

ORIGINAL

## Scientometrics study of country branding and its contribution to sustainable development in nations

### Estudio cienciométrico de la marca país y su contribución al desarrollo sostenible de las naciones

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Cite as: Duque ÁA, Álvarez-Herranz A, Marinao-Artigas E. Scientometrics study of country branding and its contribution to sustainable development in nations. Data and Metadata 2023;2:163. <https://doi.org/10.56294/dm2023163>.

Submitted: 18-09-2023

Revised: 02-11-2023

Accepted: 29-12-2023

Published: 30-12-2023

Editor: Prof. Dr. Javier González Argote 

#### ABSTRACT

The main economic powers are focusing on a sustainable economic recovery following the crises triggered by systemic risks. In this context of global renewal, the opportunity arises to promote long-term collective goals and avoid unsustainable setbacks in the social, economic, and environmental realms. This article aims to conduct a critical analysis of the scientific production on country branding and its contribution to sustainable development. From 1991 to 2023, there is an interesting scientific contribution from researchers worldwide, although the years 2022 and 2023 lack production. Through scientometrics analysis using data from Web of Science (JCR and ESCI), 103 articles were identified in the knowledge categories “Country Brand” and “Sustainable Development.” Laws such as Price, Zipf, Lotka, Bradford, and the Hirsch index were applied. The results reveal contributions from authors and institutions at a global level, highlighting the international relevance of the subject. Global precedents in country branding research are emphasized, aiming to establish a connection between this field and the sustainable development of nations. With this article, the authors seek to rekindle interest in this theme, promoting a comprehensive approach to the sustainable future of nations.

**Keywords:** Country Brand; Sustainable Development; Brand Image; Brand Value.

#### RESUMEN

Las principales potencias económicas están centrando sus esfuerzos en una recuperación económica sostenible tras las crisis desencadenadas por riesgos sistémicos. En este contexto de renovación global, surge la oportunidad de promover metas colectivas a largo plazo y evitar retrocesos insostenibles en los ámbitos social, económico y ambiental. Este artículo tiene como objetivo realizar un análisis crítico de la producción científica sobre el branding de países y su contribución al desarrollo sostenible. Desde 1991 hasta 2023, hay una interesante contribución científica de investigadores de todo el mundo, aunque los años 2022 y 2023 carecen de producción. A través del análisis cienciométrico utilizando datos de Web of Science (JCR y ESCI), se identificaron 103 artículos en las categorías de conocimiento “Country Brand” y “Sustainable Development”. Se aplicaron leyes como las de Price, Zipf, Lotka, Bradford y el índice de Hirsch. Los resultados revelan contribuciones de autores e instituciones a nivel mundial, destacando la relevancia internacional del tema. Se enfatizan los precedentes globales en la investigación del branding de países, con el objetivo de establecer una conexión entre este campo y el desarrollo sostenible de las naciones. Con este artículo, los autores buscan avivar el interés en este tema, promoviendo un enfoque integral hacia el futuro sostenible de las naciones.

**Palabras clave:** Marca País; Desarrollo Sostenible; Imagen de Marca; Valor De Marca.

## INTRODUCTION

The concept of a country's brand is a dynamic system comprising intricate networks of diverse concepts, interactions, and determinants, essential for its viability, sustainability, dynamism, and projective capacity.

<sup>(1)</sup> Managing a country's brand is now recognized as a complex and dynamic phenomenon. It is not merely an addition to a product but, akin to cities and countries, is a living organism requiring continuous management. <sup>(2,3)</sup>

Country Branding involves analyzing the strength of a region's country brands, providing valuable insights for tourists, students, investors, politicians, and immigrants.<sup>(4)</sup> The study of country branding for sustainable development explores the perceptions and associations that can benefit countries, similar to the positive impact consumer and corporate brands can have on choices related to tourism, residence, and investments. Consequently, this creates a globally competitive platform for countries in areas such as investments, tourism, political relations, education, and exports, showcasing proactive, responsible, and efficient country brand management.<sup>(5,6)</sup>

Within the framework of development interventions, local authorities play a crucial role in building trust with aid recipients, channeling resources efficiently to legitimize interventions over time. Entities and territories are closely linked to the 2030 Agenda and its 17 Sustainable Development Goals (SDGs), approved in 2015 by the United Nations General Assembly. Local entities play a decisive role in achieving these goals, serving as spaces where most of them materialize. While the States are the main interlocutors for SDG implementation, local entities are integral to their execution.<sup>(7,8)</sup>

The objective of this article is to critically analyze the scientific production on country branding and its contribution to sustainable development. This research, managed scientifically with global contributions, aims to establish connections between the current understanding of this sustainable industry and future research and process improvements.<sup>(9)</sup> Based on the analysis of 103 papers found in Web of Science databases, the research identifies the thematic areas dominating the current academic and scientific debate on sustainable country branding. Notably, the contributions come from institutions in the United States (26 %), the United Kingdom (12 %), Australia (10 %), China (9 %), and Spain (8 %).

This study explores the relationship between country branding and sustainability, unraveling its contribution to science. It investigates the extensive body of work relevant to country brands, incorporating science that addresses this sub-discipline of marketing, considering its impact on political, economic, social, ecological, technological, legal, and sustainable aspects.<sup>(10)</sup> Due to the increased attention on this sub-discipline, the study anticipates the emergence of high-impact research, studies, and work in dedicated journals and critical areas analyzing this field.<sup>(11)</sup> With its scientific, economic, and social growth, country branding continues to captivate researchers, encouraging ongoing exploration and knowledge creation.

## DEVELOPMENT

### The value of the Country Brand and its authenticity with sustainable development

The process of brand image development belongs to the psychology of knowledge, and thus, emotional experiences, beliefs, and values are implicit in it. Thus, that tangible product, once consumed massively to fulfill a basic need, evolved into a product capable of making a consumer feel fully identified. Country branding is a field that generates innovation and impact over time,<sup>(12)</sup> with its interesting explorations extending beyond merely presenting its work within the body of marketing knowledge. However, its current usage and importance show that it is advantageous for the concept to be epistemologically grounded in brand theory.<sup>(13,14,15)</sup>

Therefore, a country becomes a brand based on the risk it poses to claimants from its resources.<sup>(3)</sup> For this reason, many countries worldwide have recognized the importance of their nation as a brand, undertaking innovative actions and adopting new branding projects. Some countries have even proclaimed public policies to promote their nation as a brand, delegating responsibilities to special organizations tasked with maintaining these actions over time, regardless of who is in power.<sup>(16,17,18)</sup>

## METHODS

This study used a qualitative review approach to examine the relationships between Country Branding and Sustainable Development. The search was conducted in three key periods: March 2021, January 2022, and November 2023. The data used in this study were obtained through the Web of Science (WoS), focusing on the keywords "Country Brand and Sustainable Development." Subsequently, a scientometrics analysis was performed. The information was approached inductively, meaning there was no predefined guideline or categories of analysis that guided the step-by-step process. When initiating the data generation process through VOSviewer,

it was immediately identified that the theme would revolve around the concepts of country branding and sustainable development strategy.<sup>(20)</sup>

Special attention was given to the impartiality of the data used in the research documented in journals indexed in WoS, both established and emerging (ESCI), as well as those included in the Journal Citation Report (JCR). The latter are recognized for their significant global impact (Price, D.S. 1986; Garfield, E. 1987),<sup>(21,22)</sup> as several studies indicate that the results of systematic literature reviews may vary depending on the database used.

The search term used was "digital strategy," employing field tags (including title, abstract, author keywords, and plus keywords) and the proximity search operator with a space between words equal to zero (NEAR/0), ensuring a deep search of the concept {TS = (Digital NEAR/0 Strateg\*)}, resulting in 103 records in the identification phase. For the study of scientific production, Price's law,<sup>(23)</sup> was used to evaluate the annual exponential growth of published documents, based on the adjusted coefficient of determination (R<sup>2</sup>) of the trendline using Microsoft Excel.

A similar approach was taken to verify the interest of the scientific community in the advancement of research on a topic. Applying Lotka's law to authors helped identify the most prolific group of authors and study them separately from other authors with a smaller number of articles, based on the unevenly distributed scientific production among authors.<sup>(24)</sup> To observe how some documents in this set serve as the basis for creating new knowledge (subsequent documents), Hirsch's index (h-index) was used, specifying a set of "n" documents with "n" or more citations.<sup>(25)</sup> The analysis of scientific production areas concluded with the use of Zipf's law,<sup>(26)</sup> determining the most-used keywords in a set of documents, estimated using the square root of the total number of keywords, and complementarily adjusting the power law, verified with the coefficient of determination (R<sup>2</sup>).

## RESULTS

Between 1996 and 2023, a total of 103 articles were published, with 2022 and 2023 showing no relevant production. However, scientific production per year on the variables Country Brand and Sustainable Development only took off in 2007, reaching its peak in 2019, showing good results (R<sup>2</sup> of approximately 52 %). Therefore, studies on the concept of country brand and sustainable development had a critical mass of researchers worldwide, indicating an interest in expanding the body of knowledge related to digital strategies. Although in the period from 1996 to 2006, only 5 articles were registered, graph 2 shows how the total number of articles studied fits an annual exponential growth with an R<sup>2</sup> of 90 %, highlighting the year 2015 with 24 articles. However, the productions addressing the country brand and its contribution to sustainable development in nations exhibit their highest production in 2019 with 41 published articles, decreasing to 34 articles for the year 2020 (see figure 1).

### Result of the Increase in Scientific Production in the World of branding and its contributions to sustainable development

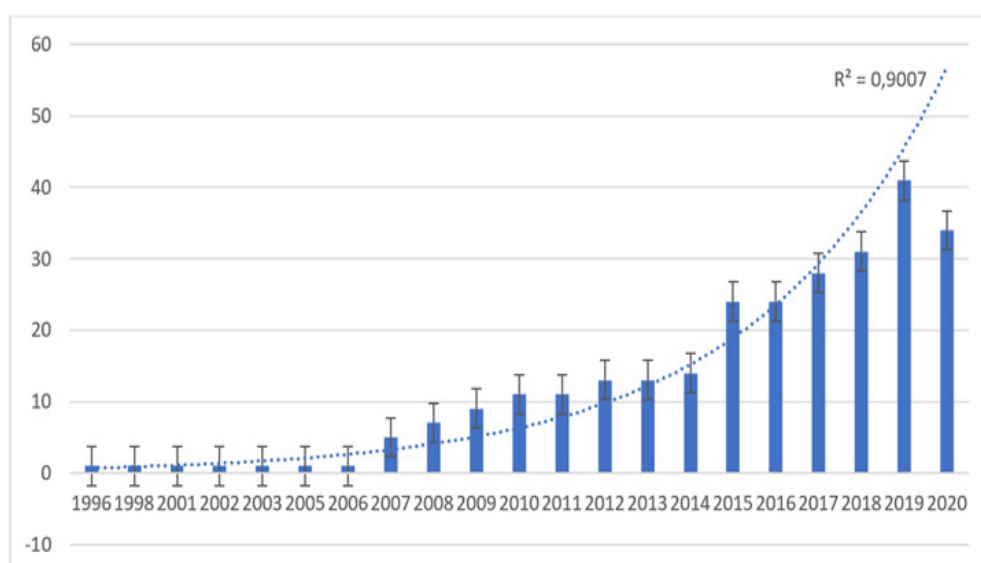


Figure 1. Increase in scientific production

Results of relevant countries in Country Brand research and how they contribute to sustainable development

Scientific articles stem from 50 countries, detailed in table 1. The top 10 contributors hold 77,5 % of the total 294 research papers. The USA leads with 115 articles, followed by Canada, Chile, and Turkey, each with 8. A notable gap emerges between the USA and China, the latter securing the second position with 56 articles—half of the USA's contribution. Despite the USA and China's high production, England stands out for its superior impact per study in terms of citations (refer to Table 1).

Table 1. Relevant countries in Country Brand research and their contribution to sustainable development					
N°	Country	Documents	Citations	% of contribution	No. Of citations per doc.
1	USA	115	4325	26,6	37,6
2	Peoples r China	56	1467	13,0	26,9
3	Spain	41	758	9,5	18,49
4	Australia	31	1052	7,2	34
5	South Korea	25	969	5,8	38,76
6	Taiwán	23	590	5,3	26
7	England	20	1063	4,6	53,15
8	Canadá	8	172	1,9	21,5
9	Chile	8	251	1,9	31,37
10	Turkey	8	174	1,9	21,75

Figure 2 depicts global research networks, with the USA leading, connecting 22 countries via 115 articles, while Australia links with 15 countries, 5 independents of the USA network. China and South Korea each establish networks with 9 countries, and Spain is linked to 8 countries. Taiwan stands out, linked to 5 countries, notably Vietnam. Notably, 8 countries lack external research networks (see Figure 2).

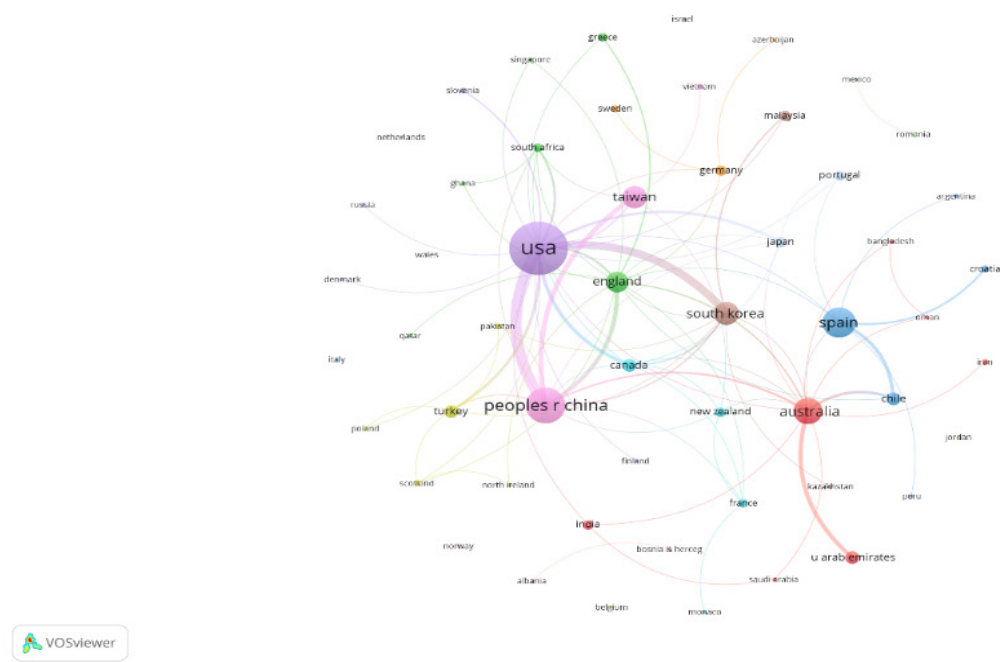


Figure 2. Researcher networks by country

In reference to the researcher networks by country, in the period from 1996 to 2020, figure 3 highlights five networks:

- The 2009 network constituted by USA with Slovenia and Denmark.
- In 2011, a network of 3 countries was created that were part of the group of 8 countries without external researcher networks. These countries are Israel, Belgium, and Norway.
- In 2013 the one created by USA with Australia and India.

- In 2019 the one established by Australia and the Union of Arab Emirates.
- The one composed by Spain with Argentina and Peru in 2020.

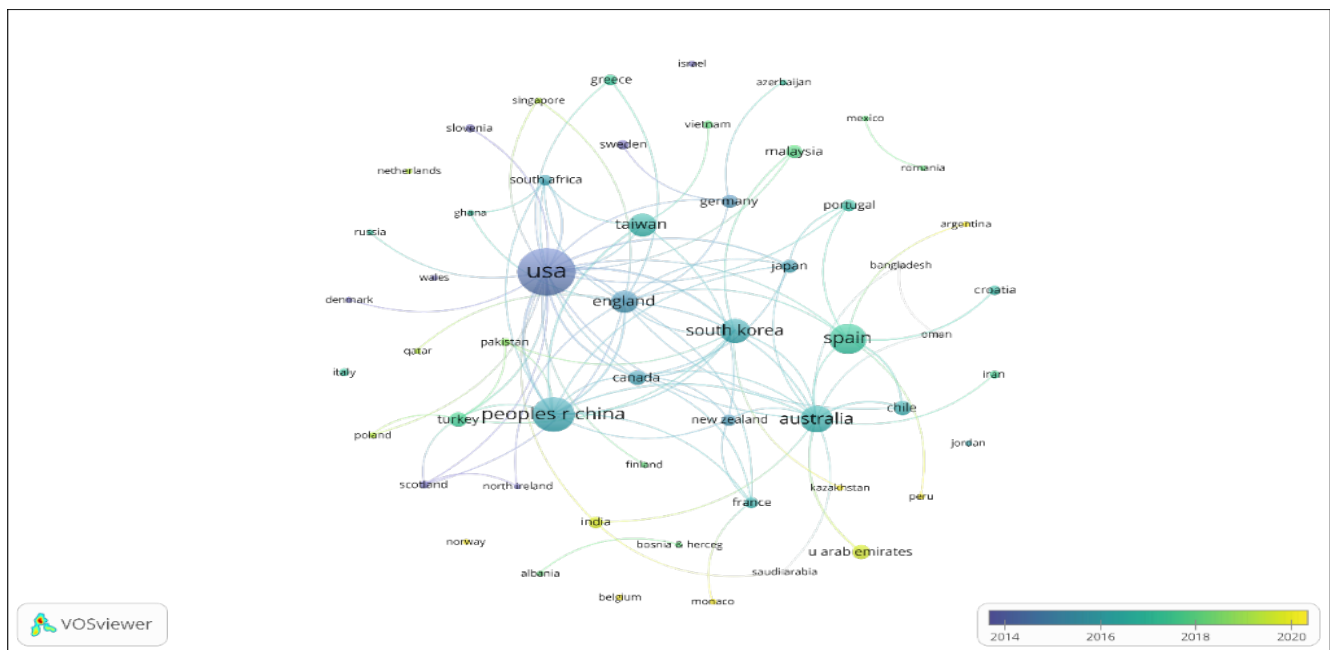
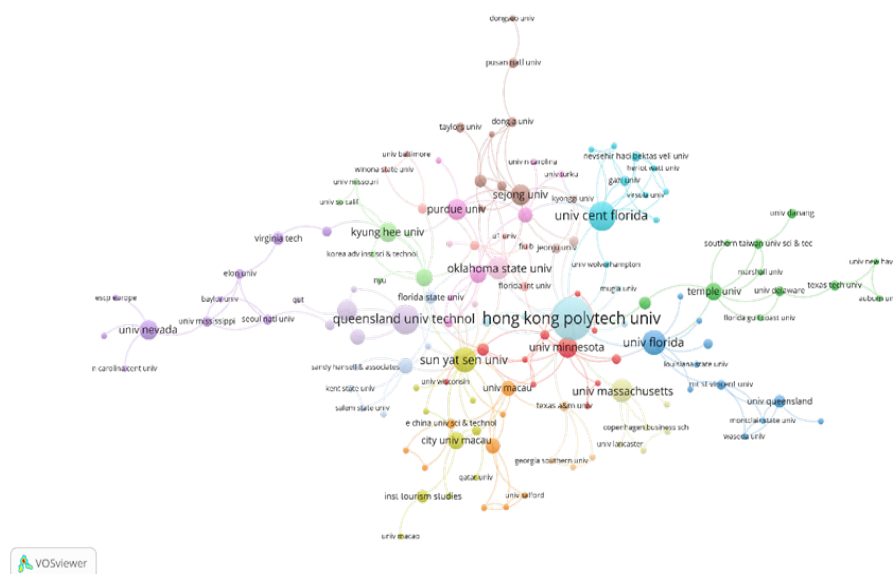


Figure 3. Researcher networks by country and year

Scientific articles span 331 global organizations, with Hong Kong Polytech University contributing significantly (23 articles). In country-wise analysis, Hong Kong Polytech, part of China, secures the second spot with 41 % of China's total output. Notably, Oklahoma State Univ. and Univ. of Massachusetts lead in citations per document (Table 3).

N°	Organization	Documents	Citations	No. of citations per doc.
1	Hong Kong Polytech Univ.	23	907	39,4
2	Queensland Univ. techno	12	562	46,8
3	Univ. Cent Florida	12	306	25,5
4	Univ. Granada	12	121	10,1
5	Sun Yat Sen Univ.	9	218	24,2
6	Univ. Florida	9	376	41,8
7	Oklahoma State Univ.	8	524	65,5
8	Univ. Massachusetts	8	507	63,4
9	Univ. Valencia	8	165	20,6
10	Purdue Univ.	7	202	28,9

Among the 331 organizations in the field, 137 are interconnected, forming 18 clusters with varying memberships. Hong Kong Polytechnic University leads with 15 connections, including institutions like University of Florida, University of Minnesota, and University of Massachusetts, as depicted in figure 3.



**Figure 3.** Research co-authorship network, level of organizations

## Results of the network of prolific authors of scientific production on Country Brand and its contribution to sustainable development

For the total of 610 authors who contributed to the 294 articles, 68 prolific authors were estimated (square root = 610), and 35 authors with at least 3 publications were chosen, see table 3.

**Table 3.** Relevant authors in country branding research

N°	Author	Documents	N° Citations	% Citas por Doc.	Ranking of most cited authors
1	Pike, Steven	12	733	61,1	3
2	Tasci, Asli d. a.	8	160	20,0	23
3	Wong, Ipkin Anthony	8	113	14,1	29
4	Liu, Chih-Hsing	7	179	25,6	18
5	Del Barrio-García, Salvador	6	30	5,0	33
6	Gil-Saura, Irene	6	133	22,2	21
7	Gómez, Mar	6	249	41,5	9
8	Jang, Soocheong (Shawn)	6	159	26,5	16
9	Kotsi, Filareti	6	34	5,7	32
10	Molina, Arturo	6	249	41,5	10
11	Bianchi, Constanza	5	206	41,2	11
12	Seric, Maja	5	125	25,0	19
13	Dedeoğlu, Bekir Bora	4	135	33,8	12
14	Kim, Seongseop (Sam)	4	73	18,3	24
15	Qu, Hailin	4	103	25,8	17
16	Alcántara-Pilar, Juan Miguel	3	23	7,7	31
17	Assaf, A. George	3	125	41,7	8
18	Gartner, William C.	3	492	164,0	1
19	Gladden, Jm.	3	338	112,7	2
20	Herrero, Angel	3	50	16,7	25
21	Hsu, Cathy H. C.	3	126	42,0	7
22	Hyun, Sunghyup Sean	3	144	48,0	5
23	Jensen, Jonathan A.	3	38	12,7	30



24	King, Ceridwyn	3	179	59,7	4
25	Liu, Chih-Hsing Sam	3	73	24,3	20
26	Liu, Chyong-Ru	3	49	16,3	27
27	Mattila, Anna S	3	82	27,3	15
28	Oh, Haemoon	3	139	46,3	6
29	Okumus, Fevzi	3	45	15,0	28
30	San Martín, Héctor	3	50	16,7	26
31	Seo, Soobin	3	12	4,0	34
32	Stepchenkova, Svetlana	3	91	30,3	13
33	Tsai, Henry	3	87	29,0	14
34	Wang, Di	3	2	0,7	35
35	Yoshida, mMsayuki	3	65	21,7	22

Observing prolific authors, notable figures include Steven Pike (University of Queensland, Australia), Asli Tasci (Mugla University, Turkey; University of Florida, USA), IpKin Wong (University of Macau, China), and Chih-Hsing Liu (National Taiwan University, Taiwan; Huaqiao University, China). Noteworthy is William Gartner (University of Minnesota, USA) with 492 citations despite having 3 publications. Top authors in terms of citations per document are William C. Gartner, Jm. Gladden, Steven Pike, Ceridwyn King, and Sunghyup Sean Hyun.

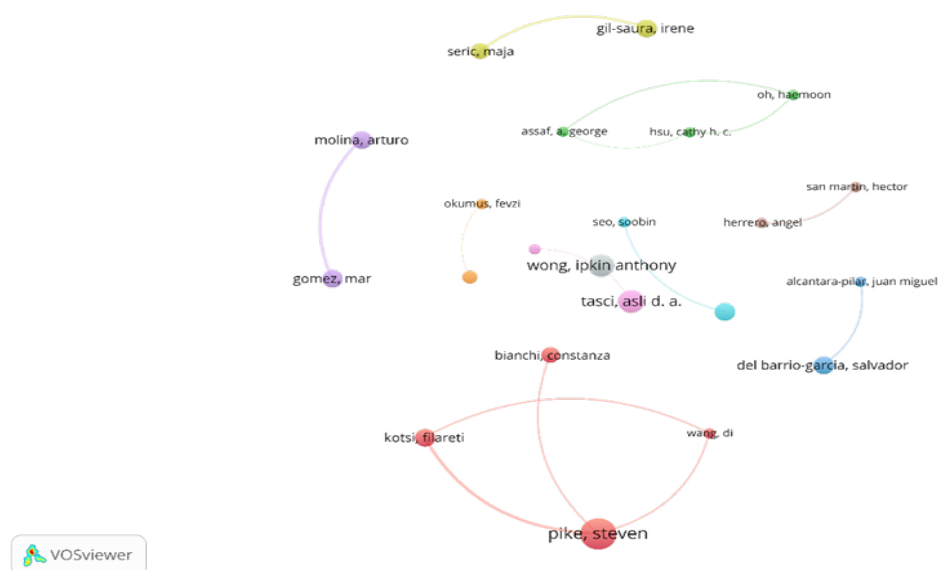


Figure 4. Country brand research co-authorship network, author level

### Results of research topics within the Country Brand

Examining Country Brand research topics through WoS's designated keywords, a set of 702 words is analyzed. Applying Zipf's law, 26 words with 15 repetitions form thematic spheres. Figure 5, using VOSviewer, depicts 26 consistently connected words. The Brand Equity theme dominates, surrounded by themes like loyalty, satisfaction, model, image, impact, and quality. Distant from Brand Equity are conceptual-framework, antecedents, information, tourism destination, and Equity. Yellow spheres highlight these themes on the map.

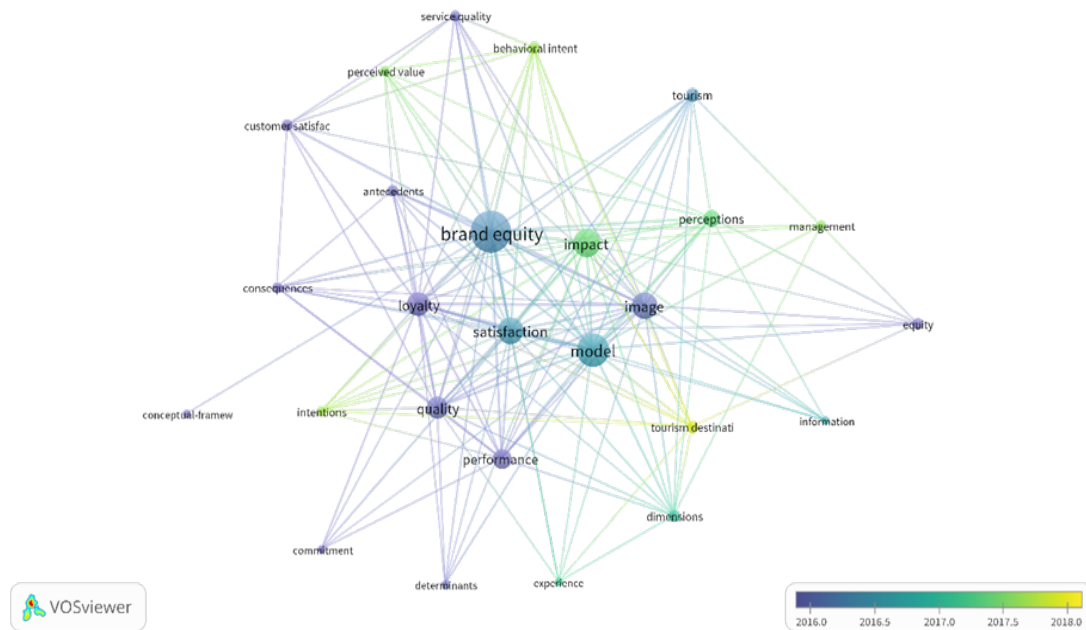


Figure 5. Thematic heat map based on "keywords plus"

## DISCUSSION

The 2023 Sustainable Development Goals (SDGs) Report, based on current data, highlights the destructive effects of current crises on the achievement of SDGs. In this context, the world is facing the highest number of conflicts since the establishment of the United Nations, impacting approximately 2 billion people in conflict-affected countries.<sup>(27)</sup> Scientometrics data analysis reveals that to attain the SDGs by 2030, it is crucial to align strategies, policies, and actions at all levels of governance, from international to local (vertical policy coherence). This alignment must address the three mentioned dimensions (economic, social, environmental). It is imperative for countries to identify, understand, and address synergies and conflicts between policy areas and the SDGs.<sup>(28)</sup> The integration of SDGs into the subnational agenda is crucial, but few countries have aligned their local plans with national ones, posing a significant challenge.

Current literature emphasizes the pivotal role national governments play in the urbanization processes of countries, creating an enabling environment for local government action and enabling more efficient and sustainable city operations.<sup>(28)</sup> These primary findings serve as a foundation for further research, showcasing strategies such as a country's image, considering aspects like geography, history, art, music, famous citizens, product brands, stereotypes, and other factors.<sup>(29)</sup> Country Branding, primarily driven by economic factors, aims to increase a country's exports and attract tourists and foreign direct investments.<sup>(30)</sup>

## CONCLUSIONS

The research addressed in this article provides a comprehensive perspective on the period 1996-2023, outlining global efforts for its implementation. We highlight advancements and outline crucial future actions to prevent national lags. The presented evidence will address research gaps impacting a nation's capacity to contribute to resource sustainability, with implications for climate change. This phenomenon acts as a "crisis multiplier," exacerbating heatwaves, droughts, and floods affecting billions and contributing to global poverty. The COVID-19 pandemic and armed conflicts have postponed the transition to sustainable economies. Literary findings point to political factors, prompting prospective research. These tools, for constructing new research avenues, could enhance the ability to contribute to sustainable development. Furthermore, they open the possibility of restoring international credibility, increasing political influence, and strengthening national partnerships. This bibliometric analysis reveals substantial growth in quantity, quality, and thematic maturity of scientific production on country branding and its link to sustainable development, reaching a significant critical mass.



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## FINANCING

This research was not funded.

## CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

## AUTHORSHIP CONTRIBUTION

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*Data curation:* Ángel Acevedo-Duque.

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