



Article

## Ranking of EU Countries According to Socio-Economic Tourism Indicators Using the PROMETHEE-GAIA Method

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**Abstract:** The aim of this paper is to conduct a comparative analysis of the 27 member states of the European Union through the lens of the socio-economic pillar of tourism, using the PROMETHEE-GAIA multi-criteria decision-making method. The socio-economic pillar, as part of the broader framework of sustainable tourism, includes indicators that measure the impact of tourism on the economy, employment, and social cohesion, while simultaneously identifying potential vulnerabilities within the sector. Using reliable and publicly available data from the EU Tourism Dashboard for the period 2019–2023, EU countries were ranked according to their performance based on defined criteria. The results of the analysis provide insight into the socio-economic strengths and weaknesses of these countries and enable monitoring of progress or stagnation over the observed period. These findings can serve as a basis for policymaking and strategic tourism development planning. The PROMETHEE-GAIA method has proven to be an effective tool for evaluating multidimensional criteria and supporting decision-making processes in the field of sustainable tourism development.

**Keywords:** *Tourism dashboard; socio-economic pillar; EU27; PROMETHEE-GAIA; performance analysis.*

### 1. Introduction

Europe is one of the world's leading tourist destinations, striving for sustainable, adaptable, and high-quality tourism development [1]. In recent years, the European Commission has been actively engaged in collecting and providing relevant and reliable data on the tourism sector in Europe, with the aim of supporting sustainable development and improving the tourism ecosystem. The purpose of these data is to enable monitoring and fostering of the green and digital transition, as well as to strengthen the socio-economic resilience of European tourism [2]. Considering the sustainable development goals promoted by the European Union (EU), this area is analyzed in the paper.

The data represent a fundamental component of the EU Tourism Dashboard. The dashboard consists of 20 different criteria, organized into three policy pillars: the green pillar, the digital pillar, and the socio-economic pillar. The focus of this paper is the socio-economic pillar, which includes eight indicators: tourism intensity, tourism seasonality, dependence on the three most significant countries of origin, tourism diversity, average tourist expenditure, the direct economic contribution of tourism, employment share in the tourism ecosystem, and tourism enterprises by size. Based on these criteria, all 27 European Union member states were observed and ranked.

The aim of this paper is to rank EU countries and assess their socio-economic level of tourism development. The paper is structured as follows: the first section outlines the existing body of literature addressing the socio-economic pillar of the EU Tourism Dashboard; the second section

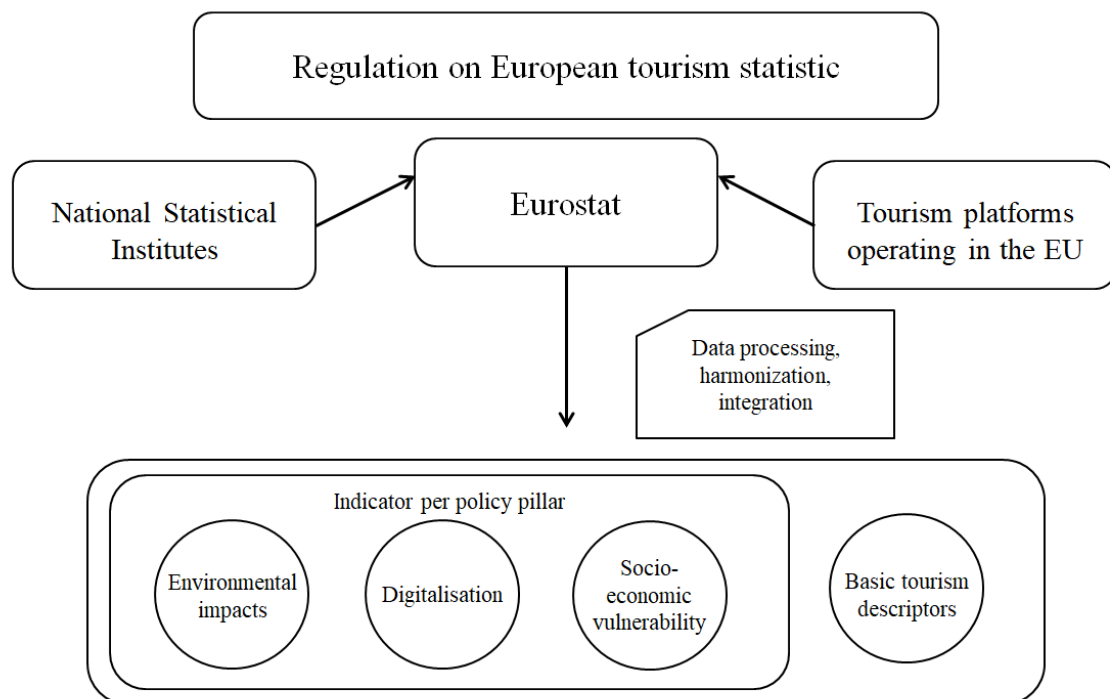
elaborates on the applied methodological framework, encompassing the analysis of eight indicators across 27 EU countries over a five-year period; and the third section presents the empirical findings, accompanied by an in-depth discussion of the results.

Owing to its natural diversity, cultural heritage, and economic significance, the EU represents one of the most prominent tourist destinations in the world. The dynamics of the EU development in the period following the adoption of the United Nations (UN) 2030 Agenda for Sustainable Development have accelerated compared to the previous period in terms of social and economic progress [3]. In the context of tourism and sustainable development, research on the EU level has moved beyond an exclusively ecological perspective in favor of a holistic view that incorporates the socio-economic dimension [4-6]. Consequently, several international initiatives have sought to establish systems of indicators and synthetic measures for assessing and monitoring tourism sustainability over time [6].

The updated EU Industrial Strategy emphasizes the need to accelerate the green and digital transitions. Through the work of the European Commission, in collaboration with EU member states and relevant international organizations, the EU Tourism Dashboard has been developed as the Union’s key tool for the tourism ecosystem [7].

The indicators of the EU Tourism Dashboard are organized into three thematic policy pillars: environmental impacts, digitalization, and socio-economic vulnerability. In addition, the dashboard includes a set of core tourism indicators that provide further context regarding the characteristics of tourism destinations in terms of demand, supply, and tourism offerings [8].

Indicators play a crucial role as they go beyond mere data records or statistical figures. They serve as measures or assessments that capture the current state of a phenomenon by quantifying its alignment with specific objectives, thresholds, or targets [9]. These indicators are indispensable for conducting meaningful analyses across different time periods and geographic areas [10].

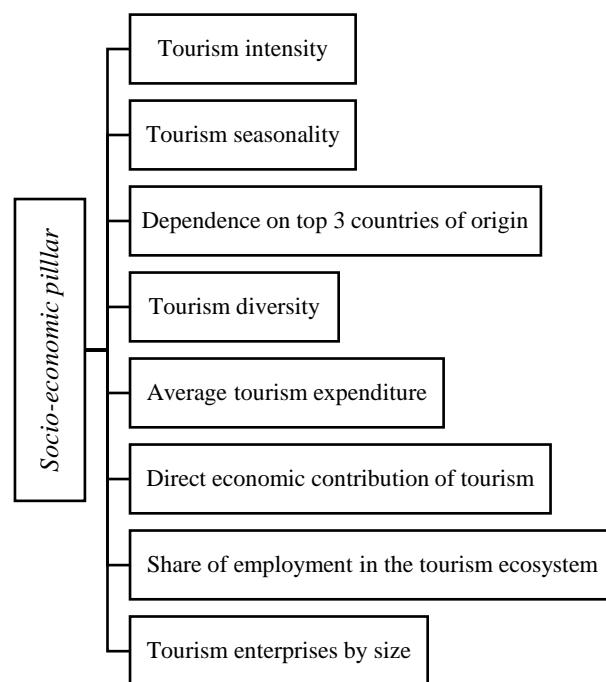


**Figure 1.** EU Tourism Dashboard structure [10].

Figure 1 provides an overview of the structure and core elements of the EU Tourism Dashboard platform. By adopting this structured framework, the dashboard aims to deliver a comprehensive and comparable set of indicators, enabling the assessment of tourism dynamics and facilitating informed decision-making in the tourism sector [10].

Given that this is a new digital platform offering access to an extensive and regularly updated set of quantitative indicators relevant to the tourism sector at the EU level, research on the tourism ecosystem that incorporates the dashboard’s indicators has been on the rise. Authors such as Streimikiene address this topic by analyzing the concept, indicators, and framework for assessing sustainability in tourism, applying a developmental framework in the Visegrad Group countries (Czech Republic, Hungary, Poland, and Slovakia) [11]. Pantović et al. examine the core indicators of the digital pillar in Western and Central European countries [2]. The EU Tourism Dashboard enables systematic monitoring of key trends, thereby serving as a valuable tool for empirical research on the dynamic aspects of tourism, the formulation of evidence-based policy recommendations, and strategic planning in the tourism sector. Galasso et al. in their publication focus on the use of such data to analyze and enhance the development of European destinations [12].

The primary objective of the green pillar is to monitor progress toward greener and more sustainable tourism, while the digital pillar tracks the level of digital transformation within the tourism sector. The socio-economic pillar of the EU Tourism Dashboard focuses on understanding and strengthening the resilience of the tourism sector. Its aim is to provide a clear picture of the socio-economic impact of tourism, including its contribution to the economy, employment, and local communities, while at the same time highlighting potential vulnerabilities. By analyzing a range of indicators, the dashboard helps identify areas where additional measures are needed to ensure a sustainable and resilient tourism ecosystem [7]. A concise overview of the aforementioned indicators and the model for further research is presented in Figure 2.



**Figure 2.** The socio-economic pillar of the tourism ecosystem.

Inappropriate indicators and assessment methodologies represent a significant challenge in the research process, with Castro et al. emphasizing the added value that digitalization brings to achieving sustainable development goals, particularly through new data sources [13]. The authors employ a range of databases in their research, which have been enabled and facilitated by advances in digitalization. Punzo et al. identify the economic, ecological, and social dimensions as the three main interrelated aspects of tourism sustainability, through the construction and validation of a composite sustainability indicator, the Sustainable Tourism Index (SusTour-Index) [14]. Cesarini & Terraglia specifically analyzed sustainable tourism indicators for 27 EU countries. The results of their analysis highlighted substantial differences among destinations with respect to the examined indicators, underscoring variations in sustainability profiles and performance within the tourism sector [10]. Ruggieri & Platania relying on the new EU industrial ecosystem model, examined

interdependencies between tourism and other industrial sectors in four EU countries, pointing to their interconnectedness and vulnerability in the face of tourism-related crises [15].

The analysis of destination development in Europe has become a highly relevant topic in tourism research [16,17]. Based on the aforementioned indicators (Figure 2), EU countries were analyzed and ranked, providing insights into their socio-economic strengths and vulnerabilities and allowing for the monitoring of progress or stagnation over the observed five-year period.

## 2. Materials and Methods

Empirical evidence on the ranking of countries in terms of economic and tourism performance constitutes the starting point of this study. Fedajev employed multi-criteria analysis to examine the business environment of transition countries, enabling both comparative assessments and an investigation of correlations between business environment quality and developmental performance [18]. Lakićević & Durkalić used the PROMETHEE method to measure and evaluate tourism performance at the EU country level [1]. Antanasijević et al. applied the PROMETHEE method to assess the progress of tourism sustainability in European countries during the 2004-2014 period [19]. Similarly, Ranjan et al. applied the PROMETHEE method to quantify the tourism potential of 29 Indian states [20]. Ilić utilized the PROMETHEE-GAIA method to rank different types of tourism accommodation facilities in Serbia with the highest number of domestic and foreign arrivals and overnight stays in 2015 [21]. The present study adopts a methodology similar to that of Durkalić et al., who applied the PROMETHEE-GAIA method to rank the performance of tourism markets in the European Monetary Union (EMU) countries [17].

The indicators developed for the EU Tourism Dashboard were constructed based on data and statistics collected from available reliable sources, providing the highest possible territorial and thematic detail. Eurostat serves as the primary source of statistical data used in this study.

This analysis includes the EU member states identified by the following two-letter codes: Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (EL), Hungary (HU), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Poland (PL), Portugal (PO), Romania (RO), Slovakia (SK), Slovenia (SI), Spain (ES), and Sweden (SE).

The variables (indicators) used in the analysis are as follows: Tourism Intensity (TI), Tourism Seasonality (TS), Dependence on the Three Main Source Countries (DOT3C), Tourism Diversity (TD), Average Tourist Expenditure (ATE), Direct Economic Contribution of Tourism (DEC), Share of Employment in the Tourism Ecosystem (SOE), and Tourism Enterprises by Size – Micro (TEMC), Small (TESM), Medium (TEME), Large (TELA). Rankings were performed for five observed years: 2019, 2020, 2021, 2022, and 2023.

The PROMETHEE-GAIA methodology offers a framework for comparative analysis, developed by the Canadian company Visual Decision [22]. Within the Visual PROMETHEE software used in this study, PROMETHEE provides quantitative results, while GAIA assists in their interpretation. As a suitable method for solving multi-criteria problems, the PROMETHEE methodology aims to rank a final set of alternatives based on criteria that should either be maximized or minimized.

Multi-Criteria Decision-Making (MCDM) methods enable the sequential sorting, selection, and classification of alternatives, producing results that are widely applied in comparative analyses [23].

The PROMETHEE method begins with the following decision (evaluation) matrix [17, 20]:

$$\begin{bmatrix} g_1(a_1) & g_2(a_1) & \dots & g_j(a_1) & \dots & g_n(a_1) \\ g_1(a_2) & g_2(a_2) & \dots & g_j(a_2) & \dots & g_n(a_2) \\ \dots & \dots & \dots & \dots & \dots & \dots \\ g_1(a_i) & g_2(a_i) & \dots & g_j(a_i) & \dots & g_n(a_i) \\ \dots & \dots & \dots & \dots & \dots & \dots \\ g_1(a_m) & g_2(a_m) & \dots & g_j(a_m) & \dots & g_n(a_m) \end{bmatrix} \quad (1)$$

where  $g_j(a_i)$  represents the performance of the  $i^{\text{th}}$  alternative according to the  $j^{\text{th}}$  criterion,  $m$  is the number of alternatives, and  $n$  is the number of criteria.

The use of the PROMETHEE method requires the definition of an appropriate preference function and the assignment of weights to each input variable [17]. In this method, one of six types of preference functions can be selected, each of which can be described by two thresholds (Q and P). The indifference threshold (Q) represents the largest deviation that the decision-maker considers negligible, while the preference threshold (P) represents the smallest deviation considered significant for making a decision. The value of P should not be smaller than Q. The Gaussian threshold (s) represents the average value of the P and Q thresholds [17, 24-27].

In this study, the preference function assigned to the criteria is the Usual function. The weights assigned to the criteria are equal and amount to 0.09% to avoid subjective assessment of the importance of each indicator.

Regarding the classification of criteria as to be minimized or maximized, max criteria were used for positive performance aspects, while min criteria were applied for vulnerability indicators, negative externalities, or costs, as presented in Table 1.

**Table 1.** Classification of Min/Max criteria.

Criteria	Label	Min/Max	Explanation
Tourism intensity	TI	Max	High intensity affects development and positive tourism revenues
Tourism seasonality	TS	Min	Higher seasonality is associated with sector instability and vulnerability
Dependence on top 3 countries of origins	DOT3C	Min	Higher dependence implies lower market diversification
Tourism diversity	TD	Max	Greater diversity may indicate higher resilience and market attractiveness
Average tourism expenditure	ATE	Max	Higher spending per tourist means greater economic benefit
Direct economic contribution of tourism	DEC	Max	Greater contribution of tourism to GDP is positive
Share of employment in the tourism ecosystem	SOE	Max	Higher number of employees in the sector is desirable
Tourism enterprises by size - micro	TEMC	Max	More micro-enterprises may indicate local engagement and agility
Tourism enterprises by size - small	TESM	Max	More small firms contribute to development and employment
Tourism enterprises by size - medium	TEME	Max	More medium-sized firms imply stability and growth capacity
Tourism enterprises by size - large	TELA	Max	More large enterprises are associated with greater investment potential

Ranking based on preferences is the most commonly used method in multi-criteria decision-making. For each alternative, the value of the alternative is expressed in terms of preferences, which have a positive and a negative flow. Based on the calculated preferences, the net preference flow is computed, synthesizing all indicators, and based on this, the given alternative is ranked [17, 28].

The net outranking flow for each alternative can be obtained using the following equation:

$$\varphi(a) = \varphi^+(a) - \varphi^-(a) \tag{2}$$

where  $\varphi(a)$  is the net preference flow for each alternative. The value of the net preference flow ranges from -1 to 1, where the highest-ranked alternative has the largest positive net preference flow, and the lowest-ranked alternative has the largest negative net preference flow. A higher  $\varphi(a)$  value indicates a better alternative [17].

### 3. Results

The ranking results of EU countries are presented using tabular and graphical forms. Before presenting the final country rankings, an overview of the descriptive statistics of the criteria used for classification is provided.

**Table 2.** Descriptive statistics of the analyzed criteria.

Year	Statistic	TI	TS	DOT3C	TD	ATE	DEC	SOE	TEMC	TESM	TEME	TELA
2019	Min.	1.54	33	6.13	/	36.69	1.10	4.26	89.1	0.7	0.3	0.0
	Max.	22.45	73	64.27	/	154.01	11.40	19.80	98.9	8.1	2.5	0.4
	Average	7.54	42	26.14	/	81.67	4.48	9.97	96.0	2.8	1.0	0.2
	St. Dev.	5.50	9	13.98	/	36.13	2.31	3.93	2.3	1.7	0.6	0.1
2020	Min.	0.75	43	2.29	/	25.92	0.99	4.20	91.6	0.7	0.3	0.0
	Max.	10.07	86	53.01	/	117.81	6.64	18.23	98.9	6.3	1.9	0.4
	Average	3.42	55	20.67	/	59.39	2.64	8.91	96.6	2.4	0.8	0.2
	St. Dev.	2.07	9	14.77	/	24.29	1.53	3.44	1.9	1.4	0.5	0.1
2021	Min.	1.17	41	2.86	0.32	31.61	0.70	3.85	91.6	0.6	0.2	0.0
	Max.	17.75	82	55.37	0.98	124.52	10.09	19.03	99.0	6.3	2.0	0.4
	Average	4.62	55	20.07	0.73	65.94	2.82	8.97	97.1	2.1	0.8	0.1
	St. Dev.	3.47	9	15.57	0.19	24.64	2.13	3.71	2.0	1.4	0.5	0.1
2022	Min.	1.40	35	4.77	/	44.33	0.70	3.75	90.6	0.6	0.3	0.0
	Max.	23.34	73	56.33	/	175.21	12.01	18.85	99.0	7.0	2.1	0.5
	Average	6.97	44	24.62	/	86.62	4.25	9.46	96.8	2.2	0.8	0.1
	St. Dev.	4.99	8	14.30	/	32.97	2.95	4.01	2.2	1.6	0.5	0.1
2023	Min.	1.54	33	4.96	0.31	48.05	1.00	4.18	86.8	1.0	0.3	0.1
	Max.	23.87	70	56.88	0.98	182.83	12.02	18.67	98.7	10.8	2.1	0.5
	Average	7.49	42	25.19	0.73	95.01	4.62	9.47	95.4	3.6	0.8	0.2
	St. Dev.	5.34	8	13.82	0.19	34.45	2.91	3.82	2.8	2.2	0.5	0.1

Table 2 shows the descriptive statistics of the 8 analyzed criteria (indicators) over a 5-year period. It includes the minimum and maximum values, the average score of each criterion, and the standard deviation, representing the average deviation of all data from the arithmetic mean.

Table 3 provides a detailed overview of the ranking of EU countries based on net preference flow values over the five-year observation period. The country with the most consistent and highest results is Germany, which held first place in all five years (average rank 1.0). It is followed by Ireland with an average rank of 2.2. Malta, despite fluctuations in its ranking, holds an average position of 4.2, while Denmark and Latvia are also among the top-performing countries, with average ranks of 5.2 and 5.8, respectively. A graphical representation of the ranking of these five countries is shown in Figure 3.

At the opposite end of the spectrum, the three countries with the lowest net preference flow values are Croatia, the Czech Republic, and Greece. Croatia was the lowest-ranked country in 2019, 2022, and 2023, with a particularly negative  $\varphi = -0.3112$  in the last year and an average rank of 26.4. The Czech Republic has an average rank of 25.4, while Greece's average rank is 25.2. This indicates consistently weaker performance in the dimensions encompassed by the socio-economic pillar of tourism.

**Table 3.** Ranking of EU countries based on net preference flow values.

EU27	2019		2020		2021		2022		2023	
	Rank	$\varphi$	Rank	$\varphi$	Rank	$\varphi$	Rank	$\varphi$	Rank	$\varphi$
Austria (AT)	7	0.1308	12	0.0808	20	- 0.0769	5	0.1115	7	0.0594
Belgium (BE)	19	-0.1154	23	- 0.1885	18	- 0.0629	14	0.0077	18	- 0.0559
Bulgaria (BG)	21	-0.1192	22	- 0.1654	21	- 0.0909	21	-0.1077	19	- 0.0594
Croatia (HR)	27	-0.2462	25	- 0.2731	26	- 0.2797	27	-0.2577	27	- 0.3112
Cyprus (CY)	12	0.0231	9	0.1192	17	- 0.0559	11	0.0462	17	- 0.0420
Czechia (CZ)	26	-0.2346	26	- 0.3231	25	- 0.2308	25	-0.2192	25	- 0.1783
Denmark (DK)	6	0.1654	6	0.1269	4	0.1259	4	0.1346	6	0.0804
Estonia (EE)	8	0.1115	11	0.0808	11	0.0769	6	0.1000	13	0.0035
Finland (FI)	5	0.1885	3	0.1923	12	0.0594	8	0.0923	3	0.1818
France (FR)	22	-0.1423	19	- 0.0692	6	0.1189	17	-0.0500	11	0.0175
Germany (DE)	1	0.4077	1	0.4038	1	0.3776	1	0.4538	1	0.4580
Greece (EL)	25	-0.2308	24	- 0.2500	27	- 0.3357	24	-0.1962	26	- 0.2902
Hungary (HU)	13	0.0000	15	- 0.0038	19	- 0.0664	18	-0.0731	12	0.0140
Ireland (IE)	2	0.3346	2	0.2231	2	0.2622	3	0.2038	2	0.2133
Italy (IT)	20	-0.1154	18	- 0.0538	14	- 0.0455	19	-0.0769	16	- 0.0070
Latvia (LV)	4	0.2154	8	0.1192	5	0.1224	7	0.0962	5	0.1294
Lithuania (LT)	14	-0.0500	10	0.0885	7	0.1189	10	0.0462	15	- 0.0070
Luxembourg (LU)	11	0.0538	5	0.1692	10	0.0874	9	0.0538	20	- 0.0594
Malta (MT)	3	0.2538	4	0.1846	8	0.1154	2	0.2346	4	0.1469
Netherlands (NL)	18	-0.1077	20	- 0.1115	13	0.0105	22	-0.1115	21	- 0.0769
Poland (PL)	17	-0.1077	16	- 0.0385	15	- 0.0559	20	-0.1000	14	0.0035
Portugal (PO)	23	-0.1500	17	- 0.0500	24	- 0.1329	23	-0.1538	23	- 0.1259
Romania (RO)	9	0.0654	13	0.0615	9	0.0979	15	-0.0192	8	0.0524
Slovakia (SK)	15	-0.0692	21	- 0.1308	23	- 0.1259	12	0.0269	10	0.0350
Slovenia (SI)	24	-0.2192	27	- 0.3654	22	- 0.1189	26	-0.2358	24	- 0.1434
Spain (ES)	16	-0.1038	14	0.0462	16	- 0.0559	16	-0.0308	22	- 0.0804
Sweden (SE)	10	0.0615	7	0.1269	3	0.1608	13	0.0269	9	0.0420

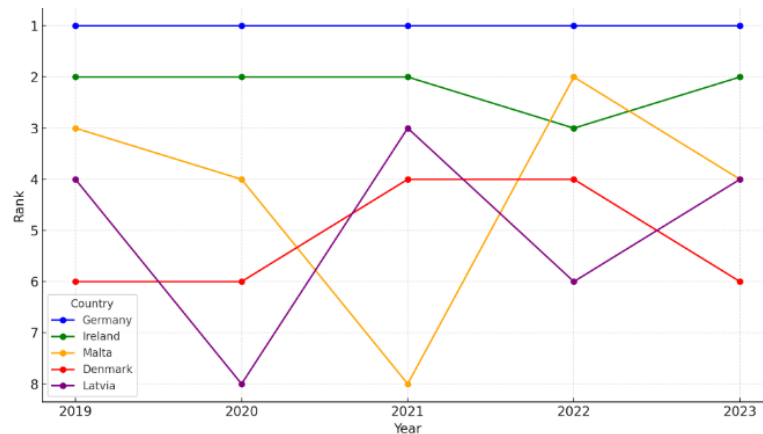


Figure 3. Graphical representation of the 5 highest-ranked countries.

Figure 3 provides insight into the consistency of Germany's results over the observed period, while the greatest fluctuations can be seen for Malta. In addition to the presented quantitative results, the GAIA diagram is also shown and explained to aid in their interpretation.



Figure 4. GAIA Diagram for 2019 and 2023.

Figure 4 presents the GAIA diagram, which visualizes the results of the multi-criteria analysis. The central element of the diagram is the decision vector (red axis), representing the compromise direction of the optimal solution within the multidimensional criteria space [29]. Countries positioned closer to this vector exhibit higher overall preferences, that is, they demonstrate more balanced performance across the analyzed criteria.

In 2019, Germany, Denmark, Luxembourg, and Latvia were located closest to the decision axis, while Estonia was almost perfectly aligned with it. This positioning indicates a high level of balance and compatibility with all criteria, which is further confirmed by their high rankings in the tabulated results.

For the most recent observed year (2023), Latvia, Bulgaria, and Germany appear most aligned with the decision vector. Denmark, Ireland, and Luxembourg are situated within the same quadrant, albeit at a greater distance from the decision vector, which may suggest overall balance with minor discrepancies across specific criteria. By contrast, Italy, Portugal, and Slovenia have consistently been positioned on the opposite side of the vector, indicating persistent misalignment with the compromise solution. With respect to the criteria, the most influential are those related to tourism seasonality and the size of tourism enterprises (TS, TESM, TEME, TELA). Their proximity to the decision vector underscores their significance in shaping the final ranking of alternatives, i.e., the countries under consideration.



#### 4. Discussion

Germany demonstrated remarkable stability in socio-economic tourism indicators, which may be linked to its substantial investments in infrastructure, sustainability, and the education sector, as well as the digitalization of tourism service providers—an aspect highlighted by other authors as well [30]. Authors Skvarciany et al. also confirm that the highest level of sustainable socio-economic development is in Germany [31].

Ireland likewise shows a consistently high position with minimal variation over the years. This performance is largely attributable to its orientation toward smart and innovative tourism development, coupled with strong regulatory support. Ireland has adopted the “Vision 2030” strategy, which aims to position the country as a leader in sustainable tourism growth [32].

Malta, although showing somewhat greater variability, remains among the top performers. Its economy’s strong reliance on tourism and its highly digitalized tourism offering contribute to its favorable ranking, although its small size makes it vulnerable to external shocks. In 2024, Malta recorded a historic 3.56 million tourist arrivals. Consistent with its performance, and in cooperation with the Organization for Economic Cooperation and Development (OECD), Malta has developed a set of 37 indicators for monitoring and managing the environmental and social impacts of tourism [33].

On the other hand, Croatia, despite being a well-known tourist destination, records poor results in this pillar. This may be attributed to high seasonality, reliance on informal employment in the shadow economy, and insufficient diversification of tourism, which is consistent with OECD findings [33]. Improving socio-economic indicators requires strategies that encourage year-round tourism, diversification of the offer, and the active involvement of local communities in sector development.

The Czech Republic ranks second to last. Its weak position can partly be explained by the strong concentration of tourism in the capital, Prague, which limits the broader socio-economic impact at the national level. Kotíková & Pavlů recommend diversification of the tourism offer to reduce dependence on the capital [34]. OECD data also point to a relatively low economic contribution of tourism.

Greece, although traditionally a strong tourist destination, also appears vulnerable in this respect. Research by Samprakos confirms the significant contribution of tourism to Greece’s economic growth but emphasizes the need for diversification in order to reduce vulnerability, which has been exacerbated by economic instability in recent years. Popular destinations such as Santorini and Mykonos face overtourism, while infrastructural challenges further undermine socio-economic indicators [35].

It is also noteworthy to observe the progress of certain countries. For example, Romania and Spain display a slight but steady increase in net preference values, while countries such as Lithuania and Slovakia show oscillations that call for further analysis of the underlying criteria structure.

This analysis confirms that the quantitative scale of tourism (e.g., number of tourists or revenues) does not guarantee high performance when the sector is evaluated through comprehensive socio-economic criteria. The key to success lies in balanced development, sustainability, regional distribution of benefits, and the integration of tourism with broader economic and social dynamics.

#### 5. Conclusions

Relying on the multi-criteria decision-making method PROMETHEE-GAIA, this study compares the performance of 27 EU member states through the lens of the socio-economic pillar of tourism. The results obtained through this method highlight pronounced differences in performance across EU countries with respect to this aspect of tourism. Rather than confirming expected narratives about “tourism leaders”, the findings suggest that competitiveness in tourism lies in the ability of countries to integrate tourism into broader socio-economic processes.

The highest-ranking countries, such as Germany, Ireland, and Malta, are not necessarily those with the largest number of tourist arrivals, but rather those that have developed resilient, inclusive, and innovative tourism systems. Conversely, the low ranking of some traditionally strong tourist

destinations, such as Croatia and Greece, points to the need for redefined strategies, with a stronger orientation toward sustainable development. The Czech Republic is also among the low-performing countries.

In conclusion, the ranking of countries should be viewed as a call to action—particularly for those lagging behind yet possessing significant potential. By strengthening institutional support, decentralizing development, and better integrating tourism into national development strategies, it is possible to achieve greater balance within the European tourism landscape.

The PROMETHEE-GAIA methodological framework has proven to be a useful tool for mapping multidimensional performance in tourism, especially when the objective is to identify relative strengths and weaknesses among countries with diverse socio-economic profiles. Its application in this context opens avenues for further research.

Nevertheless, despite its advantages, the study faces certain methodological limitations that must be acknowledged. The most notable is the assignment of equal weights to all criteria, implying that each criterion is treated as equally important. While this approach enhances neutrality and avoids subjectivity, it may overlook actual differences in the relative importance of dimensions, particularly in complex sectors such as tourism. Future research should therefore focus on methods for determining weights that better reflect real-world priorities and context-specific characteristics. In particular: (1) The Analytic Hierarchy Process (AHP) which enables the inclusion of expert judgments in weight determination, or (2) The Entropy Method which represents an objective approach based on data variability and is particularly valuable when the goal is to avoid subjectivity and rely exclusively on the structure of available information. By combining PROMETHEE-GAIA with such weighting techniques, future studies may provide more robust evaluations, thereby enhancing the academic relevance of research and further strengthening the validity and applicability of results for policymaking and strategic tourism management.

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## References

1. Lakićević, M., & Durkalić, D. (2018). Measurement of tourism market performance in EU countries: Results of PROMETHEE – GAIA approach. *Tourism International Scientific Conference Vrnjačka Banja - TISC*, 3(2), 99-116.
2. Pantović, D., Davidović, J., Milutinović, A. (2025). Analysis of the digital pillar of the tourism ecosystem of selected European countries. *XIV International Conference „Jahorina Business Forum“*, Ekonomski fakultet Univerziteta u Istočnom Sarajevu, Pale, BiH.
3. Kudelko, J. (2025). Development sustainability levels in EU countries. *Sustainable Development*, 33(2), 2797-2811.
4. Agyeiwaah E., McKercher B., & Suntiku W. (2017). Identifying core indicators of sustainable tourism: A path forward?. *Tourism Management Perspectives*, 24, 26-33. <http://dx.doi.org/10.1016/j.tmp.2017.07.005>
5. Loaiza, J. P. V., Pérez-Torres, A., & Contreras, K. M. D. (2019). Semantic icons: A sentiment analysis as a contribution to sustainable tourism. *Sustainability*, 11(17), 4655. <https://doi.org/10.3390/su11174655>
6. Giambona, F., Magrini, A., & Fusco, E. (2024). Assessing tourism sustainability in European Union countries: A multi-directional benefit of the doubt composite indicator. *Socio-Economic Planning Sciences*, 95, 102042. <https://doi.org/10.1016/j.seps.2024.102042>
7. EU Tourism Dashboard, dostupno na: <https://tourism-dashboard.ec.europa.eu/>
8. Digital meets Culture, dostupno na: [https://www.digitalmeetsculture.net/article/eu-tourism-dashboard/?upm\\_export=pdf](https://www.digitalmeetsculture.net/article/eu-tourism-dashboard/?upm_export=pdf)

9. Maggino, F. (2017). *Complexity in society: From indicators construction to their synthesis* (Vol. 70). Cham, Switzerland: Springer. <http://dx.doi.org/10.1007/978-3-319-60595-1>
10. Cesarini, S., & Terraglia, I. (2024). Evaluating Sustainable Tourism: A Composite Index for European Destinations. *Turistica-Italian Journal of Tourism*, 32(1), 93-109. <http://dx.doi.org/10.70732/tijt.v32i1.19>
11. Streimikiene, D. (2023). Sustainability assessment of tourism destinations from the lens of green digital transformations. *Journal of tourism and services*, 14(27), 283-298. <https://doi.org/10.29036/jots.v14i27.651>
12. Galasso, G., Montino, C., Sidoti, A., Mureddu, F., Peláez-Verdet, A., Cerezo-Medina, A., & Collado, A. (2022). *Study on mastering data for tourism by EU destinations*. Publications Office of the European Union. <http://dx.doi.org/10.2873/23880>
13. Castro, G. D. R., Fernandez, M. C. G., & Colsa, A. U. (2021). Unleashing the convergence amid digitalization and sustainability towards pursuing the Sustainable Development Goals (SDGs): A holistic review. *Journal of Cleaner Production*, 280, 122204. <http://dx.doi.org/10.1016/j.jclepro.2020.122204>
14. Punzo, G., Trunfio, M., Castellano, R., & Buonocore, M. (2022). A multi-modelling approach for assessing sustainable tourism. *Social Indicators Research*, 163(3), 1399-1443. <http://dx.doi.org/10.1007/s11205-022-02943-4>
15. Ruggieri, G., & Platania, M. (2024). Ecosystems Model Analysis for the eu Tourism Industry in Key eu Countries. *L'industria*, 1-24.
16. Mirčetić, V., Vukotić, S., & Cvijanović, D. (2019). The concept of business clusters and its impact on tourism business improvement. *Economics of Agriculture*, 66(3), 851-868. <http://dx.doi.org/10.5937/ekoPolj1903851M>
17. Durkalić, D., Furtula, S., & Borisavljević, K. (2019). Ranking tourism market performance in EMU countries: Results of PROMETHEE-GAIA approach. *Hotel and Tourism Management*, 7(2), 67-76. <https://doi.org/10.5937/menhottur1902067D>
18. Fedajev, A. (2015). Унапређење пословног окружења у функцији динамизирања привредног развоја земаља у транзицији: докторска дисертација [Unapređenje poslovnog okruženja u funkciji dinamiziranja privrednog razvoja zemalja u tranziciji: doktorska disertacija]. Univerzitet u Kragujevcu.
19. Antanasijević, D., Pocajt, V., Ristiš, M., & Periš-Grujiš, A. (2017). A differential multi-criteria analysis for the assessment of sustainability performance of European countries: Beyond country ranking. *Journal of Cleaner Production*, 165, 213-220. <http://dx.doi.org/10.1016/j.jclepro.2017.07.131>
20. Ranjan, R., Chatterjee, P., & Chakraborty, S. (2016). Performance evaluation of Indian states in tourism using an integrated PROMETHEEGAIA approach. *Opsearch*, 53(1), 63-84. <http://dx.doi.org/10.1007/s12597-015-0225-6>
21. Ilić, I. (2017). Ranking different types of tourist accommodation facilities in Serbia using PROMETHEE-GAIA method. *Menadžment u hotelijerstvu i turizmu*, 5(1), 28-35.
22. Brans, J. P., Mareschal, B. & Vincke, P. (1986). *How to decide with PROMETHEE GAIA Software* (pp. 1-5). Brussel: ULB and VUB Brussels Universitie, Vrije Universiteit Brussel.
23. Karahan, M., Çetintaş, F., & Karahan, M. S. (2020). Turkey and some EU Countries' economic performance analysis with multi-criteria decision making methods: promethee GAIA application. In *The International Symposium For Production Research* (pp. 584-597). Cham: Springer International Publishing. [http://dx.doi.org/10.1007/978-3-030-62784-3\\_50](http://dx.doi.org/10.1007/978-3-030-62784-3_50)
24. Brans, J. P. (1982). 'L'ingéniérie de la decision; Elaboration d'instruments d'aide à la décision. Méthode PROMETHEE' [The engineering of the decision; Development of decision support tools. PROMETHEE method]. In R. Nadeau and M. Landry (Eds.), *L'aide à la décision: Nature, Instruments et Perspectives d'Avenir*. Canada, Québec: Presses de l'Université Laval, 183-213.
25. Brans, J. P., Mareschal, B., & Vincke, P. (1984). PROMETHEE: A new family of outranking methods in multi-criteria analysis. In J. P. Brans (Ed.), *Operational Research '84*, North-Holland, Amsterdam, 447-490.
26. Brans, J. P., & Vincke, P. (1985). A preference ranking organisation method: The PROMETHEE method for MCDM. *Management Science*, 31(6), 647-656.
27. Obradović, S., Fedajev, A., & Nikolić, Đ. (2012). Analysis of business environment using the multi-criteria approach: Case of Balkan's transition economies. *Serbian Journal of Management*, 7(1), 37-52. <http://dx.doi.org/10.5937/sjm1201037O>
28. Despotović, D., & Durkalić, D. (2017). Analysis of budget deficit in the candidate countries for EU membership. *Serbian Journal of Management*, 12(2), 237-253. <http://dx.doi.org/10.5937/sjm12-14122>
29. Brans, JP., & Mareschal, B. (2005). *Promethee Methods*. In: Multiple Criteria Decision Analysis: State of the Art Surveys. International Series in Operations Research & Management Science, vol 78. Springer, New York, NY. [http://dx.doi.org/10.1007/0-387-23081-5\\_5](http://dx.doi.org/10.1007/0-387-23081-5_5)

30. Thees, H., Störmann, E., Thiele, F., & Olbrich, N. (2021). Shaping digitalization among German tourism service providers: Processes and implications. *Journal of Tourism, Heritage & Services Marketing*, 7(2), 3-15.
31. An Irish Tourism Strategy for Growth, dostupno na: <https://www.itic.ie/vision-2030/>
32. The Organisation for Economic Co-operation and Development, dostupno na: <https://www.oecd.org/>
33. Kotíková, S., & Pavlů, K. (2020). Evaluation of the Setting of the Global Promotion of the Czech Republic Destination. In *SHS Web of Conferences*, 74, 01016. EDP Sciences. <https://doi.org/10.1051/shsconf/20207401016>
34. Samprakos, S. (2024). Tourism and economic growth: an empirical analysis of Greece. *The European Research Studies Journal*, 27(3), 82-96.
35. Skvarciany, V., Jurevičienė, D., & Volskytė, G. (2020). Assessment of sustainable socioeconomic development in European Union countries. *Sustainability*, 12(5), 1986. <https://doi.org/10.3390/su12051986>



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