

Can website information be a constraint for people with physical disabilities? Assessing an index of national parks' website content quality and efficiency

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Abstract

Internet communication and technologies are invaluable resources to plan nature-based recreation. However, their effectiveness for people with disabilities is limited if their specific informational needs are not adequately addressed. The aim of our research is to investigate and quantify the communicative efficiency of the national parks' websites. To do so, we provide a tool to enhance the parks' website to increase access to the outdoors for the population evaluated in this paper. The proposed framework combines a Website Accessibility Information Quality Index (WAIQI) and the assessment of the URL's search engine optimization. The case study shows that there is an information bias that keeps people with disabilities from equally enjoying Spanish national parks. Recommendations are suggested to improve website information to also cover the needs of all intersectional realities to facilitate user decision-making and encourage them to visit the parks.

Keywords: Accessible tourism; Communicative efficiency; Nature-based experience; People with disabilities; Website

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1. Introduction

The internet has become a common tool people use to plan their everyday lives, and it also plays a major role in how people plan their leisure time. Nature-based recreation (NBR) in protected areas is a major part of the global tourism industry and visits grow yearly (Leung Yu-Fai, *et al.*, 2018). National parks (NPs) are one of the best ways to experience nature in a country. Among their main objectives are its conservation and an educational approach to society (Dudley, 2008). According to the 2017 Europarc-Spain statistics from the Europarc Federation, 15 million people visited Spanish national parks (Farias-Torbidoni *et al.*, 2020). Moreover, the intention of enjoying nature is expected to increase due to the impact of COVID-19.

Nature's benefits to human health (physical, mental, and cognitive) have been amply demonstrated (Van den Bosch & Ode Sang, 2017; Bratman *et al.*, 2019; Farias-Torbidoni, *et al.*, 2020). Nature also has an impact on stimulating integration into society through outdoor activities (William *et al.*, 2004; Tsai, *et al.*, 2010; Menzies *et al.*, 2020). Even though people with disabilities (PwD) have similar motivations as the so-called able-bodied to enjoy nature, they encounter constraints that prevent them from doing so equally (Williams *et al.*, 2004; Burns & Graefe, 2007; Zangh *et al.*, 2017; Chikuta *et al.*, 2017; Menzies *et al.*, 2020; Groulx *et al.*, 2022). These constraints may include physical barriers, such as inaccessible pathways or facilities, attitudinal barriers, such as stereotypes or stigmatization, or systemic barriers, such as a lack of policies or resources dedicated to the amenities needed to improve accessibility for PwD (William, *et al.*, 2004; Pothier & Devlin, 2006, pg. 1–20; Aguilar-Carrasco, *et al.*, 2022a; Reindrawati, 2022). According to the WHO (2011), around 15% of the world's population has some form of disability. The latest database in Spain from 2022 showed that around four million Spanish are considered PwD, and a mobility/motor disability was the most representative type in the figures (Aguilar-Carrasco *et al.*, 2022a).

The EU Commission, aware that there are still some barriers that prevent PwD from fully participating in society, has developed an extensive legal framework based on the equality and non-discrimination of PwDs as pillars of EU governance. Initially, the European Disability Strategies were laid out in the *European Disability Strategy 2010–2020* and then *Union of Equality: Strategy for the Rights of Persons with Disabilities 2021–2030* (EUR-Lex 2010 and 2021). One of the EU commission's challenges, conscious of the importance of using emerging technologies, has been to enhance the accessibility of all official European websites, avoiding or removing all barriers regarding the use of mainstream products and services (EUR-Lex, 2015, 2016). In that environment, accessibility has been defined as “the set of principles and techniques which allow people to have access to the physical environment and to the information and communication technologies (ICTs) and systems on an equal basis with others.”

ICTs' importance is unquestionable. According to Miniwatts Marketing Group (2020), 87.2% of the European population use the internet daily. Since the 1980s, ICTs have been transforming the efficiency and effectiveness of tourism globally. The literature shows that the most used information sources before embarking on a trip are search engines, recommendations from friends and relatives, and especially official websites (Coromina & Camprubí, 2016; Hernández-Galán, 2017 pg.175-210; Aguilar-Carrasco *et al.*, 2017; Aguilar-Carrasco *et al.*, 2022b). ITCs are useful tools to promote the importance of preserving natural spaces and to plan nature-based recreation. They also contribute to traveler satisfaction, which, in the first instance, depends on the website quality, which, in turn, implies including content about park values (Buhalis & Law, 2008; Tsai *et al.*, 2010; Kolodziejczak, 2019; Yildiz *et al.*, 2023).

To assess website quality, one must consider a variety of disparate factors that influence website-user interaction (Buhalis & Law, 2008; Law *et al.*, 2008; Karimow, *et al.*, 2011; Fernández Caviá, *et al.*, 2014). This makes it difficult to establish a unique framework to evaluate website quality. In the literature, website quality has been approached in two ways:

1) The front-end perspective focuses on website anatomy, like the usefulness of the information provided. It addresses website content and its efficiency in two fields: hospitality and tourism. In 2017, Hernández Galán analyzed the official Spanish tourism websites, highlighting notable deficiencies in information about accessibility, as well as specific sections where relevant accessibility information was referred to being unavailable. In this line, according to Law *et al.* (2008), Tsai *et al.* (2010), Al-Manasra *et al.* (2013), and Teruel Serrano (2016) the information provided to the able-bodied public should be delivered in equal measure to PwD. Within its marketing strategy, it should not discriminate against people with functional diversity, should satisfy PwD's needs and should not raise unreasonable expectations to satisfy all kinds of customers (Martínez-Sala & Montserrat-Gauchi, 2016; Martins, *et al.*, 2017; Abou-Zahra & Brewer, 2019).

2) The back-end perspective focuses on the website's internal functionality. The Web Accessibility Initiative (WAI) in 2004 and then the World Wide Web Consortium through the Web Content Accessibility Guidelines WCAG.2.0 (W3C, 2013) developed website accessibility from a usability perspective, which is defined as one that PwD will be able to perceive, understand, navigate, and interact with it (Abanumy *et al.*, 2005; Petrie & Kheir, 2007; Yu & Parmanto, 2011; W3C, 2013; Martins, *et al.*, 2017). Some studies have analyzed website back-end in terms of accessibility focusing on customer-website design interactivity (Sun, *et al.*, 2016; Halunko *et al.*, 2018; Chan, *et al.*, 2021).

To democratize the online environment in terms of accessibility, website efficiency must be examined. Website developers and managers have considered site accessibility because it indirectly optimizes their position in search engines (SEO) (Upchurch & Seo, 1999; Moreno & Martínez, 2013; Lukito *et al.*, 2015; Alzua-Sorzabal *et al.*, 2015; Iglesias-García & Codina (2016); Özkan *et al.*, 2020); likewise, users are only interested in top internet search results (Upchurch & Seo, 1999; Alzua-Sorzabal *et al.*, 2015; Lukito *et al.*, 2015; Iglesias-García & Codina, 2016). SEO maintenance is crucial because it positions the website in top few links or at least on the first page based on keywords.

Effective SEO can overcome the challenges faced by people with mobility/motor disabilities when navigating the web, while also helping website owners increase traffic. Furthermore, by enhancing website visibility and accessibility, especially for people with disabilities, they are provided with quicker and easier access to relevant and useful information to prepare nature-based recreational activities in parks (Kolodziejczak, 2019). This ensures that the information fulfills its purpose by meeting the expectations of users with disabilities (W3C, 2013). The World Wide Web Consortium's (W3C) Web Content Accessibility Guidelines (WCAG) are an essential reference to ensure that websites are accessible to all individuals, underscoring the importance of integrating accessibility principles at all stages of web development and design.

Previous studies about website accessibility assessed in which front-end was evaluated, have based their analysis on a literature review or questionnaires rather than structured quantitative models (Law *et al.*, 2010; Buhalis & Michopoulou, 2011; Karimov *et al.*, 2011; Teruel Serrano, 2016). Kim & Kim (2010), and Fernández-Cavia *et al.*, (2014) proposed comprehensive methods to evaluate websites from different perspectives, highlighting that perhaps content analysis was the most overlooked area.

After analyzing the state-of-the-art regarding back-end development, it has been determined that advances in accessibility have been adequately addressed. However, gaps remain in front-end implementation, particularly regarding the inclusion of necessary content for individuals with disabilities. An in-depth discussion of website content focusing on nature-based recreation at NPs in terms of website accessibility information for people with mobility/motor disabilities (PwMD) is still pending. NP websites are taken to be a suitable way to communicate our natural heritage to the world in management

and conservation terms and to promote inclusive nature-based recreation (Buhalis & Michopoulou, 2011).

Focusing on specific information attributes for national park websites could enhance visitors' park experiences. Utilizing a hierarchical analytical process (AHP), these attributes can be grouped and standardized into an analytical index to quantify parks' communication quality. Evaluating the communicative effectiveness of NP websites also involves assessing the quality of information and its visibility in search engine results. This comprehensive analysis aims to investigate how effectively these websites cater to the needs of People with Mobility/Motor Disabilities and whether they provide the necessary information to ensure equitable access to explore NPs.

2. Methods

The proposed methodology aims to calculate websites' communicative efficiency through a specific index that analyzes the quality of each NP's website information for PwMD and its visibility in search engines. The framework was developed in three steps: 1) target a set of NP information attributes; 2) cluster and weigh the attributes through a Hierarchical Analytical Process (AHP) in a comprehensive index; and 3) assess website accessibility quality and efficiency based on SEO, which provides information about website visibility.

2.1. Establishing nature-based recreation information attributes in the front-end of NPs' official websites

Initially, our study identified attributes through an extensive literature review focusing on nature-based recreation opportunities for people with mobility/motor disabilities (PwMD). Seminal works by Williams, *et al.*, (2004), Bruns & Graefe (2007), Stigsdotter, *et al.* (2017), Zhang, *et al.* (2017), Corazon, *et al.* (2019), and Menzies, *et al.* (2020) provided insight into the specific needs and challenges faced by individuals with mobility disabilities in accessing and experiencing nature-based activities in national parks. Additionally, we considered the evaluation by the Europarc Federation (EUROPARC 05, 2007), outlining accessibility requirements for the public use of Spanish national parks, and guides published about this concern (Hernández Galán & Borau Jordán, 2003). In addition, the UK national parks official website was an inspiration to consider input which should be included on every national park's official website to offer proper information about park characteristics. These sources informed the identification of key variables, subsequently clustered into indicators based on topic similarity, as described by Rodríguez-Rodríguez & Martínez-Vega (2012). The indicators are detailed below. Observations associated with each attribute in Table 1 were derived from our analysis of the literature and evaluation reports, alongside our expertise in accessibility and outdoor recreation.

- *URL ID*: serving as a non-weighted indicator for website identification.
- *Accessibility anchor indicator (AA)*: a univariate indicator addressing navigability criteria (Tsai, *et al.*, 2010) and featuring an accessibility extension to facilitate access on the front-end site to relevant information for users.
- *Public use information indicator (PU)*: focusing on amenities in natural settings that could enhance the nature-based experience for PwMD.
- *General information (GI)*: all the information about the beauties of the national parks – why this territory has been declared a national park– that are PwMD accessible.

Below, Table 1 illustrates each indicator and its constituent variables, showcasing their implications for enhancing PwMD's experience of nature.

Table 1. Supporting Spanish national park data collected

Indicator	Variable	Sub-variable	Code	Category	Description - Accessibility Impact on PwMDs
URL ID			ID		
	Code		Cd	N	NP code identification.
	URL_Name		Na	N	Name of website.
	SEO		SEO	C	SEO positioning in Google Chrome aids decision-making by enhancing visibility, making it easier for individuals with motor disabilities to access relevant information (W3C, 2013; Iglesias-García & Codina, 2016)
	Cpyright		Cpu/Cpv	N	Site content mgmt type (public or private).
	Topic		Tos/Toa	N	Main theme of content on website (specific or assorted).
Accessibility anchor			AA	Q	Existence of a clickable and identifiable accessibility interface on the site. This link provides direct access to resources, tools, or specific information enhancing web navigability for PwMD (W3C, n.d; UK national parks official website).
Public use information			PU		PwMD's decision-making information to plan and choose technical aids. This indicator considers relevant information in terms of nature-based experiences (Hernández Galán & Borau Jordán, 2003; EUROPARC 05, 2007).
	Equipment		Eq		Information about assistive devices that enable barrier-free participation in activities that take place outdoors (Hernández Galán & Borau Jordán, 2003; EUROPARC 05, 2007; UK national parks official website).
		Welcome & information equipment	Ew	Q	Places (i.e., visitor center or info points) providing information about the accessibility of indoor and outdoor public spaces for PwMD (Hernández Galán & Borau Jordán, 2003; EUROPARC 05, 2007).
		Educational equipment	Ed	Q	Accessibility of outdoor recreational support for PwMD, such as accessible paths for autonomous walking or wheeling through natural environments (Hernández Galán & Borau Jordán, 2003; EUROPARC 05, 2007).
		Recreational equipment	Er	Q	Accommodations with facilities adapted to PwMD that facilitate their visit (Hernández Galán & Borau Jordán, 2003; EUROPARC 05, 2007).
		Supported equipment	Es	Q	Adapted info (signs along itineraries for easy orientation and to understand the NP, accessible exhibitions, etc.) allows PwMD to plan and safely enjoy an outdoor experience (Hernández Galán &
	Wayfinding		Wf	Q	

Indicator	Variable	Sub-variable	Code	Category	Description - Accessibility Impact on PwMDs
<i>URL ID</i>			ID		
	Amenities		Am	Q	Borau Jordán, 2003; EUROPARC 05, 2007). Desirable or useful features or facilities (i.e., the existence of adapted supply points such as electricity, fountains, Wi-Fi, orthopedic rentals) indoors and outdoors for PwMD so they can fully engage in activities (Hernández Galán & Borau Jordán, 2003; EUROPARC 05, 2007).
	Outdoor activities		Oa	Q	Accessible activities such as guided walks and events required detailed location information and required aids. This empowers PwMD to make informed decisions about participation and necessary support (Hernández Galán & Borau Jordán, 2003; EUROPARC 05, 2007).
	Pathways		Tr	Q	They provide detailed accessibility information about pathways' characteristics which is crucial for PwMDs to move around the park. Clear signage and classifications enable informed route decisions, ensuring inclusivity and accessibility (Hernández Galán & Borau Jordán, 2003; EUROPARC 05, 2007).
General information			GI		Information which connects NPs' attractive features with accessibility. It is a vital resource for PwMD to get information about which park features are accessible to them (UK national parks official website).
	What to see		Ws	Q	Information about key places is relevant so that people with PwMDs know in advance about the sites they will enjoy during their visit.
	NP area		Ta	Q	Provides information on the total area of the NP that can be visited by PwMD based on their walkability needs.
	Fact sheet		Fs	Q	An easily findable and downloadable form on the web with complete information about NP, which includes accessible indoor and outdoor facilities, it helps guarantee the safety and satisfaction of PwMD during their visit to the park (Hernández Galán, 2017).
	Natural resources		Nr	Q	The natural resources of the park that can be visited by PwMD should be included on the website.
	Map		Mp	Q	The maps provided on the park's website must specify the existence of routes adapted to PwMD (slopes, length, surface), subsequently ensuring their easy identification in the park (EUROPARC 05,

Indicator	Variable	Sub-variable	Code	Category	Description - Accessibility Impact on PwMDs
URL ID			ID		
	Get to park		Gt	Q	2007; Hernández Galán & Borau Jordán, 2003). The park website must provide information on ways to get to the park, whether by private or public transport. The latter must specify its accessibility for PwMD (Hernández Galán & Borau Jordán, 2003; EUROPARC 05, 2007).

Note: (N, nominative variable; Q, quality variable, evaluated by presence (or not) of the information; and C, quantitative variable)

2.2. Analytic hierarchical process (AHP)

Website design is a structural problem that should be evaluated and solved analytically, using mathematical optimization techniques (Yen, *et al.*, 2007). Due to the number of primary and secondary variables, an inquiry was conducted to assign weights and ensure variable independence (Kim & Kim, 2010; Fernández Cavia, *et al.*, 2014). A multiple criteria analysis technique (AHP) was used to obtain the variable's relative weight to compose the Website Accessibility Information Quality Index or WAIQI. This methodology allowed us to build standardized matrices to evaluate the information related to each attribute according to accessibility criteria (Gómez Delgado & Barredo Cano, 2005; Kim & Kim, 2010).

The AHP evaluation was undertaken by a set of experts who are PwD or have direct contact with them. Each participant was carefully chosen to ensure representation from different sectors and to capture a broad spectrum of perspectives within the field of disability and outdoor recreation. The age and gender of experts were also considered to build a diverse panel of experts (Saaty, 2008; Abou-Zahra & Brewer, 2019). The initial aim was to assemble a panel of experts with diverse backgrounds and experiences in the field of disability and outdoor recreation in both Spain and the UK. Despite efforts to engage experts from multiple regions, only Spanish associations responded.

As a result, the panel consisted of seven individuals from Spain, aged 30 to 60, one female and six male, who represent various organizations focused on serving individuals with disabilities. Each of the selected experts brought unique perspectives and insights into the evaluation process. According to Saaty & Sagır Özdemir (2015), to maintain the consistency ratio limits into $CR < 1$ no more than seven or eight experts are recommended because this type of analysis is based on the quality, not quantity, of the participants. This quality has been measured by their experience and diversity so that it is reflected in the result of the analysis, so the experts panel are within the recommended ratio.

There was one representative from each of the following Spanish organizations: the National Spinal Cord Injury Hospital (HNP), the Spanish Organization of People with Visual Disabilities (ONCE in Spanish), an orthopedic center (RODEM), a rehabilitation center for PwMD (Taller de independència), mountain guides (Girona en Ruta), a para-cyclist club (Tres Rodes), and a seniors' mountain group (DISIS). The instructions and study objectives were emailed to them, and online and face-to-face meetings were held to facilitate the AHP evaluation process. Each respondent was asked to compare all pairs of variables and indicators against one another to decide which was the most important, and then weigh it with the aid of a scale (see Table 2). Their diverse backgrounds and experiences provided valuable insights into the needs and preferences of individuals with disabilities in the context of nature-based recreation.

Table 2: Weight value scale (X) from Saaty's (1980) analytic network process used for the indicator or variable comparisons

Classification	Weight (X)
Very strongly preferred	7
Strongly preferred	5
Moderately preferred	3
Equal importance	1
Moderately less preferred	0.33
Less preferred	0.22
Least preferred	0.14

The experts' assessments were conducted using different matrices according to the rules in Table 3. Appendix I contains experts' answer matrices. These matrices corresponded to three hierarchical levels: first, to compare the three indicators (AA, PU, and GI); second, to evaluate PU and GI variables; and third, to assign weights to the different types of equipment (Eq) identified.

Table 3: Saaty (1980) expert inquiry WAIQI matrix: indicators X_i , X_j , X_k made up WAIQI, and $v(i, j)$ is the opinion assigned by experts comparing variables i and j .

	X_i	X_j	X_k
X_i	1	$v(ij)$	$v(ik)$
X_j	$v(ji)$	1	$v(jk)$
X_k	$v(ki)$	$v(kj)$	1

After the expert's evaluation, the values were normalized and variable weights calculated, as in [1], [2], and [3]. The equations below are solved in an Excel sheet according to Aznar Bellver & Guijarro Martínez (2020).

Normalized value:
$$X_{ij} = \frac{v(ij)}{(\sum v(ij), v(jj), v(kj))/n}$$
 [1]

where $v(ij)$ is the expert's opinion comparing variable i and j .

Variable weight from an expert i :
$$w_i = \frac{\sum(X_{ii}, X_{ij}, X_{ik})}{n}$$
 [2]

where n is the total number of variables in the matrix.

Variable weight agreed to:
$$W_i = \frac{\sum(w_i)}{m}$$
 [3]

where m is the number of experts.

We then calculated the value of the different indicators I_{AA} , I_{GI} , and I_{PU} as a weighted addition, as in [4]

$$I = \sum \frac{(Wv \cdot V)}{nV}$$
 [4]

Where Wv is the weight of variable v that makes up the indicator, V is the value of v , and nV the number of variables that make up the indicator.

This obtains the website information disability index, or WAIQI index.

$$WAIQI = W_{AA} * I_{AA} + W_{GI} * I_{GI} + W_{PU} * I_{PU}$$
 [5]

To validate the AHP results, a consistency ratio (CR) was determined to check whether there were any contradictions between weights assigned by experts along the multiple criteria process. The CR should be within exceed limited values according to the matrix range.

2.3. Website communicative evaluation using WAIQI

To assess the viability and the functionality of the WAIQI index an analysis was conducted with the UK national parks' official website since some of the variables that composed the index were inspired by its attributes. Once the WAIQI was validated, Spanish NP websites were searched for on Google Chrome. To search for URLs with this engine, the keywords used were defined as a common pattern – the description "national park" plus its proper name-. The word "accessibility" was avoided so as not to generate any bias in the random search to obtain the percentage of URLs that provided some information about park accessibility. Some criteria were taken into consideration to consider a URL in the dataset:

- 1) Defining the park's official website: each URL was categorized as managed by public or private entities since according to the Spanish National Parks Law (NP Act 30/2014 of December 3, Article 21), the body responsible for managing the park is the region where it is located.
- 2) The main discourse on the website content in its body should be about park characteristics and recreational uses to be included in the dataset.
- 3) Digital media, hospitality websites, social networks, and other e-commerce websites were considered outsiders in this study (Yu & Parmanto, 2011) so these were not included in our dataset.

Once the dataset was compiled, the information provided on each website was analyzed using WAIQI. All websites were evaluated in February 2022, aware that ICT platforms as websites are dynamic and constantly updated to improve information (Fernández Cavia *et al.*, 2014). An Excel was created with each of the variables that make up the index (Table 1) where the information of the body of each website was compiled according to the binary code 1-0 if the characteristics established in the variable criteria were present or not.

The supporting database was completed with a search engine optimization (SEO) marketing position, so this data is directly linked to visibility in search engines, which influences website efficiency (Upchurch & Seo, 1999; Lukito, *et al.*, 2015; Alzua-Sorzabal *et al.*, 2015; Iglesias-García & Codina, 2016; Özkan *et al.*, 2020).

2.4. Efficiency of e-information on Spanish NPs' official websites

The website's efficiency value was obtained for each URL as the combination of the WAIQI and its SEO position. The WAIQI values of each website were represented on a chart on the y-axis. The SEO positioning was displayed on the x-axis, transformed as a 0 to 1 relative gradient. Then, for ease of interpretation, the chart was segmented into four quadrants defining efficiency objectives (Table 4) that could serve as a tool to support decision-making to manage the challenges on their websites.

Table 4: Efficiency objectives and challenges

Quadrant	WAIQI	SEO positioning	Efficiency Objectives
A	≥ 0.5	≤ 5	Maintain it.
B	≥ 0.5	> 5	Improve positioning.
C	< 0.5	≤ 5	Improve content.
D	< 0.5	> 5	Improve positioning and content.

Note: Quadrant A, optimal or inclusive; B, website should improve SEO; C, website should improve WAIQI; and D, website should improve WAIQI and SEO.

3. Results

The results are structured in three sections in accordance with the methodological process described in the previous section. First, the importance of the main index factors is described after the AHP is applied. Next, applying the WAIQI to the UK national parks' official websites is shown to verify index variability. Finally, the results of website efficiency for the Spanish national park URL dataset calculated by combining the WAIQI value with the URLs' search engine results in Google Chrome are presented.

3.1. WAIQI weight assignment

The relevance of each indicator proposed –accessibility anchor (AA), public use (PU), and general information (GI)– to compose the final index was corroborated by the expert panel (Figure 1). Their average weights were 0.31 to 0.35, with public use having the maximum value. Within the PU indicator, the equipment variable is the best valued (Eq: 0.36). The rest of the variables range from 0.15 to 0.18. Among the variables clustered under the general information indicator, the variable what to see (Ws: 0.36) had the highest value, followed by getting to NP (Gt: 0.19) and NP area (Nt: 0.18), map (Mp: 0.10), fact sheet (Fs: 0.13), and then the natural resources variable (Nr: 0.04), with the lowest value. Within the equipment variable (Eq) which was divided into four sub-variables, supported equipment (Es: 0.37) has the greatest weight, followed by welcome and information equipment (Ew: 0.30), recreational equipment (Er: 0.20), and educational equipment (Ed: 0.14). In all cases, the weight analysis of one of the experts was inconsistent so his evaluation for Eq sub-variables was not considered when assigning definite weights, $CR > 0.1$ (Appendix I).

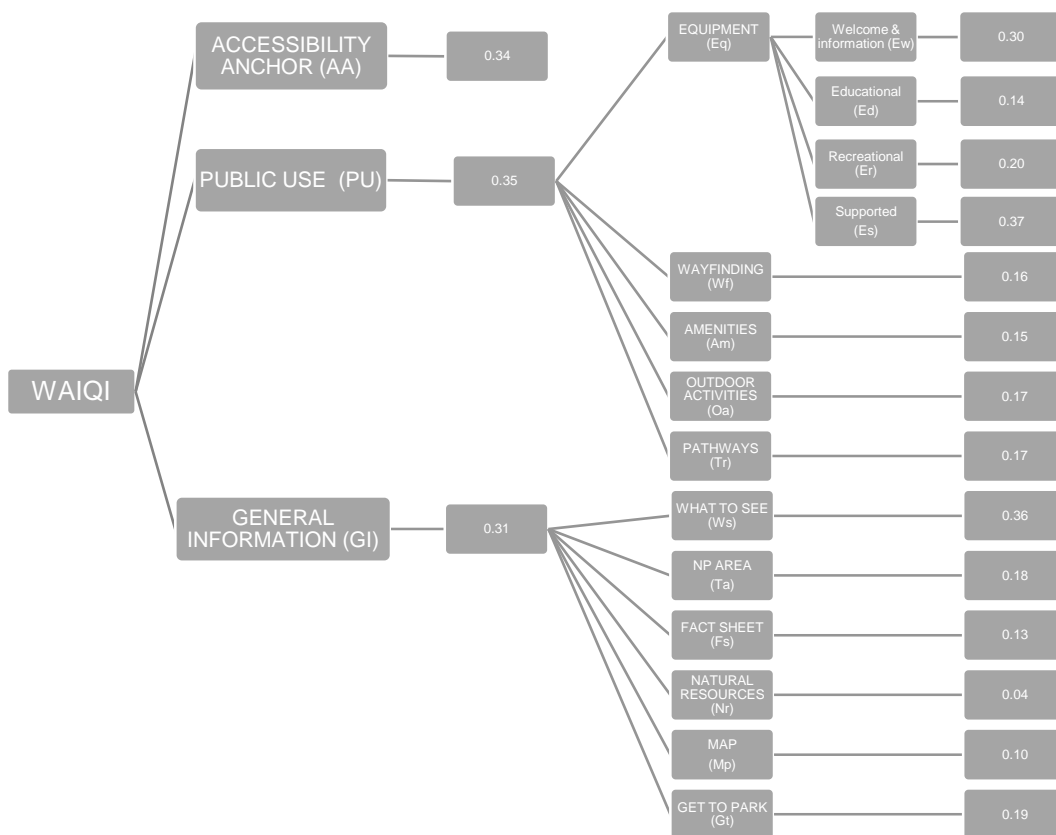


Figure 1: AHP Average Weights for WAIQI Indicators and Variables and Sub-variables. All variables obtained $CR < 1$.

3.2. WAIQI reliability evaluation with the UK official national park website.

The index was first tested by analyzing the content of the UK national parks' official website: <https://www.nationalparks.uk/>. Through the park name anchor link, the user can jump to each park page. Its content was analyzed using the WAIQI for the 15 national parks in the UK (Appendix IIa). This evaluation was done in July 2022. The results in Table 5 showed the WAIQI's viability with an average of 0.78 and only one (Brecon Beacons) is under a 0.5 value because of a small amount of general information (0.10).

Table 5. WAIQI results for the UK national parks' official website's information offering for PwD

Park Name	ID	PU	AA	GI	WAIQI
Broads	UK_BR	1.00	1.00	1.00	1.0
Brecon Beacons	UK_BB	0.22	1.00	0.10	0.45
Cairngorms	UK_CA	0.74	1.00	1.00	0.91
Dartmoor	UK_DA	0.29	1.00	0.78	0.68
Exmoor	UK_EX	0.38	1.00	0.81	0.73
Lake District	UK_LA	0.53	1.00	0.82	0.78
Loch Lomond and the Trossachs	UK_LO	0.57	1.00	0.40	0.66
New Forest	UK_NE	0.58	1.00	0.82	0.80
Northumberland	UK_NO	0.53	1.00	0.82	0.78
North York Moors	UK_NY	0.42	1.00	1.00	0.80
Peak District	UK_PE	0.83	1.00	1.00	0.94
Pembrokeshire Coast	UK_PC	0.37	1.00	1.00	0.78
Snowdonia	UK_SN	0.68	1.00	0.78	0.82
South Downs	UK_SO	0.70	1.00	0.78	0.83
Yorkshire Dales	UK_YO	0.28	1.00	0.82	0.69
Average		0.54	1.00	0.80	0.78

3.3. Website efficiency of Spanish national parks' websites

The efficiency of the Spanish national parks websites was calculated combining the WAIQI value and the search engine positioning of each URL in the dataset. There are 16 Spanish national parks (Appendix IIb). The dataset obtained after a search in Google Chrome was n=129.

3.3.1. Analyzing the Spanish National Park websites with WAIQI

Results for the total sample show that there was an average of seven URLs evaluated for each park. Of these, 78 were managed by the public administration and 51 by private entities. A total of 66 focused their content on the natural value of parks as a specific topic, and 63 on more assorted topics.

Ninety websites (69.77%) had no information for PwDs so their WAIQI = 0, and just 39 (30.23%) out of 129 had a WAIQI > 0 (Table 6, and Annex III). Those 39 websites only cover 12 of the 16 Spanish NPs. Their WAIQI's average is 0.281 for those publicly managed and 0.123 for those privately managed. Of the publicly managed, the highest WAIQI value was for "Islas Atlánticas NP." Next was "Aigüestortes i Estany de Sant Maurici NP" with three publicly managed URLs.

In Table 6, the WAIQI results are described and disaggregated through each indicator that composes it.

Results in Table 6 also show the differences between public and private websites in the WAIQI's three indicator scores. GI and PU showed a certain level of variability and were higher in public (0.481 and 0.321 respectively) than in private links (0.153 and 0.212). AA scored 0.02 for both public and 0 for private. These results mean that only two websites had an AA in their body (front-end), both belonging to the public administration: "Balears Natura" from the regional environmental administration of the Balearic Islands and "Illas Atlánticas" which belongs to the regional administration of Galicia (Appendix III).

Table 6: Summary of WAIQI results for 39 Spanish websites over zero (URLs in Appendix III), clustered by private and public copyright.

Spanish national park network websites	Private	Public	Total
URL dataset	51	78	129
Total URLs with accessibility content	5	34	39
\bar{X} GI ¹	0.153	0.481	0.439
\bar{X} PU ¹	0.212	0.321	0.307
\bar{X} AA ¹	0.0	0.02	0.018
\bar{X} WAIQI ¹	0.123	0.281	0.260
Minimum WAIQI	0.052	0.025	0.025
Maximum WAIQI	0.283	0.677	0.672

¹ GI, general information, PU, public use, and AA, accessibility anchor. \bar{X} is the average value of each indicator related to the private and public website evaluation.

Disaggregated indicators according to each variable and sub-variable show negligible compliance by privately-managed websites when compared to those that are publicly-managed (Table 7). For public-managed websites, the results, in relative values, show for general information (GI = 20.16 %) that the highest variable was what to see (Ws = 16.28%), and the lowest get to NP (Gt = 7.75%). For the public use indicator (PU = 28.68%), the highest value was for equipment (Eq = 24.81%), then pathways (Tr = 14.73%), and the lowest was for outdoor activities (Oa = 2.33%). Then this variable was disaggregated into four sub-variables, and of those welcome and park information (Ew = 18.60) was informed about the most and supported equipment the least (Es = 4.65%).

Table 7. Number of websites related to Spanish NPs with content in each variable of the WAIQI index

Indicator	Variable	Sub-variable	Private		Public	
			Nº	%Total	Nº	% Total
Public Use			5	3.88	37	28.68
		Equipment	4	3.10	32	24.81
			2	1.55	24	18.60
		Welcome and park information	2	1.55	21	16.28
		Educational	0	0	20	15.50
		Recreational	2	1.55	6	4.65
		Supported	0	0	9	6.98
		Wayfinding	1	0.78	7	5.43
		Amenities	2	1.55	3	2.33
		Outdoor activities	2	1.55	19	14.73
General Information			2	1.55	26	20.16
		What to see	1	0.78	21	16.28
		NP area	1	0.78	17	13.18
		Fact sheet	0	0	16	12.40
		Natural resources	1	0.78	20	15.50
		Map	0	0	17	13.18
		Get to NP	1	0.78	10	7.75

Data are in absolute and relative values.

In Figure 2, disaggregated variables and sub-variables are represented in the chart for each indicator (GI and PU) and variable (Eq) only for the publicly-managed websites since the private ones have no relevance due to low compliance with the variables criteria. All variables are represented for the general

information indicator so on the 39 websites its content includes data about them. Of those, what to see had the highest representation value ($Ws = 16.28\%$), then natural resources ($Nr = 15.50\%$), and get to national parks ($Gt = 7.75\%$) had the lowest. For the public use indicator, the equipment variable ($Eq = 24.81$) had the highest value, then trails (Tr) with information on nearly 15% of the websites evaluated, and the lowest value was for the outdoor activities variable ($Oa = 2.33$) at parks. Equipment is disaggregated into four sub-variables, where supported equipment had the lowest value ($Es = 4.65\%$).

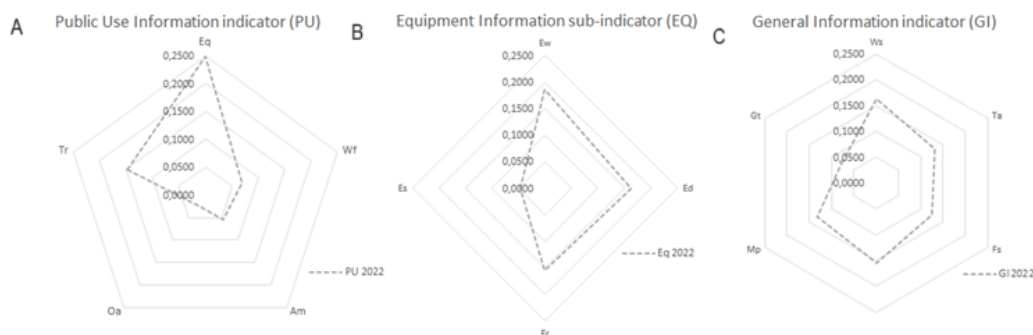


Figure 2. Comparison of the magnitude of the variables which composed each indicator.

Note: From left to right: **(A) Public Use variables:** Eq, Equipment (divided into sub-variables according to the Europarc Federation 05 (2007)); Wy, Wayfinding; Am, Amenities; Oa, Outdoor activities; Tr, Pathways; **(B) Equipment sub-variables:** Ew, Welcome & information; Ed, Educational; Er, Recreational; Es, Supported; and **(C) General Information variables:** Ws, what to see; Ta, NP area; Fs, fact sheet; Nr, natural resources; Mp, map; Gt, get to park.

3.3.2 Website communicative efficiency

Website efficiency has only been calculated and represented for those URLs with a WAIQI value > 0, i.e., 39 websites, or 12 of the 16 total NPs. The distribution of SEO positioning in Figure 3 shows the eight URLs (3.12%) placed first, four second (1.56%), seven third and fourth (2.73%), eight fifth (3.12%), and the next five URLs were sixth, seventh, and ninth (1.95%). Public websites are generally better positioned than private ones.

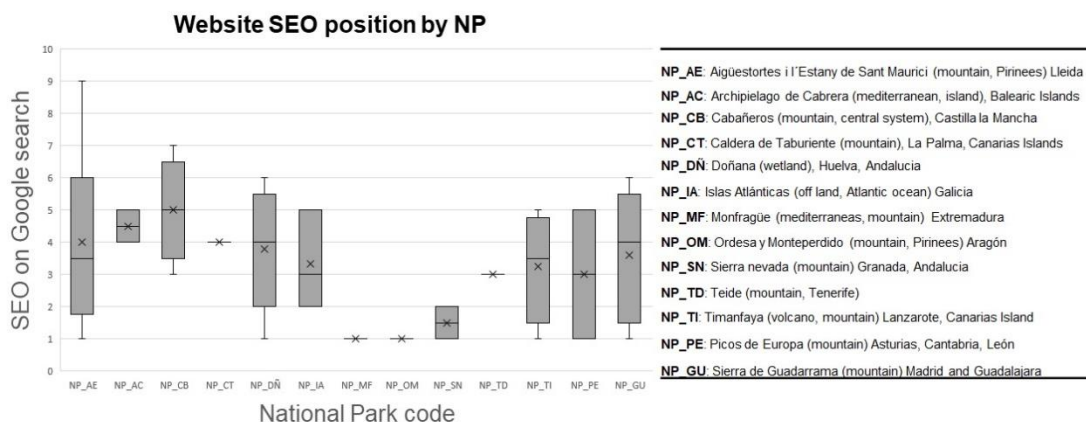


Figure 3. Chart of search engine results for public and other copyrighted Spanish NP websites according to their SEO positioning on the search engine's first page

Efficiency results obtained crossing the WAIQI value and its SEO position can be observed in Figure 4.

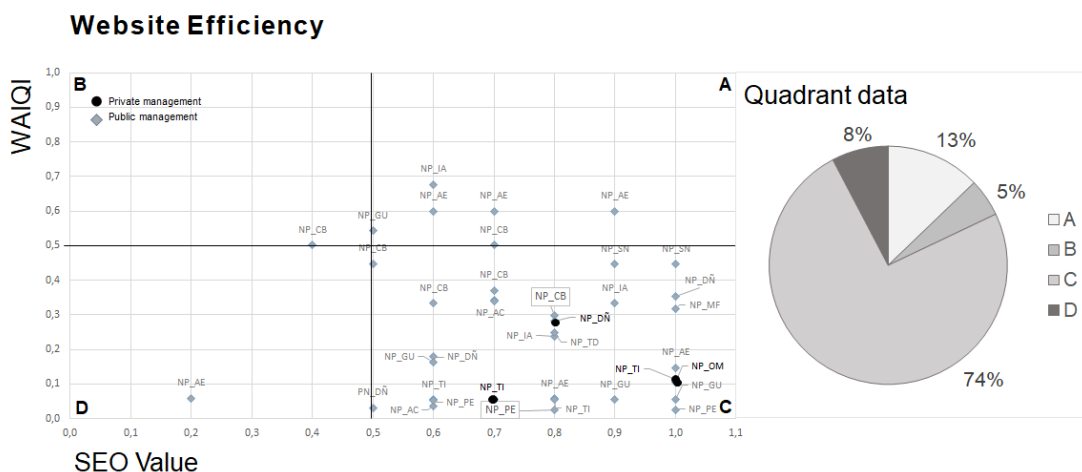


Figure 4: Communicative efficiency of Spanish national park websites which had WAIQI > 0.

Note: Black circles represent privately managed URLs and gray diamonds publicly managed ones. A: maintain the quality of the website, B: improve SEO, C: improve website content, D: improve website anatomy and its SEO. All URLs evaluated are in Annex III.

As shown in Figure 4, most of the 39 URLs (Appendix III) are in the C quadrant (74%) with lower WAIQI values but good SEO positioning (≥ 0.5). The next quadrant in the URLs' percentage is quadrant A (13%) showing good efficiency with a WAIQI value of ≥ 0.5 and SEO positioning of ≥ 0.5 . There are only five URLs in B (5%) and D (8%). The best-positioned websites, top left, are "Aigüestortes I Estany de Sant Maurici NP" (NP_AE), "Islas Atlánticas NP" (NP_IA), and "Archipiélago de Cabrera NP" (NP_AC). The worst-positioned, bottom right, is the "Aigüestortes I Estany de Sant Maurici NP" (NP_AE) website managed by the Spanish national geography information center (CNIG).

4. Discussion

This study identified a set of attributes that should be included on NP websites to address the requirements of people with mobility/motor disabilities in terms of information about NP accessibility. WAIQI, the proposed indicator, confirmed by the AHP weights from the expert panel, delves into website information (content) from the perspective of people with mobility/motor disabilities requirements. The goal is to encourage PwMD to explore natural environments thanks to the detailed information provided on the website about the location's accessibility (Williams *et al.*, 2004; Menzies *et al.*, 2020).

All experts valued each WAIQI's indicator in a very similar way, highlighting the information on public use (PU) first, closely followed by the accessibility anchor (AA), and general information (GI). Regarding the desegregated indicators, experts assumed that access to information about the attractiveness (what to see) of the national parks' landscape resources and information about all the necessary customized equipment were the most important information for decision-making.

WAIQI index provides a useful methodology to assess websites in terms of information on NP accessibility. The results for the Spanish URLs, evaluated in terms of website communicative efficiency, show PwD are less able to find the information needed and required for nature-based recreation at national parks (Williams *et al.*, 2004; Burns & Graefe 2007; Buhalis and Michopoulou, 2011; Zangh *et al.*, 2017; Chikuta *et al.*, 2017; Menzies, *et al.*, 2020; Groulx, *et al.*, 2022). Although Spanish authorities have considered the inclusion of all people in NPs' outdoor recreation as one of their main objectives in the

Spanish NP regulatory framework (Aguilar *et al.*, 2022c), the information for PwMD to plan to go to Spanish parks does not appear to be easy to obtain from mainstream sources.

Of the total URL sample, only 30% (39), just 13 parks of all those assessed, have any content according to the criteria established in the WAIQI index. Moreover, some of those URLs are in efficiency chart quadrant C, with a low WAIQI, and should improve the PwMD-focused content offered. It seems hard to locate the information necessary to plan a visit to some parks due to the number of third-party URLs that do not comply with the established criteria, and the information does not meet their needs to participate in outdoor activities (Buhalis & Law, 2008; Law, *et al.*, 2008; Tsai, *et al.*, 2010; Yu & Parmanto, 2011; Al-Manasra, *et al.* 2013; Teruel Serrano, 2016; Hernández Galán, 2017). The same evaluation with the UK national parks website shows acceptable WAIQI results, demonstrating that information can be provided well, and that some practices allow people who have specific needs to organize an outdoor experience at parks.

Results also show publicly-managed website content (regionally, locally, and nationally) have better SEO positioning and their content is consequently more inclusive than privately-managed ones. This was an unexpected result: from a marketing perspective, a private website as a business tool must improve its SEO to gain as much of an audience as possible (Upchurch & Seo, 1999; Alzua-Sorzabal, *et al.*, 2015; Lukito, *et al.*, 2015; Iglesias-García & Codina, 2016).

The extensive regulation on accessibility developed in Spanish legislation and by the European Commission (EUR-Lex, 2015, 2016, and 2021) has focused on accessibility in digital environments, which is mandatory for publicly-managed websites (Teruel Serrano, 2016; Aguilar, *et al.*, 2022c). However, these results show that websites are more focused in terms of accessibility on the back-end rather than on the front-end information, which could empower PwMDs decision-making (Hernández Galán, 2017, pg. 208). Publicly-managed websites must comply with the established accessibility criteria (Abanumy *et al.*, 2005; Petrie & Kheir, 2007; Yu & Parmanto, 2011; W3C, 2013; Martins, *et al.*, 2017), and provide inclusive content focused on all intersectional realities of parks users. In this case, the park's PwD accessibility in the website front-end, for example, incorporates the accessibility anchor (AA) to meet ITC and PwD legal requirements (Buhalis & Law, 2008; Tsai *et al.*, 2010; Aguilar-Carrasco *et al.*, 2017; Abou-Zahra & Brewer, 2019; Groulx *et al.*, 2022; Aguilar-Carrasco *et al.*, 2022b) and, like in the UK case, as publicly-managed websites, their commitment to making their information accessible to all is assumed to be greater.

Additionally, in terms of the evaluation of the website's efficiency, we would like to highlight the relevance of the AA indicator. Available on most of the websites in the UK official website analysis, by contrast in the Spanish case it was almost non-existent. It is important from both the front- and back-end perspective, which involves content and navigability because the search engine rewards it by positioning the URL first (Tsai *et al.*, 2010; Moreno & Martínez, 2013; Sun *et al.*, 2016; Halunko *et al.*, 2018; Shelly, 2019; Bianchi *et al.*, 2020; Özkan *et al.*, 2020; Chan, 2021).

Our results also show how websites with a higher WAIQI always have a lack of information about outdoor activities, considering the low value obtained by one of the best-weighted variables by experts (the number of accessible pathways (Tr)). This could be for two reasons: there are no accessible ones since they were not conceived of from the start as PwMD-specific paths or the website manager may not have included information about how PwMDs might be able to use the pathways. In both cases, the WAIQI would score higher if that information were on the website regardless of the availability of accessible paths. The quality of communication about amenities at the NP becomes more relevant for PwMD and facilitates their decision-making (Buhalis & Michopoulou, 2011; James, *et al.*, 2018). The low values for the general information (GI) indicator are surprising if one considers that NP exist to promote their

values (Dudley, 2008). Information about park attractiveness (what to see) and landscape resources is relevant to attract visitors, too (Dzhandzhugazova, 2013; Štemberk & Marešová, 2018).

5. Limitations

Our data were collected in 2022 so results might be a little less significant due to the volatility of website information. However, in this case, the relevance of the study are not the values, but the methodology proposed to help stakeholders improve accessibility for PwMD when designing websites.

It would also have been useful to have had the participation of experts from the UK given that its national parks' official website inspired part of the variables included in the indicator. Their vision of the information resources needed might have influenced the variables' weight.

6. Conclusions.

Official NP websites as an information provider PwMD can base their decisions on should provide content for all potential visitors. Results from this study confirm that one of the main constraints for PwMD to go to a NP might be their access to information. Assessing the communicative efficiency of information on the NPs' websites from PwMD's perspective requires first that their needs be considered and then that basic accessibility information be provided in a structured way in front-end.

Improving the accessibility of NP information in content and navigability terms could also indirectly enhance search engine results. The proposed website accessibility information index, WAIQI, can be a successful assessment tool to incorporate into park audits to provide a comprehensive view of park accessibility and amenities. Front-end website accessibility checking tools for PwMD are required. The content focused on PwMDs should show the real possibilities of enjoying parks and not create any false expectations. Additionally, by incorporating SEO as a key factor the tool covers information quality and its visibility so they can locate it. Public administrations or NP managers should pay special attention to positioning in search engines to refine the communicative efficiency of official NP websites. The framework proposed can be applied to other types of websites on nature or the great outdoors.

The relevance of the accessibility anchor (AA) in the website quality analysis was confirmed because it achieves two basic goals: to improve the inclusion of all people, providing an assistive technology to interoperate with the widest range of people (accessibility); and to gather essential public use (PU) accessibility information and general information (GI).

Spanish NPs' official websites need to be updated to meet the objectives of the Spanish NP Act and the European legal framework, promoting park values successfully in terms of ITC accessibility. Findings show Spanish NP websites' low compliance with WAIQI and their visibility (SEO) should also be improved. This paper provides a comprehensive framework to guide NP website administrators to assess the information offered by their websites and to increase a park's possibilities of being visited by helping PwMD's make their decision. Future research could incorporate more variables focused on other types of disabilities such as visual, cognitive, or learning, and neurological, auditory, and organic, to complement it so it can attend to the entire spectrum of needs of people with different disabilities.

CRedit authorship contribution statement

M.J. Aguilar-Carrasco contributed to conceptualization, data curation, formal analysis, investigation, methodology, results, and discussion and writing and editing of the original draft. E. Gielen, M. Vallés-Planells, and F. Galiana contributed to writing and editing the original draft. All authors have contributed to reading and have agreed to the published version of the manuscript.

Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Appendix I. AHP experts' evaluation.

Table I.1: Expert weighting for the three WAIQI indicators

Index	Tres	Girona					Taller In-	Average
ID_URL_NP	Rodes	Ruta	Disis	ONCE	HNP	Rodem	dependen-	weight
Indicators (I)	Wi	Wi	Wi	Wi	Wi	Wi	cia	Wi
AA	0.3333	0.7143	0.0948	0.0771	0.6370	0.1991	0.3333	0.3413
PU	0.3333	0.1429	0.3517	0.4341	0.2583	0.6012	0.3333	0.3507
GI	0.3333	0.1429	0.5534	0.4889	0.1047	0.1997	0.3333	0.3080
CR	0.0000	0.0000	0.4433	0.0136	0.0372	0.0000	0.0000	

Note: AA - accessibility anchor; GI - general information; and PU - public use; CR - AHP consistency ratio. Responses are considered when CR < 0.05.

Table I.2: Expert weighting for the public use indicator variables

PUBLIC USE (PU)	Tres	Girona					Taller Inde-	Average
Variable (v)	Rodes	Ruta	Disis	ONCE	HNP	Rodem	pendencia	weight
Variable (v)	Wi	Wi	Wi	Wi	Wi	Wi	Wi	Wi
Eq	0.3708	0.2295	0.2295	0.5812	0.2986	0.2688	0.5507	0.3613
Wf	0.1833	0.2295	0.2295	0.0638	0.0666	0.2688	0.0614	0.1575
Sy	0.1833	0.2893	0.2893	0.0973	0.0324	0.0740	0.0673	0.1475
Oa	0.0514	0.1553	0.1553	0.1289	0.3012	0.1186	0.2533	0.1663
Tr	0.2112	0.0964	0.0964	0.1289	0.3012	0.2699	0.0673	0.1673
CR	0.0511	0.0448	0.0448	0.0357	0.0820	0.0354	0.0679	

Note: Eq - equipment; Wf - wayfinding; Sy - supply; Oa - activities; Tr - trails, or paths; CR - AHP consistency ratio. Responses are considered when CR < 0.1.

Table I.3: Expert weighting for the general information indicator variables

GENERAL INFORMATION (GI)	Tres	Girona					Taller Inde-	Average
Variable (v)	Rodes	Ruta	Disis	Once	HNP	Rodem	pendencia	weight
Variable (v)	Wi	Wi	Wi	Wi	Wi	Wi	Wi	Wi
Ws	0.4207	0.3816	0.0706	0.2214	0.2240	0.3892	0.5217	0.3598
Ta	0.2304	0.1653	0.0541	0.2214	0.1178	0.2518	0.1024	0.1815
Fs	0.1187	0.0408	0.0871	0.1849	0.0423	0.1581	0.2307	0.1292
Nr	0.0445	0.0393	0.1894	0.0370	0.0373	0.0323	0.0339	0.0374
Mp	0.0947	0.0408	0.3128	0.1134	0.2779	0.0655	0.0339	0.1044
Gt	0.0909	0.3323	0.2860	0.2220	0.3007	0.1031	0.0774	0.1877
CR	0.0541	0.0411	0.6017	0.0341	0.0350	0.0931	0.0853	

Note: Ws - what to see; Ta - NP area; Fs - fact sheet; Nr - natural resources; Mp - map; Gt - get to NP; CR - AHP consistency ratio. Responses are considered when CR < 0.1.

Table I.4: Expert weighting for the Eq equipment indicator variables

EQUIPMENT (Eq)	Tres Rodes	Girona Ruta	Disis	Once	HNP	Rodem	Taller Independencia	Average weight
Sub-Variable	Wi	Wi	Wi	Wi	Wi	Wi	Wi	Wi
Ew	0.6221	0.2201	0.3129	0.0986	0.2997	0.2500	0.2500	0.2901
Ed	0.0600	0.1092	0.1361	0.0986	0.0994	0.2500	0.2500	0.1445
Er	0.2022	0.0915	0.0867	0.0986	0.3005	0.2500	0.2500	0.1988
Es	0.1157	0.5792	0.4644	0.7042	0.3005	0.2500	0.2500	0.3666
CR	0.0888	0.0989	0.1930	0.0000	0.0000	0.0000	0.0000	

Note: Ew - welcome and information equipment; Ed - educational equipment; Er -recreational equipment; Es - supported equipment; CR - AHP consistency ratio. Responses are considered when CR < 0.1.

Appendix IIa. UK national parks

Acronym	National park
BR	Broads
BB	Brecon Beacons
CA	Cairngorms
DA	Dartmoor
EX	Exmoor
LA	Lake District
LO	Loach Lomond and the Trossachs
NE	New Forest
NO	Northumberland
NY	North York Moors
PE	Peak District
PC	Pembrokeshire Coast
SN	Snowdonia
SO	South Downs
YO	Yorkshire Dales

Appendix IIb. Spanish national parks

Acronym	National park
AC	Archipiélago de Cabrera (Cabrera's Archipelago)
AE	Aigüestortes i Estany de Sant Maurici
CB	Cabañeros
CT	Caldera de Taburiente
DÑ	Doñana
GJ	Garajonay
GU	Sierra de Guadarrama
IA	Islas Atlánticas (Atlantic islands)
MF	Monfragüe
NB	Sierra de las Nieves
OM	Ordesa y Monte Perdido
PE	Picos de Europa
SN	Sierra Nevada
TD	Tablas de Daimiel
TE	Teide
TI	Timanfaya

Appendix III. Websites with WAIQI over zero

NP	Website	URL	Copyright	Management
AE	Vallboi	https://www.vallboi.cat/es/aiguestortes	Patronat de la Vall de Boi	Public
AE	GENCAT	https://parcsnaturals.gencat.cat/es/xarxa-de-parcs/aigues-tortes/inici/index.html	GENCAT	Public
AE	catalunya.com	https://www.catalunya.com/parc-nacional-daiguestortes-i-estany-de-sant-maurici-17-17001-573521?language=es	Agencia catalana de turismo	Public
AE	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/aiguestortes/	MITECO	Public
AE	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/aiguestortes/valores-naturales/medio-natural-aiguestortes.aspx	MITECO	Public
AE	CNIG	https://parquesnacionales.cnig.es/aiguestortes-i-estany-de-sant-maurici	Instituto Geográfico Nacional	Public
AC	Baleares natura	https://es.balearsnatura.com/parque_natural/parque-nacional-maritimo-terrestre-del-archipiélago-de-cabrera/	Conselleria de medi ambient. Institut Balear de la natura	Public
AC	CAIB	http://www.caib.es/sites/espaisnaturalsprotegits/es/parque_nacional_maritimo-terrestre_del_archipiélago_de_cabrera-21479/	Govern Illes Balears	Public
CB	Turismo Castilla la Mancha	http://www.turismocastillalamancha.es/naturaleza/parque-nacional-de-cabaneros-en-ciudad-real-52871/descripcion/	Turismo de castilla la mancha	Public
CB	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/cabaneros/	MITECO	Public
CB	CNIG	https://parquesnacionales.cnig.es/cabaneros	Instituto geográfico nacional	Public
CB	Reservas PN	https://www.reservasparquesnacionales.es/real/parques-nac/usu/html/listado-actividades-oapn.aspx?cen=18	Organismo Autonomo de PN	Public
CB	Áreas protegidas de Castilla la Mancha	https://areasprotegidas.castillalamancha.es/rap/espacios-naturales-protegidos/enp-parque-nacional/parque-nacional-de-cabaneros	Gobierno de Castilla-La Mancha	Public
CT	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/taburiente/	MITECO	Public
DÑ	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/donana/	MITECO	Public
DÑ	Doñana reservas	https://www.donanareservas.com/es/	Doñana reservas	Private
DÑ	Junta de Andalucía	https://www.juntadeandalucia.es/medioambiente/portal/landing-page/-/asset_publisher/4VikD5gLijKq/content/parque-nacional-do-c3-biana/20151	Junta de Andalucía	Public
DÑ	CNIG	https://parquesnacionales.cnig.es/donana	Instituto geográfico nacional	Public
DÑ	Spain info	https://www.spain.info/es/naturaleza/parque-nacional-donana/	Instituto de Turismo de España, TURESPAÑA	Public
IA	Turismo de Galicia	https://www.turismo.gal/que-visitar/destacados/parque-nacional-das-illas-atlanticas-de-galicia?langId=es_ES	Turismo de Galicia	Public
IA	CNIG	https://parquesnacionales.cnig.es/islas-atlanticas	Instituto geográfico nacional	Public
IA	Illas atlánticas	https://illasatlanticas.gal/es	Xunta de Galicia	Public
MF	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/monfrague/	MITECO	Public
OM	Ordesa. Net	https://www.ordesa.net/	Ordesa Net	Private
SN	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/sierra-nevada/	MITECO	Public
SN	Junta de Andalucía	https://www.juntadeandalucia.es/medioambiente/portal/web/ventanadelvisitante/detalle-buscador-mapa/-/asset_publisher/1lhx2qB3NwR/content/sierra-nevada-12/255035	Conserjería de agricultura, ganadería, pesca y desarrollo sostenible	Public
TD	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/teide/	MITECO	Public

TI	Turismo de Lanzarote	https://turismolanzarote.com/visitar-el-parque-nacional-de-timanfaya/	Promoción exterior de Lanzarote S.A	Private
TI	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/timanfaya/	MITECO	Public
TI	Cactlanzarote	https://www.cactlanzarote.com/es/cact/timanfaya/	2022 CACT Lanzarote, Islas Canarias	Private
TI	Hola Islas Canarias	https://www.holaislascanarias.com/espacios-naturales/lanzarote/parque-nacional-timanfaya/	Turismo de Canarias 2021	Public
PE	PN Picos de Europa	https://parquenacionalpicoseuropa.es/	Consorcio Interautonómico Parque Nacional Picos de Europa	Public
PE	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/picos-europa/	MITECO	Public
PE	Picos de europa	https://www.picosdeeuropa.com/conocer-picos-de-europa/parque-nacional/	Asociación de empresarios de los Picos de Europa - INCATUR.	Private
GU	PN Sierra Guadarrama	https://www.parquenacionalsierraguadarrama.es/es/	Creative Commons	Public
GU	PN Sierra Guadarrama	https://www.parquenacionalsierraguadarrama.es/es/?option=com_content&view=article&id=137:zpp&catid=123	Creative Commons	Public
GU	MITECO	https://www.miteco.gob.es/es/red-parques-nacionales/nuestros-parques/guadarrama/	MITECO	Public
GU	Comunidad de Madrid	https://www.comunidad.madrid/servicios/urbanismo-medio-ambiente/parque-nacional-sierra-guadarrama	Portales de la CCAA de Madrid	Public
GU	Sierra norte Madrid	https://www.sierranortemadrid.org/parque-nacional-la-sierra-del-guadarrama/	Mancomunidad de Servicios del Valle Norte del Lozoya	Public

References

- Abanumy, A., Al-Badi, A., & Mayhew, P. (2005). E-government Website Accessibility: In-Depth Evaluation of Saudi Arabia and Oman. *The Electronic Journal of e-Government*, 3(3), 99–106. Available online at www.ejeg.com
- Abou-Zahra, S., & Brewer, J. (2019). Standards, Guidelines and Trends. Chapter 13. In D. Tan & J. Vanderdonck (Eds.), *Web Accessibility: A Foundation for Research* (2nd ed., pp. 225–240). Springer-Verlag London. <https://doi.org/10.1007/978-1-4471-7440-0>
- Aguilar-Carrasco, M. J., Gielen, E., Vallés, M. C., Galiana, F., Riutort-Mayol, G., & Pérez, Y. (2022a). *Evaluating limiting factors for people with disabilities using mobility assistive technologies to enjoy National Parks – Comparative findings between Canada and Spain*. SUPTM 2022 Conference Proceedings Sciform, 054424. Online, Jan 17–19, 2022, Cartagena, Spain. <https://doi.org/10.31428/10317/10579>
- Aguilar-Carrasco, M. J., Gielen, E., Vallés-Planells, M., & Galiana, F. (2022c). *Evaluation of Communicative Efficiency Through an Index Focused on People with Mobility/Motor Disabilities Requirements to Equal National Parks Enjoyment*. Parks Accessibility Conference. Online, August 23–25, 2022, Toronto, Canada. Recordings: <https://engineeringhealth.ca/pac2022/>
- Aguilar-Carrasco, M. J., Gielen, E., Vallés-Planells, M., Galiana, F., Almenar-Muñoz, M., & Konijnendijk, C. (2022b). Promoting Inclusive Outdoor Recreation in National Park Governance: A Comparative Perspective from Canada and Spain. *International Journal of Environmental Research and Public Health*, 19(5), 2566. <https://doi.org/10.3390/ijerph19052566>
- Aguilar-Carrasco, M. J., Vallés-Planells, M., Gielen, E., & Galiana-Galán, F. (2017). *Accesibilidad universal en los espacios naturales protegidos para personas con movilidad reducida*. 7º Congreso Forestal Español. Gestión del monte: servicios ambientales y bioeconomía. 26–30 Julio 2017, Plasencia, Cáceres, Badajoz. 7CFE01-512.

- Al-Manasraa, A., Saleem Abu Zaid, M. K., & Taher Qutaishat, F. (2013). Investigating the Impact of Website Quality on Consumers' Satisfaction in Jordanian Telecommunication Sector. *Arab Economic and Business Journal*, 8, 31–37. <http://dx.doi.org/10.1016/j.aebj.2013.11.004>
- Alzua-Sorzabal, A., Zurutuza, M., Rebón, F., & Gerrikagoitia, J. K. (2015). Obtaining the Efficiency of Tourism Destination Website Based on Data Envelopment Analysis. *Procedia-Social and Behavioral Sciences*, 175, 58–65. <https://doi.org/10.1016/j.sbspro.2015.01.1174>
- Aznar Bellver, J., & Guijarro Martínez, F. (2020). *Nuevos métodos de valoración. Modelos Multicriterio (2ª Edición)*. Ed.:Valencia: Universitat Politècnica de València.
- Bianchi, P., Cappelletti, G. M., Mafrolla, E., Sica, E., & Sisto, R. (2020). Accessible Tourism in Natural Park Areas: A social Network Analysis to Discard Barriers and Provide Information for People with Disabilities. *Sustainability*, 12(23), 9915, <https://doi.org/10.3390/sui2239915>
- Bratman, G.N., Anderson, C.B., Berman, M.G., Cochran, B., de Vries, S., Flanders, J., Folke, C., Frumkin, H., Gross, J.J., Hartig, T., Kahn, P.H. Jr, Kuo M., Lawler, J.J., Levin, P.S., Lindahl, T., Meyer-Lindenberg, A., Mitchell, R., Ouyang, Z., Roe, J., Scarlett, L., Smith, J.R., Van den Bosch, M., Wheeler, B.W., White, M.P., Zheng, H., Daily, G.C. (2019) Nature and mental health: An ecosystem service perspective. *Science Advances*, Jul 24;5(7): eaax0903. DOI: [10.1126/sciadv.aax0903](https://doi.org/10.1126/sciadv.aax0903)
- Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet. The state of eTourism research. *Tourism Management*, 29(4) 609–623. <https://doi.org/10.1016/j.tourman.2008.01.005>
- Buhalis, D., & Michopoulou, E. (2011). Information-enabled tourism destination marketing: addressing the accessibility market. *Current Issues in Tourism*, 14(2), 145–168. <https://doi.org/10.1080/13683501003653361>
- Burns, R. C., & Graefe, A. R. (2007). Constraints to Outdoor Recreation: Exploring the Effects of Disabilities on Perceptions and Participation. *Journal of Leisure Research*, 39(1), 156–181. <https://doi.org/10.1080/00222216.2007.11950102>
- Chan, I. C. C., Law, R., Fong, L. H. N., & Zhong, L. (2021). Website design in tourism and hospitality: A multilevel review. *International Journal of Tourism Research*. <https://doi.org/10.1002/jtr.2443>
- Chikuta, O., Plessis, E. d., & Saayman, M. (2017). Nature-based travel motivations for people with disabilities. *African Journal of Hospitality, Tourism and Leisure*, 6(1). ISSN:2223-814X. Online: <http://www.ajhtl.com>
- Corazon, S. S., Christoffersen Gramkow, M., Varning Poulsen, D., Linn Lygum, V., Zhang, G., & Karlsson Stigsdotter, U. (2019). I would really like to visit the forest, but it is just too difficult: A qualitative study on mobility disability and green spaces. *Scandinavian Journal of Disability Research*, 21(1), 1–13. <http://doi.org/10.16993/sjdr.50>
- Coromina, LL., & Camprubí, R. (2016). Analysis of tourism information sources using a Mokken Scale. *Tourism Management*, 56, 75–84. <https://doi.org/10.1016/j.tourman.2016.03.025>
- Dudley, N. (Ed.). (2008). *Guidelines for applying protected area management categories*. Gland, Switzerland: IUCN.
- Dzhandzhugazova, E. A. (2013). New Forms and Possibilities for Promotion of Russian National Parks in the Internet Environment. *Middle-East Journal of Scientific Research*, 16(9), 1238–1244. DOI: 10.5829/idosi.mejsr.2013.16.09.12011
- EUR-Lex. (2002). Resolución del Consejo de Europa de 25 de marzo de 2002 sobre el plan de acción e-Europa 2002: accesibilidad de los sitios web públicos y su contenido (2002/C 86/02). [Data of consultation: 09-10-2016]. Retrieved from <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2002:086:0002:0003:ES:PDF>
- EUR-Lex. (2010). European Disability Strategy (2010–2020). A Renewed Commitment to a Barrier-Free Europe for Disabled Persons. COM (2010) 636 final. [Data of consultation: 09-10-2016]. Retrieved from <https://eur-lex.europa.eu/legal-content/ES/TXT/?qid=1551988536545&uri=CELEX:52010DC0636>
- EUR-Lex. (2015). Proposal for a Directive of the European Parliament and of the Council on the approximation of the laws, regulations and administrative provisions of the Member States as regards the

- accessibility requirements for products and services COM/2015/0615 final - 2015/0278 (COD). [Data of consultation: 09-10-2016]. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1552621229433&uri=CELEX:52015PC0615>
- EUR-Lex. (2016). Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies. [Data of consultation: 09-10-2017]. Retrieved from <http://data.europa.eu/eli/dir/2016/2102/oj>
- EUR-Lex. (2021). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Union of Equality Strategy for the Rights of Persons with Disabilities 2021-2030 COM/2021/101 final. [Data of consultation: 05-12-2021]. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2021%3A101%3AFIN>
- EUROPARC-España. (2007). *EUROPAR 05. Catálogo de buenas prácticas en materia de accesibilidad en espacios naturales protegidos*. Madrid: Fundación Fernando González Bernáldez.
- Farías-Torbidoni, E. I., Mas-Alòs, S., Gil-Moreno-de-Mora, G., Lavega-Burgués, P., Castañer, M., Llorente-Catalán, E., Seguí-Urbaneja, J., & Lacasa-Claver, E. (2020). Health and Well-being in Protected Natural Areas – Visitors' satisfaction in three different protected natural area categories in Catalonia, Spain. *International Journal of Environmental Research and Public Health* 17(18), 6746. <https://doi.org/10.3390/ijerph17186746>
- Fernández Cavia, J., Rovira, C., Díaz Luque, P., & Cavaller, V. (2014). Web Quality Index (WQI) for official tourist destination websites. Proposal for an assessment system. *Tourism Management Perspectives*, 9, 5–13. DOI: 10.1016/j.tmp.2013.10.003
- Saaty, T.L. (2008). Relative Measurement and Its Generalization in Decision Making: Why Pairwise Comparisons are Central in Mathematics for the Measurement of Intangible Factors. *Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A: Matemáticas (RACSAM)*, 102(2), 251–318.
- Gómez Delgado, M., & Barredo Cano, J. L. (Ed.) (2005). *Sistemas de Información Geográfica y evaluación multicriterio en la ordenación del territorio* (2ª edición). Madrid, España: RA-MA.
- Groulx, M., Freeman, Sh., & Lemieux, Ch. (2022). Accessible nature beyond city limits – A scoping review. *Journal of Outdoor Recreation and Tourism*, 37, 100490. <https://doi.org/10.1016/j.jort.2022.100490>
- Halunko, V., Kurkova, K., & Oksin, V. (2018). Methods of assessing the efficiency of internet marketing communications. *Baltic Journal of Economic Studies*, 4(4):76-86 <https://doi.org/10.30525/2256-0742/2018-4-4-76-86>
- Hernández-Galán, J. (2017). *Observatorio de Accesibilidad Universal del Turismo en España*. Madrid: Fundación ONCE/Vía Libre. Retrieved from: <https://biblioteca.fundaciononce.es/publicaciones/colecciones-propias/coleccion-accesibilidad/observatorio-de-accesibilidad-universal-o>
- Hernández-Galán, J., & Borau Jordán, J. L. (2003). *Guía técnica de accesibilidad a los Parques Nacionales españoles para personas con movilidad reducida*. Madrid: Parques Nacionales.
- Iglesias-García, M., & Codina, L. (2016). Los cibermedios y la importancia estratégica del posicionamiento en buscadores (SEO). *Revista de Ciencias Humanas y Sociales. Extra* 9, 929-944. Retrieved from: <http://www.redalyc.org/articulo.oa?id=31048482052>
- James, L., Shing, J., Mortenson, W. B., Mattie, J., & Borisoff, J. (2018). Experiences with and perceptions of an adaptive hiking program. *Disability and Rehabilitation*, 40(13), 1584–1590. <https://doi.org/10.1080/09638288.2017.13020063>
- Karimov, F. P., Brengman, M., & Van Hove, L. (2011). The effect of website design dimensions on initial trust. *Journal of Electronic Commerce Research*, 12(4), 272–301. Retrieved from: <http://www.jecr.org/node/63>
- Kim, Y. H., & Kim, M. (2010). A New Approach for Assessment and Comparison of Websites: Using the Modified Balanced Scorecard and Analytical Hierarchy Process. *Journal of Hospitality Marketing & Management*, 19(6), 676–695. <https://doi.org/10.1080/19368623.2010.493089>

- Kolodziejczak, A. (2019). Information as a Factor of the Development of Accessible Tourism for People with Disabilities. *Questiones Geographice*, 38(2), 67–73. <https://doi.org/10.2478/quageo-2019-0014>
- Law, R., Qi, S., & Buhalis, D. (2008). Progress in tourism management: A review of website evaluation in tourism research. *Tourism Management*, 31, 297–313. <https://doi.org/10.1016/j.tourman.2009.11.007>
- Leung, Y.-F., Spenceley, A., Hvenegaard, G., & Buckley, R. (Eds.). (2018). *Tourism and visitor management in protected areas: Guidelines for sustainability* (Best Practice Protected Area Guidelines Series No. 27). Gland, Switzerland: IUCN.
- Lukito, R. B., Lukito, C., & Arifin, D. (2015). Implementation Techniques of Search Engine Optimization in Marketing Strategies Through the Internet. *Journal of Computer Science*, 11(1), 1–6. <https://doi.org/10.3844/jcssp.2015.1.6>
- Martinez-Sala, A. M., & Montserrat-Gauchi, J. (2016). La accesibilidad, requisito de los sitios web oficiales. Análisis de la accesibilidad de las webs turísticas oficiales de la costa mediterránea española. *AdComunica. Revista Científica de Estrategias, Tendencias e Innovación en Comunicación*, 12. <https://doi.org/http://dx.doi.org/10.6035/2174-0992.2016.12.5>
- Martins, J., Gonçalves, R., & Branco, F. (2017). A full scope web accessibility evaluation procedure proposal based on Iberian eHealth accessibility compliance. *Computers in Human Behavior*, 73, 676–684. <https://doi.org/10.1016/j.chb.2016.12.010>
- Menzies, A., Mazan, C., Borisoff, J. K., Mattie, J. L., & Monterson, W. B. (2020). Outdoor recreation among wheeled mobility users: perceived barriers and facilitators. *Disability and Rehabilitation: Assistive Technology* 16(4), 384–390. <https://doi.org/10.1080/17483107.2019.1710772>
- Miniwatts Marketing Group. (2020). *World internet users and population stats*. Internet Usage Statistics, The Internet Big Picture, World Internet Users and 2020 Population Stats. Retrieved from: www.internetworldstats.com
- Moreno, L., & Martinez, P. (2013). Overlapping factors in search engine optimization and web accessibility. *Online Information Review*, 37(4), 564–580. <https://doi.org/10.1108/OIR-04-2012-0063>
- Özkan, B., Özceylan, E., Kabak, M., & Dağdeviren, M. (2020). Evaluating the websites of academic departments through SEO criteria: a hesitant fuzzy linguistic MCDM approach. *Artificial Intelligence Review*, 53, 875–905. <https://doi.org/10.1007/s10462-019-09681-z>
- Petrie, H., & Kheir, O. (2007). The Relationship between accessibility and Usability of Websites. *Proceedings. CHI 07. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 397–406. <https://doi.org/10.1145/1240624.1240688>
- Pothier, D., & Devlin, R. (2006). *Critical Disability Theory: Essays in philosophy, politics, and law*. Vancouver-Toronto: UBC Press.
- Reindrawati, D. Y., Noviyanti, U. D. E., & Young, T. (2022). Tourism Experiences of People with Disabilities: Voices from Indonesia. *Sustainability*, 14, 13310. <https://doi.org/10.3390/su142013310>
- Rodríguez-Rodríguez, D., & Martínez-Vega, J. (2012). Proposal of a system for the integrated and comparative assessment of protected areas. *Ecological Indicators*, 23, 566–572. <https://doi.org/10.1016/j.ecolind.2012.05.009>
- Saaty, T. L. (1980). *The Analytic Hierarchy Process*. New York: McGraw-Hill.
- Saaty, T. L., & Özdemir, M. S. (2014). How Many Judges Should There Be in a Group? *Annals of Data Science*, 1, 359–368. <https://doi.org/10.1007/s40745-014-0026-4>
- Shelly, C. C. (2019). Inclusion. In D. Tan & J. Vanderdonckt (Eds.), *Web Accessibility a Foundation for Research* (2nd ed., pp. 301–316). London: Springer-Verlag. <https://doi.org/10.1007/978-1-4471-7440-0>
- Spain. (2014). *Ley 30/2014 de 3 de diciembre, de Parques Nacionales*. Boletín Oficial del Estado, 293, 99762–99792. Retrieved from: <https://www.boe.es/buscar/doc.php?id=BOE-A-2014-12588>
- Štemberk, J., & Marešová, P. (2018). Using Digital Media in Marketing when Presenting the Czech Republic's National Parks. <https://doi.org/10.36689/uhk/hed/2018-02-038>
- Stigsdotter, U. K., Corazon, S. S., Ekholm, O., Gramkow, M. C., & Zhang, G. (2017). Health-Promoting Nature Access for People with Mobility Impairments: A Systematic Review. *International Journal of Environmental Research and Public Health*, 14(7), 703. <https://doi.org/10.3390/ijerph14070703>

- Stolton, S., Shadie, P., & Dudley, N. (2013). *IUCN WCPA Best Practice Guidance on Recognizing Protected Areas and Assigning Management Categories and Governance Types* (Best Practice Protected Area Guidelines Series N^o. 21). Ed.: Gland, Switzerland: IUCN.
- Sun, S., Fong, D. K. C., Law, R., & He, S. (2016). An updated comprehensive review of website evaluation studies in hospitality and tourism. *International Journal of Contemporary Hospitality Management*, 29(1), 355–373. <https://doi.org/10.1108/IJCHM-12-2015-0736>
- Teruel Serrano, M. D. (2016). Communicative efficiency of websites in the case of the tourism management of the world heritage sites in Spain. *Boletín de la Asociación de Geógrafos Españoles*, 71, 525–530. <https://doi.org/10.4995/var.2018.6831>
- Tsai, W.-H., Chou, W.-C., & Lai, C.-W. (2010). An effective evaluation model and improvement analysis for national park websites: A case study of Taiwan. *Tourism Management*, 31, 936–952. DOI: 10.1016/j.tourman.2010.01.016
- Upchurch, R.S., & Seo, J.W. (1999). Civic responsibility and marketing positioning: complying with the Americans with Disabilities Act. *Facilities*, 14(5/6), 48–56. <https://doi.org/10.1108/02632779610117125>
- Van den Bosch, M., & Ode Sang, Å. (2017). Urban natural environments as nature-based solutions for improved public health – A systematic review of reviews. *Environmental Research*, 158, 373–384. <https://doi.org/10.1016/j.envres.2017.05.040>
- W3C. (2013). *Guidance on Applying WCAG 2.0 to Non-Web Information and Communications Technologies (WCAG2ICT)*. Working Group Note 5, September 2013. Retrieved from: <https://www.w3.org/TR/wcag2ict/>
- W3C. (n.d.). *Web Content Accessibility Guidelines (WCAG) Overview*. Retrieved from <https://www.w3.org/WAI/standards-guidelines/wcag/>
- WHO. (2011). *World report on disability*. World Health Organization, Geneva. Retrieved from: <https://www.who.int/publications/i/item/world-report-on-disability>
- Williams, R., Vogelsong, Green, G., & Cordell, K. (2004). Outdoor recreation participation of people with mobility disabilities: selected results of the national survey of recreation and the environment. *Journal of Park and Recreation Administration*, 22(2), 84–100. Retrieved from: <https://www.fs.usda.gov/research/treesearch/21304>
- Yen, B., Hu, P.J.H., & Wang, M. (2007). Toward an analytical approach for effective Web site design: A framework for modeling, evaluation, and enhancement. *Electronic Commerce Research and Applications*, 6, 159–170. <https://doi.org/10.1016/j.eierap.2006.11.004>
- Yildiz, N., Öncüer, M.E., & Tanrisevdi, A. (2023). Examining multiple mediation of authenticity in the relationship between cultural motivation pattern and satisfaction: a case study of Şirince in Turkey. *Journal of Hospitality and Tourism Insights*. Advance online publication. <https://doi.org/10.1108/JHTI-09-2022-0404>
- Yu, D.X., & Parmanto, B. (2011). U.S. state government websites demonstrate better in terms of accessibility compared to federal government and commercial websites. *Government Information Quarterly*, 28, 484–490. <https://doi.org/10.1016/j.giq.2011.04.001>
- Zhang, G., Poulsen, D.V., Lygum, V.L., Corazon, S.S., Gramkow, M.C., & Stigsdotter, U.K. (2017). Health-Promoting Nature Access for People with Mobility Impairments: A Systematic Review. *International Journal of Environmental Research and Public Health*, 14(7), 703. <https://doi.org/10.3390/ijerph14070703>