

A study of the Web visibility of the SDGs and the 2030 Agenda on university websites

Web visibility
of the SDGs

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Abstract

Purpose – Universities play an important role in the promotion and implementation of the 2030 Agenda for Sustainable Development. This study aims to examine the visibility of information about the Sustainable Development Goals (SDGs) on the websites of Spanish and major international universities, by means of a quantitative and qualitative analysis with an online visibility management platform that makes use of big data technology.

Design/methodology/approach – The Web visibility of the universities studied in relation to the terms “SDG”, “Sustainable Development Goals” and “2030 Agenda” was determined using the SEMrush tool. Information was obtained on the number of web pages accessed and the queries formulated (query expansion). The content indexed by Google for these universities was compiled, and finally, the search engine optimization (SEO) factors applicable to the websites with the highest Web visibility were identified.

Findings – The universities analysed are content creators but do not have very high Web visibility in Web searches for information on the SDGs. Of the 98 universities analysed, only four feature prominently in search results.

Originality/value – Although research exists on the application of SEO to different areas, there have not, to date, been any studies examining the Web visibility of universities in relation to Web searches for information on the 2030 Agenda. The main contributions of this study are the global perspective it provides on the Web visibility of content produced by universities about the SDGs and the recommendations it offers for improving that visibility.

Keywords SDGs, 2030 Agenda, Spanish universities, SEO, Web visibility, Higher education institutions, Sustainable development goals (SDGs), Search engine optimisation (SEO)

Paper type Research paper

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SEMrush has been used in this study thanks to an agreement signed with the company to use the tool for research purposes.



1. Introduction

In September 2015, the United Nations General Assembly approved the 2030 Agenda for Sustainable Development, an international agreement involving a commitment to 17 Sustainable Development Goals (SDGs) aimed at fighting poverty, caring for the planet and reducing inequalities.

Given that two key elements of the 2030 Agenda are promoting universal access to information and ensuring quality education, it is important to understand how the SDGs are being communicated on the Web. With this in mind, this paper presents an analysis of online dissemination of the 2030 Agenda by certain stakeholders – specifically, universities – and the impact it has had on the Web visibility of the SDGs.

The role of universities in the pursuit of these goals is of considerable importance. Universities are institutions of knowledge engaged in the disciplinary areas necessary to ensure the implementation of the SDGs. Moreover, as organisations with considerable power and influence over civil society, universities need to be committed to participating actively in the implementation of the 2030 Agenda and should integrate its basic principles into their policies and strategies. In this context, the role that universities are playing in this endeavour is worthy of study.

At the same time, the internet has been consolidated as one of the predominant platforms for accessing information. This has meant that search engines like Google and Bing have turned into the primary source of information for many internet users. Furthermore, those users generally only take note of the hits that appear on the first search engine results page (SERP), while ignoring those appearing on subsequent pages (Kulshrestha *et al.*, 2018). Search engines are essential to the online ecosystem; in fact, a report by BrightEdge Research (2019) estimates that an average of 53.3% of website traffic comes from organic searches. In other words, more than half of the traffic that a website receives arrives via search engines.

The analysis of factors influencing search results is known as search engine optimisation (SEO). The application of an SEO strategy is key to the success of a website, as it optimises the positioning of its pages. In other words, it helps ensure that they appear in the top positions of the SERP in response to a user query, thereby increasing the website's traffic and therefore, its Web visibility (Duong, 2019).

To address this research gap, this paper presents an analysis of the Web visibility (understood in terms of appearance in organic search results) of content created by universities about SDGs. The analysis includes both public and private universities in Spain, as well as a selection of international universities ranked at the top of the *Times Higher Education World University Rankings* (THE). The data obtained offers a picture of the situation in Spain, while at the same time facilitating the identification of any differences at the international level.

The specific objectives that have been defined for this study are:

- to determine the Web visibility of the 2030 Agenda and the SDGs on the websites of Spanish universities and of top international universities;
- to verify whether there are any differences between Spanish universities and the top international universities in terms of Web visibility; and
- to identify SEO best practices that can be applied to university websites to increase Web visibility.

The next section offers a review of the literature exploring how universities are working with the SDGs and on the principles of web visibility and SEO. This is

followed by a description of the methodology and tools used to collect information facilitating the evaluation of the Web visibility of the universities studied. The results are then presented and discussed, and finally, some conclusions are offered, together with a consideration of the study's limitations and of possible lines of future research.

2. Literature review

Since the declaration of the 2030 Agenda in 2015, research on the SDGs at universities has become a focus of interest. The most prominent topics in this field of study have included the implementation of the SDGs, challenges and benefits associated with their application, trends in sustainable development education and promotion strategies.

Some studies have sought to identify the obstacles to the effective establishment of sustainable development at universities, finding that higher education institutions still need to do more to integrate sustainability into their curricula and research groups (Leal Filho *et al.*, 2017; Chaleta *et al.*, 2021) and even into their strategic plans (Bieler and McKenzie, 2017; Stoian *et al.*, 2021).

Measures recommended to address this situation include the creation of formal structures that could not only help to overcome these limitations but also ensure that students develop a stronger commitment to the principles associated with sustainability (Leal Filho *et al.*, 2019). Leicht *et al.* (2018) offer a series of suggestions to promote a comprehensive and transformative education experience that could enable students to make informed, responsible decisions to achieve genuine sustainable change. Annan-Diab and Molinari (2017) propose specific actions such as the application of corporate social responsibility plans.

Studies of the visibility of the Agenda 2030 on university websites can offer a complementary perspective to such research. It is worth highlighting, however, that the scientific literature related to Web visibility is not extensive. The most notable studies to date have focused on the analysis of Web visibility in relation to specific areas such as politics (Mustafaraj *et al.*, 2020), tourism (Rovira *et al.*, 2010) or health (Cano-Orón, 2019), or the application of SEO strategies in different sectors predominantly involving business websites (Schultheiß and Lewandowski, 2021) or online media (Giromelakis and Veglis, 2015; Lopezosa *et al.*, 2020). There have also been studies conducted with search engine positioning tools such as SEMrush (Vyas, 2019), Sistrix (Lopezosa *et al.*, 2019; Vázquez and Ventura, 2020) or Majestic (García-Carretero *et al.*, 2016).

Among the subject areas that have received the most scholarly attention, research on the Web visibility of social issues is particularly prominent. There have been studies demonstrating that the use of search engines like Google, Yandex or Baidu plays a vital role in providing information during elections, which has significant implications for information consumption (Metaxas and Pruksachatkun, 2016; Trielli and Diakopoulos, 2020). It is also worth noting the findings that the top search results generally come from national media outlets (Unkel and Haim, 2019), which therefore play a crucial role in constructing the image of political candidates (Belt *et al.*, 2012). The importance of the SDGs to society and the role that politics plays in their implementation makes an analysis of the Web visibility of the 2030 Agenda and the SDGs particularly valuable.

It is also important to stress that getting to the top of search query results is no simple task, as to make it happen Web designers need to apply techniques commonly

known as SEO strategies. SEO covers a whole range of strategies applied both within and outside the website to push it higher up in the search results. This is important because the best positioned content has the highest Web visibility and therefore the most Web traffic.

Notable among the studies of SEO positioning techniques and factors is the research by [Shahzad et al. \(2020\)](#) and [Mittal et al. \(2018\)](#) focusing on the three most widely used SEO techniques (“white hat”, “grey hat” and “black hat”), which reveal that applying ethical (“white hat”) positioning techniques is the safest and most enduring strategy. [Umenhofer \(2019\)](#), who studies SEO from the perspective of increasing a website’s traffic, points out that the use of HTML title tags and metatags together with a keyword identification strategy can have a bigger impact than other SEO techniques. [Windia et al. \(2018\)](#) find that the best SEO techniques are optimising the meta-description, using unique focus keywords and applying alt attributes, especially to images. [Yudasubrata et al. \(2019\)](#), who explore methods for identifying keywords, highlight geotargeting as a differentiating factor.

There are also numerous studies focusing on the Web visibility of cultural institutions. [Krstić and Maslikovic \(2019\)](#) identify the problems that commonly affect this kind of website, with special attention to organic searches. [Badchikar and Bhat \(2019\)](#) analyse the basic concepts associated with website optimisation for search engines and the application of rankings to web pages, placing particular emphasis on how to begin applying these techniques. [Niranjika and Samarasinghe \(2019\)](#) point out that quality content and the presence of external links (“backlinks”) are extremely important for website positioning. A study by [Krrabaj et al. \(2017\)](#) confirms that the most important factors for optimising a website for search engines are quality content, backlinks and website accessibility on different types of devices (computers, mobiles and tablets). Research by [Ziakis et al. \(2019\)](#) identifies the main factors contributing to website positioning to be the adoption of an secure sockets layer certificate for the website, including the keyword in the uniform resource locator (URL), the number of links external to the website, the length of the text and the age of the domain.

The visibility of universities is a subject with a long history in the academic literature ([Bjørneborn and Ingwersen, 2004](#); [Thelwall et al., 2005](#)). Launched in 2004, the Webometrics Ranking of World Universities is an academic ranking system that rates the online presence and impact of academic institutions ([Aguillo et al., 2008](#)). There are various international rankings of a similar nature, and their success is because of the evolution of the globalisation process affecting higher education ([Aguillo et al., 2010](#)). Apart from such “webometric” research, in recent years, there have been various studies of SEO specific to the academic sphere. These studies have dealt with questions such as the application of SEO techniques to the dissemination of academic production ([Codina, 2017](#); [Shahzad et al., 2017](#)), the optimisation of academic articles in Google Scholar ([Beel et al., 2009](#)), the visibility of universities on academic social media platforms ([French and Fagan, 2019](#); [González-Díaz et al., 2015](#)) and the use of SEO in repositories or academic journals. However, there are very few studies dealing specifically with SEO and the visibility of universities on search engines. One such study is by [Giannakouloupoulos et al. \(2019\)](#), who analyse the relationship between a university’s academic excellence and its Web visibility. Most existing studies focus on specific areas, either geographically ([Yalcin and Kilic, 2016](#)) or thematically ([Özkan et al., 2019](#)).

Another line of research in this area that has been given considerable attention in recent years is the search engine manipulation effect. This is a term coined by [Epstein and Robertson \(2015\)](#), who define it as the manipulative effect that search engines can exert on users, which is masked in such a way that users are unable to recognise that it is happening.

This bias has been studied not only in search engines but also in social media platforms and user profiles (Kulshrestha *et al.*, 2018; Azcorra *et al.*, 2018; Epstein *et al.*, 2017) and even in relation to other search engine functions such as the search suggestion effect, whereby auto-complete suggestions influence the queries formulated (Bonart *et al.*, 2019). As this phenomenon has an impact on both users and content creators, there has been a proliferation of studies focusing on the manipulation of search algorithms (Petre *et al.*, 2019; Ziewitz, 2019) and on the neutrality and objectivity of search engines and their search results (Zheluk *et al.*, 2012; Bilic, 2016).

3. Methodology

This study analyses the Web visibility of content related to the SDGs on university websites using a quantitative design involving the collection of Web visibility data for the 98 universities analysed. Based on the identification of the best positioned content, a qualitative analysis is conducted to identify best practices that could be useful for universities to adopt.

The list of public and private Spanish universities analysed is based on the information available on the EDUCAbase database maintained by the Spanish Ministry of Education and Professional Training/Ministry of Universities, which contains data on Spain's university network. A group of international universities have also been analysed to provide an international perspective and to provide other points of reference against which the results can be validated. The international universities in the sample were selected using the *THE World University Rankings 2021*, divided into two groups:

- (1) the six top universities in the general ranking; and
- (2) the six top universities in the *Impact Rankings 2021 (THE-SDGs)*, which assess universities against the SDGs, defining various indicators that facilitate a comparison based on four areas: research, teaching, stewardship and outreach.

This second group actually includes seven universities because two were tied for the same position. Table 1 presents a summary of the 98 universities analysed.

The data on the universities' Web visibility have been obtained using the SEMrush platform. SEMrush is an internationally recognised SEO tool (ranked as one of the best of its kind by experts in the field) that uses big data technology and offers one of the largest databases on the market, containing 20 billion keywords and crawling 17 billion URLs each day.

This platform has been used to monitor the websites of the 98 universities analysed to determine their positioning for three keywords: "sustainable development goals", "2030 Agenda" and "SDGs". To obtain information on Spanish universities, the Spanish translations of these terms were used, submitting queries in the search engine Google.es via the SEMrush tool and taking into account the first 100 hits retrieved by the search engine for the geographical domain of Spain. For the international universities, the terms in English were used in the Google search engine for the country of each university, using the same platform. For example, Figure 1 shows the information collected with SEMrush from Google.co.uk to analyse the visibility of the University of Cambridge (cam.ac.uk) for the

University	Spanish		International	
	Public	Private	THE Ranking	THE-SDGs Ranking
	50	35	6	7

Table 1.
Names and
classifications of
universities analysed

three terms indicated above. The different queries formulated by users were identified, applying query expansion techniques (Efthimiadis, 1996). This process was repeated for the 98 universities studied to create an extensive corpus of data that can be consulted in Figshare (Vállez *et al.*, 2021). The data were collected during the month of May 2021.

A control test was carried out with Sistrix, another SEO tool with similar features, to ensure that the results obtained with SEMrush did not offer a skewed picture of the websites. The results gathered in the control test (Appendix – Table A1) confirm the alignment of the information obtained on the two platforms.

In addition, information and data were compiled on the number of Google-indexed pages dealing with SDGs on the websites of the universities analysed. Google was chosen as the reference search engine because it is the one that currently has the biggest market share (92.4%) [1]. Specifically, the data collection focused on identifying how many web pages on each university website dealing with the topic of SDGs are indexed by Google. To this end, we searched for web pages on each university domain that contained any of the three keywords in their title tag. For example, to obtain the pages on the University of Cambridge website with the term “SDGs” in its title, the advanced search command “allintitle:SDG site:cam.ac.uk” was entered in the search engine Google.co.uk. The option of collecting the information based on the URL with the command “allinurl:SDG site:cam.ac.uk” was also considered, but ultimately, it was decided to analyse the content of the HTML title attribute because its use was more common and because of the influence it has on the Web positioning of website pages. The data were collected on 30 June 2021 using the national version of the Google search engine for the country of each university analysed. Figure 2 shows the data collected for the ten universities with the most indexed content.

University	Domain	Keyword	URL	Position
University of Cambridge	cam.ac.uk	sdg icons	https://www.cisl.cam.ac.uk/about/youm...	17
University of Cambridge	cam.ac.uk	un sdgs list	https://www.conservation.cam.ac.uk/Ke...	31
University of Cambridge	cam.ac.uk	sdgs 17 goals 169 targets	https://www.conservation.cam.ac.uk/Ke...	36
University of Cambridge	cam.ac.uk	objectives of sustainable development goals	https://www.conservation.cam.ac.uk/Ke...	59
University of Cambridge	cam.ac.uk	un sustainable development goals list	https://www.conservation.cam.ac.uk/Ke...	72
University of Cambridge	cam.ac.uk	sustainable development goals icons	https://www.cisl.cam.ac.uk/about/youm...	72
University of Cambridge	cam.ac.uk	2017 sustainable development goals	https://www.cisl.cam.ac.uk/resources/su...	83
University of Cambridge	cam.ac.uk	list of sdgs and targets	https://www.conservation.cam.ac.uk/Ke...	84
University of Cambridge	cam.ac.uk	unsdg	https://www.gci.cam.ac.uk/news/unsdg:...	85
University of Cambridge	cam.ac.uk	un sdg 17 goals	https://www.conservation.cam.ac.uk/Ke...	86

Figure 1. Data collected on the University of Cambridge with SEMrush

University	Acronym	Domain	Term1: 2030 Agenda	Term2: Sustainable Development Goals	Term3: SDG	Total "Allintitle" -
Universidad de La Rioja	UNIRIOJA	unirioja.es	416	361	367	1,144
Universidad de Valencia	UV	uv.es	158	107	466	731
Universidad Politécnica de Madrid	UPM	upm.es	107	299	219	625
Universidad Nacional de Educación a Dist...	UNED	uned.es	91	119	387	597
Universidad de Murcia	UM	um.es	67	74	393	534
Universidad de Zaragoza	UZ	unizar.es	126	105	187	418
Universidad de Barcelona	UB	ub.edu	81	22	268	371
Harvard University	HARVARD	harvard.edu	10	171	184	365
Universidad Politécnica de Valencia	UPV	upv.es	78	28	205	311
Massachusetts Institute of Technology	MIT	mit.edu	3	41	263	307

Figure 2. Top ten universities with the most indexed content on Google, showing the number of pages indexed for each term and the total combined number

Finally, a qualitative analysis was carried out to examine the SEO techniques applied to the web pages with higher Web visibility. To this end, 20 indicators were applied, based on the studies cited in the “Literature review” section. The indicators refer to the main strategies for the effective search engine optimisation of a website. An analysis of the most visible content with the 20 indicators served to identify best practices to enhance the Web visibility of universities in relation to the SDGs.

4. Results

The results obtained on the Web visibility of the universities studied in relation to the three aforementioned SDG-related keywords are outlined below.

The data collected using the SEMrush tool, which have served as the basis for subsequent analysis, are presented in Figure 3. The global data processed are:

- the number of times that the university website pages have appeared as search engine results in one of the top 100 positions on the SERPs;
- the number of unique university website pages that have been shown as a result; and
- the number of queries entered (keywords) with results that include a web page of one of the universities analysed.

The funnel-shaped image in Figure 3 presents the data from the most general to the most specific: the total number of web pages retrieved, different web pages and queries entered by users in the search engine to access content on SDGs.

Figure 4 shows the breakdown of the data collected into the three groups of universities analysed: Spanish public universities, Spanish private universities and prestigious

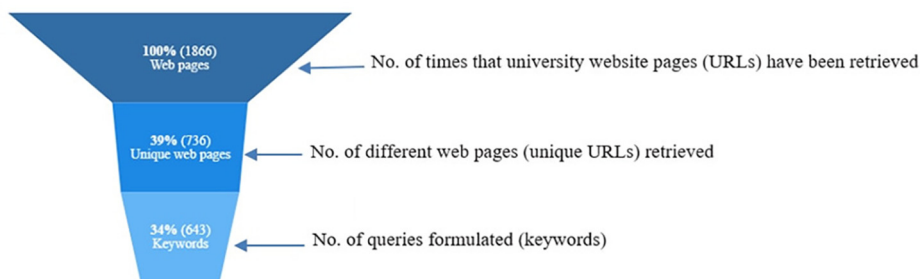


Figure 3.
Data collected on Web visibility of SDG concept on university websites

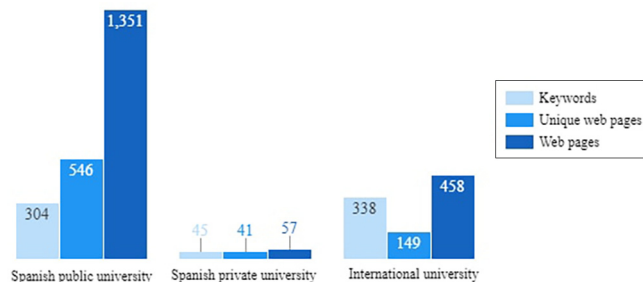


Figure 4.
Breakdown of Web visibility data by type of university

international universities. The international universities are analysed as a single block in this figure to provide a general picture of the international context, although the disaggregated data are analysed further below, as indicated in the “Methodology” section.

The results reveal that Spanish private universities have almost no visibility in relation to the three terms associated with SDGs. In the case of the international universities, it is worth noting that the number of keywords used to access the content is higher than the number of different web pages; this is normal in a SEO analysis because the same content can be accessed using various keywords. However, this is not the case for Spanish universities, as there are fewer keywords than unique web pages, which means that there are fewer ways to access the content.

The next step was to analyse the Web visibility of the SDG concept, with the three variants indicated above, for each of the university websites analysed. Figure 5 shows the ten universities with the highest Web visibility for the terms selected, indicating their domain name, the number of web pages positioned in the search results and the number of these that are unique web pages.

Another question of interest is the percentage of web pages that universities have in the top ten positions (and therefore on the first page) of the search engine results. Figure 6 shows the universities with the most web pages in the top ten, indicated as a percentage of

University	Domain	Web pages	Unique web pages
Universidad Autónoma de Madrid	uam.es	146	27
Harvard University	harvard.edu	135	38
Universidad Carlos III de Madrid	uc3m.es	128	38
Universidad Politécnica de Madrid	upm.es	125	41
Universidad Complutense de Madrid	www.ucm.es	84	31
Universidad del País Vasco	ehu.eus	78	37
Universidad de La Rioja	unirioja.es	77	37
Universidad de Murcia	um.es	76	28
Massachusetts Institute of Technology	mit.edu	72	33
RMIT University	rmit.edu.au	71	26

Figure 5.
Top ten universities
with highest Web
visibility

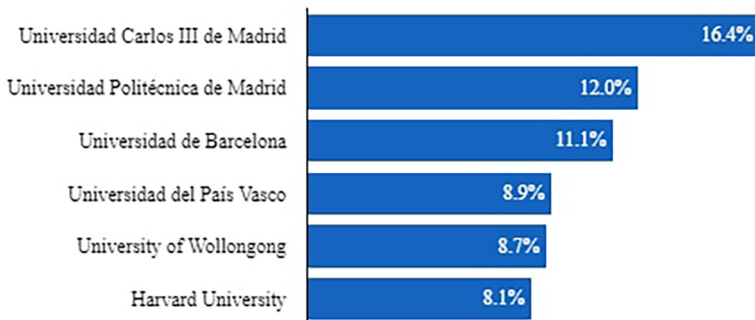


Figure 6.
Universities with the
highest percentage of
web pages positioned
on the first SERP

the total number of web pages that each university placed in the results. This point is important because it suggests that Universidad Carlos III in Madrid is applying better SEO techniques so that the search engines are positioning more of its content in the top search results. It can also, thus, be concluded that this university is communicating information on the SDGs more effectively.

Looking more closely at the case of universities in Spain, **Figure 7** compares the levels of Web visibility of the two types of Spanish universities. As the figure shows, 63% of the 35 private universities have no visibility at all, i.e. their web pages never appear in any organic search engine results for queries related to the SDGs. Conversely, 90% of public universities have at least one web page on the SDGs positioned in search engine results. Moreover, only 9% of private universities have more than ten visible web pages, while for public universities, that figure is 56%.

To provide a more detailed picture of the Web visibility of Spanish public universities, the graph in **Figure 8** shows that three universities dominate Web visibility, with more than 100 web pages accessed via the search engine with the keywords associated with the SDGs. On the next level, there are eight universities with 50–100 web pages appearing in the search engine results. This means that these 11 universities are responsible for 70% of all web pages accessed on sustainable development. On the other end of the scale, just 4% of the universities had no web pages at all related to the terms studied.

The next step was to analyse the Web visibility of the international universities to identify any significant differences from the data obtained on Spanish universities. To this

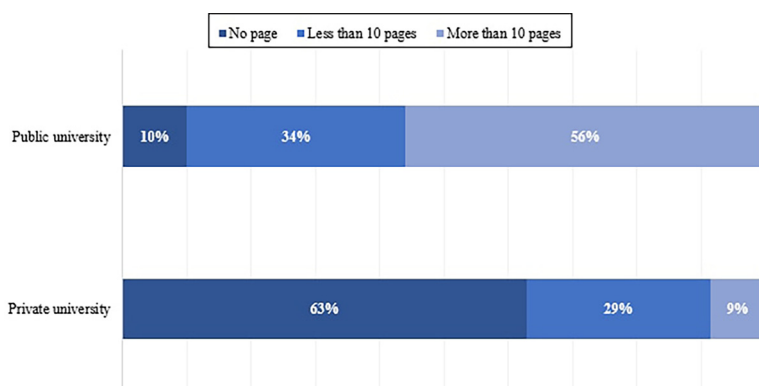


Figure 7. Comparison of Web visibility percentages of Spanish public and private universities

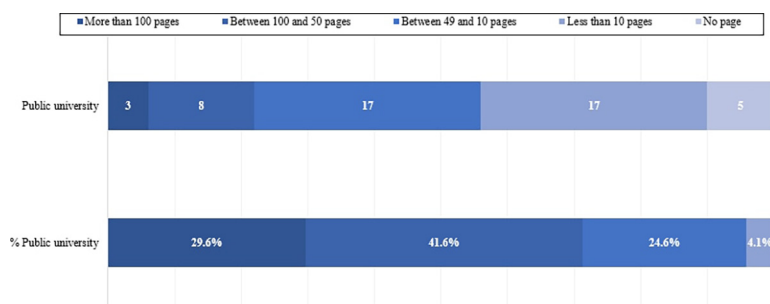


Figure 8. Number of web pages accessed and percentages of total for Spanish public universities

end, the universities selected were analysed according to the two criteria outlined in the “Methodology” section. Figure 9 lists the international universities and indicates the number of web pages positioned in the search results and how many are unique web pages for the keywords associated with SDGs. The universities analysed are split into the two groups described in the “Methodology” section:

- (1) the top six universities on the Ranking; and
- (2) the top six universities on the *THE-SDGs* Ranking

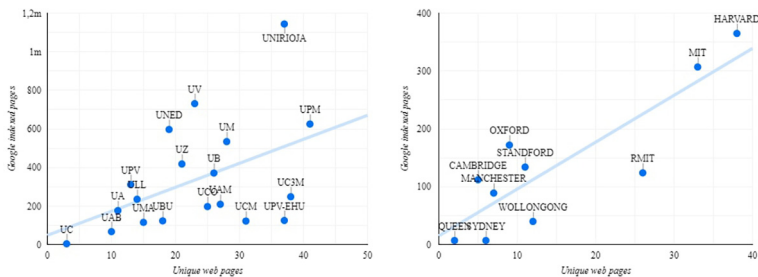
As reflected in Figures 5 and 9, there are no significant differences between Spanish and international universities, as the top universities in the two cases have similar numbers of web pages, although the international sample is much smaller. Of the international universities analysed, those in the USA (Harvard and MIT) are better positioned than their British counterparts (Cambridge and Oxford), which have very few web pages accessed. However, it is worth highlighting that the highest ranked international universities in relation to the SDGs (Figure 9b), many of which are Australian, have much lower Web visibility. There is not really any reason for there to be a connection between the two variables, as the *THE-SDGs* Ranking does not take this aspect into account.

The next question analysed in this study aims to contextualise the data presented so far by examining the amount of information about SDGs on university web pages that is indexed by Google (considering the three terms referred to in the “Methodology” section). This will help to identify whether there is any correlation between the number of web pages accessed on each university website and the number of pages indexed by Google. To this end, the 20 best-positioned Spanish universities and all 13 international universities were analysed. Figure 10 shows two separate scatter plots for the Spanish universities (Figure 10(a)) and the international universities (Figure 10(b)). Each university is represented as a point located on the X axis (number of visible web pages) and Y axis (number of pages indexed by Google).

Figure 9.
(a) Top six universities on THE Ranking (left); (b) top six universities on THE-SDGs Ranking (right)

University	Domain	Web pages	Unique web pages	University	Domain	Web pages	Unique web pages
Harvard University	harvard.edu	135	38	RMIT University	rmit.edu.au	71	26
Massachusetts Institute of Tech...	mit.edu	72	33	University of Manchester	manchester.ac.uk	57	7
University of Cambridge	cam.ac.uk	14	5	University of Wollongong	uow.edu.au	54	12
Stanford University	stanford.edu	12	11	Queen's University	queensu.ca	19	2
University of Oxford	ox.ac.uk	9	9	University of Sydney	sydney.edu.au	15	6
California Institute of Technology	caltech.edu	0	0	La Trobe University	latrobe.edu.au	0	0
				Aalborg University	en.aau.dk	0	0

Figure 10.
Scatter plot: (a) Spanish universities (left); (b) international universities (right)



The correlation coefficient obtained for the Spanish universities is 0.47, reflecting the existence of a moderate positive correlation between the two values, as shown by the trend line in [Figure 10\(a\)](#). However, in the case of the international universities the correlation coefficient is 0.86, constituting a high positive correlation between the two variables, as evidenced by the trend line in [Figure 10\(b\)](#).

A comparison of the two graphs in [Figure 10](#) reveals that the Spanish universities analysed have more content indexed in Google than the international universities. On the other hand, the number of unique web pages is similar for the two groups. Looking at specific cases, [Figure 10\(a\)](#) shows that Universidad de La Rioja is the university with the largest number of indexed web pages. This could be explained by the fact that the Dialnet bibliographic database, which compiles scientific literature in Spanish, is hosted on this university's domain.

Drawing on this specific example, we analysed which university subdomains give SDGs the highest levels of visibility, as this may help to identify the characteristics of such content. [Table 2](#) shows the ten university subdomains with the highest Web visibility.

The results show that Universidad Autónoma de Madrid (UAM) is the university with the highest Web visibility, with a specific subdomain dedicated to SDGs ("ODS" in Spanish) that generates more than 90% of all results. The findings also reveal a significant number of subdomains associated with scientific production (repositories or journals) on the websites of Harvard University, MIT and Universidad Complutense de Madrid (UCM), among others. This suggests that such subdomains constitute an effective way for universities to boost their Web visibility. Finally, it is important to note that only a small number of subdomains were identified (16), yet they contain 31% of all visible web pages. Most universities do not have specific subdomains to boost their Web visibility in relation to the SDGs, and therefore, their visibility is derived directly from their general websites.

[Table 3](#) presents an analysis of the specific SEO techniques identified in the subdomain with the highest visibility: UAM's SDG subdomain (ods.uam.es).

University	Subdomain description (from HTML title tag)	Subdomain	Freq.
UAM	ODS – Objetivos de Desarrollo Sostenible	ods.uam.es	132
Harvard	Repository – Global Health education and learning incubator The Harvard Law School Forum on Corporate Governance	repository.gheli.harvard.edu corpgov.law.harvard.edu	89
UNIRIOJA	Dialnet Fundación Universidad de La Rioja	dialnet.unirioja.es fundacion.unirioja.es	70
MIT	MIT Media Lab MIT Sloan Management Review	www.media.mit.edu sloanreview.mit.edu	46
UCM	Archivo Institucional E-Prints Complutense	eprints.ucm.es	42
UPM	Revistas Científicas Complutenses Centro de Innovación en Tecnología para el Desarrollo itdUPM	revistas.ucm.es www.itd.upm.es	68
UB	Fundació solidaritat UB	www.solidaritat.ub.edu	60
URLL	RIULL – Repositorio institucional	riull.ull.es	17
UVA	Sostenibilidad Uva	ods.uva.es	14
UA	Servicio de Relaciones Internacionales	sri.ua.es	13

Table 2.
Most visible
university
subdomains

Table 3.
SEO analysis of the
subdomain “La
agenda 2030 y los
ODS en la UAM”
(ods.uam.es)

Ind. 1	Metadata and URL	Title contains keyword: SDGs	YES
Ind. 2		URL contains keyword: SDGs	YES
Ind. 3		Meta-description contains keyword: SDGs	YES
Ind. 4		Image includes alt attribute with keyword: SDGs	NO
Ind. 5	Content	Heading includes keyword: SDGs	YES
Ind. 6		Keyword appears throughout text: SDGs	YES
Ind. 7		Subheadings (H2, H3, etc.) include keywords: SDGs	YES
Ind. 8		An image is included in the text	YES
Ind. 9		Text is at least 300 words long	YES
Ind. 10	Internally and externally linked	Page includes categories related to SDGs	NO
Ind. 11		Page includes tags related to SDGs	YES
Ind. 12		Page text contains internal links	NO
Ind. 13		Page text contains external links	NO
Ind. 14	Off-page SEO	Page receives external links (backlinks)	YES
Ind. 15		Number of backlinks received	15
Ind. 16		Number of reference domains linked to this page	7
Ind. 17	Technical SEO	The page has a responsive version	YES
Ind. 18		The page has a good loading speed (desktop and mobile) – data obtained using Google Page Speed	Desktop: YES (score: 65) Mobile: NO (score: 41)
Ind. 19		Page uses schema.org semantic markup	YES
Ind. 20		Other types of semantic markup	WpHeader. SiteNavigationElement, CreativeWork

The website analysed applies 17 of the 20 indicators identified, thereby confirming that the application of SEO techniques has helped “ods.uam.es” to improve its positioning for queries related to SDGs and also to achieve good ranking positions.

Finally, we sought to identify which keywords (i.e. what type of queries formulated in the search engine) universities are positioned for. Figure 11 shows a list of the ten main keywords and their frequency for positioning Spanish universities (Figure 11(a)) and international universities (Figure 11(b)).

The two lists reveal some striking differences between Spanish and international universities, in keeping with the results observed previously in Figure 4 (lower volume of keywords for Spanish universities). The keywords of Spanish universities have a higher frequency and are made up of a combination of just a few terms. On the other hand, for international universities the frequency is lower, resulting in a “long tail” of much more specific keywords combining several terms. Moreover, specific questions are formulated with the use of interrogative words.

5. Discussion

As institutions of knowledge and content generation, universities play an important role in the 2030 Agenda and the implementation of the SDGs (Leal Filho, 2020). The positioning of the content they create related to this topic is, therefore, worthy of study. The analysis of their Web visibility in this study constitutes an original contribution to research in this field, as although communication – specifically, online communication – is identified by the European Sustainable Development Network as key to the Agenda’s implementation (Mulholland *et al.*, 2017; Mulholland, 2019), no previous studies have referred explicitly to web visibility.

In general terms, the results of this research reveal that although universities are content creators, they are not prominent in search engine results for queries seeking general information on the 2030 Agenda and SDGs. This situation is not unique to Spanish universities, as the pattern is very similar for the international universities at the top of the *THE* Ranking. Of the 98 universities analysed, only four stand out for their high number of hits: UAM, Harvard University, Universidad Carlos III de Madrid and Universidad Politécnica de Madrid. The rest of the universities analysed have fewer than 100 web pages positioned in the search results and 30.6% of the universities analysed have no web pages in the results at all. To ensure that the tool used in this study (SEMrush) had not produced

Keyword	Freq. ▾	Keyword	Freq. ▾
ods en la universidad	34	un sdg	5
master ods	28	un sdg goals	5
actividades ods	13	what is un sustainable development goals	4
ods voluntariado	13	united nations sustainable development goals	4
ods 10	12	sdgs	4
ods 2013	12	sustainable development goals	4
declaración de los objetivos de desarrollo sostenible	11	who sustainable development goals	4
objetivos de desarrollo sostenible ods	11	what is sustainable development goals	4
logo ods	10	un sustainable development goals	4
que es odm y ods	10	un sdgs	4

Figure 11.
Top ten keywords for
positioning
universities: (a)
Spanish universities
(left); (b) international
universities (right)

skewed results, the Sistrix platform was also applied. The results obtained with the two platforms were similar, as reflected in [Table A1](#) in the [Appendix](#).

The analysis of international universities (most of which are American, British or Australian) confirms that there are no substantial differences between international and Spanish universities. However, it is striking that the top universities in the *Impact Rankings 2021 (THE-SDGs)* did not obtain the best results, as only one of them was positioned among the top ten and even that university was only in tenth place. This finding confirms the suggestion that universities have limited Web visibility in this area, despite the fact that they have integrated the SDG philosophy into their institutional strategies.

The poor Web visibility of universities in relation to the SDGs confirmed in this study may be due to two factors:

- (1) universities produce largely academic content focusing much more on research than on education or outreach; and
- (2) the general public is interested in the issues addressed by the SDGs but is not familiar with the specific terminology used to designate them.

Finally, the various findings of this study point to some best practices that could help improve the Web visibility of universities in relation to the SDGs:

- Establish a specific subdomain to centralise content on SDGs (e.g. <https://ods.uam.es/>).
- Facilitate the indexing of content by search engines, given that a positive correlation has been demonstrated between the two variables. The Google Search Console tool could be used to facilitate this process.
- Apply SEO techniques to optimise the website for search engines.
- Establish a strategy for receiving links from the university itself and from other institutions.
- Analyse the keywords used to access content.
- Create content that would help give visibility to the actions taken by the university (e.g. SDGs – RMIT University).

6. Conclusions

This section offers a review of the objectives of the study, as well as identifying its limitations and possible future lines of research.

In relation to the first objective, this study has determined the Web visibility of Spanish universities and the group of international universities analysed in relation to the SDG concept and the 2030 Agenda. It is clear that the Web visibility of universities has room for improvement. The dissemination of information by universities has been significant, especially Spanish public universities; however, with a few exceptions this has not had an impact on the number of keywords in search queries or on boosting their positioning in SERPs.

Based on the information obtained, a ranking was established of the universities with the highest levels of Web visibility in relation to the 2030 Agenda and the SDGs. Three aspects of this ranking are worth noting:

- (1) the high levels of web visibility of universities in Madrid compared to other parts of Spain;
- (2) the limited or non-existent dissemination of information by private Spanish universities; and

-
- (3) the generally low level of visibility of the most prestigious international universities

This last point responds to the study's second objective, as it confirms that Spanish universities are not an exception, as international universities have equally poor Web visibility in relation to the SDGs.

The third objective involved the identification of the factors behind the Web positioning of the best-positioned website (ods.uam.es). A qualitative analysis was conducted, finding that it met 17 of the 20 indicators established. This confirms the application of a good SEO strategy that has facilitated the positioning of more web pages in search engine results for a bigger number of keywords (search engine queries). Of course, analysing a single URL has limitations, as it does not permit generalisations. However, the sole purpose of examining this website was to confirm whether, in this context, there is also a direct correlation between the use of SEO techniques and the Web visibility of universities.

Another limitation of the study is the fact that the data presented cannot be considered conclusive but merely indicative of certain tendencies, as it is essentially an exploratory study aimed at drawing a few general conclusions. Finally, it is important to bear in mind that this research analyses SDGs in general without considering each of them individually.

This study could serve as a foundation for future lines of research, as the snapshot offered here of the Web visibility of the 2030 Agenda and the SDGs on Spanish university websites could be expanded to include more international universities beyond those included in this study. This would make it possible to compile a global ranking on the dissemination of the SDGs that could have significant social and informational implications, while also complementing the *THE-SDGs* Ranking. Another aspect worth analysing is the visibility of each of the 17 SDGs, or of those that receive more attention in the academic sphere, to develop a clearer picture of the role that universities are playing in the implementation of the 2030 Agenda.

Note

1. Data from StatCounter GlobalStats <https://gs.statcounter.com/search-engine-market-share> (accessed 3 July 2021).

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Appendix

Control test: The results obtained with the two platforms, SEMrush and Sistrix, for the three terms related to SDGs are aligned, although they cannot match completely because each platform has its own database. The data were collected on 31 August 2021.

Terms	UAM		Oxford University		Table A1. Control test: UAM (uam.es) versus Oxford University (ox.ac.uk)
	SEMrush	Sistrix	SEMrush	Sistrix	
2030 Agenda	61	62	0	0	
SDGs	5	1	3	0	
SDG	128	187	8	6	

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