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Applying Hierarchical Analysis Process to Rank Tourist Destinations

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Abstract

Aim: The aim of this study was to rank the tourist regions in the province of M'sila (Algeria) according to a set of scientific criteria and prioritise improving them.

Methodology: Using the Expert Choice program (EC) through the Hierarchical Analysis Process (AHP), several interviews were conducted with experts to collect and determine the most important main and sub-criteria, and then estimate the relative importance of each criterion.

Results: The results indicated that the "Natural" criterion ranked first with 41.9%, followed by the "Historical and Civilization" criterion – 33.8%, then the "Cultural" criterion 12.7%, and finally, the "Accessibility" criterion ranked last – 11.5%.

Implications and recommendations: Based on the study results, special attention must be given to the natural sites (especially Chott El Hodna), the archaeological sites (especially the Beni Hammad Fort), the thermal springs and the necessary facilities.

Originality/value: This article presents a model based on the AHP to rank tourist areas and identify the most prominent sites.

Keywords: hierarchical analysis process, tourism components, rank tourist areas

1. Introduction

The service industry plays a major role in economic growth. Tourism contributes significantly to the global economy (Li, 2024) by creating new jobs, income sources, and revenues for many countries. Defining and distinguishing tourist destinations facilitates the assessment of the sector's economic impact (Stoffelen, 2024). The choice of tourist destinations depends on a set of criteria that help identify the most attractive and significant places for tourists, which include architecture and buildings, historical landmarks, museums, natural sites, climate, facilities, quality of roads, airports, ports, and others (Blešić et al., 2021).

The decision-making process for choosing a tourist destination requires integrating multiple complex and interrelated criteria and alternatives (Blešić et al., 2021). The AHP developed by Saaty in 1971, is a widely accepted multi-criteria decision-making tool, which enables decision-makers to model, analyse, weigh, and prioritise any complex issue (Oyatoye et al., 2018). This approach has been studied and applied especially in multicriteria decision making (Mehmood et al., 2014).

The Bousaada region in the Province of M'Sila is rich in diverse historical landmarks that reflect its ancient heritage, most notably the rock engravings indicating early human settlement, the Mosaic of Ouled Sidi Yahia dating back to the third century (Directorate of Tourism, 2022), and Beni Hamad Castle, classified as a UNESCO World Heritage Site since 1980 (UNESCO World Heritage Convention, 2025), as well as the Fererro Mill and the El Djorf Detention Center, which was used during the Algerian Liberation Revolution. Together, these landmarks form a vivid historical tapestry that highlights the region's role across different eras (Ministry of Culture, Algeria, n.d.).

In terms of Architectural Heritage, El Hamel and the Old City of Bousaada are key cultural and historical sites in the region. El Hamel is renowned for its Zawiya, a mosque distinguished by a large dome surrounded by six smaller domes, each featuring unique architectural styles reminiscent of Byzantine influences. This Zawiya has played a pivotal role in the spread of Islamic sciences in the area, while the Old City of Bousaada, famous for its bustling market that draws people from neighbouring villages, has a long-standing history as a commercial hub due to its strategic location. It served as a central meeting point for nomadic tribes and travelers, facilitating trade and cultural exchange. Historically, Bousaada was one of Algeria's major tourist destinations, attracting tourists and writers in search of inspiration and originality, and it has also been a popular filming location for many films. Together, El Hamel and the Old City of Bousaada offer a glimpse into the region's rich cultural heritage and its historical role as a centre for education, commerce, and tourism.

The region around M'sila city features diverse natural sites of ecological and well-being significance. These include the El-Markab Natural Reserve (12,500 hectares), Chott El Hodna (a Ramsar wetland), (Ramsar Sites Information Service, n.d.) the Mediterranean Forest of Jbel Messaad (1200-1600 m), and Sahoub with its sparse vegetation. Additionally, the Hamam Dalaa Springs offer therapeutic hot waters beneficial for liver, kidney, and skin ailments, while the Hammam Bel Arabi Spring contains sulfur--infused waters that alleviate joint, skin, and nerve conditions (Wilaya of M'Sila, n.d.). Together, these landmarks make M'sila a destination rich in biodiversity and wellness resources.

The province of M'sila features significant educational and religious landmarks, including the National Museum Nasr Eddine Dinet (1993), the Beni Hammad Castle Museum (1995), and the Hodna Museum (1993), which preserve artistic and archaeological heritage. Prominent mosques include the historic Sheikh Abu Jamlayn Mosque in M'sila city and several mosques in Bousaada, such as Ouled Assef and Al-Shurafa. The Zawiya of Al-Hamel, founded in 1848 by Sheikh Muhammad ibn Abi Al-Qasim Al-Hameli, remains an influential religious and educational centre located 12 km from Bousaada. All these sites reflect M'sila's dedication to preserving its religious, artistic, and educational heritage.

The most important tourist areas in the province are M'sila city, Bousaada, and Maadid, characterised by significant geographical and natural diversity. The M'sila region features the Hodna Mountains in the north and plains in the south, with a continental climate and irregular rainfall. Bousaada stands out

for its ecological diversity, combining sand dunes, pine forests, and palm groves within a semi-arid climate (Directorate of Tourism, 2022).

The Maadid region is a distinguished tourist destination with diverse archaeological sites spanning from prehistoric to modern times, most notably the Beni Hammad Fort (UNESCO World Heritage Convention, n.d.). It also features historical landmarks with local architectural character, including the mausoleum of Abi Al-Fadl Al-Nahwi and the Zawia Tijania, as well as the largest martyr cemetery in M'sila province. The region's mountainous landscape (1200-1863 m), continental climate, caves, cliffs, waterfalls, springs, and wild vegetation further enhance its tourism potential (Rahal et al., 2020).

Therefore, the following research question was posed: What is the importance of ranking tourist areas in the province of M'sila?

This question comprises a set of sub-questions:

- Does the natural criteria have a significant importance in ranking tourist areas in the province of M'sila?
- What is the level of contribution of the cultural criterion in ranking tourist areas in the province of M'sila?
- What is the priority of the historical and civilizational criterion in ranking tourist areas in the province of M'sila?
- What is the priority of the accessibility criterion in ranking tourist areas in the province of M'sila?

The study was guided by the following hypotheses:

The main hypothesis:

- The relative importance of ranking the tourist areas in the province of M'sila differs according to several criteria.

Sub-hypotheses:

- H1: The natural criterion has a significant importance in ranking the tourist areas in the province of M'sila.
- H2: The cultural criterion has a significant contribution in ranking the tourist areas in the province of M'sila.
- H3: The historical and civilizational criterion has a high priority in ranking the tourist areas in the province of M'sila.
- H4: The accessibility criterion has a high priority in ranking the tourist areas in the province of M'sila.

The objective of this study was to rank tourist areas using a multi-criteria decision-making method, specifically the AHP, to prioritise development and investment for key areas based on a set of defined criteria. This approach helps direct resources toward sites with the greatest potential to attract tourists and enhance economic growth, while preserving cultural and heritage sites and protecting them from any negative impacts.

The analytical descriptive approach was adopted to study the classification of tourist areas in the province of M'Sila, by reviewing relevant scientific sources such as books, articles, journals, and websites, in order to obtain a comprehensive knowledge base regarding the tourism potential of the region. On the application side, the Analytic Hierarchy Process (AHP) was used to collect data related to the main and sub-criteria. This included conducting in-depth interviews with experts in the tourism sector to identify these criteria based on previous studies, and to estimate their relative weights. The article concludes with a discussion of the results for an accurate assessment of the classification of tourist areas, and provides recommendations that contribute to the development of tourism in the Province, while ensuring that investments are directed towards priority sites with high attractiveness.

2. Literature Review

Efendi et al. (2019) used the hierarchical analysis method to evaluate criteria and determine priorities for the tourism development in Kota Lama Tourism Area (Surabaya, Indonesia). The results indicated that the Heritage Tourism Center model is the priority model for developing this area.

Keyvanfar et al. (2018) identified the most attractive factors for domestic tourism and to develop a model for evaluating the sustainable activation index of the coastal front using the hierarchical sequence process. The study showed that the historical coastal front has the highest potential for tourism attraction. The pollution rate was an important sub criterion in accommodating tourism, where it was given a weight of 0.1294, followed by identity at 0.1272, then safety and well-being at 0.1043.

Göksu and Kaya (2014) revealed the main criteria that affect tourists' visits to Bosnia and Herzegovina and provided a ranking of tourist destinations. Six tourist centres were analysed based on customer preferences. Data were collected from four travel agencies through focus group interviews to identify the criteria, and analysed using Fuzzy AHP and TOPSIS. The results showed the ranking of tourist destinations that have the highest potential to attract tourists.

Adrees and Mustafa (2021) conducted a study that modelled tourist attraction factors in the Asir Region using a structural equation model with a sample of 332 residents. Five factors, i.e. tourist services, social and historical aspects, mountains, weather, and natural parks made up 69.3% of the total variance. Differences in perceptions were observed based on age and gender. The study recommended developing tourism through these factors while considering the needs of all age groups and genders to support Saudi Vision 2030.

Previous studies addressed the evaluation and prioritisation of tourist destinations using various analytical methods. Efendi et al. (2019) used the hierarchical analysis method to set priorities based on the evaluation of ten experts, whilst Keyvanfar et al. (2018) developed a decision support tool to assess tourism attraction factors for waterfronts using hierarchical analysis. Their findings showed that historical waterfronts have the highest potential for tourist attraction. Furtheremore, Göksu and Kaya (2014), conducted their analysis using fuzzy AHP and TOPSIS techniques, resulting in a ranking of tourist destinations according to tourist preferences. Adrees and Mustafa (2021) modelled tourist attraction factors in the Asir Region using a structural equation model.

Although these studies provide valuable insights into the development of tourist destinations using multiple criteria, they did not focused on integrating the preservation of cultural heritage with tourism development to achieve a balance. This balance would ensure that tourism growth does not lead to the destruction of heritage sites. Furthermore, domestic tourism in Algeria, particularly in areas with untapped potential such as the M'sila province, suffers from a clear lack of studies based on scientific models for classifying and evaluating tourist areas. There is also a noted scarcity of studies that integrate natural, cultural, historical, and accessibility criteria within a unified analytical framework to prioritise tourism development and investment. What distinguishes this study is its attempt to extract the most important criteria used in previous research, as well as expert opinions to build a model for classifying tourist areas using the Analytic Hierarchy Process (AHP), and then apply it to the Algerian tourism sector.

3. Methodology

3.1. Analytical Hierarchy Process

This process was developed by Saaty in 1971, who described it as "the basic observations on the nature of human beings, analytical thinking, and measurement led to the development of the Analytic Hierarchy Process as a useful model for solving problems quantitatively" (Izha & Ramadhani, 2023). AHP is a flexible model that allows individuals or groups to shape ideas, identify problems by putting

their own assumptions, and extract solutions. It can also test the sensitivity of the solution or outcome to any modifications in information (Saaty, 1995).

The hierarchical analysis process consists of several logical steps, namely:

- Specify the issue and identify the type of knowledge being sought.
- Construct a decision structure in the form of a pyramid, with the goal at the top, criteria at intermediate levels, and alternatives at the bottom of the pyramid.
- Construct a series of pairwise comparison matrices, based on the Saaty scale (Saaty, 2008).

The consistency ratio (*CR*) should be less or equal to (10%).

The consistency index (*CI*) was calculated as

$$CI = \lambda_{max}/n - 1, \tag{1}$$

where λ_{max} is the largest Eigen value of the pairwise comparison matrix and (*n*) is the rank of the matrix. The obtained *CI* value should be compared with the value of the Random Index (*RI*), used in AHP, which varies according to the number of compared criteria (*N*). It is zero when *N* equals 1 or 2, then gradually increases, reaching 0.89 at *N* = 4, 1.11 at *N* = 5, and up to 1.49 at *N* = 10. *RI* is used to calculate the *CR* to assess the logical consistency of pairwise comparisons (Haery et al. 2014).

Calculation of *CR*:

$$CR = CI/RI. \tag{2}$$

It should be noted that the closer the *CR* is to zero, the more consistent the judgments are (Salomon & Gomes, 2024).

The method used and the study tool: interviews as a data collection tool,

- First interview: aimed at gathering information on the most important sub-criteria to better define the criteria based on the overall opinions.
- Second interview: based on the AHP method, to obtain the weights of the main criteria for ranking tourist areas based on the first interview guide. It was also used to analyse the results.

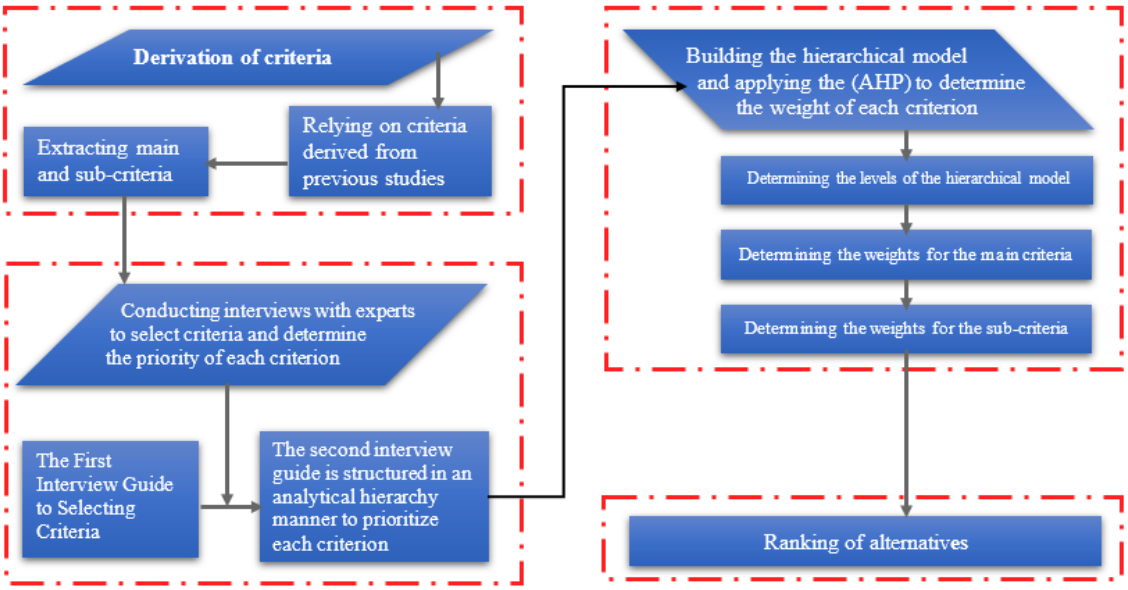

Fig. 1. Methodology following the AHP approach

Source: authors' own work.

The sample size: the sample comprised departments employed in the tourism directorate of the M'sila province (Algeria), as well as academics (Algerian National Universities). A purposive sample of nine experts was selected based on their ability to provide reliable information – as the hierarchical analysis method requires the involvement of experts to provide judgments.

The interviews were conducted with the sample members (based on the first interview guide) to identify the most important main and sub-criteria for ranking tourist areas. To continue with the steps of the AHP method, a second interview guide was prepared to determine the relative importance of all the main and sub-criteria of the study.

3.2. Building the Hierarchical Structure

Building the hierarchical structure (Akhrouf & Derghoum, 2023):

- Level 1: Ranking the tourist regions.
- Level 2: Main criteria extracted from previous studies and expert opinions (Table 1).
- Level 3: Sub-criteria extracted from the breakdown of the main criteria (Table 1).
- Level 4: Alternatives represented in the M'sila, Bousaada, and Maadid areas.

Table 1. Summary of research in the field of tourist attraction areas

References	Main criteria / Sub-criteria
(Deng et al., 2002)	peripheral attractions (important – number) – accessibility – resources (natural and cultural), facilities (recreational – educational – infrastructure), local communities (cultural – economic – social)
(Keyvanfar et al., 2018)	towards a comprehensive revitalization of social, cultural, physical, and environmental – revitalization of economic and functional aspects
(Efendi et al., 2019)	geography – social & culture – infrastructure – attraction – economy
(Göksu & Kaya, 2014)	destinations – natural beauty – history and culture – entertainment – thermal spring – transport – cost
(Nahar et al., 2015)	architectural & natural beauty – safety – accommodation facilities – transportation system – cost – distance
(Butowski, 2018)	climate and weather conditions – natural attractions /cultural attractions / degradation of the natural and cultural environments
(International Labour Organization, 2013)	natural attraction – biological diversity – experimental culture – cultural effects – history and traditions – easy access – existing tourist destinations – direct environment – weakness
(Shafiee et al., 2025)	cultural attractions: traditions, rituals, and customs / environmental attractions: neighborhood character and the architectural style of houses and public spaces / natural attractions: wildlife and natural environments / historical attractions: historical buildings, monuments, and historical inscriptions or quotes / event attractions: competitions, indigenous and local events, and valuable social events / health attractions: health centers and nature-based therapies / adventure attractions: exploration of unknown or less-discovered areas / research attractions: presence of research fields, rare species, and historical records
(Wang et al., 2022)	natural ecological tourist attractions – historical and cultural tourist attractions – modern recreational tourist attractions – industrial integration of tourist attractions – other kinds of tourist attractions

Source: authors' own work.

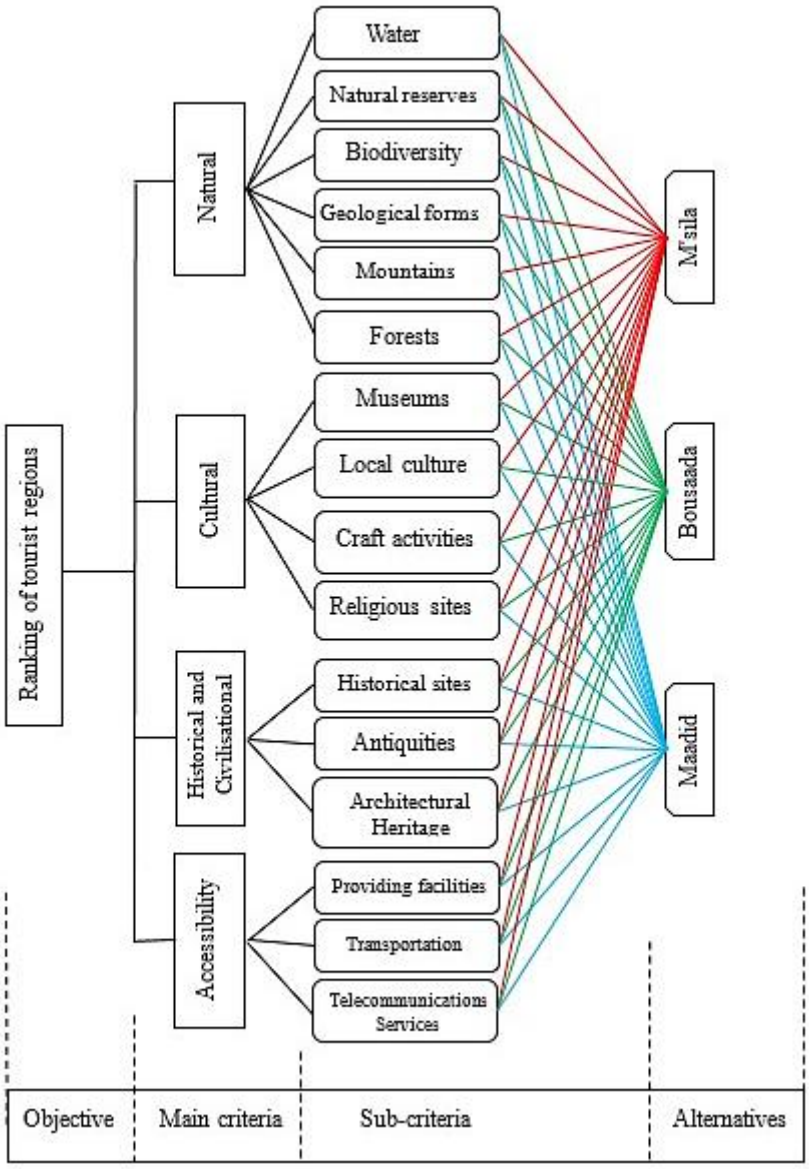

Fig. 2. AHP based model for the sites ranking process

Source: authors' own work.

Thirty-three criteria were extracted from the previously mentioned studies, and after consulting experts, four main criteria and sixteen sub-criteria were adopted (Figure 2).

4. Results

4.1. Pairwise Comparison Results of the Criteria

Figure 3 shows that the main criterion that received the highest importance was the natural criterion with 41.9%, the second-ranked main criterion was the historical and civilisational criterion (33.8%), the third-ranked was the cultural criterion (12.7%), and the last-ranked was the accessibility criterion (11.5%). The *CR* for this comparison was found to be 1%, which is less than the permissible ratio 9% required by the hierarchical analysis process.

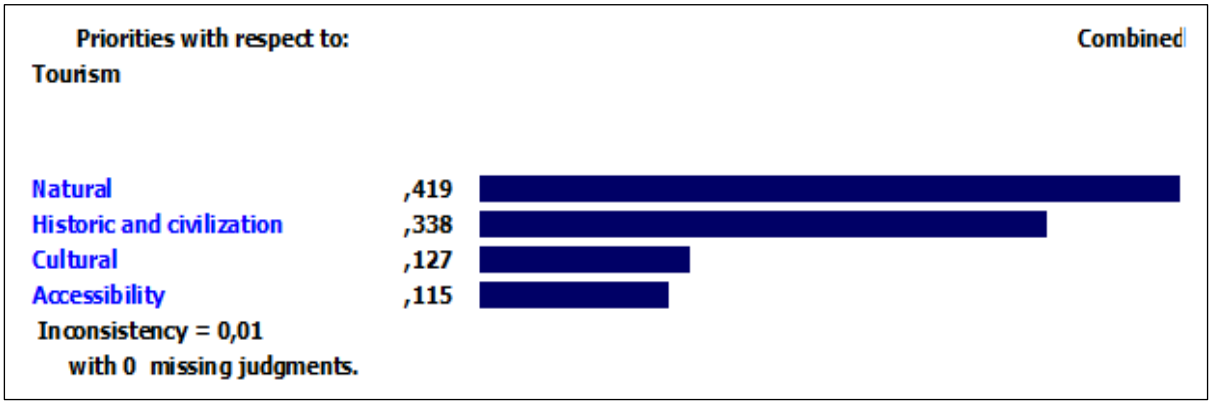

Fig. 3. Pairwise comparison results of main criteria

Source: based on (the Expert Choice software).

Table 2 presents the results of the pairwise comparisons and the derived weights of the main and sub--criteria, while Figure 4 illustrates the ranking of the sub-criteria within the model.

Table 2. Composite priority weights for criteria and sub-criteria

Criterion	Weights	Sub-criterion	Local weight	Global weight
Natural	41.9%	water	0.168	0.070
		natural reserves	0.238	0.100
		biodiversity	0.112	0.047
		geological forms	0.198	0.083
		mountains	0.127	0.053
		forests	0.157	0.066
		total	1	0.419
Cultural	12.7%	museums	0.245	0.031
		local culture	0.197	0.025
		craft activities	0.156	0.020
		religious sites	0.402	0.051
		total	1	0.127
Historical and civilisational	33.8%	historical sites	0.313	0.106
		antiquities	0.546	0.185
		architectural heritage	0.140	0.047
		total	1	0.338
Accessibility	11.5%	providing facilities	0.469	0.054
		transportation	0.348	0.040
		telecommunications services	0.183	0.021
		total	1	0115

Source: authors' own study.

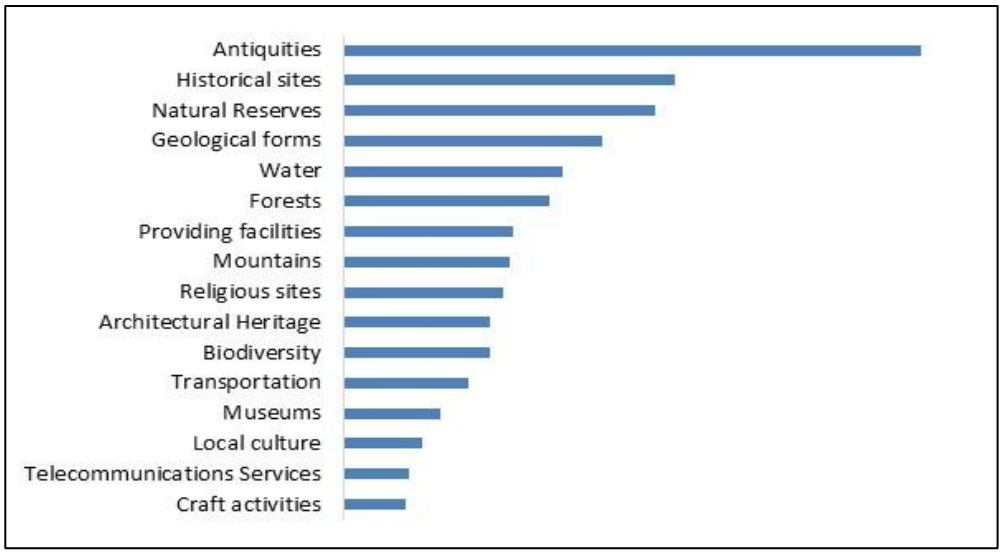

Fig. 4. Ranking of the model's sub-criteria

Source: based on (the Expert Choice software).

Based on Figure 3, Table 2, and Figure 4, the following results were obtained:

- The highest importance among the main criteria was for the "natural" criterion (41.9%), followed by the "historical and civilizational" criterion (33.8%) the "cultural" criterion (12.7%), followed by "accessibility" (11.5%).
- The sub-criterion "natural reserves" obtained the highest importance among the sub-criteria of the main criterion "natural" with 23.8%, followed by the sub-criterion "geological formations" (19.8%), indicating the great importance of this criterion in ranking tourist areas.
- The sub-criterion that received the highest importance among the others for the main criterion "cultural" was the "religious sites" (40.2%).
- The sub-criterion "antiquities" obtained the highest importance among the others for the main criterion "historical and civilisational" (54.6%), followed by "historical sites" (31.3%).
- The sub-criterion that obtained the highest importance among the others for the main criterion "accessibility" was "availability of facilities" (46.9%).

4.2. Evaluation and Ranking of Alternatives

Table 3 presents the results of the pairwise comparison of alternatives for each main criterion (Natural, Cultural, Historical and Civilizational, and Accessibility) using the Analytic Hierarchy Process (AHP). The priority weights of the three regions (M'sila, Bousaada, and Maadid) were derived using the Expert Choice software. The results indicated the relative importance of each region under every criterion, while the consistency ratio (*CR*) values confirmed the reliability of the judgments, as all the *CR* values remained within acceptable limits ($CR < 0.10$).

Table 3. Pairwise comparison results of alternatives for the main criterion

Main criterion	First region (weight %)	Second region (weight %)	Third region (weight %)	*CR*
Natural	M'sila (42.9%)	Bousaada (36.5%)	Maadid (20.6%)	1%
Cultural	Bousaada (56.6%)	Maadid (25.5%)	M'sila (17.9%)	2%
Historical and Civilizational	Bousaada (45.9%)	M'sila (32.4%)	Maadid (21.6%)	1%
Accessibility	Bousaada (45.4%)	M'sila (43.0%)	Maadid (11.5%)	1%

Source: based on (the Expert Choice software).

Figure 5 shows that the region of Bousaada received the highest evaluation among the alternatives with 43.2%. It ranked first in terms of the main criteria: cultural, historical and civilizational, and accessibility with 56.6%, 45.9%, and 45.4% respectively. In addition, this region ranked first in terms of the sub-criteria of geological forms, museums, local culture, crafts activities, religious sites, historical sites, antiquities, and architectural heritage with 63.8%, 55.2%, 48.1%, 59%, 61.8%, 45.7%, 43.1%, and 62.7% respectively. This can be attributed to the importance of the cultural, civilizational and historical significance of the Boussaada region.

The M'sila region was second with 32.1%. It also ranked higher in the main criterion “natural” with 42.9% and in the sub-criteria of water, natural reserves, with 56.7% and 58.3% respectively. This can be attributed to the presence of the Hammam Dhalaa and Hammam Belaribi thermal springs, the El-Morqeb reserve, and the El-Horane forest in the Hammam Dhalaa district.

The Maadid region was third with 24.7%. It also ranked higher in the sub-criterion of mountains with 39.5%, with the *CR* at 1%.

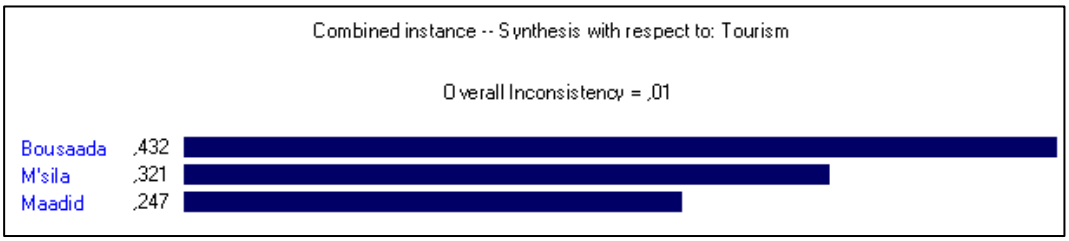

Fig. 5. Ratings for the alternatives on each criterion

Source: based on (the Expert Choice software).

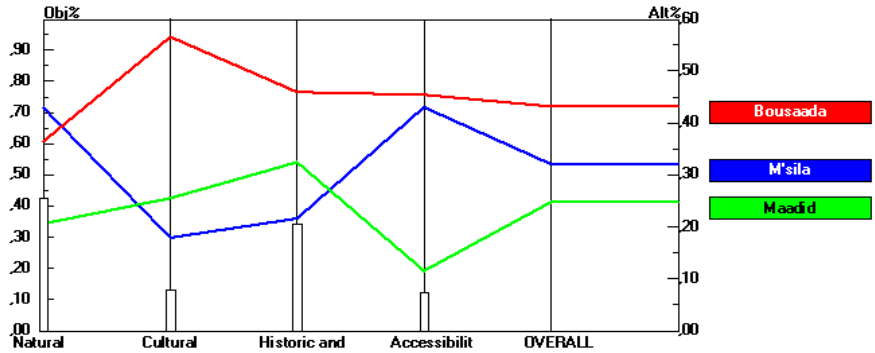

Fig. 6. Performance sensitivity

Source: based on (the Expert Choice software).

Figure 6 shows the sensitivity performance due to changes in the priority of the main criteria (natural, cultural, historical and civilizational, accessibility) by changing the priority of one criterion while the priorities of the other criteria remain unchanged, so that the total is equal to one (Marinković et al., 2024).

4.3. Hypotheses Testing

Testing the main hypothesis, i.e. the relative importance of ranking the tourist areas in the province of M'sila differed according to several criteria.

This hypothesis was tested using pairwise comparisons of expert judgments and sensitivity analysis. The main criterion "natural" obtained the highest importance with 41.9%, followed by the main criterion " historical and civilizational " with 33.8%, then the main criterion "cultural" with 12.7% and finally, the main criterion "accessibility" obtained 11.5%. Based on the obtained values of the judgments, the validity of the main hypothesis was accepted.

Testing the Sub-Hypotheses

- H1: The natural criterion has a significant importance in ranking tourist areas in the M'sila province

The main criterion "Natural" was first in terms of importance compared to the main other criteria with a weight of 41.9%, which indicates the importance of this element despite the difference in the importance of its sub-elements. The sub-criterion "Natural Reserves" ranked first with 23.8%, and its overall ranking was third with 10%, indicating that this element has great importance and priority over the other criteria. Based on the obtained values of the judgments, the validity of the first hypothesis was accepted.

- H2: Cultural criterion has a significant contribution in ranking tourist regions in the M'sila province

The main criterion "Cultural" ranked third in terms of importance compared to the main other criteria with 12.7%, indicating its importance despite the varying importance of its sub-criteria. The sub--criterion "religious sites" was first and ninth in the overall model criteria with 5.1%, indicating that the cultural criterion has a moderate contribution compared to other criteria. Based on the obtained values of the judgments, the validity of the second hypothesis, which was partially achieved, was accepted.

- H3: The historical and civilisational criterion has a high priority in ranking tourist areas in the M'sila province

The main criterion "Historical and civilisational" ranked second in importance with 33.8%, indicating the importance of this criterion. However, the "Antiquities" criterion was the most important and ranked first among all model criteria with 18.5%, followed by the "historical sites" with 10.6%. This indicates that the historical and civilisational criterion has a great priority in ranking tourist areas compared to other criteria. Based on the obtained values of the judgments, the validity of the third hypothesis, which was partially achieved, was accepted.

- H4: Accessibility has a high priority in ranking tourist areas in the M'sila province

The main criterion of "Accessibility" came in the fourth place in terms of importance compared to the main criteria with 11.5%, which indicates the importance of this criterion, despite the differences in the importance of its sub-elements. However, the criterion of "Providing facilities" had the highest importance and ranked seventh compared to the overall model criteria with 5.4%, which indicates that accessibility had a moderate priority in ranking tourist areas compared to other criteria. Based on the obtained judgment values, the validity of the fourth hypothesis, which was partially achieved, was accepted.

5. Discussion and Conclusions

The findings of this study provide a comprehensive basis for discussing the relative importance of the criteria used to rank tourist areas in the M’sila Province and for drawing meaningful conclusions.

The results of the AHP analysis indicated that the Natural criterion was the most influential factor in ranking tourist areas, with a weight of 41.9%, followed by the Historical and Civilisational criterion at 33.8%, the Cultural criterion at 12.7%, and Accessibility at 11.5%. At the sub-criteria level, Natural Reserves ranked highest within the natural criterion with 23.8%, followed by Geological Formations at 19.8%, highlighting the importance of natural features in tourism evaluation. For the cultural criterion, Religious Sites obtained the highest weight at 40.2%. Within the historical and civilizational criterion, Antiquities ranked first with 54.6%, followed by Historical Sites at 31.3%. Regarding accessibility, Availability of Facilities emerged as the most important sub-criterion with 46.9%. In terms of alternatives, Bousaada achieved the highest overall score of 43.2%**,** ranking first, followed by M’sila with 32.1% and Maadid with 24.7%.

The results of the presented study are highly consistent with those of Keyvanfar et al. (2018), who showed that the historic waterfront has significant potential to attract tourists. Similarly, the historical and civilisational criterion ranked second in this study, with a weight of 33.8%, confirming that historical dimensions represent a pivotal factor in evaluating the attractiveness of tourist areas, whether coastal or inland. The results were also in line with Efendi et al. (2019), who recommended the 'Tourism Heritage Center' model as a priority for developing tourist areas, as antiquities in this study received the highest weight within the historical criterion 54.6%, followed by historical sites 31.3%, reflecting the importance of tangible heritage as a key driver of tourism attractiveness.

While Göksu & Kaya (2014) focused on ranking tourist destinations based on customer preferences through travel agencies, this article presents a different methodology by relying on the opinions of local experts in the M'sila province using only the AHP method. This difference in data sources may explain why the natural criterion had the highest weight in this study (41.9%), whereas service-related criteria might be more important from the perspective of the average tourist, indicating a potential gap between what experts prioritise and tourists' preferences. These findings also differ from those of Adrees & Mustafa (2021), who used the Structural Equation Model (SEM) on a sample of the population. This difference may explain the emergence of new criteria in this article, such as geological formations (19.8%), religious sites (40.2%) within the cultural criterion, and water (springs) factors that did not appear in the Asir study due to differences in geographical characteristics. This confirms that the tourist attraction model varies by location, and that the M'sila province is distinguished by its unique features.

The superiority of the Nature criterion (41.9%) over others can be explained by the fact that tourists in desert and semi-arid regions are primarily seeking a natural experience different from their usual urban environments—a phenomenon noted by Adrees & Mustafa (2021) within the 'mountains and weather' factor. Furthermore, the 'Natural Reserves' received the highest weight of 23.8% within the natural criterion, reinforcing what was stated in the Ramsar Convention regarding the importance of Chott El Hodna as a wetland area with ecotourism appeal.

Beyond ranking tourist areas, the results also revealed several strengths and distinctive characteristics of the studied regions as reflected in their performance across specific main and sub-criteria, which enhances their tourism potential. The general selection model developed in this study successfully integrated the most relevant evaluation criteria based on expert opinions, confirming the effectiveness of the Analytic Hierarchy Process (AHP) as a robust decision-support tool for ranking tourism destinations through pairwise comparisons.

However, the findings also highlight several challenges, including insufficient attention to the provision of essential facilities and inadequate management of key historical and natural sites, particularly the Beni Hammad Fort, the first Algerian monument included in the UNESCO World Heritage List in 1980, and Chott El-Hodna, a wetland designated under the Ramsar Convention in 2001. In addition, thermal spring sites, despite their significant therapeutic potential for various diseases, remain underutilised and are exploited in a largely traditional manner.

Based on these findings, the article underlines the critical need to prioritise the conservation and sustainable management of natural sites, particularly Chott El-Hodna, alongside the protection and promotion of Antiquities treasures, notably the Beni Hammad Fort. It also highlights the potential of thermal springs as therapeutic and recreational resources, which so far remain underutilised. Ensuring the provision of adequate infrastructure and visitor facilities is essential to enhance accessibility, improve the tourist experience, and maximise the socio-economic benefits for local communities. Collectively, these measures are pivotal for fostering tourism development in the M'sila Province, balancing economic growth with cultural preservation and environmental stewardship.

Based on these findings and the observed limitations, future research could focus on using artificial intelligence to analyse large tourism datasets, thereby enhancing the accuracy of area classification, identifying high-attraction sites, and evaluating tourism investment potential.

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Zastosowanie analitycznego procesu hierarchicznego do rankingu destynacji turystycznych

Streszczenie

Cel: Celem niniejszego badania było stworzenie rankingu regionów turystycznych w prowincji M'sila (Algieria) na podstawie zestawu kryteriów naukowych oraz nadanie priorytetów ich rozwojowi.

Metodyka W badaniu zastosowano program Expert Choice (EC) oparty na metodzie Analitycznego Procesu Hierarchicznego (AHP). Przeprowadzono również wywiady z ekspertami w celu identyfikacji i określenia najważniejszych kryteriów głównych i podrzędnych, a następnie oszacowania względnej wagi każdego kryterium.

Wyniki: Badania wskazują, że kryterium „naturalne" zajęło pierwsze miejsce z wynikiem 41,9%, następnie kryterium „historyczno-cywilizacyjne" – 33,8%, dalej kryterium „kulturowe" – 12,7%, natomiast kryterium „dostępność" uplasowało się na ostatnim miejscu z wynikiem 11,5%.

Implikacje i rekomendacje: Na podstawie uzyskanych wyników zaleca się zwrócenie szczególnej uwagi na obszary przyrodnicze, zwłaszcza Chott El Hodna, stanowiska archeologiczne, m.in. twierdzę Beni Hammad, źródła termalne oraz niezbędną infrastrukturę.

Oryginalność/wartość: Badanie ma na celu zaproponowanie modelu opartego na metodzie AHP służącego do oceny obszarów turystycznych oraz identyfikacji najbardziej znaczących miejsc.

Słowa kluczowe: analityczny proces hierarchiczny, komponenty turystyczne, ranking obszarów turystycznych