

## ORIGINAL RESEARCH ARTICLE

# The value of intelligent services and intelligent destination: From the perspective of residents

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### ABSTRACT

Destinations are considered brands that must be properly managed to increase not only tourist arrivals but also the quality of life of residents. Brand equity plays an important role in achieving such objectives. Simultaneously, the integration of ICT in the territory has led to the concept of “smart destinations”. In this context, the aim of the paper is to develop a value model of smart destinations from the perspective of residents (key actor of destinations as they project their image and influence the tourist experience). Our model includes smart services related to safety, health, heritage, mobility and environment. Our results confirm that smart destination value is formed by recognition, image, perceived quality and loyalty. In addition, safety, environment and mobility services are the main antecedents of smart destination value.

**Keywords:** smart; services; value; destination; residents

## 1. Introduction

Today, there are two particularly important trends in relation to the management and marketing strategies of territories. On the one hand, territories are increasingly conceived as brands that must be properly managed to achieve their objectives in terms of tourist arrivals or residents' quality of life, among others<sup>[1-3]</sup>. On the other hand, the exponential growth of Information and Communication Technologies (ICT) brings new challenges and opportunities in the management of territories<sup>[4]</sup>. In this context, the term “intelligent” (smart) has been cradled, representing the integration of ICT within the territory

(most particularly within cities), with the aim of improving the efficiency of services and, consequently, the quality of life of citizens<sup>[5]</sup>.

ICTs offer a great potential to increase the competitiveness of cities through the development of tools that allow a more efficient management and coordination of public services, such as waste management, energy saving or traffic control<sup>[6]</sup>. In addition, ICTs enable the development of new value-added services based on the provision of real-time information on different city issues: traffic density, public transport routes, parking availability or accessibility of cultural heritage and other tourist resources. These new technological applications will enable citizens

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to be more connected, better informed and more engaged with the city. In short, they will make cities more accessible and enjoyable for both residents and visitors<sup>[2]</sup>.

Wireless Internet and the development of Web 2.0 enable greater interconnectivity and interactivity between public administrations, citizens and businesses<sup>[5]</sup>. Thus, people can not only access a wealth of information and value-added services, but can also interact with the city, service providers and other citizens and visitors, generating new information (e.g., warnings about traffic jams and accidents) and thus adding value to those services and applications. These capabilities provided by ICTs have given way to a growing focus on the participation of residents and visitors in city development, their empowerment in urban decision-making processes and their involvement in the co-creation of high value-added services.

There is no doubt that ICT applications have enormous potential for the tourism industry, especially for the positioning and management of tourism destinations<sup>[2]</sup>. Firstly, technologies such as mobile Internet, geolocation or augmented reality make it possible to improve tourists' experiences at the destination, through the provision of real-time information or innovative applications to enjoy tourism products and services. ICTs also improve efficiency by reducing the time and costs required to provide public services to tourists. In this sense, the development of smart technologies and their application to the management of tourism in the territories have given way to the concept of "smart destination".

This concept has recently attracted the interest of professional experts from different countries<sup>[7,8,10]</sup>. However, to date, most academic research on smart destinations is conceptual<sup>[1]</sup> and mainly focuses on business tourism and co-creation activities to enhance the destination experience<sup>[2,7,8]</sup>. Under these circumstances, our study is expected to contribute to the literature by developing and empirically testing a smart destination value model from the residents' point of view. Our theoretical model includes five

types of smart services: safety, health, heritage, mobility and environment. This approach is particularly interesting for tourism decision makers as residents are a key figure in projecting the smart destination image and influencing the quality of the visitor experience<sup>[11]</sup>.

## **2. Literature review**

### **2.1. Smart destinations**

The application of technology in the tourism sector has been referred to as "digital" or "smart" tourism. In particular, the implementation of intelligence in tourism destinations has become a critical issue<sup>[12]</sup> as the more connected, better informed and more engaged tourist dynamically interacts with the destination, co-creates tourism products and adds value to share<sup>[13]</sup>. Networked tourism organizations provide tourists with real-time and personal services, and simultaneously collect data for the optimization of their strategic and operational management<sup>[9,10]</sup>. Therefore, the concept "smart" has become a vital component in the field of tourism destination marketing<sup>[1,12]</sup>.

Along these lines, the smart destination can be considered as "a tourism system that leverages smart technology to create, manage and deliver smart services/experiences, and is characterized by intensive information exchange and value co-creation"<sup>[9]</sup>. With a similar approach, Segittur, one of the leading institutions in the field of smart destinations, defines this phenomenon as "an innovative space, accessible to all, established on a state-of-the-art technological infrastructure that guarantees the sustainable development of the territory, facilitates the interaction and integration of the visitor with the environment and increases the quality of their experience in the destination, as well as the quality of life of the residents"<sup>[14]</sup>. Therefore, this approach is based on the use of ICTs to improve the tourism experience, the sustainability of the destination and the quality of life of residents<sup>[1]</sup>. Finally, adopting a technological approach<sup>[13,14]</sup>, smart destinations can be considered

platforms where information about tourism resources, activities and products can be instantly integrated and provided to tourists, businesses and organizations through a variety of devices<sup>[10,17]</sup>.

Previous studies have pointed out that smart destinations contribute, not only to tourist satisfaction, but also to the quality of life of residents<sup>[1-3,16,14]</sup>. A smart management approach will lead to the development and growth of the tourism industry in the territory, with positive externalities through the creation of jobs and wealth for the local population. In addition, residents can enjoy many of the high value-added services in smart destinations, making more efficient and accessible public services available to them, and improving their awareness and use (including the enjoyment of heritage and tourist attractions).

Regarding the nature of smart services, ICTs have applications in very diverse fields related to the management of tourism destinations. In this sense, the conceptual framework proposed by Segittur for the success of smart tourism destinations considers five types of high value-added services for tourists and residents<sup>[14]</sup>:

- Mobility: systems aimed at efficient management of public transport and mobility resources (e.g., access to the territory and its tourist attractions). Mobility services emerge as a key factor in smart destinations<sup>[1,15]</sup>, including the provision of real-time information on traffic, parking, public transport routes and online booking of services.
- Heritage: real-time access systems to the history and cultural activities of the destination, facilitating better promotion and a higher quality tourism experience<sup>[15,18,16,10]</sup>. This includes augmented reality applications, geolocation, historical immersion through optical devices, as well as video mapping and holography.
- Environment: systems to improve efficiency in energy management and sustainable tourism, leading to significant savings. Smart environmental management, including applications in the areas of public lighting, waste collection and treatment, as well as renewable energy implementation, is a recurring pillar in most conceptual frameworks on smart destinations<sup>[1]</sup>.
- Security systems aimed at improving public safety<sup>[10]</sup>, such as remote video monitoring in unsafe areas, electronic police reporting or location sensors at mass events. These applications may be of interest to reduce perceived risk in destinations considered unsafe or in the case of mass events. In addition, smart security systems can be very useful in improving residents' perceptions of safety issues associated with tourism (e.g., crime or prostitution).
- Health: health and prevention systems targeting tourists and residents<sup>[19,10]</sup>, such as remote access to electronic medical records, preventive health applications, barcode readers embedded in food with nutritional information, or geolocation of pharmacies.

According to Segittur, these five areas proposed for the development of smart services in tourist destinations have positive impacts on the local economy, due to the emergence of new business opportunities in the field of Internet, Big Data and CRM systems<sup>[14]</sup>. Although this smart services framework has been applied in different territories, so far there is no study that provides empirical evidence to support: 1) the explanatory capacity of the mentioned framework; and 2) the validity of specific instruments to measure, in a reliable way, user evaluations of the smart services offered by the territories.

## 2.2. Smart services and brand value for smart destinations

In the marketing literature, the concept of "brand equity" originated in an attempt to define the

relationship between customers and brands from a strategic point of view<sup>[20]</sup>. In particular, Keller<sup>[21,22]</sup> and Aaker developed the consumer-based brand equity model<sup>[21-23]</sup>, related to individuals' perceptions and reactions to brands. According to Aaker, brand equity is a multidimensional concept that includes a set of assets and liabilities linked to a brand, its name and symbol, which add or subtract from the value provided by a product or service to customers<sup>[23]</sup>. Brand equity cannot be fully understood without examining the factors that contribute to its formation in the minds of consumers<sup>[24]</sup>. In this regard, four dimensions are well established in the literature: brand recognition, brand image associations, perceived brand quality, and brand loyalty<sup>[22,25]</sup>.

Although this theory was initially applied to tangible goods<sup>[26]</sup>, over time it has been extended to other fields, such as territories. Thus, studies related to brand equity have been published for countries<sup>[27-29]</sup>, cities<sup>[30,31]</sup> and tourist destinations<sup>[32-36]</sup>.

These previous works agree that destinations are brands<sup>[37-39]</sup> installed in the minds of individuals tourists and residents, and whose power lies in the perceptions formed around it from their experiences and learning over time.

Focusing our attention on tourist destinations, it should be noted that there are no studies that specifically analyze the brand value for a smart destination, which could be explained by the recent emergence of this type of territories. Furthermore, previous work on traditional destinations has adopted the perspective of tourists, not residents<sup>[40]</sup>. Given that residents are a fundamental piece of the destination brand<sup>[41]</sup> and that smart territories can significantly improve not only the experience of tourists but also the well-being of residents<sup>[1,2,16]</sup>, it is crucial to analyze the perceptions of this internal collective of destinations. Therefore, considering this gap in the literature, this paper focuses on the brand value of smart destinations as seen by their residents.

First, we consider the brand value of smart destinations as a multidimensional concept made up of

four dimensions: recognition, image, perceived quality and loyalty<sup>[33,42,34]</sup>. Brand recognition would consist of the recognition of the territory as a smart destination by its residents. Brand image, conceived as the set of associations linked to the brand<sup>[32]</sup>, would in this case be composed of residents' perceptions of the attributes of their territory as a smart destination. In line with Keller, perceived quality would be related to the judgments made by residents about the way in which their territory as a smart destination satisfies their needs<sup>[22]</sup>. Finally, brand loyalty would be represented by residents' willingness to recommend their territory as a smart destination to others<sup>[42-44]</sup>, thus becoming ambassadors of the destination brand<sup>[41]</sup>.

Second, our study aims to examine the factors that influence smart destination value as viewed by residents. According to Wong & Teoh, destination brand value can be the antecedent and outcome of destination competitiveness<sup>[45]</sup>. Therefore, perceptions of the functional attributes that determine destination competitiveness (the more tangible and measurable ones, such as attractions or infrastructure) are expected to be a key precursor to brand value. In the case of smart destinations, the factors that influence competitiveness will be mainly those related to safety, health, heritage, mobility and environmental services<sup>[14]</sup>. Adopting the reasoning wielded by Wong & Teoh<sup>[45]</sup>, it is considered that these smart services will lead to greater destination competitiveness since they can improve the local economy and employment opportunities<sup>[14]</sup>. Consequently, residents' positive perceptions of smart services will lead to a stronger smart destination value by reinforcing the set of key assets linked to the destination brand: recognition, image, perceived quality and loyalty. Accordingly, the following research hypotheses are formulated (see theoretical model in **Figure 1**):

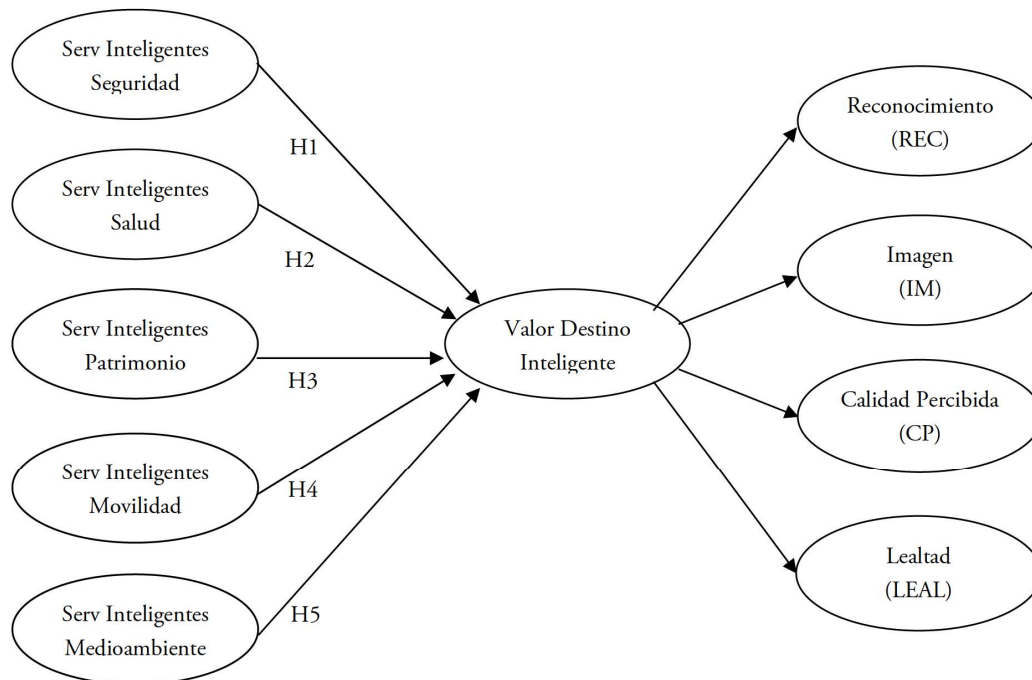
H1. There is a positive relationship between smart security services and smart destination value for residents.

H2. There is a positive relationship between smart health services and smart destination value for

residents.

H3. There is a positive relationship between heritage smart services and smart destination value for residents.

H4. There is a positive relationship between



**Figure 1.** Theoretical model of smart destination value.

Source: Own elaboration.

### 3. Research methodology

In order to test the hypotheses, empirical research was carried out based on personal surveys of citizens of the destination under study (the city of Santander, in northern Spain). In this regard, it is important to note that the destination is located in Spain, an interesting study location to collect data on this particular, as it ranks third in the ranking of countries in number of international tourist arrivals, and is internationally recognized as a leading country in the development of smart destination projects. In addition, and already at the city level, Santander is included in a pioneering experimental research at a global level that involves the development of applications and services typical of a smart city.

The sample universe was composed of Santander residents over 18 years of age. The questionnaire

smart mobility services and smart destination value for residents.

H5. There is a positive relationship between smart environmental services and smart destination value for residents.

included the following blocks: (1) residents' perceptions of the different smart services offered by the city; (2) measures of the four dimensions of smart destination value (recognition, image, perceived quality, loyalty); and (3) sociodemographic characteristics of the sample. The variables of the theoretical model were measured with multi-attribute scales adapted from previous studies, in order to ensure content validity (**Table 1**). In particular, "smart destination value" was measured taking as reference the studies by Konecnik & Gartner, Boo et al., and Pike et al.<sup>[46-48]</sup>. The "smart services" measure was initially designed considering the five categories established by Segittur<sup>[14]</sup>. For each of them, we included three items summarizing the main content of each category. Subsequently, these items were examined, in some cases improved, through a review by academic experts. Finally, all constructs were subjected to a pre-test to ensure their quality.

**Table 1.** Scales of measurement

<b>Safety<sup>a</sup></b> Video traffic monitoring in tunnels and hazardous areas Applications for electronic complaints (e.g., theft reports) Video surveillance and control systems in touristic areas
<b>Health<sup>a</sup></b> Web applications with information of interest on health-related topics Web applications for locating pharmacies and other health centers Mobile applications with personalized information for patients
<b>Heritage<sup>a</sup></b> Tourist routes with geolocation systems Video and audio guides in museums and other tourist attractions Augmented reality systems
<b>Mobility<sup>a</sup></b> Mobile applications for parking Traffic and public transport information systems Open WiFi network
<b>Environment<sup>a</sup></b> Intelligent systems for street lighting regulation Intelligent systems for measuring environmental conditions (e.g., air pollution) Intelligent irrigation systems in parks and gardens
<b>Recognition<sup>b</sup></b> Santander is a recognized smart destination Santander is a famous smart destination Santander is a well-known smart destination
<b>Image<sup>b</sup></b> Santander has an innovative tourism management Santander has an efficient tourism management Santander has sustainable tourism management Santander has an integrated management of its tourism services
<b>Perceived quality<sup>b</sup></b> Santander's smart management systems are attractive to tourists Santander's smart management systems meet the needs of tourists Santander's smart management systems improve the tourists' experience
<b>Loyalty<sup>b</sup></b> I will encourage my family and friends to visit Santander smart destination I would recommend Santander as a smart destination if someone asked me to do so. I would speak highly of Santander as a smart travel destination.

a: Evaluations of smart services are measured on a seven-point scale (1= very negative; 7= very positive).

b: Value dimensions are measured via a seven-place Likert scale (1= strongly disagree; 7= strongly agree).

Source: Own elaboration.

The sample of residents was selected using the quota procedure, controlling for population characteristics in terms of age and gender based on official statistics. Subsequently, in a second phase, we used

convenience sampling, carrying out the surveys in the main areas of Santander and obtaining 833 valid responses (**Table 2** shows the sociodemographic profile of the sample of residents).

**Table 2.** Sociodemographic profile

Variable	%	Variable	%
<i>Gender</i>		<i>Age</i>	
Male	47.0	Less than 30	25.0
Female	53.0	Between 30–55	43.7
		Over 55 years old	31.3
<i>Level of education</i>		<i>Occupation</i>	
No education	7.0	Active worker	44.7
Primary education	17.2	Student	21.3
Secondary education	35.3	Homemaker	12.5
University studies	40.5	Retired/Unemployed	21.5

Source: Own elaboration.

## 4. Results

Before estimating the model, the Common Method of Variance (CMV) was examined, since the data were collected from a single instrument. More specifically, Harman's single factor was used by performing an exploratory factor analysis (based on the extraction of a single factor without rotation) for the 26 items included in the 9 factors, in order to determine the total variance of the single factor extracted and to estimate whether it was below the cut-off value of 50%. The results obtained with IBM SPSS 21 software indicate that a single overall factor only accounts for 37.5% of the total variance explained in the 26 items, suggesting that there are no problems with the CMV.

Subsequently, a covariance-based Structural Equation Model was estimated using a robust maximum likelihood estimation procedure in order to avoid problems of non-normality in the data. First, the model was estimated with a Confirmatory Factor Analysis (CFA) to assess the psychometric properties of the measurement scales (reliability and validity). Then, the structural model was estimated to contrast the direct causal effects established in the research hypotheses.

### 4.1. Estimation of the measurement model

A first estimation of the measurement model showed convergent validity problems in the scales used to measure "intelligent mobility services" and "recognition", since the factor loadings of items SIM2 and REC2 had values below 0.4. Therefore, and in accordance with the approach proposed by Hair et al.<sup>[47]</sup>, we eliminated these items from the scales and re-estimated the model. The results obtained in the estimation of the revised measurement model confirm the goodness of fit of the factor structure to the data.

In particular, we considered three fit criteria: absolute fit measures, incremental fit measures and parsimony measures<sup>[49]</sup>. These statistics are provided by the EQS 6.1 software, widely used in the

Structural Equations literature<sup>[47]</sup>: Bentler-Bonett Normed Fit Index (BBNFI), Bentler-Bonett Non-Normed Fit Index (BBNNFI) and Root Mean Square Error of Approximation (RMSEA) for measuring overall model fit; Incremental Fit Index (IFI) and Comparative Fit Index (CFI) as measures of incremental fit; and  $\chi^2$  Normed for measuring model parsimony. The results summarized in **Table 3** confirm that the BBNFI, BBNNFI, IFI and CFI statistics clearly exceed the recommended minimum value of 0.90. RMSEA is within the upper limit of 0.08, and  $\chi^2$  Normalized takes a value below the recommended value of 3.0<sup>[47]</sup>.

Reliability of measurement scales is assessed using Cronbach's Alpha, composite reliability and AVE coefficients<sup>[48]</sup>. The values of these statistics are, in all cases, above or very close to the minimum required values of 0.7 and 0.5 respectively<sup>[47]</sup>. Only in the case of "smart heritage services" and "smart mobility services", values slightly below the recommended levels were obtained, which is generally accepted in exploratory research analyzing understudied constructs such as these smart tourism services. Consequently, the results obtained support the internal reliability of the constructs (**Table 3**). The convergent validity of the scales is also confirmed, since all items are significant at a 95% confidence level and their standardized lambda coefficients are greater than 0.5.

To analyze the discriminant validity of the scales, the procedures proposed by Anderson & Gerbing and Fornell & Larcker<sup>[49,50]</sup> are followed. The approach proposed by Anderson & Gerbing is a basic test of discriminant validity based on the analysis of confidence intervals for correlations between constructs<sup>[41]</sup>. According to this method, the discriminant validity of the scales used in this research is admitted, since none of the confidence intervals for the correlation between pairs of factors contains the value 1. The procedure proposed by Fornell & Larcker<sup>[50]</sup> is considered a more demanding test of discriminant validity and requires the comparison of the variance extracted for each pair of constructs (AVE coefficient) with the estimate of the

**Table 3.** Measurement model (Confirmatory Factor Analysis)

Factor	Variable	Coef.	R <sup>2</sup>	Cronbach's Alpha	Composite Reliability	AVE	Goodness of fit
Security Intelligent Services (SISE)	SISE1	0.68	0.46	0.76	0.76	0.52	Normed $\chi^2 = 2.74$ BBNFI = 0.94 BBNNFI = 0.95 CFI = 0.96 IFI = 0.96 RMSEA = 0.05
	SISE2	0.78	0.60				
	SISE3	0.69	0.47				
Intelligent Health Services (SISA)	SISA1	0.83	0.69	0.83	0.82	0.61	
	SISA2	0.75	0.57				
	SISA3	0.76	0.58				
Intelligent Asset Services (SIP)	SIP1	0.66	0.43	0.68	0.68	0.42	
	SIP2	0.55	0.30				
	SIP3	0.72	0.51				
Intelligent Mobility Services (SIM)	SIM1	0.74	0.54	0.67	0.68	0.52	
	SIM3	0.70	0.48				
Smart Environmental Services (SIMA)	SIMA1	0.71	0.50	0.77	0.78	0.54	
	SIMA2	0.79	0.63				
	SIMA3	0.69	0.48				
Recognition (REC)	REC1	0.86	0.74	0.80	0.80	0.67	
	REC3	0.77	0.59				
Image (IM)	IM1	0.82	0.67	0.89	0.90	0.68	
	IM2	0.85	0.73				
	IM3	0.83	0.68				
	IM4	0.80	0.64				
Perceived Quality (CP)	CP1	0.87	0.76	0.90	0.90	0.75	
	CP2	0.86	0.75				
	CP3	0.86	0.74				
Loyalty (LEAL)	LEAL1	0.88	0.78	0.92	0.92	0.79	
	LEAL2	0.90	0.82				
	LEAL3	0.89	0.80				

Source: Own elaboration.

squared correlation between these constructs. If the variances extracted are greater than the squared correlation, discriminant validity exists. Only three of the forty-five pairs of constructs failed the test, although in these cases the differences between the AVE coefficient and the squared correlations are very small. Moreover, the problems detected in the

discriminant validity, according to the procedure proposed by Fornell & Larcker<sup>[50]</sup>, affect the scales measuring intelligent services, which can be justified by the proximity between the different types of services. According to these results, there is reasonable support for the discriminant validity of the scales used in this research (Tables 4 and 5).

**Table 4.** Results of the Anderson and Gerbing procedure

	SISE	SISA	SIP	SIM	SIMA	REC	IM	CP
SISE	0.79, 0.89							
SISA	0.72, 0.86	0.70, 0.82						
SIP	0.56, 0.72	0.60, 0.75	0.73, 0.89					
SIMA	0.58, 0.72	0.51, 0.65	0.58, 0.72	0.42, 0.60				
REC	0.28, 0.45	0.23, 0.40	0.20, 0.38	0.25, 0.44	0.24, 0.42			
IM	0.43, 0.57	0.30, 0.45	0.29, 0.46	0.28, 0.46	0.44, 0.59	0.58, 0.72		
CP	0.40, 0.54	0.31, 0.46	0.34, 0.50	0.31, 0.48	0.36, 0.52	0.64, 0.76	0.73, 0.82	
LEAL	0.34, 0.48	0.26, 0.42	0.26, 0.42	0.25, 0.43	0.28, 0.44	0.55, 0.68	0.61, 0.72	0.74, 0.82

Source: Own elaboration.



**Table 5.** Results of the der fornell and larcker procedure

	SISE	SISA	SIP	SIM	SIMA	REC	IM	CP	LEAL
SISE	0.52a								
SISA	0.70	0.61a							
SIP	0.62	0.57	0.42a						
SIM	0.40	0.45	0.65	0.52a					
SIMA	0.43	0.34	0.42	0.26	0.54a				
REC	0.14	0.10	0.08	0.12	0.11	0.67a			
IM	0.25	0.14	0.14	0.13	0.26	0.42	0.68a		
CP	0.22	0.15	0.17	0.16	0.19	0.49	0.60	0.75a	
LEAL	0.17	0.11	0.11	0.11	0.13	0.38	0.44	0.60	0.79a

a = AVE coefficient. Off-diagonal items are the squared correlations between constructs.

Source: Own elaboration.

## 4.2. Estimation of the structural model

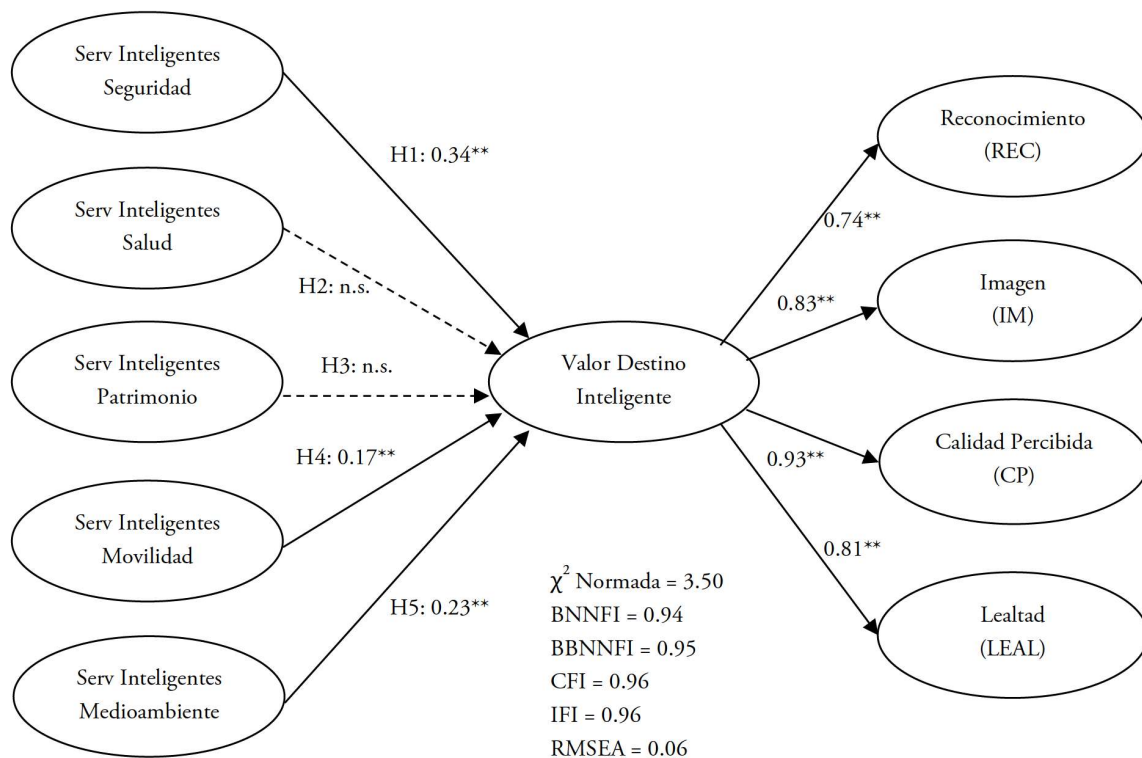
Once the psychometric properties of the scales had been examined, the model was estimated using the robust maximum likelihood estimation procedure. The results obtained confirm all the causal effects proposed in our theoretical model, except for the influence of smart health services (H2) and smart heritage services (H3) on the value of the smart destination. Therefore, the original model was reformulated to exclude non-significant relationships<sup>[47]</sup>. **Figure 2** summarizes the results for the estimation of the re-specified research model, indicating the goodness-of-fit indices of the structural model, the R2 statistics for each dependent variable, the standardized coefficients for each relationship, and the “p” values for assessing significance. The results confirm the correct specification of the construct “Smart Destination Value” as a second-order factor, as all loadings are significant and greater than 0.50. Therefore, similar to previous studies on destination brand equity<sup>[33,46]</sup>, “Smart Destination Value” is constituted as a second-order factor consisting of four dimensions: recognition, image, perceived quality and loyalty.

With respect to the proposed research hypotheses, the empirical evidence obtained shows that smart destination value is only significantly influenced by three types of smart services: safety (H1), mobility (H4) and environmental services (H5).

Therefore, citizens’ perceptions of their city as a smart destination depend on the technological infrastructures implemented to ensure the physical safety of tourists during their stay, access to accurate information on public transportation, traffic and parking, and smart management of irrigation, lighting and pollution in the city. In contrast, smart destination value is not significantly influenced by health services (H2) and heritage services (H3), which has relevant implications for destination marketing and management strategies.

## 5. Conclusions

Our study contributes to the literature on destination brand value by developing a specific model for smart destinations, considering the residents’ point of view (as opposed to the traditional tourist-centered approach). Particularly, our empirical research confirms, in line with previous studies, that smart destination value (as perceived by residents) is a multidimensional construct composed of: recognition, image, perceived quality and loyalty. Consequently, smart destination value is a complex phenomenon that future studies should examine from a multidimensional perspective, to capture its true nature and examine its influence on the attitudes and behaviors of the various actors or stakeholders of the territory—residents or tourists, among others.



**Figure 2.** Model estimation.

Source: Own elaboration.

Our theoretical model also includes different types of smart services as possible drivers of smart destination value. Considering the management implications for territories in general, and for smart territories, the fact that smart services have a significant effect on the value of the smart destination implies that citizens' support for the project will be conditioned by their perceptions of the smart services provided by the territory. Specifically, decision-makers must be aware that it is extremely important to provide high-quality services from the beginning of the project if they want residents to support it. However, it should be noted that not all high-value smart services are equally important. On the one hand, safety services, environmental services and mobility services seem to be particularly relevant for citizens to form their perceptions of smart destination value. All these types of smart services are directly related to urban infrastructures, i.e., local government, therefore, destination managers should focus on overring high quality services in these areas, and on developing effective communication campaigns in traditional and social media to make citizens aware of the value of the smart services provided in the territory.

On the other hand, health and heritage services do not have a significant influence on the formation of smart destination value. In this sense, health services may not be as relevant to residents as their medical information is available in the local health system and they may already know the location of pharmacies and medical centers. Therefore, such services should focus on tourists, who may need health care in a territory less familiar to them. Smart heritage services deserve special consideration from a management perspective, as heritage is generally considered a pillar of destination positioning and brand value. Again, this type of smart services may not be as relevant to residents as they generally have an in-depth knowledge of the territory's heritage. On the contrary, public decision makers should focus on smart heritage services for tourists as they should be useful to enhance their destination experiences.

The present study has several limitations that should be addressed in future research. On the one hand, the fact that the empirical work was conducted in a specific destination may represent a limitation in

the generalization of our results. Therefore, it would be interesting to examine the explanatory capacity of our conceptual model in other smart destinations in Spain and other countries. On the other hand, the estimation of the model was performed for all residents. It would be interesting to examine the explanatory capacity of the model depending on different variables, such as considering participation or identification of residents with the smart destination as moderating variables. The model could be enriched by including other variables as antecedents (e.g., general attitude towards “smart reality”) or consequences (e.g., support for tourism development) of smart destination value. Finally, this study contributes to the academic literature by developing specific instruments to measure smart service evaluations, which could be applied to other groups of interest, such as tourists.

## Conflict of interest

The authors declare no conflict of interest.

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