the Conurbation (Zuzańska-Żyśko 2016).

New areas with metropolitan features are best shaped in Katowice where urban regeneration projects have been implemented in the former coal mining areas, i.e., Strefa Kultury [the Culture Zone] and the Silesia City Center. The gated communities' settlements typical for metropolises were also created. On a smaller scale, Gliwice, Chorzów and Sosnowiec are also undergoing transformations. Like in Katowice, metropolitan projects for business, administration, culture and science are carried out there. Also, nation-wide cultural institutions have emerged (e.g., orchestras, opera, operetta, theaters, museums, amusement parks), events (e.g., congresses and concerts, festivals, exhibitions, fair, sports events) of international importance as well as sports and recreation facilities (golf courses, water parks, e-sport zone) (Zuzańska-Żyśko 2016).

The growing space of culture, sport and recreation merges with the tourism space, extends it, and makes it more attractive. This is why the cities of the Upper Silesian Conurbation are becoming attractive to a wide range of cultural tourism. Cultural tourism based on the historical, cultural and

economic heritage of the Upper Silesia and Zagłębie [Coal Basin] is crucial. Undoubtedly, tourist attractions on the Industrial Monuments Route of the Silesian Voivodeship, which are the industrial legacy of the Upper Silesian Conurbation, are of transregional importance. Post-industrial tourism and events such as *Industriada*, international cyclic conference on industrial heritage tourism in Zabrze combined with the International Trade Fair of Industrial Heritage and Underground Tourism are thriving. Cultural tourism is a significant contribution to changing the image of Upper Silesia Conurbation cities also by exposing the rich history and traditions of the region. Tourists are also attracted by sport events (sports halls Spodek in Katowice and Arena in Gliwice and the Silesian Stadium in Chorzów). The image of the Conurbation is also changed by business tourism (associated with the modern industry and services), congress tourism, event tourism aggregated in Katowice. The image of the Conurbation is also changed by business tourism (associated with the modern industry and services) and congress tourism aggregated in Katowice.

The tourist development in the Upper Silesian Conurbation is further enhanced via the ease of access and transportation in this region and its well-developed tourist infrastructure. Throughout the Conurbation, multinational routes can be found, such as A1 (E-75), and A4 (E-40) highways as well as railway routes: Wrocław-Katowice-Kraków-Przemyśl, Katowice-Warszawa-Gdańsk and Katowice-Wrocław-Szczecin. Air link is provided by the airport Katowice-Pyrzowice. The hotels' capabilities meet the demand for accommodation. A constant increase in the numbers of hotels can be observed in the cities within the Conurbation—the highest in Katowice, whilst the older hotels are modernized. The majority of the hotels are three- or four-stars standard. However, hotels of a very high standard (five stars) remain few.

#### **4. Actions and Concepts of Changing the Negative, Stereotypical Perception of the Upper Silesian Conurbation Cities**

Unambiguous associations with the heavy industry and degraded natural environment and pollution were perceived as a serious problem blocking the socio-economic development of the region for many years. In 1997, a local government reform was carried out in Poland, which also introduced new subdivisions of the country. The Silesian Voivodeship with the capital in Katowice was established, strong local governments were established at the level of the voivodeship and particular cities and communes. This was also when the problem of industrial associations with the name 'Silesia' was so strongly voiced in the public debate for the first time. Popular tourist destinations in the Silesian Beskids Mountains and the Kraków-Częstochowa Upland became parts of the newly created voivodeship. From the very beginning, representatives of these regions expressed their concerns that the 'Śląskie' name of the voivodeship would be a factor that would hamper attracting domestic tourists. Therefore, it is not surprising that the first plans for actions to refresh the image of Silesia (more precisely: of the Upper Silesia) are parts of the strategies developed by the authorities of the entire voivodeship, especially by those involved in the development of tourism. In subsequent years, similar plans were also created in the self-governments of the individual cities of the Conurbation, as the Conurbation as a whole is not subject in terms of the country subdivision and there are no local government authorities or other bodies that represent it. In general, two complementary directions to refresh the industrial image of the Conurbation cities can be distinguished in these planned (and already partly implemented) actions. The first is based on a partial detachment from industrial roots and on creating new associations. The Katowice authorities are particularly active in this field. The second direction is using the industrial heritage of the region to build positive associations. This direction can be clearly seen in the actions of the voivodeship authorities and the Regional Tourist Organization (Silesian Tourist Organization) that cooperates with them.

[Strategia Promocji Katowic \(Katowice Promotion Strategy\)](#) [The Katowice Promotion Strategy] adopted in 2012, basically does not address the subject of industrial history and heritage as an element of promotion and creation of a new brand of the city. The authors of the strategy pointed out the need to find the widest possible and inclusive range of unique factors/complementary features that,

when aggregated, will create a new, desired image of Katowice ([Strategia Promocji Katowic Katowice Promotion Strategy](#), p. 146). According to the strategy, a multidimensional transformation is to be the main feature of the new image of the city, with five features as its components that will ultimately be a prism to view Katowice. These features are: metropolitanism, heritage, alternative, activity and eco-responsibility; at the same time the first two features have been at least part of the city image before, while the other three features were to become new components of Katowice's promotion. ([Strategia Promocji Katowic Katowice Promotion Strategy](#), pp. 148–49). The process described resulted in the use of numerous signs and slogans to promote Katowice. Signs and slogans of heterogeneous stylistics, different colors and diverse purposes were also often used.

The current promotional messages of the city are dominated by two messages related to the unquestionable successes of the city authorities and adhering to the assumptions presented above. The first one of them is promotion of the city as a meeting place based on the image of one of the largest and most modern congress centers in Poland (Międzynarodowe Centrum Kongresowe [International Congress Center]), which is a host of numerous events of international significance. The second course of actions of the city's promotional activities is the use of the UNESCO's Creative City in music title obtained in 2015. The Silesian Voivodeship is the first region in Poland that took on the task of creating a tourist promotion strategy as well as investment and economic promotion strategy, which means building a coherent brand of the region. According to the diagnosis made for the purposes of the Marketing Communication Strategy of the Silesian Voivodeship (2014), the image is the weakest side of the 'Śląskie' [Silesian] brand and it required immediate and thoroughly considered communication actions, because the image of the voivodeship was much worse than the voivodeship condition actually was in reality, while the biggest difference between the real and emotional dimension can be seen in the tourist offer ([Strategia Komunikacji Marketingowej Województwa Śląskiego Silesian Voivodeship Marketing Communication Strategy](#)).

At the level of communication and creation, the 'Śląskie' brand definition was based on the so-called big idea, which reads 'Śląskie. Pozytywna Energia' [Silesian. Positive Energy]. 'Positive Energy' is supposed to be a universal message that will function as a bracket that combines various branches of activity, cities and subregions. Interpretations of this phrase are diverse ('energy infects', 'spiritual energy', 'energy of wild nature', 'full of energy'), depending on the situation and context, taking the right form. However, it is always supposed to mean that 'thanks to its diversity, Silesia is a region full of energy' and to evoke linguistically resonant associations such as 'creative, dynamic, effective, optimistic' ([www.slaskie.pl](http://www.slaskie.pl)). The identity of the voivodeship suggested in the strategy clearly breaks away from industrial roots and associations, which is natural, the more so if you consider that industrial conurbation cities are only a part of the voivodeship and their negative stereotype was perceived as a threat to the development of the entire region.

Being part of the [Voivodeship Development Strategy \(2013\)](#) and the Marketing Communication Strategy (2014), the [Tourism Development Strategy in the Silesian Voivodeship 2020+ 2017 \(2017\)](#) indicates that the target image of tourism development in the voivodeship is: 'The Silesian Voivodeship is a region full of positive energy, where tourism is one of the important sectors of the economy, which develops taking into account the principles of sustainable development using the richness and diversity of natural and cultural assets, in particular the post-industrial heritage, which gives tourists, both domestic and foreign, and residents of the region the opportunity to relax, as well as for active and attractive leisure activities throughout the year.' ([Tourism Development Strategy in the Silesian Voivodeship 2020+ 2017](#), p. 61) It can be seen that in this case there is a clear reference to the industrial heritage of the region, which is to be perceived as a serious asset rather than as weak point of the region on the tourist market. Creation, constant development and promotion of the Industrial Monuments Route of the Silesian Voivodeship, which is the oldest and largest route of this kind in the country, is one of the components of the implementation of this Strategy, as well as of the previous one. The Industrial Monuments Route is a subject-related, road tourist and cultural route that connects the industrial heritage culture sites of the Silesian Voivodeship. At present, it consists of 42 locations. It includes

sites located in the Conurbation area as well as in other areas that belong to the Silesian Voivodeship. The voivodeship authorities are heavily involved in the development of the route; the Industrial Monuments Route is a multi-award-winning project. In 2008, it was awarded the Gold Certificate of the Polish Tourist Organization for the best tourist product in the country ([www.zabytkitechniki.pl](http://www.zabytkitechniki.pl)).

### 5. Attempts to Identify the Image of the Upper Silesian Conurbation

So far, most of the subject of research was the image of the voivodeship as a whole (Millward-Brown SMG/KRC 2010; ARC Rynek i Opinia 2014; TNS Polska 2014; Hendel and Żemła 2015), which may be the result of, among others, the way how tourism in Poland is spatially organized and of particular activity of regional tourist organizations, including the Silesian Tourist Organization, whereas the way the Conurbation is perceived has not been commonly analyzed in detail. The results of those studies are usually a bit ambiguous and reflect the fact that the Silesian voivodeship consists of differentiated areas such as; the Upper Silesian Conurbation, a popular mountain resorts, Kraków-Częstochowa Upland being very attractive for tourists; and Częstochowa, the most important pilgrimage place in Poland. It is not surprising that interviewees asked about their associations connected with such a region were also giving differentiated answers, however, those connected with industry were among the most popular (Millward-Brown SMG/KRC 2010; ARC Rynek i Opinia 2014; TNS Polska 2014; Hendel and Żemła 2015). Szubert and Żemła (2019) recently presented their results of studies dedicated particularly to the image of the Upper Silesian Conurbation carried out with students from Kraków which means that the sample consisted of interviewees who lived relatively close to the area analyzed (Katowice and Kraków are in distance of less than 100 km to each other, the cities are connected by a highway). Characteristic is the fact that as many as 76% of interviewees indicated associations related to the extraction industry when asked about their associations with the Conurbation in open-ended question. Most of these answers were: coal, mines, industrial district, extraction, heavy industry, steelworks. Very similar conclusions can be drawn from further results presented in the cited paper. The only answer (out of the list of 19 potential associations) selected by over half of the interviewees (62%) was 'dominated by industry', followed by another unambiguously negative associations related to the industrial character of the area: 'made of concrete' (46%) and 'dirty' (38%). Although as many as 31% of the interviewees noticed that the Conurbation and its individual cities are also changing, very few people noticed the positive effect of these changes. Associations related to promotional slogans, which were quoted previously, were indicated at most 12% ('full of energy' and 'creative'), and in most cases it was even less than 10%, while the green character of this area was hardly ever noticed by anyone. In place of this, the most negative associations from the point of view of the ability to attract the potential tourists, 'uninteresting' and 'boring', were indicated by about 20% (Szubert and Żemła 2019).

### 6. Geographical Education in Poland

The image of a location is a conglomerate composed of feelings, judgments, opinions, attitudes and facts. The image of a location understood in this way is shaped by a dynamic process throughout a person's whole life. It may change as a result of learning a region or a location by one's own experience or indirectly through the reception of various information about it. This process can be ordered or random, chaotic. In the first case, it takes place in school, at different levels of education, especially geographical education. In the second case, the image of a location is shaped by spot-checking observations while visiting a given location, by accidentally received or media reports limited to a few instances or subjective opinions of other people, not always certified by up-to-date knowledge about the place being discussed. Thus, the image of a location can be coherent and consistent with reality or inconsistent with it, based on stereotypes or outdated knowledge.

Geographical education plays an extremely important role in shaping the image of a location. Therefore, the fact that the way tourist destinations are presented in geographic textbooks and its impact on the image of these destinations has not been the subject of in-depth scientific research so far, is surprising. As the researchers analyzed autonomous sources of information, they were focused



mainly on the analysis of media reports (Rodríguez Campo et al. 2011; Wang et al. 2015; Kim et al. 2017) television series (Fu et al. 2016) and the social media (especially the Trip Advisor portal) (Ghazali and Cai 2014; Kladou and Mavragani 2015; Sun et al. 2015; Tamajón and Valiente 2017). It should be emphasized that analyses of the content of geographic textbooks is also restricted by a number of important factors. First of all, the point is the fact that geography school education is diversified across individual countries and adapted to local conditions and educational needs of these countries, and what is always presented in a particularly detailed way is just the geography of each home country. Therefore, the analysis of the content of geographic textbooks is particularly useful for destinations where a significant part of tourism is domestic tourism. The Upper Silesia Conurbation is precisely an example of such a region.

The most important document that defines the course, goals and curriculum in Poland is the core curriculum of general education approved by the Minister of National Education. Study group students started their geographic education in middle school/junior high school [Polish: gimnazjum] and it lasted three years. At this stage of education, the geographical education about Poland was most extensive.

In the interaction that occurs between the student and teacher, a significant role is played by the textbook. Its contents require being supplemented or updated by a teacher who can be creative in his/her approach when teaching about geographical regions of Poland by presenting new trends in the development of regions based on deliberate selection of the textbook's content. Textbook and geography lesson are the basic sources of information for students both in middle schools/junior high schools (12–13 years, 15–16 years) and high schools (17–18 years). This is confirmed by research carried out in eight countries (Germany, Poland, Slovenia, Greece, Sweden, Cyprus, Ireland, France) with a population of 2080 students. The vast majority (79.0%) indicated that geography lessons and textbooks for this subject provide them with the best knowledge about Europe (Piróg 2013; Resnik-Planinc 2013).

The school textbook market in Poland is a commercial market. There are many competing publishing houses, and the market leaders are: Nowa Era and Wydawnictwa Szkolne i Pedagogiczne. Other significant publishers are: Wydawnictwo Edukacyjne Wiking, Wydawnictwo Szkolne Polskiego Wydawnictwa Naukowego and Wydawnictwo Pedagogiczne Operon. These are nationwide publishing houses. There are also other publishing houses operating on a regional scale, e.g., Stowarzyszenie Oświatowców Polskich, Oficyna Wydawnicza Turpres. In practice, this means that there are many geography textbooks by different authors on the market. The content of all textbooks must be in line with the core curriculum for a given stage of general education. This is the basis for the textbook's approval to be used for school use by the Minister of National Education. They are different in terms of their publishing concept (including graphics) and the substantive presentation of topics, because it is the author of the textbook who decides it. The most popular textbooks for Polish geography for grade 2 and 3 in the middle school/junior high school were analyzed in detail (Table 2). It should be emphasized that the study covered all textbooks of the most popular pedagogical publishing houses in Poland.

**Table 2.** Selected geography textbooks for middle schools/junior high schools.

Textbook Marking	Author	Title	Publishing House
1	M. Szubert	Planeta Nowa Podręcznik do geografii dla klasy trzeciej gimnazjum [Planet New. Textbooks for Geography for the Third Grade of Middle School/Junior High School]	Nowa Era
2	R. Malarz	Puls Ziemi 3 Podręcznik do geografii dla gimnazjum [Earth Pulse 3. Textbooks for Geography for Middle School/Junior High School]	Nowa Era
3	F. Szlajfer	Geografia dla gimnazjum. Moduł 2: geografia Of Poland [Geography for Middle School/Junior High School. Module 2: Geography of Poland]	Nowa Era
4	A. Lechowicz M. Lechowicz P. Stankiewicz E. Sulejczak	Bliżej geografii. Podręcznik. Część 2. Gimnazjum [Closer to Geography. Textbook. Part 2. Middle School/Junior High School]	Wydawnictwa Szkolne i Pedagogiczne
5	T. Majchrzak P. Wład	Nowa nasza planeta Geografia 3 podręcznik dla gimnazjum [New Our Planet Geography 3 Textbook for Middle School/Junior High School]	Wydawnictwo Szkolne Polskiego Wydawnictwa Naukowego
6	E. Dudek J. Wójcik	Geografia bez tajemnic Polska i jej sąsiedzi Podręcznik dla klasy drugiej gimnazjum [Geography Without Secrets. Poland and its Neighbors Textbook for the Second Grade of Middle School/Junior High School]	Wydawnictwa Edukacyjne Wiking
7	T. Krynicka-Tarnacka G. Wnuk Z. Wojtkowicz	Ziemia i ludzie. Geografia 2 - podręcznik [Earth and People. Geography 2 - Textbook]	Stowarzyszenie Oświatowców Polskich Toruń
8	M. Kluba E. Świątalski P. Świątalski	Polska Podręcznik geografii dla III klasy gimnazjum [Poland Textbooks for Geography for the Third Grade of Middle School/Junior High School]	Oficyna Wydawnicza Turpres
9	G. Chmielewska W. Chmielewski	Geografia Podręcznik dla 3 klasy gimnazjum. [Geography Textbooks for the Third Grade of Middle School/Junior High School]	Wydawnictwo Szkolne Operon

Source: own elaboration.

The analyzed textbooks were elaborated in the period between 2009–2010 and remained mandatory in schools in their original form in years 2011–2019. The contents concluded, related to the Upper Silesia's conurbation should include the changes that have occurred within the 20 years of economic transformation (since 1989) shown in Chapter 3. Primarily, the increase of the economical meaning of service should be the subject of concern, as well as the structural changes in industry, the reduction of mining and iron metallurgy's participation in production and the increase of production related to the use of modern technology. During the edition of the analyzed manuals some changes to the cultural landscape took place. Urban cultural space was evolving, and cultural tourism with it.

### 7. Upper Silesian Conurbation in Geography Textbooks for Middle School/Junior High School

Description of Upper Silesia Conurbation in textbooks is contained in the following chapters: the natural environment of Poland, population and urbanization, Polish economy (industry) and the

description of Polish Uplands (Table 3). The synthetic characteristics of the Upper Silesian Conurbation is related to the description of the Silesian Upland, the geographical region of Poland where it is located, while the detailed issues that make up the image of this region can be found in individual parts of textbooks.

**Table 3.** Detailed analysis of the content distribution describing the Upper Silesian Conurbation in selected textbooks.

	<b>Textbook Marking</b>
	<b>Rocks and Mineral Resources</b> Distribution of Mineral Resources
	<b>Population and Urbanization</b> Urbanization Types of Urbanization
1	<b>Agriculture and Industry</b> Transformations in Polish Industry Industrial Districts in Poland Mining Energetics
	<b>Polish Uplands</b> Silesian-Krakow Upland Upper Silesian Industrial District
	<b>Characteristics of Polish Geophysical Regions</b> Uplands Silesian Upland
	<b>Area, Population and Urbanization in Europe and in Poland</b> Urbanization in Poland
2	<b>Industry in Europe and in Poland</b> Extraction Industry in Poland Energy Resources Distribution and Extraction of Mineral Resources Upper Silesian Coal Basin Energy Industry in Poland The Largest Power Plants in Poland Processing Industry and Industrial Districts in Poland Metallurgical Industry Industrial Districts in Poland Upper Silesian Industrial District
	<b>Population of Poland</b> Internal Migrations and Urbanization Upper Silesian Agglomeration
3	<b>Industry</b> Extraction Industry (mining) Metallurgical Industry Diversity of the Level of Industrialization in Poland, Industrial Districts
	<b>Uplands</b> Division of Uplands Silesian Upland

Table 3. Cont.

	<p><b>From the Baltic Sea to the Peaks of the Tatras</b> Geographical Regions Diversity of the Landscape within the Upland Silesian Upland</p>
4	<p><b>Population of Poland</b> Diversity of Population The Largest Density of Population (in the Silesian Voivodeship) Expansion of Settlement on the Territory of Poland Polish Cities and Villages City with the Highest Population Density (Świętochłowice). Selected Ethnographic Groups in Poland Silesians</p>
	<p><b>Images from the Geological Past of the Present-Day Poland</b> Mineral Raw Materials are the Wealth of Poland Coal, Upper Silesian Basin</p>
	<p><b>Population and Settlement in Poland</b> The Urbanization Process and the Expansion of Large Urban Complexes Upper Silesian Conurbation</p>
5	<p><b>Problems of the Polish Economy</b> Traditional or Alternative—How We Use Energy Sources Thermal Power Stations Problems of Expansion and Concentration of Industry in Poland Upper Silesian Industrial District</p>
	<p><b>From the Baltic Sea to the Carpathians</b> Assets and Economic Barriers of the Polish Uplands Silesian Upland Upper Silesian Industrial District Industrial Monuments Route of the Silesian Voivodeship</p>
	<p><b>Environment</b> Mineral Raw Materials Energy Raw Materials</p>
6	<p><b>Regional Overview</b> Diversity of the Natural Environment in the Polish Uplands Silesian Upland</p>
	<p><b>Economy</b> Changes in Population Distribution. Urbanization Processes Settlement and Protection of the Natural Environment Electric Power Industry and Its Role in the Polish Economy Industrial Districts. Contemporary Problems of Industry in Poland The Silesian-Kraków District</p>
	<p><b>Location and Geographical Environment of Poland</b> Energy Raw Materials, Coal</p>
7	<p><b>Population and Economy</b> Polycentric Agglomeration (Conurbation)</p>
	<p><b>Industry</b> Use of Non-Renewable Energy Sources Fuel and Energy Industry</p>
	<p><b>Geographic Regions of Poland</b> Silesian Upland Upper Silesian Industrial District</p>

Table 3. Cont.

	<b>Features of the Territory of The Geographical Environment of Poland in Relation to Other Countries</b> Mineral Raw Materials
8	<b>Activity of the Society in the Geographical Environment of Poland in Relation to Other Countries</b> Industry in Poland in Relation to Other Countries Upper Silesian Industrial District
	<b>My Little Homeland</b> Polish Uplands Silesian Upland
	<b>Natural Environment</b> Types and Significance of Rocks in Poland
	<b>Population of Poland</b> Cities are changing Urbanization
9	<b>Economic Geography of Poland</b> Industry—Mineral Raw Materials Energy Raw Materials Energy Industry Energy Obtained from Coal Combustion Industrial Processing Metallurgy Electrical Machinery Industry
	<b>Transport and Communication</b> Air Transport
	<b>Geographic Regions of Poland</b> Silesian Upland

Source: own elaboration.

The analysis of the manuals' content has been based on three criteria: thematic, substantive and key words. Based on the thematic criterion, the subjects of the lectures, which contents are related to the Upper Silesia's Conurbation, have been extracted. The substantive criterion served as the basis for defining the range of the characteristics and extracting sets of key words related to e.g., natural conditions, economy, society, cultural landscape and tourism. Next, the occurrence of the key words has been thoroughly studied in the analyzed manuals. An additional criterion for the manuals' analysis was the graphical layout related to the Upper Silesia's conurbation.

In the textbooks analyzed, different terminology is used. In addition to the correct name, i.e., Upper Silesia Conurbation, the following names are used: the Upper Silesian agglomeration, the Urban Complex of the Upper Silesian Industrial District or, when writing about cities located on the Silesian Upland, the proper name is omitted.

Upper Silesian Conurbation is presented as an example of a polycentric agglomeration that consists of a dozen or so cities (occasionally their number is specified—19); none of them dominates over the others. Several of them, the biggest ones, are sometimes specified: Katowice, Sosnowiec, Gliwice, Zabrze, and Bytom. Generalized maps of the Conurbation that show generalized shapes of urban areas were included only in several textbooks, while by means of circular signatures—their size expressed by the volume of population was shown. An important feature of the Conurbation, i.e., a network of road and rail connections connecting the Conurbation cities was also exposed.

Fuel and energy industry, metallurgy and industrial processing were indicated in the characteristics of the economy of the Conurbation cities (in chapters related to industry). The maps show the Upper Silesian Industrial District and the largest industrial centers: Katowice, Bytom, Chorzów, Sosnowiec

(Table 3). In chapters related to the natural environment of Poland, the Conurbation is connected with hard coal deposits, i.e., with the Upper Silesian Basin. The characteristics of the Conurbation in the textbooks analyzed is different in terms of how many details are present. In all textbooks, the description applies to the entire area, not to individual cities. The origin and expansion of the Conurbation are associated with the expansion of industry, especially hard coal mining as well as iron and steel industry in the area of the Silesian Upland and with establishing the Upper Silesian Industrial District (Table 4). The characteristics of the economy of this area begin with the exposure of the dominant share of the fuel and energy industry, i.e., with the aforementioned hard coal mining and thermal energy based on this fuel. This thread is additionally amplified by photographs of mine shafts and power plants. Subsequently, iron metallurgy, production of machinery and equipment (mainly for mining) and car production are mentioned. The car factories in Tychy and Gliwice are examples of new trends in the expansion of the Upper Silesian industry in connection with its restructuring. Degradation and transformation of the natural environment associated with the strong industrialization of the area is also emphasized. Air and surface water pollution is stressed. In some textbooks, photos of mine heaps are presented.

A strong accent on the role of traditional industry, i.e. coal mining, makes information about industrial restructuring hard to see. It is mainly about the economic problems of mining: declining profitability of mines and mines being shut down. Too little attention has been devoted to modern factories that are built in the Katowice Economic Zone, where, in addition to car production, the production of electrical and electronic equipment, chemical products and food is also expanding. Brief descriptions are made as comments on photographs that show the production of cars.

Important areas of contemporary socio-economic development of Conurbation cities, such as the development of services, higher education as well as science and culture have not even been raised in any of the textbooks discussed. References to other topics, such as sports, recreational and green areas, and rehabilitation of degraded areas were made in just one of nine textbooks. The same applies to the Industrial Monuments Route advertised by the local government authorities of the region as a new showcase of the entire voivodeship. In one of the textbooks, a photograph of 'Spodek' is presented, which is a sports and entertainment arena in Katowice. This is the most easily recognizable building in the Conurbation and unambiguously associated with Katowice (Table 5). In one of the textbooks, a plan of the largest recreation area in the Conurbation, i.e., the Silesian Park was also presented. This park (about 500 ha) was established in the 1950s in post-mining areas, in the center of the Conurbation, between Katowice, Chorzów and Siemianowice Śląskie. It includes recreational facilities and equipment, the Silesian Stadium, the Silesian Planetarium and the Silesian Zoological Garden.

**Table 4.** The most important features of the Upper Silesian Conurbation based on middle school/junior high school geography textbooks.

Component of the Conurbation Description	Textbook Marking (Table 2.)								
	1	2	3	4	5	6	7	8	9
Upper Silesian Industrial District	■	■	■	■	■	■	■	■	■
The Most Industrialized Area of Poland	■	■	■	■	■	■	■	■	■
The Most Populated Area of Poland	■	■	■	■	■	■	■	■	■
One of the Most Urbanized Areas of Poland	■	■	■	■	■	■	■	■	■
Coal Deposits	■	■	■	■	■	■	■	■	■
Coal Basin	■	■	■	■	■	■	■	■	■
Deposits of Zinc and Lead Ores	■	■	■	■	■	■	■	■	■
Coal Mines	■	■	■	■	■	■	■	■	■
Iron Metallurgy	■	■	■	■	■	■	■	■	■
Zinc and Lead Metallurgy	■	■	■	■	■	■	■	■	■
Coking Plants	■	■	■	■	■	■	■	■	■
Machine Production	■	■	■	■	■	■	■	■	■
Thermal Energetics	■	■	■	■	■	■	■	■	■
Industrial Restructuring	■	■	■	■	■	■	■	■	■
Shutdown of Mines and Steelworks	■	■	■	■	■	■	■	■	■
Modern Industry	■	■	■	■	■	■	■	■	■
E.g., Car Production	■	■	■	■	■	■	■	■	■
Communication Networks	■	■	■	■	■	■	■	■	■
Road, Railway	■	■	■	■	■	■	■	■	■
Natural Landscape Degradation,	■	■	■	■	■	■	■	■	■
Mining Damage, Heaps	■	■	■	■	■	■	■	■	■
Air Pollution, Water Pollution	■	■	■	■	■	■	■	■	■
Ecological Disaster Area	■	■	■	■	■	■	■	■	■
Recultivation of Post-Industrial Areas	■	■	■	■	■	■	■	■	■
Green Areas	■	■	■	■	■	■	■	■	■
(Recreational Areas, Sports Areas)	■	■	■	■	■	■	■	■	■
Development of Services	■	■	■	■	■	■	■	■	■
Higher Education, Science	■	■	■	■	■	■	■	■	■
Cultural Institutions	■	■	■	■	■	■	■	■	■
(E.g., Museums, Theaters, etc.)	■	■	■	■	■	■	■	■	■
Ethnographic Groups—Silesians	■	■	■	■	■	■	■	■	■
Sport, Sports Facilities	■	■	■	■	■	■	■	■	■
Tourism	■	■	■	■	■	■	■	■	■
E.g., Industrial Monuments	■	■	■	■	■	■	■	■	■
Route of the Silesian Voivodeship	■	■	■	■	■	■	■	■	■

Source: own elaboration.

**Table 5.** The detailed analysis of illustrations related to the Upper Silesian Conurbation in selected textbooks.

Textbook Marking	Photograph/Figure	Description
1	Map Distribution of Mineral Raw Materials	Coal, Katowice.
	Map Arrangement and Size of the City	Cities of the Conurbation, Katowice.
	Map Types of Agglomeration	Polycentric agglomeration cities
	Map Industrial Districts in Poland	The Silesian-Kraków District. Branches of industry: mineral, automotive, metallurgical, metal and machinery, fuel and energy, chemical, food.
	Photograph Car Assembly Line	Opel's car factory in Gliwice is the largest foreign investment in the Katowice special economic zone.
	Photograph Heap	Mine and steelworks post-production waste heaps are the characteristic feature in the Silesian Landscape.

Table 5. Cont.

TextbookMarking	Photograph/Figure	Description
	Photograph Silesian Stadium *	Mecca for Polish Football The inhabitants of the Silesian Upland are great fans of sports, especially of football. It is at the Upper Silesia Conurbation in Chorzów that the Silesian Stadium (also called the 'national') is located. It can accommodate over 47,000 viewers and is the second facility of this kind in Poland. It is here that the representation of Poland played over 50 matches, including the legendary ones: with the USSR in 1957, won by Poles 2: 1, and with England in 1973 (2: 0). In 1960, the Silesia Stadium hosted 'King of Football'—the Brazilian Pelé with FC Santos team.
	Map Distribution and Extraction of Mineral Raw Materials	Coal, Katowice.
	Figure Formation of Coal	Four stages of coal formation. Coal is a sedimentary rock of organic origin. It was formed from plant debris in a hot and humid climate inside the depressions of the area. Coal deposits that occur in Poland were formed during the Carboniferous Era.
2	Photograph Thermal Power Plant in Łaziska Górne.	The thermal power plant in Łaziska Górne was established in 1917. It generates approximately 4% of the national electricity production.
	Map Industrial Districts in Poland	The Silesian-Kraków District. Branches of industry: mineral, automotive, metallurgical, metal and machinery, fuel and energy, chemical, food.
	Map Types of Agglomeration	Polycentric agglomeration cities.
	Photograph Car Assembly Line	Every year, over 200.000 new cars are produced in the Tychy factory.
	Photographs Coal Mine	Jas-Mos coal mines (former KWK Jastrzębie) owned by Jastrzębska Spółka Węglowa, established as part of the mining restructuring in Upper Silesia. 'Klimontów' 19th century coal mine in Sosnowiec.
	Figure Steelworks (Historical View)	Kings Steelworks in Chorzów from the beginning of the 19th century (Lithography).
	Map Mineral Raw Materials Extraction Industry in Poland	Upper Silesia Basin, coal.
	Map Electrical Power Engineering in Poland	Coal-fueled thermal power plants: Łagisza, Jaworzno.
	Photograph Katowice Steelworks in Dąbrowa Górnicza	The entrance gate to Katowice Steelworks.
3	Map Industrial Districts of Poland	Upper Silesian Industrial District.
	Photograph Katowice-Kraków Highway	Jaworzno Junction. In the background, the Jaworzno III power plant is seen.
	Map Quantity of Passengers Served by the Largest Polish Airports	Katowice.
	Photograph Silesian Upland—Area of the Largest Ecological Disaster in Poland **	<b>Industrial landscape. Heavily degraded area.</b>
	Economic Map of the Silesian Upland	Extraction industry: coal, zinc and lead ores; processing industry: thermal power plants, iron industry, machine industry, automotive industry, coke industry, chemical industry.
	Photograph Industrial Landscape of the Silesian Upland	Thermal power plant, cooling towers, chimneys.
	Map Solid Industrial Waste	Volume of industrial waste produced in the Upper Silesian Agglomeration.
	Photograph Most of the Coal from the Upper Silesian Industrial District is Transported by Railway.	Freight trains in the marshalling yard.
4	Photograph Silesian Upland	Photograph with exposed mine shaft. The middle part of the region, in which the Carboniferous rocks are found in its geological structure, is rich in deposits of coal, zinc and lead ore. The development of industry and settlement were the reasons why Silesian Upland has become one of the most significantly transformed regions of Poland as a result of human activity.
	Map Selected Mineral Raw Materials in Poland	Coal. Present in: Silesian Upland (Upper Silesia Basin); Zabrze, Chorzów, Katowice, Tychy and Gliwice.



Table 5. Cont.

Textbook Marking	Photograph/Figure	Description
	<b>Photograph</b> Silesian Regional Costume *	Silesians are a large and diverse ethnographic group. Some of the Silesians living in mountain areas were shepherds, while those living in the lowlands were engaged in agriculture. Later, another group of Silesians associated with mining and industry was formed.
	Photograph Mine Heaps	Mine heaps in Jastrzębie-Zdrój.
	Map Industrial Districts in Poland	GOP [Górnośląski Okręg Przemysłowy—Upper Silesian Industrial District]: Raw materials: coal; branches of industry in GOP cities: energy, metallurgy, machinery, automotive, electronic, technologically advanced, food.
	Map Distribution of Mineral Raw Materials of Poland	Upper Silesia Basin, coal.
	Map A Network of Large Cities and Urban Complexes of Poland	Urban agglomeration. Katowice (Upper Silesia) Agglomeration, Katowice.
5	Map Distribution of the Main Power Plants in Poland	Upper Silesian Industrial District.
	Map Main Industrial Districts of Poland	Upper Silesian Industrial District. Type: raw material.
	Map Specialization of Districts and Major Industrial Centers of Poland	Upper Silesian (Katowice) industrial district: fuel and energy, metallurgy, electro-machinery.
	Photograph Katowice Steelworks	The entrance gate to Katowice Steelworks.
	<b>Photograph</b> Park of Culture and Entertainment in Chorzów *	Mikołaj Kopernik Silesian Planetarium in the Silesian Park.
	Map Distribution of the Most Important Mineral Raw Materials in Poland	Upper Silesian Industrial District: Coal. Diagram of coal deposits formation.
6	Map Selected Information about the Natural Environment of Uplands	Silesian Upland. Major cities: Katowice, Gliwice, Zabrze, Bytom, Ruda Śląska, Sosnowiec, Chorzów, Tychy; Coal.
	Map Areas with Environmental Threat in Poland	Katowice.
	<b>Photograph</b> Upper Silesia is an Area with One of the Greatest Environmental Threats of Poland **	Katowice Steelworks.
	Map Distribution of the Major Power Plants in Poland	Łągisza, Jaworzno.
	Map Industrial Districts in Poland in 2007	The Silesian-Kraków District.
	Map Distribution of Deposits of Mineral Raw Materials in Poland	Coal, Katowice.
7	Map Population of Poland and Its Distribution in the Largest Cities of Poland	Katowice, 10 in terms of population in Poland.
	Map Polycentric Agglomeration (Upper Silesian Industrial District)	Cities of the Conurbation.
	Map The Largest Polish Power Plants	Rybnik, Jaworzno III, Łaziska, Siersza, Łągisza, Halemba, Blachownia.
	Photograph Industrial Landscape of Upper Silesia—Katowice Steelworks	The entrance gate to Katowice Steelworks.
	Map Deposits of Mineral Raw Materials in Poland	Coal deposits.
8	Map Districts and Major Industrial Centers in Poland	Upper Silesian Industrial District.
	Map Power Industry and Other Branches of Industry in Poland	Branches of industry: electromechanical, chemical, food, energy, light, mineral.

Table 5. Cont.

TextbookMarking	Photograph/Figure	Description
	Figure Polycentric Agglomeration	Cities of the agglomerations and their diversity in terms of population.
	Map Extraction of Mineral Raw Materials in Poland	Coal.
	Map Thermal Power Plants	Rybnik, Łaziska Górne, Siersza, Będzin, Jaworzno.
	Map Distribution of the Metallurgical Industry	Steelworks in Bytom, Gliwice, Świętochłowice, Chorzów, Ruda Śląska, Katowice, Będzin, Sosnowiec and Dąbrowa Górnicza.
9	Map Distribution of the Electromechanical Industry and Means of Transport	Cities: Tarnowskie Góry, Piekary Śląskie, Gliwice, Zabrze, Świętochłowice, Katowice, Sosnowiec, Mysłowice, Dąbrowa Górnicza; Tychy, Gliwice.
	Map Passenger Traffic at Polish Airports in 2013.	Katowice (Pyrzowice) International Airport.
	Landscape Map of the Silesian Upland	Upper Silesian Conurbation. Cities diversified in terms of population
	<b>Photograph A View from Piekary Śląskie Towards Bytom. **</b>	<b>The air is not transparent here due to the high pollution of the atmosphere, which affects the lack of clarity of part of the photograph.</b>
	Photograph Bielszowice Coal Mine in Ruda Śląska.	Mine seen from above. Mine shafts and conveyor belts clearly visible.
	Photograph Former Coal Mining Heap in Rybnik	Conic heap.
	<b>Photograph Tarnowskie Góry—Market Square *</b>	<b>Evangelical Church of the Augsburg Confession.</b>
	<b>Photograph Będzin—Royal Castle *</b>	<b>Body of the castle.</b>

Figures distinguished in the entire set analyzed were highlighted in bold font: \* figures with an unambiguously positive overtone; \*\* figures with an unambiguously negative overtone; Source: own elaboration.

The image of the Upper Silesia Conurbation presented above is amplified by maps and photographs that supplements the description of the region (Table 5). Maps usually present coal deposits in the Upper Silesian Basin. Usually, there is only one city, i.e., Katowice. This city, as the largest one in the Conurbation, was also listed on the maps of the distribution of cities in Poland. Most of the textbooks contain a map of the Conurbation. In addition to the diversity of city size in terms of population number mentioned above, the type of the industry that dominates in a given city was indicated. Most photographs present the urban-industrial landscape with mines or steelworks in the foreground. There are also photographs presenting a landscape degraded with heaps or smog. In a few cases, the message of individual photographs is additionally amplified with a strictly unambiguous comment (this applies especially to textbook No. 9, Table 4). Photographs that present cultural features of the region (e.g., traditional Silesian costume) or interesting facilities ('Spodek' Sports and Entertainment Hall in Katowice, Silesian Stadium, Silesian Planetarium) are rare.

## 8. Discussion

One of the problems of stereotypical perception of a particular reality (including a tourist destination), is the fact that stereotypes do not present completely wrong and absent features of the reality, but, instead, they are focused too much on selected, often negative, features, ignoring other features. This problem can be easily found in the image of Upper Silesian Conurbation on the tourism market. It is extremely difficult to fight the negative stereotype of the region perceived as a dirty region and a polluted site with heavy industry, as the stereotype includes true history and presents an important part of the contemporary reality. However, the strength of the stereotype makes the rest of the reality, the rest which might be much more attractive for potential tourists, covered and unknown. This results in the region being perceived as uninterested and unattractive, not only for tourists.

The problem was identified many years ago and both local and regional authorities were struggling to solve it. Two opposite ways of these actions were identified. Katowice city authorities decided to minimize the influence of the heavy industry in the image of the city. That strategy was possible as the capital city of the Conurbation is the leader in economic transformation and the heavy industry plays

nowadays only a marginal role in its development. On the contrary, regional authorities of the Silesian voivodeship choose the way to transform the most important weakness of the image into a major strength by presenting how industrial heritage can be attractive for visitors. Unfortunately, the results presented in the literature suggest that none of those strategies have brought the results expected.

School education in geography seems to be among the most underestimated factors that influence tourist destinations' image. The research presented proves that the features of the Conurbation that were often associated with the Upper Silesian Conurbation are almost the same features as presented in the textbooks they were learning from. The fact that the textbooks professionally prepared by experts and accepted by the Ministry of Education play such an important role in grounding the existing stereotypes instead of fighting them, might be surprising. It is difficult to suppose that their authors had no knowledge or good will. The reason is probably somewhere else and more complicated. During a few years of geographical education students have to learn many different aspects of physical and social geography of Poland, Europe and the rest of the world.

Geography of regions of Poland is just a small piece in that puzzle. In none of the textbooks analyzed, were all regions of Poland presented. Instead, particular regions were presented as examples of particular phenomena. Unfortunately, Upper Silesian Conurbation remains the most obvious example of industrialization and urbanization processes as well as of natural environment pollution and degradation. As a natural consequence of this structure of the textbook, other aspects of development of particular cities of the Conurbation are marginalized, or even absent. However, one may expect, that more space is going to be devoted to the current processes of diversification of economic and social activities leading to Conurbation's transformation into a modern metropolis. Even though those processes are discussed in the majority of books analyzed, their role in the description remains minor. Additionally, nowadays, the readers, especially the younger generation, will remember the content of the text mainly on two bases: the title and the pictures. In all examples, those two elements of the content of the textbooks amplify stereotypical perception of the Conurbation. In particular, pictures and descriptions that present examples of successful transition of degraded areas into new, modern parts of particular cities (like the Culture and Business Zones in Katowice located in the area of the former Katowice Coal Mine) are desired. One must remember that the aim of the textbooks is not promoting the image of one of the regions, but extending the students' knowledge. However, here we can see that the knowledge transferred to readers is not complete. Local and regional authorities should be interested in influencing the content of the future textbooks, but they do not have any formal tools to do so. So, if the negative stereotypes are grounded as early as in the school education, development and promotional activities of local and regional authorities do not have too much chances to succeed.

One more observation may weaken the conclusions derived from the results. The textbooks researched were published for the first time several years ago—between 2010 and 2012. Regarding the fact that the deindustrialization processes, which were visible earlier, were fostered within the last 10 years and all cited strategies of local and regional authorities were also announced between 2012 and 2017, it might be that the textbooks describe quite precisely the reality from the first decade of the century.

## **9. Conclusions**

Organic image is perceived as an important factor of destination competitiveness. It is created by messages that potential tourists receive from autonomous sources, which means that those sources are not commercial and cannot be shaped by the destination's marketers. Usually media, including social media and word of mouth, are perceived and researched as the most influential examples of such autonomous sources of information. The presented study adds to that list another source of information which has been so far hardly noticed in the literature and its influence on destination image has not been researched. This source is school education, especially geographical education. The content analysis allowed to find that the textbooks presented almost exactly the same feature of

the researched destination as it was earlier detected in the literature as the most common associations with the destination.

The research was conducted on the example of a single destination, and future research is necessary to confirm the relation between the image of a destination presented in geographical textbooks and the image tourists have regarding that destination. Possible confirmation of that relation would create a challenging task for destinations' marketers as the content of the textbooks is especially difficult to be influenced by purposeful marketing actions of how it was at least partially possible in the case of media. However, this might also be the reason why contemporary people may perceive the content of textbooks as especially trustworthy and even more reliable than media. Much more questions connected with destinations' marketing efficiency, the rules of creation of geographical textbooks and ethics should be posed if similar findings regarding the influence of those textbooks on destinations' images are also confirmed in other studies connected in different destinations.

Some interesting directions of future researches studies of international tourism should be pointed out. The presented research was concentrated on the image held by domestic tourists and on how a region of a country is presented in the textbooks in this country. The question, what kind of images of other countries are transmitted by Polish textbooks and how those images are repeated in Polish tourists' associations with those countries remains open. Information presented in geographical textbooks tend to be much more detailed regarding the home country and more general regarding the other states. How the fact influences the relation discovered in presented study seems to be an important part of future research in the field.

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Article

# A Rating of the Online Reputation Balance in Lodgings

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**Abstract:** Online reputation is a strategic aspect of lodgings' image and commercialization. Websites containing tourism reviews have increased their influence on customers' decisions, leading to the effective management of Internet social media accounts. Customer evaluations of lodgings vary across websites because of differences in the scales used, the variables measured, and the reliability of opinions. The diverse information available on the Internet can produce communication problems in lodgings because the evaluations on online portals can differ. The objective of this paper is to propose an indicator to establish the rating of the online reputation balance, so that lodgings can determine the level of coherence of their communication and image on the Internet. One target for lodging community managers should be to converge different evaluations around a similar value that defines a coherent and real online reputation. The indicator proposed is tested on lodgings of distinct categories in different tourism destinations. Among the aims of the study is to try to provide a simple and practical method for directors to improve the management of hotel communication on the Internet. This is an issue for which research should propose methodologies because it is a new challenge for the competitiveness of accommodations.

**Keywords:** online reputation; lodging; tourism destination; community manager; customer online review; rating of online reputation

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## 1. Introduction

The consolidation of digital technology in tourism is influencing the communication and image strategies of lodgings and destinations (Law et al. 2014; Rodríguez-Díaz et al. 2015; Kim and Park 2017; Baka 2016). Tourists' online reviews and the appearance of new Internet sales channels (Mauri and Minazzi 2013; Ye et al. 2014) have had a strong impact. Social media allow travelers to share information about their experiences, influencing the decision-making process of tourism customers (Chan and Guillet 2011; Cantallops and Salvi 2014).

Social media distributes tourist information through different platforms, such as review websites (e.g., Booking.com, TripAdvisor, HolidayCheck, Expedia.com, Hotels.com), social networks (e.g., Facebook, Instagram, Twitter, YouTube), and leading opinion blogs (Kim and Park 2017). These platforms share experiences, evaluations, conversations, images, and information (Chan and Guillet 2011), offering a new way to promote word-of-mouth communication through the Internet (E-WOM) (Filiari and McLeavy 2014; Chen et al. 2011; Leung et al. 2013; Chevalier and Mayzlin 2006; Litvin et al. 2008).

Consumer experience shared on the Internet generates a current of opinions that create the online reputation and image of lodgings and tourism destinations, which affects customers' behavioral decision processes (Liu et al. 2013; Park and Allen 2013; Sparks and Browning 2011; Aureli and



Supino 2017). The importance of reputation today is such that Capraro et al. (2016) affirms it plays an important role in human societies and influences cooperative behavior in addition to the evolution of relationships. The demand influences the performance of firms in terms of revenue and customers' level of satisfaction and fidelity (Chevalier and Mayzlin 2006; Vermeulen and Seegers 2009; Ye et al. 2011; Kim et al. 2015; Lee and Ro 2016; Anderson 2012; Luca 2011; Noone et al. 2011; Ye et al. 2009). Customer satisfaction evaluations have been considered key tools in the financial performance of lodgings (Pizam and Ellis 1999; Chi and Gursoy 2009). Nowadays, the measure of the results of tourist companies in terms of customer evaluations has moved to specialized websites, such as Booking.com or TripAdvisor, where the price policy is defined moment to moment depending on the evolution of the market (Rodríguez-Díaz et al. 2015).

The information from online customer reviews can be divided into two categories: quantity and quality. The number of comments made generally or about a specific attribute determines the quantity of data available. The service quality is the main information collected on the most influential websites (Wirtz and Chew 2002). The dimensions used to measure service quality are attitudinal variables usually rated on numerical scales (Ye et al. 2014). Furthermore, online customer reviews also include comments and quality evaluations that are studied using content analysis to establish the customers' satisfaction with lodgings, destinations, or services (Li et al. 2013; O'Connor 2010).

Therefore, lodgings and destinations need a solid and coherent online reputation in order to obtain their communication, image, and income objectives (Hernández Estárico et al. 2012). In this context, the main problem tourism companies face is the definition of communication management in different channels. The E-WOM is now an essential aspect of the competitiveness of accommodations because it influences the image they communicate and their ability to attract customers, which has a direct impact on the financial results of companies in the tourism sector. E-WOM is transmitted through different channels, which means that managers must act adequately to maintain a competitive and clearly defined image (Ladhari and Michaud 2015; Micera and Crispino 2017; Wahab et al. 2015; Raguseo and Vitari 2017; Yang et al. 2016; Pourabedin and Migin 2015; Bataineh 2015; Cantalops and Salvi 2014; Inversini et al. 2009; Mauri and Minazzi 2013). Thus, the new rating of the online reputation balance (RORB) indicator is proposed. The aim of this indicator is to measure the degree of coherence and homogeneity of the quantitative communication of accommodations in the different communication channels used on the Internet by users. The online reputation balance establishes the degree to which the communication transmitted by a particular accommodation or group of accommodations in a destination is similar in the different channels used by customers to form an opinion that influences their decisions about acquiring a tourist package. In this context, the RORB is determined as the coefficient of variation of the quantitative online evaluations expressed as a percentage. In this regard, some authors are analyzing the effect that the online reputation of accommodations and complementary services has on the image of tourist destinations on the Internet (Micera and Crispino 2017; Wahab et al. 2015; Raguseo and Vitari 2017; Yang et al. 2016; Pourabedin and Migin 2015; Bataineh 2015; Cantalops and Salvi 2014; Inversini et al. 2009).

In this study, the research focuses on the analysis of quantity online customer reviews on specific websites. Thus, the coherence of the consumers' evaluation is a key driver of the image and income performance of lodging firms. The question is what types of scales, variables, and methodology are applied by websites to establish the online reputation scores for hospitality companies (Rodríguez-Díaz and Espino-Rodríguez 2018a, 2018b).

In this context, Rodríguez-Díaz et al. (Rodríguez-Díaz et al. 2018a), in their online reputation gap analysis model, formulate the need to transmit coherent communication, which they conceptualize as a specific gap that should reduce the offer of lodging and services in tourist destinations (gap 2). This study is based on this model because communication is a strategic aspect of the competitiveness of companies and destinations that, through their online reputation, are constantly transmitting updated assessments of the quality of service and value perceived by users. The economic sustainability of accommodations and destinations today depends on their communication with customers (Rodríguez-Díaz and

Rodríguez 2016), which, through the Internet, is reflected in a solid and coherent online reputation. The online reputation also considers customers' qualitative assessments of the sustainable practices of their accommodations and destinations. In fact, the quantitative assessment of facilities includes energy and environmental sustainability as a customer requirement. However, a variable that specifically measures the sustainability of the accommodation might also be included in the scales.

This paper has the aim of developing a method to determine the rating of the online reputation balance, in order to assess the level of similarity and coherence of customer evaluations on different websites. Furthermore, the method is empirically applied to the lodgings in three tourist destinations (South of Gran Canaria-Spain, South of Tenerife-Spain, and Agadir-Morocco). Therefore, the objectives formulated in this study are the following:

1. Define an indicator (RORB) to establish the dispersion level of the lodgings' online reputation on the three websites studied. Hence, lodgings with convergent scores on a similar average will be considered to have a balanced online reputation, whereas lodgings with significant dispersion will have an unbalanced online reputation. This indicator is a method to measure coherence gap 2 formulated by Rodríguez-Díaz et al. (Rodríguez-Díaz et al. 2018a) when online reputation is assessed in quantitative terms.
2. Determine the level of RORB of the customer evaluations on [Booking.com](#), [TripAdvisor](#), and [HolidayCheck](#) according to the average, standard deviation, and category of the lodgings in the tourism destination analyzed. Likewise, the study will test whether there are significant differences between destinations in their RORBs, in order to determine whether a destination's accommodation offer communicates a consistent image and online reputation.

To obtain these objectives, the study begins with a literature review, presenting the main theoretical concepts used in the statistical analysis. Then, the methodology applied is presented, where the most relevant problem to solve is the transformation of the measurement scales used by the websites. With the adaptation of the scales, the RORB indicator will be calculated. The analysis of results is presented in the next section, first studying each destination independently, and then performing an analysis. A one-way ANOVA is carried out to determine the differences between destinations' means on the RORBs. The paper ends with the main conclusions drawn from the study.

## 2. Literature Review

A company's online reputation is mainly composed of a set of reviews, experiences, evaluations, comments, emotions, photos, and videos shared by customers on the Internet about goods, services, or brands (Hernández Estárico et al. 2012). Therefore, the online reputation can be considered an activity performed by customers in an external environment, beyond the direct control of firms (Xiang and Gretzel 2010). The interrelationships with consumers allow companies to counteract negative comments and stimulate favorable opinions about their goods, services, brands, and image (Gössling et al. 2016).

In tourism, the online reputation conditions the communication strategy of firms, influencing the image, sales, and financial performance (Li et al. 2013; Dinçer and Alrawadieh 2017). The visibility in Internet and the positioning on key websites such as [Booking.com](#), [TripAdvisor](#), and [HolidayCheck](#) influence lodgings' competitiveness. The implications of online customer reviews have been studied in relation to consumer behavior, performance (Rodríguez-Díaz et al. 2015; Vermeulen and Seegers 2009; Ye et al. 2011; Kim et al. 2015; Lee and Ro 2016; Rodríguez-Díaz et al. 2018b), price strategies, revenue management (Varini and Sirsi 2012; Yacouel and Fleischer 2012), satisfaction, and the service quality delivery (Ye et al. 2014; Hernández Estárico et al. 2012; Hu et al. 2008; Mudambi and Schuff 2010; Horster and Gottschalk 2012; Chun 2005; Grönroos 2007).

The online reputation is defined by Einwiller (Einwiller 2003) as the communicative and interactive processes of exchanging information among actors on social media. The communication strategy of lodgings must focus on the trustworthiness and credibility of the information shared by customers

(Ladhari and Michaud 2015; Sparks and Browning 2011). Gössling et al. (2016) defines trust in terms of the reliability of online contents, whereas credibility deals with the honesty of the online reviews by customers. Along the same lines, Yacouel and Fleischer (2012) consider trustworthiness and credibility to be basic elements in the online reputation of hospitality firms, which must avoid false or tendentious evaluations and comments.

One of the problems with using quantitative variables to measure the online reputation is the extent to which this information is reliable and valid. This line of research is being developed and has an impact on the RORB because the information handled by researchers and directors must be truthful. The trust and credibility of the information available on websites containing online customer reviews depends on the reliability and validity of the measurement scales used and the coherence of the evaluations on the different platforms. The level of internal consistency between different measures of a dimension establishes the reliability of the scales (Bagozzy 1996; Hair et al. 1999). Moreover, the validity verifies the degree to which a measure represents the concept analyzed (Hair et al. 1999; Hayes 1992) and the most accepted types of validity are convergent, discriminant, predictive, and nomological (Bagozzy 1996). However, Rodríguez-Díaz and Espino-Rodríguez (2018a, 2018b) showed that in some cases these indicators do not guarantee the validity of scales and instead defined a new scale called the validity of similarities or differences between goods or services, which was tested in different tourist destinations.

In relation to the reliability and validity of the scales used by Booking.com, TripAdvisor, and HolidayCheck, Rodríguez-Díaz and Espino-Rodríguez (2018a, 2018b) demonstrated that the lodging evaluations on the three tourism websites are reliable and valid following the traditional statistic method. Nevertheless, only Booking.com accomplishes this with the new validity scale because it is the only website that uses variables that detect significant differences between destinations.

Based on the results of these investigations, it can be confirmed that the information used to validate the RORB is reliable and valid on these websites. However, another decisive concept in evaluating the online reputation of lodgings is the degree of coherence of the evaluations available in different communication channels like the platforms analyzed. In this context, a new concept called the rating of online reputation balance (RORB) is formulated in this study. RORB is defined as the level of coherence communicated by a firm, brand, or product through different Internet channels. The method used to calculate this indicator is the coefficient of variation of the online reputation scales analyzed, valued as a percentage.

The main objective of this paper is to develop a methodology to calculate the RORB. The method proposed in this article is a means of establishing the coherence gap that service companies should reduce in order to improve competitiveness through their online reputation (Rodríguez-Díaz et al. 2018a). The problems to solve are related to the variables, constructs, and sizes of the scales evaluated in the websites. Most of the variables used measure the service quality construct (Ye et al. 2014; Rodríguez-Díaz and Espino-Rodríguez 2018a; Parasuraman et al. 1988). Nevertheless, there is a single variable included in these scales that measures the perceived value concept. Only HolidayCheck does not consider this dimension, but it can be substituted by the variable recommendation percentage (Micera and Crispino 2017). Rodríguez-Díaz et al. (2015) proposed a method to measure the added value of lodgings by finding the difference between the perceived value and the service quality.

The value concept is directly related to service quality and inversely related to the price of goods or services bought by customers (Parasuraman et al. 1988; Holbrook 1994; Oliver 1997; Rust and Oliver 1994; Zeithaml 1988; Gallarza et al. 2011; Nasution and Mavondo 2008; Oh 2000; Sparks et al. 2008). Value has been studied in tourism in relation to the predictive validity of scales (Rodríguez-Díaz and Espino-Rodríguez 2018a, 2018b), satisfaction of customers (Li et al. 2013; Chadee and Mattsson 1996; Baker and Crompton 2000; Füller et al. 2006; Nam et al. 2011; Oh and Kim 2017), competitive positioning of lodgings (Rodríguez-Díaz et al. 2018b), and added value (Rodríguez-Díaz et al. 2015; Jeong 2002). Although value is a construct measured by a scale of variables (Gallarza and Saura 2006; Sweeney et al. 1999; Oh 1999; Xie et al. 2014), in tourism normally

only one variable is used due to the small size of the scales employed on the tourism websites (Prebensen et al. 2012).

In conclusion, the online reputation on the websites analyzed is measured through quantitative scales of variables that must be trustworthy and credible. The statistical methodology applies the analysis of the reliability and validity of scales in order to determine their capacity to evaluate the constructs measured. Furthermore, the coherence level of the online reputation through different communication channels is also critical in designing and implementing a marketing strategy on tourism websites and social media. The marketing actions will be aimed at promoting a solid brand image in all the communication channels, encouraging customers to share their experiences as a way to enhance online reputation, capture demand, and improve competitive positioning. In the following section, a methodology and empirical study are carried out to assess the level of coherence of the online reputation of lodgings by means of the RORB.

### 3. Research Methodology

To carry out the research, a sample of lodgings with different categories was selected in three tourism destinations: 136 lodgings in the South of Gran Canaria (Canary Islands, Spain), 49 in the South of Tenerife (Canary Islands, Spain), and 38 in Agadir (Morocco). The condition for selecting the hospitality complexes was that they had to be evaluated on the tourism websites of [Booking.com](https://www.booking.com), TripAdvisor, and HolidayCheck. This restriction meant that the number of accommodations under study was reduced because there were relevant accommodations that were not marketed through [Booking.com](https://www.booking.com). The total number of customer comments used by the online portals to measure the online reputation of lodgings was 57.919 in [Booking.com](https://www.booking.com), 102.794 in TripAdvisor, and 49.973 in HolidayCheck, respectively.

The Canary Islands receive 12 million tourists (ISTAC 2017) per year, of whom 4 million go to Gran Canaria and 5 million visit Tenerife Island. Moreover, Agadir and the region of Souss Massa Drâa receive 4 million tourists (ICCEX 2011). Both destinations are specialized in sun and beach tourism because they are located very close to the Atlantic Ocean near the Tropic of Cancer. The distance between the Canary Islands and Agadir is 420 km.

The methodology to follow in determining the RORB is presented in Figure 1. The first step is to analyze the variables on the scales used by the websites. It is crucial to obtain information about the most relevant variables measuring the attributes of the lodgings. The second step deals with the constructs measured in order to achieve significant internal coherence of the variables. The third step is to homogenize the size of the scales because [Booking.com](https://www.booking.com) utilizes a 10-point scale (1 = very poor evaluation; 10 = excellent), whereas TripAdvisor uses a 5-point scale (1 = very poor evaluation; 5 = excellent), and HolidayCheck has opted for a 6-point scale (1 = very poor evaluation; 6 = excellent). Mellinas et al. (2015) established that [Booking.com](https://www.booking.com) actually uses a 4-point scale, which is adapted to a new 10-point scale where the minimum value is 2.5. The fourth step consists of calculating the average of the constructs homogenized from the websites. The fifth step is to calculate the standard deviation of each construct. Finally, the RORB is calculated by the coefficient of variation, dividing the standard deviation by the average, and obtaining a percentage of deviation that defines the level of coherence of the online reputation on different websites. All the variables and indicators have been calculated individually for each accommodation and aggregated for each category and destination.

#### 3.1. Variables, Constructs, and Homogenization

The constructs measured on the scales of [Booking.com](https://www.booking.com) and TripAdvisor are service quality and perceived value (Ye et al. 2014; Rodríguez-Díaz et al. 2015). The service quality is evaluated by [Booking.com](https://www.booking.com) through the variables of staff (S), comfort (Co), facilities (F), location (L), cleanliness (Cl), and Wi-Fi (W). TripAdvisor utilizes the dimensions of location (L), sleep quality (Sq), comfort (Co), facilities (F), and cleanliness (Cl). The HolidayCheck scale is composed of room (R), service (Se), location (L), gastronomy (G), and sport and leisure (Sl) variables. In this case, the gastronomy variable

was not introduced in service quality because it is not a service offered by all the lodgings analyzed. In relation to the perceived value, [Booking.com](#) uses the variable value for money (Vp), [TripAdvisor](#) uses the quality/price relationship (Vp), and [HolidayCheck](#) has no specific variable to measure this construct. [Rodríguez-Díaz and Espino-Rodríguez \(2018a, 2018b\)](#) demonstrated that the percentage of recommendations (Pr) of customers is a useful variable to estimate the perceived value. Because the percentage of recommendations has an upper limit of 100%, the scores were converted to a 10-point scale. To homogenize the scales, they were all adapted to 10-point scales using the following formulas:

$$\text{TripAdvisor: (score of variable} \times 10) / 5 = \text{score of variable} \times 2$$

$$\text{HolidayCheck: (score of variable} \times 10) / 6$$

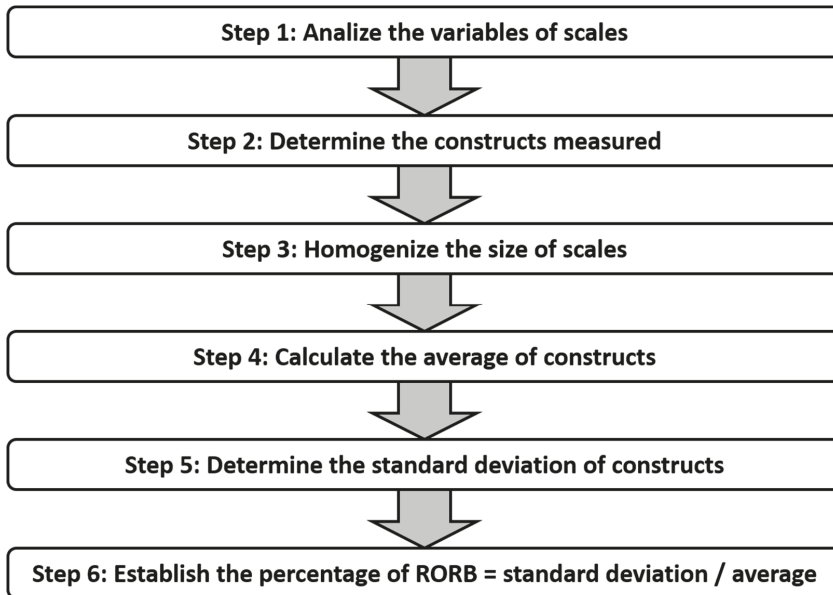


Figure 1. Methodology to determine the rating of the online reputation balance.

At this point, it is necessary to clarify that [Mellinas et al. \(2015\)](#) demonstrated that [Booking.com](#) uses a scale where the minimum value is 2.5 and the maximum is 10. The adaptation of scales proposed in this study and the calculation of the rating of the online reputation balance is a way to demonstrate whether the adaptation of the 4-point scale to a 10-point scale by [Booking.com](#) affects the final evaluation by customers. If the results of this study do not detect significant differences between the evaluations of the websites, this will be a way to validate the homogeneity of the adaptations to 10-point scales. The opposite case would show that [Booking.com](#)'s adaptation to a 10-point scale is biased.

Other variables included in the study were the average score (AS) and the average service quality (Q). The average score is calculated by the websites by averaging all the variables on the scales without separating the constructs measured. Moreover, the service quality average is established in this study by utilizing only the variables used to measure this construct. The Wi-Fi variable was not included in

the average Q because it depends largely on the public infrastructure of the destinations. The formulas utilized are the following:

$$\begin{aligned} \text{Booking.com AS} &= (S + Co + F + L + Cl + W + Vp)/7 \\ \text{Booking.com Q} &= (S + Co + F + L + Cl)/5 \\ \text{TripAdvisor AS} &= (L + Sq + Co + F + Cl + Vp)/6 \\ \text{TripAdvisor Q} &= (L + Sq + Co + F + Cl)/5 \\ \text{HolidayCheck AS} &= (R + Se + L + G + Sl)/5 \\ \text{HolidayCheck Q} &= (R + Se + L + Sl)/4 \end{aligned}$$

### 3.2. Rating of Online Reputation Balance (RORB)

Because there are diverse websites measuring the online reputation of lodgings, it is necessary to evaluate the degree of balance between them. If the ratings of a construct on the three portals analyzed in this study converge on the average score, the conclusion will be that the perceptions about a specific lodging in customer reviews are coherent. Therefore, it is possible to state that its online reputation is balanced. Otherwise, if the averages obtained in the three portals differ from each other, it means that the customers' opinions do not tend to converge in a definite score. In this case, the online reputation of the lodging would be unbalanced (see Figure 2).

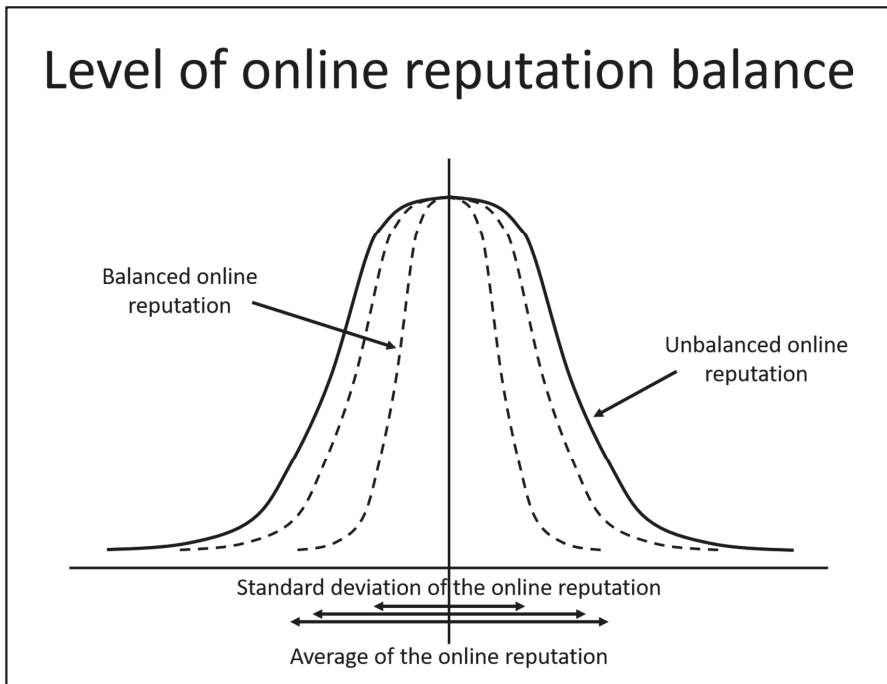


Figure 2. Level of balance of online reputation.

To evaluate the level of balance of the online reputations of lodgings in different communication channels, it is necessary to use a dispersion measure as the standard deviation. As Figure 2 shows, a small deviation from the average indicates a balanced online reputation, whereas a large standard deviation represents an unbalanced online reputation because there are different customer evaluations of a lodging on the websites. When tourism companies encounter this situation, they must try to improve the coherence of the online reputation and the image communicated on the Internet.

It is necessary to clarify that the proposed indicator is intended to define the consistency of the communication from the consumer’s point of view. Internet users do not differentiate between different types of scales. They only consider whether the attributes of the product or service are more or less valued. Furthermore, users do not analyze whether measurement scales or opinions are biased. From this perspective, this study is not intended to establish whether the scales are adequate or not or whether they are biased. To this end, the conclusions propose a method for using the RORB so that it can be evaluated in future research.

An indicator to measure the level of balance of the online reputation of lodgings requires, first, the homogenization of the websites’ scales, and second, the calculation of two statistics: the average ( $\mu$ ) and standard deviation ( $\sigma$ ) of the constructs evaluated in the Internet portals. In this study, the dimensions analyzed are the average score (AS), service quality (Q), and perceived value (Vp) on the websites of [Booking.com](#) (BO), [TripAdvisor](#) (TA), and [HolidayCheck](#) (HC). The average of these dimensions on the websites of lodging j is calculated according to the following formulas:

$$\begin{aligned} \mu AS_j &= (AS-BO_j + AS-TA_j + AS-HC_j)/3 \\ \mu Q_j &= (Q-BO_j + Q-TA_j + Q-HC_j)/3 \\ \mu V_{pj} &= (V_p-BO_j + V_p-TA_j + V_p-HC_j)/3 \end{aligned}$$

The most important characteristics of an indicator are the clarity and simplicity in evaluating the online reputation balance of lodgings. For this purpose, the standard deviation is required for each of the aforementioned dimensions ( $\sigma AS_j$ ,  $\sigma Q_j$ ,  $\sigma V_{pj}$ ). Finally, the rating of the online reputation balance of a construct or dimension used to evaluate lodging j is calculated with the coefficient of variation according to the percentage of dispersion in relation to the average of each indicator, using the formulas:

$$\begin{aligned} RORB-AS_j &= (\sigma AS_j / \mu AS_j) * 100 \\ RORB-Q_j &= (\sigma Q_j / \mu Q_j) * 100 \\ RORB-V_{pj} &= (\sigma V_{pj} / \mu V_{pj}) * 100 \end{aligned}$$

With these percentages, it is possible to define the limits within which an online reputation is balanced. There is no general norm to specify the threshold for the balanced-unbalanced online reputation. Because this indicator or a similar one has not been formulated, the study can be considered exploratory, and, therefore, the limits proposed should also be validated in future research. However, 5% dispersion in relation to the average can be considered a prudent limit. Therefore, a dimension to measure the online reputation with a rating equal to or less than 5% is balanced, whereas if it is greater than 5%, the online reputation is unbalanced. Moreover, each destination can set a different threshold depending on its particular characteristics. For example, a limit of 3% can establish an optimal balance, whereas a rating greater than 10% would imply a critical imbalance for lodgings and the need to take corrective actions. Therefore, a guide to establish the level of balance is the following:

- RORB  $\leq$  3%  $\rightarrow$  the level of online reputation balance is optimal.
- 3% < ROR  $\leq$  5%  $\rightarrow$  the level of online reputation balance is acceptable.
- 5% < RORB  $\leq$  10%  $\rightarrow$  the online reputation is unbalanced.
- 10% < RORB  $\rightarrow$  the online reputation is critically unbalanced.

## 4. Results

### 4.1. Analysis of Results

The first analysis was carried out individually by destination with the aim to determine the similarities and differences between the South of Gran Canaria, South of Tenerife, and Agadir. The study was carried out taking the lodging categories into account in order to evaluate whether there are significant differences in the results obtained. The constructs analyzed were service quality (Q) and perceived value (Vp). Likewise, the average score (AS) was also included because it is the main

measure used by online reputation websites. The correlation analysis was carried out between the variable category of the accommodation and each of the variables studied. A one-way ANOVA was also applied to find out whether there are differences between the RORBs calculated in the three tourism destinations. The averages have been calculated for each of the accommodations. The average of each variable was then calculated in order to simplify the data presented in the tables. Therefore, the averages of each variable analyzed are not exactly equal to the mean of the averages presented in the tables. The reason is that this procedure has been preferred in order to make the data as reliable as possible and, at the same time, to simplify the presentation of the results.

Table 1 shows the results obtained in the tourist destination of the south of Gran Canaria. With regard to the average score, the correlation analysis demonstrates that there are direct relationships between the number of stars and the average score achieved on Booking.com, TripAdvisor, and HolidayCheck, as well as the means of the three evaluations. Nevertheless, the correlation coefficients for the standard deviation ( $-0.272$ ) and the RORB of the average ( $-0.234$ ) score are also significant ( $p < 0.05$ ), but in an inverse direction. This means that the higher the category, the lower the online reputation dispersion and, therefore, the more balanced the online reputation is. It should be highlighted that the level of balance is very high in lodgings with 4 (3.76%) and 5 stars (1.72%), whereas 2-star lodgings exhibit an unbalanced online reputation (10.77%). These results demonstrate that hospitality companies with a high category communicate a more coherent and effective image on the websites analyzed.

**Table 1.** Rating of online reputation balance in the South of Gran Canaria destination.

Rating of online reputation balance in average score						
Number of Stars	AS Booking.com	AS TripAdvisor	AS HolidayCheck	Means of AS ( $\mu$ )	Standard deviation of AS ( $\sigma$ )	RORB AS % $\sigma/\mu$
2 stars	7.68	6.94	7.69	7.41	0.71	10.77%
3 stars	8.01	7.70	8.03	7.92	0.44	5.80%
4 stars	8.30	8.42	8.63	8.44	0.31	3.76%
5 stars	9.06	9.20	9.07	9.11	0.16	1.72%
TOTALS	8.26	8.07	8.35	8.22	0.40	5.51%
Correlation	0.329	0.348	0.386	0.432	$-0.272$	$-0.234$
Significant	0.000	0.000	0.000	0.000	0.001	0.003
Rating of online reputation balance in service quality						
Number of stars	Q Booking.com	Q TripAdvisor	Q HolidayCheck	Means of Q ( $\mu$ )	Standard deviation of Q ( $\sigma$ )	RORB Q % $\sigma/\mu$
2 stars	7.67	7.46	7.77	7.62	0.47	6.40%
3 stars	8.04	7.77	8.11	7.97	0.42	5.57%
4 stars	8.40	8.36	8.66	8.47	0.29	3.60%
5 stars	9.23	9.12	9.07	9.14	0.13	1.40%
TOTALS	8.33	8.18	8.40	8.30	0.33	4.24%
Correlation	0.440	0.351	0.399	0.449	$-0.234$	$-0.242$
Significant	0.000	0.000	0.000	0.000	0.004	0.003
Rating of online reputation balance in perceived value						
Number of stars	Vp Booking.com	Vp TripAdvisor	Pr HolidayCheck	Means of Vp ( $\mu$ )	Standard deviation of Vp ( $\sigma$ )	RORB Vp % $\sigma/\mu$
2 stars	7.73	7.54	6.44	7.24	1.66	28.86%
3 stars	7.89	7.76	7.72	7.79	1.07	16.15%
4 stars	7.87	8.25	8.28	8.13	0.98	14.47%
5 stars	8.22	8.40	9.32	8.65	0.61	7.10%
TOTALS	7.81	7.76	7.22	7.60	1.34	22.06%
Correlation	0.088	0.161	0.237	0.267	$-0.230$	$-0.228$
Significant	0.287	0.050	0.004	0.001	0.005	0.005

The service quality also shows similar results once the relationships of the Q variable on the three websites and their means are positive. Moreover, the relationships are negative for the standard deviation ( $-0.234$ ,  $p < 0.05$ ) and the RORB of service quality ( $-0.242$ ,  $p < 0.05$ ). Again, lodgings with a



higher category have a more balanced online reputation on this construct because the 4-star lodgings have an RORB of 3.60% and the RORB of the 5-star hotels is 1.40%.

Regarding perceived value, with the exception of Booking.com, the results for the other websites and the averages are positively related ( $p < 0.05$ ). However, the correlations between the standard deviation and the RORB of the perceived value are negative ( $-0.230$  and  $-0.288$ , respectively,  $p < 0.05$ ) with regard to the lodgings' categories. Nevertheless, the RORBs by category are all unbalanced, surpassing the 5% recommended. Therefore, lodgings with a high category and service quality level can be evaluated by customers as having a low score on the quality-service relation or value for money variables.

The results obtained in the South of Tenerife destination are presented in Table 2. The average score follows the same trend as in the Gran Canaria destination. The relationships with the number of stars and their means are positive on all the websites. Inversely, the correlations between the standard deviations and the RORBs of the average score are negative ( $-0.406$  and  $-0.386$ , respectively,  $p < 0.05$ ). Another relevant result is the level of balance of this variable, where only the 5-star lodgings achieved a useful percentage (3.23%).

**Table 2.** Rating of online reputation balance in the South of Tenerife destination.

Rating of online reputation balance in average score						
Number of stars	AS Booking.com	AS TripAdvisor	AS HolidayCheck	Means of AS ( $\mu$ )	Standard deviation of AS ( $\sigma$ )	RORB AS % $\sigma/\mu$
2 stars	7.65	7.12	7.48	7.38	0.90	13.37%
3 stars	8.02	7.62	7.99	7.87	0.54	6.86%
4 stars	8.02	7.87	8.24	8.03	0.51	6.59%
5 stars	8.65	9.00	8.75	8.80	0.29	3.23%
TOTALS	8.08	7.90	8.11	8.02	0.56	7.51%
Correlation	0.317	0.379	0.354	0.399	-0.406	-0.386
Significant	0.028	0.007	0.029	0.005	0.004	0.006
Rating of online reputation balance in service quality						
Number of stars	Q Booking.com	Q TripAdvisor	Q HolidayCheck	Means of Q ( $\mu$ )	Standard deviation of Q ( $\sigma$ )	RORB Q % $\sigma/\mu$
2 stars	7.64	7.40	7.36	7.49	0.75	10.55%
3 stars	7.98	7.91	8.11	8.03	0.41	4.97%
4 stars	8.10	8.23	8.38	8.23	0.38	4.76%
5 stars	8.86	8.90	8.80	8.85	0.12	1.44%
TOTALS	8.15	8.11	8.16	8.15	0.42	5.43%
Correlation	0.375	0.426	0.465	0.472	-0.419	-0.430
Significant	0.008	0.002	0.003	0.001	0.003	0.002
Rating of online reputation balance in perceived value						
Number of stars	Vp Booking.com	Vp TripAdvisor	Pr HolidayCheck	Means of Vp ( $\mu$ )	Standard deviation of Vp ( $\sigma$ )	RORB Vp % $\sigma/\mu$
2 stars	7.68	7.18	7.30	7.37	1.30	21.70%
3 stars	7.88	8.00	7.77	7.92	1.14	15.48%
4 stars	7.59	7.73	8.21	7.84	0.66	8.94%
5 stars	7.78	8.25	8.00	8.01	0.66	8.42%
TOTALS	7.1	7.65	7.86	7.71	1.01	15.06%
Correlation	0.043	0.210	0.145	0.188	-0.279	-0.254
Significant	0.771	0.147	0.385	0.195	0.053	0.078

In the case of service quality, the results are more significant. Again, the evaluations of this construct are positively related to the category of the lodgings on the three websites and the means. As expected, the standard deviation and RORB of service quality obtained a negative (0.419, 0.430, respectively,  $p < 0.05$ ) correlation. Thus, the RORBs show more coherent percentages because the 5-star lodgings achieve an RORB of 1.44%, whereas the 4- and 3-star lodgings have RORBs in the range between 3% and 5%.

Perceived value achieved different results. The correlations between this variable and the lodging categories on the three websites and the means have not been verified. Likewise, the correlation of the

RORB for perceived value is not significant (0.078) and the standard deviation is not significant by a small margin (0.053), with a negative relationship ( $-0.279$ ). Analyzing the level of coherence of the online reputation for perceived value, the information in Table 2 demonstrated that all the lodgings have problems with balance because they have scores of more than 5%.

The results for the destination of Agadir are shown in Table 3. Regarding the average score for this destination, the results are radically different. Thus, all the correlations between the average scores of the three websites and the means in relation to the category have not been verified. Moreover, the standard deviation and the RORB are not significant, demonstrating that the coherence of the online reputation is low, and there are no differences between the categories of the lodgings in the destination. Another result that confirms this conclusion is the percentage of RORB, where the lowest score is 6.85% in the 3-star lodgings.

**Table 3.** Rating of online reputation balance in Agadir destination.

Rating of online reputation balance in average score						
Number of stars	AS Booking.com	AS TripAdvisor	AS HolidayCheck	Means of AS ( $\mu$ )	Standard deviation of AS ( $\sigma$ )	RORB AS % $\sigma/\mu$
2 stars	7.32	7.20	8.06	7.39	0.76	10.81%
3 stars	7.41	7.25	7.58	7.38	0.47	6.85%
4 stars	7.53	7.50	8.19	7.71	0.57	7.66%
5 stars	7.56	8.40	8.21	7.98	0.59	7.87%
TOTALS	7.46	7.59	8.01	7.62	0.60	8.30%
Correlation	0.141	0.239	0.130	0.188	$-0.076$	$-0.111$
Significance	0.397	0.149	0.494	0.258	0.652	0.506
Rating of online reputation balance in service quality						
Number of stars	Q Booking.com	Q TripAdvisor	Q HolidayCheck	Means of Q ( $\mu$ )	Standard deviation of Q ( $\sigma$ )	RORB Q % $\sigma/\mu$
2 stars	7.27	7.44	7.66	7.39	0.82	11.46%
3 stars	7.37	7.53	7.37	7.44	0.46	6.37%
4 stars	7.60	7.75	8.30	7.85	0.53	6.85%
5 stars	7.69	8.64	8.26	8.12	0.57	7.46%
TOTALS	7.48	7.84	7.89	7.70	0.60	8.03%
Correlation	0.161	0.300	0.259	0.271	$-0.139$	$-0.186$
Significance	0.336	0.067	0.167	0.100	0.404	0.264
Rating of online reputation balance in perceived value						
Number of stars	Vp Booking.com	Vp TripAdvisor	Pr HolidayCheck	Means of Vp ( $\mu$ )	Standard deviation of Vp ( $\sigma$ )	RORB Vp % $\sigma/\mu$
2 stars	7.46	7.80	8.50	7.74	0.61	7.81%
3 stars	7.44	7.63	7.28	7.46	0.65	9.04%
4 stars	7.22	7.70	8.09	7.66	0.97	13.02%
5 stars	6.74	8.00	8.50	7.61	1.25	17.16%
TOTALS	7.23	7.74	8.03	7.62	0.89	12.04%
Correlation	$-0.182$	0.046	0.080	0.000	0.406	0.377
Significance	0.273	0.784	0.675	0.999	0.011	0.020

Along the same lines, the results of the service quality construct, due to all the correlations, are not significant. Thus, the percentages of RORB are greater than 5%, demonstrating that this destination has problems with coherence in the online reputation of its lodgings. The perceived value has similar outputs in the sense that all the correlation coefficients are non-significant, with the exception of the standard deviation and RORB, which has positive coefficients (0.406 and 0.377, respectively,  $p < 0.05$ ). These results indicate that the coherence of the lodgings in Agadir is higher in the firms with a lower category, unlike the other destinations analyzed, where hospitality firms with a higher category communicate a more coherent online reputation.

A one-way ANOVA was carried out to establish whether there are relevant differences in the means of the variables in the three destinations based on the lodging category. Table 4 shows that on the average score, only lodgings with 4 stars have different means ( $p < 0.05$ ) in the destination analyzed,

with a *F* value of 4.305. Regarding the service quality dimension, the results reveal that lodgings with 2 and 4 stars have different means between the destinations (0.009 and 0.043, respectively). In relation to perceived value, only the 5-star lodgings exhibit differences between destinations. Likewise, considering all the categories studied, perceived value is also the only variable that shows differences between destinations ( $F = 3.314, p < 0.05$ ).

**Table 4.** One-way ANOVA of the rating of online reputation balance in the destinations.

Number of Stars	RORB AS		RORB Q		RORB Vp	
	F	Significance	F	Significance	F	Significance
2 stars	0.228	0.798	4.938	0.009	0.865	0.425
3 stars	0.289	0.751	0.095	0.910	0.421	0.658
4 stars	4.305	0.018	3.327	0.043	0.586	0.560
5 stars	2.243	0.152	2.506	0.127	3.838	0.054
All categories	0.117	0.890	1.397	0.249	3.314	0.038

#### 4.2. Discussion of Results

The results obtained validate the RORB proposed to evaluate the level of coherence of the online reputation. Likewise, they show the need to use this new indicator to calibrate and improve the communication strategy of hospitality firms. The analysis carried out by categories demonstrates that some companies have more effective and coherent communication through tourism customer opinion websites than others.

The majority of the results show that lodgings with a higher category obtain the lowest percentage of RORBs and, therefore, a more coherent online reputation. The dimensions of average score and service quality are positively correlated with the lodging category, in such a way that firms with a greater number of stars obtain higher ratings than lodgings with a lower category. The only exception is Agadir, where the correlation coefficients are not significant and the result of the perceived value measured by [Booking.com](#) was not successful ( $p > 0.05$ ).

These results reveal that the perceived value is a very subjective variable because the price negatively affects the value construct (O'Connor 2010; Rodríguez-Díaz and Espino-Rodríguez 2018a, 2018b). In this context, the correlation coefficient levels were the lowest, where many results did not show relationships with the category of hotels. According to Rodríguez-Díaz et al. (2015), the perceived value is evaluated by customers according to the price level. The reason for this result is that lodgings with a higher category are evaluated with high service quality but lower perceived value because customers who pay higher prices are more demanding about the services requested.

Analyzing the RORB indicator, the percentages proposed to determine the level of coherence are found to be appropriate because the results show that lodgings with a higher category achieve a greater degree of coherence. Furthermore, the RORBs for the average score and service quality in the destination of Gran Canaria and Tenerife obtain percentages below 5%, demonstrating that it is a useful indicator to be included in the communication and positioning strategy of lodgings.

With regard to the study of the destinations, the RORB can be used as a measure of the competitiveness and performance of destinations (Choi and Sirakaya 2006; Farrell and Twining-Ward 2004; Beritelli et al. 2007). The ANOVA reveals relevant differences between destinations in specific categories. Furthermore, the perceived value RORB achieved useful results when analyzing all the lodgings of the destinations together.

Regarding the consideration by Mellinas et al. (2015) that the [Booking.com](#) scale ranges from 2.5 to 10 points, as well as the adaptation of the scales of TripAdvisor and HolidayCheck to 10 points, the results demonstrated that they do not affect the level of coherence defined by the RORBs. The internal calculations carried out by [Booking.com](#) to transform the 4-point customer evaluation to a 10-point scale of the final online reputation measure do not produce bias in the coherence of the RORBs. Therefore,

the results show that the adaptation of all the websites' scales to 10-point scales is useful to calculate the level of coherence and balance of the online reputation of lodgings.

## 5. Conclusions

The online reputation is critical in defining the communication, image, and sales strategy in the hospitality industry. Internet provides different channels to communicate the image and customer evaluations influencing the potential future income of lodgings. The problem companies face is how to manage coherent, truthful, and credible communication in such an open digital society. This paper develops and tests a methodology to evaluate the level of coherence of the online reputation transmitted through websites specialized in collecting quantitative evaluations from customers in lodgings.

The level of coherence and dispersion of the quantitative online reputation is measured through the RORB indicator, which is tested empirically, demonstrating that it is a useful tool for defining and correcting the online communication strategy of hospitality firms. It is important to clarify that this study should be considered exploratory because similar indicators have not been formulated in the academic literature. Therefore, future research should validate the proposed limits and try to make additional differentiations using the 10% threshold because there may be relevant differences between accommodations that have a RORB close to this limit compared to those with much larger disparities. This indicator was calculated in terms of a percentage, dividing the standard deviation of the variables' average score, service quality, and perceived value by their means. The first analysis consisted of establishing the relationships between the categories of lodgings with the variables studied.

The results obtained showed significant correlations in many of the destinations and variables studied. For the average score, service quality, and perceived value, the correlations were positive. The only exception was the perceived value variable for Agadir's lodgings measured at [Booking.com](https://www.booking.com), which was negative but ( $p > 0.05$ ). Moreover, the average score and service quality achieved relevant scores in the correlations in the destinations of Gran Canaria and Tenerife, whereas in Agadir all the results were non-significant.

Furthermore, in the standard deviations and RORBs of the variables considered, the correlation coefficients were negative. This result shows that the degree of consistency of the online reputation is higher as the lodging category increases. The destinations of Gran Canaria and Tenerife obtained useful results in the correlations in these indicators. However, Agadir obtained non-significant and positive results in the RORB of perceived value. These results show that the online reputation of Agadir lodgings has a lower level of consistency, especially in companies with a higher category. This can be considered a competitiveness problem for the most relevant companies in the destination.

When analyzing the RORBs, the results confirmed that some lodging categories obtain percentages below 3%, which indicates a balanced online reputation. These are usually 5-star accommodations in the dimensions of average score and service quality. There are also companies with percentages between 3% and 5%, which are considered balanced. The perceived value obtains the highest percentages, which leads us to conclude that the effect of the price produces a higher percentage and, therefore, an unbalanced reputation. Again, Agadir's offer shows the greatest imbalance, once the lodgings in the highest category reach higher percentages than those in the lowest category. This incoherence can influence the global online image transmitted by this destination. It would be interesting to check in future research whether there are any factors that may be influencing the results obtained in Agadir, such as the level of control or definition of the categories by the public administration.

The study confirms that the proposed percentage thresholds for the RORBs to determine the level of balance are satisfactory. The proposed percentage of 5% as the maximum threshold for determining a balanced RORB is shown to be reasonable. Moreover, there are relevant differences between categories, in some cases exceeding 10%. Therefore, the RORB indicator can be used to define competitive positioning and measure the performance of tourism companies in relation to customer evaluations. In this context, the adaptation of the website scales to 10 points was found to be satisfactory. The results also demonstrated that the Booking.com scale from 2.5 to 10 points does not generate bias because

lodgings with a higher category obtain RORB percentages below 3%. If bias had been present, it would have been impossible to obtain these outputs.

The comparative study using ANOVAs showed that there are differences in certain variables between destinations. Thus, perceived value obtains different averages when all the sample cases are considered, and, in a special way, the 5-star lodgings have great coherence in Gran Canaria and Tenerife, whereas in Agadir there is greater disparity. These results demonstrate that the RORB can be used to study the level of competitiveness of the online communication strategy of tourist destinations. Therefore, it has been demonstrated that this indicator is effective to measure the level of coherence of the quantitative communication of the accommodation and, therefore, to measure deficiency 2 of the Gap Analysis of Online Reputation model proposed by [Rodríguez-Díaz et al. \(2018a\)](#).

The study has several implications for accommodation managers. First of all, the E-WOM is currently one of the main means by which lodgings can achieve a competitive market position based on a solid online reputation. The impact that this type of communication has on potential customers forces managers to take effective action in the different communication channels on the Internet. The proposed indicator can be of great help in determining corrective actions in those channels where the transmitted image does not fit the reality. Possible remedial actions may include enhancing customer feedback on certain channels, applying new methods to establish the real reputation, and communicating or responding to feedback by clarifying the true quality of service of the accommodations. Second, this indicator can be used as a means of measuring the performance of tourist accommodation. Third, it can also be used to determine the level of bias of the different scales used by websites. Along these lines, one of the possible problems is that the [Booking.com](#) scale is really a scale that goes from 2.5 to 10. Although the objective of this study is not to assess the bias levels of the scales, it is possible to use the RORB to verify the possible bias. This would require direct and random surveys of actual customers in order to evaluate actual reputation. The RORB would be applied to the results obtained in such a way that if there are no significant differences it can be deduced that the scales do not bias the clients' evaluations; on the contrary, if there are discrepancies, it can be concluded that the scales are biased. Fourth, the simplicity of the indicator can be seen as an advantage from a practical perspective because managers often look for easily understandable indicators for their scorecards. Finally, proposing this indicator opens up a debate at both management and research levels about the most appropriate means and indicators to determine whether the online communication of an accommodation is appropriate.

Future research should confirm the RORB thresholds established in other destinations and companies. It would also be useful to analyze whether it is an appropriate indicator for studying the differences in competitiveness between businesses and tourist destinations. Another aspect to be assessed is the extent to which RORB is beginning to be used in tourism companies as a critical indicator for the communication strategy. Other research could be focused on determining the degree of efficiency in lodging sales based on the level of consistency of RORBs. It is also advisable to carry out research to check whether the degree of consistency of the online reputation is related to the category of accommodation using other samples from other destinations. The improvement in the online reputation of the accommodation offer will influence the overall image of the destination. The online reputation of the destination's complementary offering should also be included in future research. Another aspect to be investigated in the future is the development of indicators to measure the level of coherence of the qualitative communication transmitted on the websites. A limitation of this work is that HolidayCheck does not have a specific variable to measure the perceived value and so future research should verify whether the recommendation percentage can be used as a substitute. Further research can also be carried out to establish whether the standardization of scales makes it possible to compare the results to determine whether accommodations' communication is coherent. A content analysis can also be carried out to establish the number and type of customer reviews related to the sustainability of accommodations and destinations.

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