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THE IMPORTANCE OF REHABILITATING TOURISM INFRA-STRUCTURE FOR LOCAL DEVELOPMENT IN TIZI OUZOU

Abstract: Algeria's diverse natural landscape attracts tourists for coastal and marine exploration, mountain, desert adventures and cultural experiences. The Yakouren region in the Atlas Mountains is an ideal destination for mountain tourism, with breathtaking scenery, enticing peaks and popular activities such as climbing, camping and entertainment, as well as skiing competitions in winter. To further the development of tourism in the Yakouren region, it is imperative to restore critical facilities such as hotels and historic residences. This study focuses on the rehabilitation of a neglected hotel and its surroundings in order to rehabilitate the local tourism industry and raise its profile. The ultimate goal is to create a sustainable and enduring attraction that will enchant local and international visitors. The article highlights the importance of conducting a thorough financial feasibility study to confirm the positive returns of the project and to stimulate economic growth in the area and throughout Algeria. This can be enhanced by conducting a questionnaire to study the factors influencing regional tourism development, using statistical indicators such as Cronbach's alpha coefficient.

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cient, Spearman's correlation, and linear regression. These methods can help facilitate a better understanding of the research results in areas with tourist destinations that require infrastructure activation.

Keywords: TiziOuzou, rehabilitation, tourism promotion, sustainable development, financial and statistical study

Introduction

TiziOuzou, located in the Kabylie region of northern Algeria, has significant tourism potential due to its diverse geography, rich culture and historical heritage. The region is home to the scenic Djurdjura Mountains, which offer opportunities for hiking, climbing and winter sports (Belkheir et al., 2010). In addition, the presence of natural thermal springs adds to its appeal and serves as a significant attraction for both local and international tourists (Aouiche-Chenoune, 2017).

Within the province of TiziOuzou is the Yakouren region, which contains a significant proportion of these attractions. In addition to the above features, this area boasts ancient Berber villages built of stone and clay, offering visitors a unique and authentic experience (Oussalem, 2007). The region also offers a variety of traditional culinary delights, including olive oil, traditional milk, cheese and their by-products, and many traditional industries such as jewellery, clothing and traditional fashion (Zaid, 2007).

The Yakouren region is a vibrant cultural centre renowned for its tribal music festivals, Berber dialect, theatre and art exhibitions (Oussalem, 2002). The local cuisine is a strong attraction, with delicious traditional dishes such as Kabylie couscous and Kabyliekasra, made from the region's agricultural produce and natural spices (Bouhadda and Ouadjir, 2022).

This study focuses on the revitalisation of tourism infrastructure (Job, 2017), with particular emphasis on the financial aspect and its profitability. This, in turn, has a positive impact on both residents and tourists (Jensen, Zhang, 2013), while striving for sustainable tourism development in an area with many attractions (Mwesiumo et al., 2022). To enrich this study, a field survey was conducted with a random sample of various stakeholders in the tourism sector. The data was statistically analyzed to identify the interrelationships and influences of different tourism development variables in the study area.

This leads to the following problem: Is there an interrelation and influence of these variables that leads to the service of tourism activity and the achievement of local tourism development?

Two hypotheses are therefore proposed:

Hypothesis 0: There is no correlation and influence between the primary variables of tourism development at the level of Yakourn Municipality.

Hypothesis 1: There is a correlation and influence between the primary variables of tourism development at the level of Yakourn Municipality.

Literature review

Currently, rural revitalization has become a crucial strategy for promoting the sustainable economic and social development of developing countries, and it is an inevitable trend in global urbanization (Yang et al., 2021). However, rural tourism requires support from

mountain tourism to increase its synergy potential and needs long-term financial and technical assistance to effectively contribute to sustainable local development (Sharpley, 2002).

Rural tourism, as an area of the tourism industry, demonstrates a steady growth trend, highlighting the importance of implementing measures to optimise it for the economic and socio-cultural prosperity of the regions (Dou and all, 2024). Rural opportunities that can be exploited by local communities should be identified in order to improve living standard and also to promote tourism in a region (Lugonja, 2014)

Souhier and Rezzaz (2020) studied the rejuvenation of tourist facilities in Algiers and its impact on tourism growth. Their research found that the renovation of a historically significant hotel in the area had a positive impact on attracting visitors to explore the surrounding area, which is known for its wealth of historical and archaeological sites. The study confirmed that the development project generated favourable financial returns and contributed positively to the sustainability of tourism in the region.

Sestras et al in (2020) studied urban tourist heritage sites in the Belisvania region of Romania. They used modern technological tools, such as aerial photography, to methodically document and classify the sites to restore and transform them into tourist destinations. The research has shown that this strategy can lead to sustainable development in all aspects of the Belisvania region.

The study by Svob-Dokic (2007) examined how historic cities in Budapest can pursue cultural and tourism development while balancing the challenge of preserving their cultural and historical heritage and the built environment. The study highlighted the need to adopt policies that involve all stakeholders in the area in order to achieve both local and tourism development.

TiziOuzou, one of Algeria's provinces, has enormous tourist potential. It abounds in natural (mountain, coastal), historical, archaeological and artisanal riches, all of which deserve to be discovered. These assets make it a prime destination for coastal tourism, green tourism and cultural and historical tourism, which could give rise to an extensive and prosperous tourism industry (Hammal and Hassouna, 2014). Kabylie region features rich geographical landscapes shaped by its vast mountains. Within this context, mountainous rural tourism can be seen as an opportunity to develop the natural and cultural resources of this region (Darbellay and Stock, 2012). Therefore an increase in accommodation capacity, quantity, and quality of hotel facilities, hygiene, and cleaning of tourist services (sanitary facilities, restaurants, accommodation) is essential; it is necessary to build traditional hostels by renovating some of the old houses, reclassification of hotels to ensure a correlation between the number of stars and quality of provided services, price control of the different tourist services, the construction of rural cottages and guesthouses and guarantee the collaboration and coordination between the different direct or indirect actors of the tourist activity (Kelfaoui et al., 2021). Developing tourism infrastructure requires significant capital. Rural areas may lack the funds to build necessary facilities like hotels, restaurants, tourist information centers, and recreational amenities (Al Matris, 2023). Hotels and tourism play a vital role in revitalizing and sustaining rural communities. For that hotels require rehabilitation, upgrade and modernization (Djanane and Hireche, 2024). To develop tourism activity and improve its profitability, there is an urgent need to adopt tourism planning according to the sustainable development dimensions (Berregioua and Khalfallah, 2022).

Therefore tourism as a rural development strategy, if planned and has a systematic framework can have benefits and positive effects, of course, what is more important in this field is knowing the important source of tourism, because every rural area has its own capacities, tourism development should be planned based on these capacities (Sadeghi and Seidaiy, 2023).

Materials and methods

This study employs descriptive concepts and analytical methods to develop a model that aligns with tourist sites (Torres-Delgado and Saarinen, 2014). The research collaborates with key stakeholders in the tourism industry within the province of Tizi Ouzou, identifying a need for more infrastructure for tourist attractions. To address this issue, a site in the municipality of Yakouran, nestled in the heart of the Djurdjura Mountains, was selected for its suitability for mountain, eco-tourism, and adventure tourism (Ramaano, 2022).

Furthermore, the study places great emphasis on assessing the economic feasibility and benefits of investing in these sites, in line with the findings of (Amoah et al., 2023). To achieve this, a questionnaire will be used to collect data from tourism professionals, focusing on the correlation and impact between various local tourism development variables (Amoako et al., 2022).

Study area

The province TiziOuzou lies between 2° and 4° east longitude and 42° and 36° north latitude. TiziOuzou comprises 21 departments and 67 communes (APC, 2023). With an area of 2,957.93 km², it is bordered by the Mediterranean Sea to the north, the province of Bejaia to the east, the province of Bumerdes to the west and by Bouira to the south.

Tizi-Ouzou is located in the Mediterranean climate zone. Due to the mountain massifs surrounding the town, it snows every year in winter between December for the higher altitudes (600 m and over), and February for the lower altitudes. In summer, the heat can be suffocating, as the sea air collides with the mountainous terrain, preventing it from reaching the city. This geographical location has a significant influence on the climate and vegetation that make the region attractive for tourism (Figure 1).



Fig.1. Geographical location of Tizi Ouzou Province (Source: Authors, 2024)

Nestled in the Djurdjura mountains, the state of TiziOuzou is a distinctive geographical entity. In particular, it is home to the vast Anoflis Gorge, recognized as the most immense gorge on the African continent. Colloquially known as the Cheetah Chasm, the chasm boasts a height of 1159 m and has been explored by expeditions from Spain, France, Belgium, and Algeria (Amour and Doumane, 2018). In addition, the region boasts a gap in the mountains that houses a cave where a peculiar mummy has been preserved due to the cold climate, although it is fraught with danger due to its limestone floor. The mountains also boast the summit of Lalla Khadija, the highest peak in the Djurdjara range at 2308 m. Thanks to their high altitude, the peaks of the Djurdjura Mountains are covered with abundant snow, which supplies the region's valleys with water. Various springs, such as Soumam and Lalla Khadija, also testify to the abundance of mineral water in the Djurdjura Mountains (Figure 2).



Fig. 2. Mountains of TiziOuzou Province (Source: authors, 2024)

While mountain areas receive attention from local organisations and policies (Leick et al., 2021), residents often struggle with a lack of infrastructure, public facilities and various social challenges (Ghosh, 2019), which affects tourism development in these areas (DTA, 2018). Most tourism does not require significant investments or costly structures such as coastal tourism (DTA, 2017). It is enough to identify the main tourist sites, promote them and ensure the safety of visitors (Pierre, 1993). In the province of TiziOuzou, mountains cover about 75% of the total area (2,957.93 km²), while the population exceeded 1.198.561 in 2024, spread over 67 mountain communes (Oualikene, 2009; Amila, 2024). It

is worth mentioning that the state of TiziOuzou includes the Djurdjura National Park, which covers an area of 18,500 ha and was created in 1983 by presidential decree (23 July 1983, by presidential decree n° 83/460). Its creation was aimed at protecting it from depletion, as it is one of the most picturesque tourist destinations in Algeria, especially in winter when its majestic peaks are covered in snow for long periods. The park also features densely forested areas interspersed with secluded valleys and small lakes (Cherifi, 2019). The area's diverse wildlife further highlights its importance for the implementation of mountain tourism strategies and the achievement of sustainable development (Piou et al., 2012). The economic development of tourism in the mountains of TiziOuzou is still in its infancy. This is due to the reluctance of potential investors, the lack of strategic support for mountain development and the migration of labour to urban centres, which has led to the decline of traditional crafts such as silversmithing in the BeniYeni region, pottery production and traditional agricultural practices such as olive growing and beekeeping (Old Taleb and Tessa, 2020).

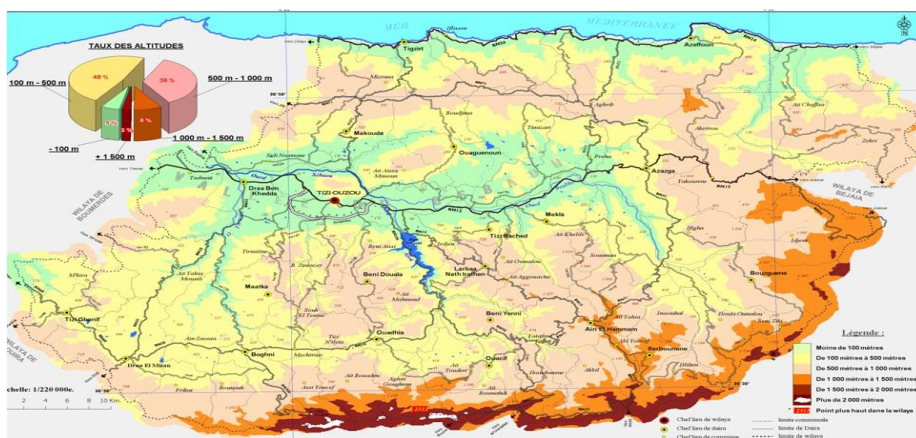


Fig. 3. Relief of the province TiziOuzou (Source: interieur.gov.dz, 2024)

Prospects for sustainable tourism development in TiziOuzou

The development of sustainable tourism in TiziOuzou depends on the ability of tourism operators to develop effective methods of attracting tourists and offering quality products. The state has 33 hotel establishments with 999 rooms and 1,766 beds (DTA TiziOuzou, 2023). According to the National Tourism Development Plan, this should increase to 43 hotels with a capacity of 2,277 permanent beds.

Local authorities are also taking steps to value and develop tourism assets in line with national tourism development strategies. This includes the portfolio of tourist plots in areas reserved exclusively for tourism and hotel investments, which numbers 68 and was declared and specified by Executive Decree 88/232 of 15 November 1988.

In addition to its mountainous interior, TiziOuzou has a coastline where two tourism development projects are underway on an area estimated at 662 ha. These projects are expected to create 1,472 permanent jobs. According to the tourism development guideline, ten investment projects are currently being implemented in the region, with five projects in the pipeline (Sdat, 2025).

Development strategy for the Djurdjura National Park

Algeria is working to protect the national barns in general, including the Djurdjura National Barn, through support programmes and training for various actors from the local population while involving them in achieving the development plan for the barn and showing how to preserve natural resources (Belouti, 2022), avoiding indiscriminate use in traditional agriculture and enabling them to new technological means and environmentally friendly practices to obtain better crop profitability (Chedded, 2015), thus achieving economic and environmental development of the region (Nugroho and Numata, 2022). The barn is located in northern Algeria, 150 km southeast of the capital, close to the Mediterranean Sea. It is, therefore, located in the Djurdjara mountain range. It is bordered to the north by the Mediterranean Sea and the state of Boumerdes, to the east by the state of Bejaia, to the west by Medea, and the south by the southern regions of Bouira (Dorbane et al., 2021) It occupies an area of 18,550 ha. We find it surrounded from east to west by two large rocks, a crystalline rock composed of ancient metamorphic and sedimentary rocks formed from schist (Rabhi and Guettas, 2022). The barn also contains broken terrain with steep slopes, gullies, and numerous hills, in addition to piles of rubble and gravel. Here and there, it is overgrown. The altitude ranges from 1600 m to 1800 m (Keddami and Kanem, 2022). The climate of the barn belongs to the humid mountainous region with cold winters, where the annual rainfall is between 1200 and 1500 mm. The barn also experiences a snowy period that lasts from December to March, so the area is covered with a carpet of snow that reaches a height of more than two m in some areas (Sahali, 2021), while in summer, we find that temperatures are moderate compared to other regions of the national territory, where we find that the highest temperature is estimated at around 32°C. As for the dry season, it lasts from June to September, and the climate begins to change to humid from November (Figure 4).



Fig.4. Agoulmim lake, a temporary water lake (Source: Authors, 2024)

The forest cover of the region is also characterised by the presence of two adjacent forests, Tironatin and Tekajda, in addition to various other plant species. Through studies and research conducted in the region, it has been determined that there are three types of plants (Moussaoui, 2016):

Forests: These include mixed cedar and oak forests, green oak and cedar forests. These three types correspond to altitudes; green oaks appear at altitudes of 800-1600 m, while mixed forests appear at altitudes of 1300-1900 m (Figure 5).



Fig 5. Forests of the Djurdjura Mountains (Source: Authors, 2024)

Gradient areas: It has been observed that a large part of these areas were burnt during the colonial period. These forests contain mainly oak and cedar trees.

Marj: There are two kinds, dry and wet. In these forests, you can find a variety of fruits as well as thorny plants. In total, there are around 1,100 species in the region, of which 35 are endemic, 70 are rare, and 33 are protected (Figure 6).



Fig. 6. Wet lands of El Marj (Source: Authors 2024)

Cultural diversity is a vital feature of the study area, with unique traditional dishes exclusive to the region. In addition, traditional local industries contribute to the elements of tourist attraction, which can be seen in tribal brooches, traditional jewellery and various other handicrafts (Figure 7).



Fig. 7. Traditional industries of the study area (Source: Authors, 2024)

Result and discussion

This study relies on the economic dimension by conducting a financial analysis to assess the profitability of tourist accommodation (Singh, 2015). In addition, it includes a complementary element that focuses on local tourism development. This involves a statistical examination of the correlation and impact of various tourism development variables within the municipality of Yakouren in Tiziouzou (Olya, 2023).

Feasibility of the project

The project is classified as private, and its size depends on the development of local tourism, capitalising on the region's historical and cultural heritage and natural resources. Investment loans will provide financing. The financial requirements of the project include all business operations and the provision of tourism services to visitors. The physical requirements include all the material and human resources needed to exploit them. The study steps include a market analysis to determine the demand for tourism in the Tiziouzou region, including tourist demographics, local culture, language, traditions and competition. A financial feasibility study will also be carried out to assess the project's cash inflows and outflows, and legal research will cover all regulatory and administrative procedures required by Algerian law. Care is taken to avoid the use of platitudes in the revised section.

At this stage of the study, we rely on financial indicators to provide reliable financial analysis for investment decisions. These indicators include the rate of return on investment, the payback period and the net present value. If these economic indicators are positive, the investment will go ahead. If they are negative, the project is abandoned.

Net Present Value (Vernimmen, 2010)

Net Present Value (NPV) is a financial measure that calculates the present value of an investment's expected cash inflows discounted by its expected cash outflows. It helps determine the profitability of an investment by taking into account the time value of money. The time value of money refers to the fact that a unit of currency received in the future is worth less than the same unit of currency received today due to factors such as inflation and the opportunity cost of delaying investment. Therefore, NPV is a tool that takes into account the cost of delaying the receipt of cash flows. A positive NPV indicates that the investment is likely to be profitable, while a negative NPV indicates that the investment is likely to result in a loss.

CF_t: the sum of cash inflows.

$$NPV = \sum CF_t - I_0 \quad (1)$$

I₀: represents the project capital (technical and economic study office of Algiers).

i: represents the discount factor (update).

n: number of years.

DZD: the dinar is the monetary currency of Algeria

NPV (NET PRESENT VALUE) = $\sum_{t=1}^n CF_t$ (Total new cash inflows) - I₀ (The capital of the invested project)

NPV = $(CF_1 / (1+i)^1) + (CF_2 / (1+i)^2) + (CF_3 / (1+i)^3) + (CF_4 / (1+i)^4) + (CF_5 / (1+i)^5) - \text{Initial Investment}$

NPV = $\{1350000 \times (1+10\%)^{-1} + 1970000 \times (1+10\%)^{-2} + 2520000 \times (1+10\%)^{-3}$

$$\begin{aligned}
&+2900000 \cdot (1+10\%)^{-4} + 3140000 \cdot (1+10\%)^{-5} - 5000000 \\
NPV &= 8674390 \text{ DZD} - 5000000 \text{ DZD} \\
NPV &= 3674390 \text{ DZD}
\end{aligned}
\tag{2}$$

The Investment decision:

If the net present value is greater than zero, the cash inflows are higher than the investment cost, implying that the project is profitable. Therefore, approving the project would be a suitable course of action.

Profitability Indicator (Vernimmen, 2010):

The ratio of the net present value of cash inflows and outflows.

$$\begin{aligned}
IP \text{ (Indicator Profitability)} &= \Sigma_{\text{newCF}_t} \text{ (Total new cash inflows)} / I_0 \text{ (The capital of the invested project)} \\
IP &= 8674390 \text{ DZD} / 5000000 \text{ DZD} \\
IP &= 1.753
\end{aligned}
\tag{3}$$

The investment decision making:

If the output is greater than one, the project is profitable and therefore economically acceptable.

Payback period (Vernimmen, 2010):

It is the time period over which a project regains its invested capital through annual net cash flow, the shorter the period, the more it is indicative of the feasibility of the project.

$$\begin{aligned}
PP &= I_0 \text{ (The capital of the invested project)} / \text{MCF}_{\text{tnet}} \text{ (median net cash flow of the project)} \\
\text{MCF}_{\text{tnet}} &= \Sigma_{\text{newCF}_t} \text{ (Total new cash inflows)} / N \text{ (The number of years)} \\
\text{MCF}_{\text{tnet}} &= 8674390 / 5 \\
\text{MCF}_{\text{tnet}} &= 1734878 \text{ DZD} \\
PP &= 5000000 \text{ DZD} / 1734878 \text{ DZD} \\
PP &= 2.88 \\
0.88 \times 12 \text{ months} &= 10.56 \text{ months} \\
0.56 \text{ months} \times 30 \text{ days} &= 16.08 \text{ days} \\
0.8 \text{ days} \times 24 \text{ hours} &= 19.2 \text{ hours}
\end{aligned}
\tag{4}$$

Payback period is 2 years and 10 months and 16 days

At 19 pm and 12 minutes

The investment decision making:

If the payback period is less than the typical period (5 years), then the project is acceptable.

Rate of Return (Vernimmen, 2010):

M_f : Accumulated cash flow in the last year 2027.

RR (Rate of Return) = M_f (Cumulative Accumulation of Contributions in the Last Year 2024) / I_0 (The capital of the invested project)

$M_f = \Sigma \text{CF}_t$ (Total cash inflows) / N (The number of years)

ΣCF_t (Total cash inflows) = 135 0000 + 197 0000 + 252 0000 + 290 0000 + 314 0000

ΣCF_t (Total cash inflows) = 1 188 0000 DZD

$M_f = 1 188 0000 \text{ DZD} / 5 \text{ (years)}$

$M_f = 237 6000 \text{ DZD}$.

RR = 237 6000 DZD / 5000 000 DZD

$$RR = 0.4752$$

$$RR = 0.4752 \times 100 \text{ DZD} = 47.52 \text{ DZD}$$

For every 100 invested dinars, the project has a return (interest) of 47.52 dinars

Discussion of the results of the feasibility study

The profitability index is a measure of each monetary unit invested in a project; in our study, for every 100 DZD invested, the investors make a profit of 47.52 DZD, which is a good percentage. As for the net present value of the project, it is positive, which means that the cash flow is higher than the cost of the investment, and therefore the project is acceptable. The project is economically profitable and financially viable. Finally, the payback period is two years, ten months and 16 days, which is very favourable for the project, and therefore its implementation is recommended.

Statistical study

The study included all those involved in tourism in the municipality of Yakouren (Tiziou-zou), including merchants, artisans, shrine workers, subsidiary departments of official tourism bodies, and owners of tourist agencies and entertainment venues. The study sample also consisted of 503 people, men and women, who answered the questionnaire given to them, and this was in the period from 1 June 2023. Until 31 August 2023.

The study was based on essential variables to achieve tourism development and sustainability in a way that serves the region and the local population. These variables are manifested in:

- Tourism facilities and equipment.
- Skills of human resources working in tourism.
- Communication techniques and means.
- General procedures for receiving tourists.
- Social networks.
- Tourism databases.
- Tourism services.

The validity and reliability coefficient of the questionnaire: In order to measure the reliability and validity of the questionnaire in all its sections, Cronbach's alpha coefficient is used. The coefficient takes values between zero and one [0-1]. If there is no stability, the value is close to zero, but if the value is close to one, the questionnaire is stable. It is honest and transparent in its sections. As for our study, Cronbach's alpha coefficient reached 0.93 for a total of 41 variables distributed in 7 main axes. The questionnaire is honest and consistent, and its results are taken into account.

Analysis of the correlation and impact between the primary variables of tourism development at the level of Yakourn Municipality

The following table shows the values of the correlation coefficient (Spearman) between the primary variables of tourism development at the level of Yakourn Municipality (Table 1).

Tab.1. Spearman correlation coefficient values between the primary variables of tourism development at the level of Yakouren Municipality

Variables	Overall Facets
Tourism equipment and facilities	0,971
Tourism human resources skills	0,928
Communication technologies and tools	0,669
General tourism reception procedures	0,776
Social media networks	0,812
Tourism databases	0,954
Tourism performance	0,886

Source: Authors, based on the results from SPSS v23

Tourism equipment and facilities: This variable shows a robust positive correlation of 0.971 with the overall facets of tourism development, indicating a highly significant relationship (Sig=0.01). This suggests that the presence and quality of tourism-related equipment and facilities play a crucial role in overall tourism development.

Skills of tourism human resources: Similarly, this variable shows a solid positive correlation of 0.928 with the overall facets of tourism development, indicating its significant impact on the broader tourism landscape (Sig=0.01). This means that the skills and abilities of the human resources working in tourism contribute significantly to the overall development of the sector.

Communication technologies and tools: Although still positively correlated with 0.669, this variable shows a slightly lower strength of association with the overall facets of tourism development (Sig=0.01). This suggests that the role of communication technologies and tools, while significant, may not be as dominant as other factors in driving tourism development.

General tourism reception practices: This variable has a positive correlation of 0.776 with the general facets of tourism development, confirming its importance in the broader context (Sig=0.01). It suggests that efficient and effective reception procedures are integral to the overall success of tourism initiatives in the municipality.

Social media networks: This variable shows a strong positive correlation of 0.812 with the overall facets of tourism development, highlighting its significant impact (Sig=0.01). This indicates that the use of social media platforms is a significant factor in promoting tourism development in the municipality.

Tourism databases: With an exceptionally high correlation of 0.954, this variable shows an extremely strong positive relationship with the overall facets of tourism development (Sig=0.01). This underlines the critical role of comprehensive tourism databases in shaping and improving the overall tourism landscape.

Tourism performance: This variable shows a robust positive correlation of 0.886 with the overall facets of tourism development, confirming its importance (Sig=0.01). This implies that the performance indicators within the tourism sector are highly influential in driving the overall development of the municipality.

Based on the previous analyses, we are inclined to reject the null hypothesis and accept the alternative hypothesis. This means that there is a statistically significant correlation

between the variables related to tourism development in Yakouren municipality. Consequently, tourism contributes to the achievement of sustainable local tourism development at the level of the municipality of Yakouren (Figure 8).

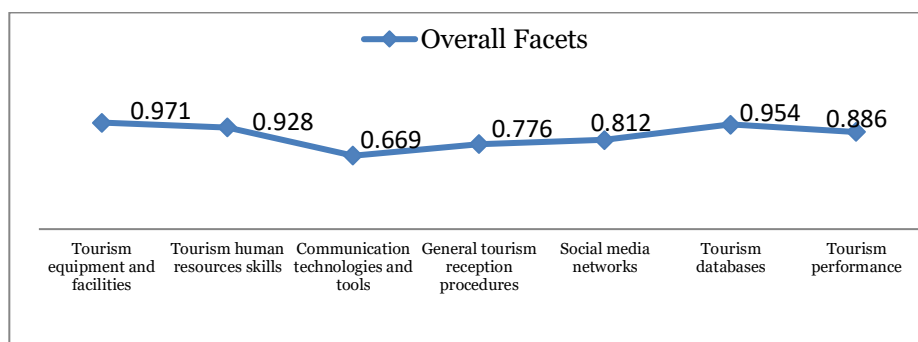


Fig. 8. Spearman correlation coefficient values between the primary variables of tourism development at the level of Yakouren Municipality

Testing the influence relationships between the basic variables of tourism development in the municipality of Yakouren

The following table shows the values of the simple linear regression coefficient to measure the impact of tourism development variables in the municipality of Yakouren (Table 2).

Tab. 2. Simple linear regression coefficient values to measure the impact of tourism development variables for the municipality of Yakouren.

Variables	$r = \sqrt{R^2}$	R^2	$R^2 SE$	(Sig)
Tourism equipment and facilities	0,989	0,978	0,00195	0,01
Tourism human resources skills	0,969	0,938	0,00537	0,01
Communication technologies and tools	0,793	0,629	0,02630	0,01
General tourism reception procedures	0,874	0,764	0,01844	0,01
Social media networks	0,849	0,721	0,02116	0,01
Tourism databases	0,909	0,826	0,01416	0,01
Tourism performance	0,888	0,789	0,01678	0,01

Source: Authors, based on the results from SPSS v23

Tourism Equipment and Facilities: The coefficient value of 0.978 indicates a powerful positive impact of tourism equipment and facilities on the overall facets of tourism development. This coefficient is statistically significant at the 0.01 level, reinforcing the robustness of this relationship.

Skills of tourism human resources: With a coefficient of 0.938, this variable has a very high positive impact on the overall facets of tourism development. Like the previous variable, this coefficient is statistically significant at the 0.01 level, underlining its significant impact.

Communication technologies and tools: This variable has a coefficient of 0.629, indicating a positive impact on the overall facets of tourism development. Although still significant at the 0.01 level, the coefficient suggests that the influence of communication technologies and tools may be slightly less pronounced than the previous two variables.

General tourist reception procedures: The coefficient value of 0.764 highlights the positive impact of efficient reception procedures on the general facets of tourism development.

This coefficient is statistically significant at the 0.01 level, emphasising the importance of streamlined reception procedures.

Social media networks: With a coefficient of 0.721, this variable shows a positive impact on the overall facets of tourism development. Similar to communication technologies, this coefficient is statistically significant at the 0.01 level, indicating the importance of using social media platforms.

Tourism databases: The coefficient value of 0.826 indicates a strong positive impact of comprehensive tourism databases on the overall facets of tourism development. This coefficient is statistically significant at the 0.01 level, highlighting the critical role of well-maintained tourism databases.

Tourism performance: This variable has a coefficient of 0.789, indicating a very high positive impact on the overall facets of tourism development. As with the other variables, this coefficient is statistically significant at the 0.01 level, confirming the significant impact of tourism performance indicators (Figure 9) illustrates this result.

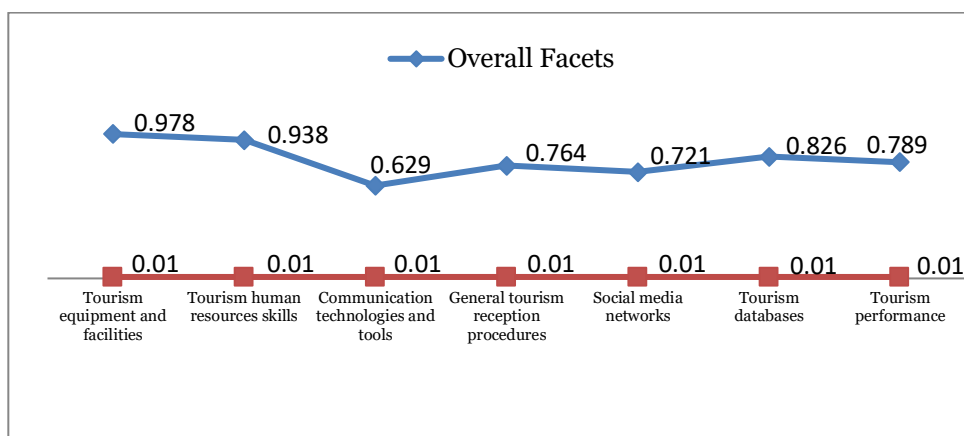


Fig. 9. Simple linear regression coefficient values to measure the impact of tourism development variables for the municipality of Yakouren

It is clear from the above that the development of the variables of tourism development for the municipality of Yakouren enables it to achieve sustainability in tourism activity. Therefore, we reject the null hypothesis and accept the alternative hypothesis, which states that there is a statistically significant influential relationship between the variables of tourism development for the municipality of Yakouren.

In Figure 10, we observe that most of the points for each axis related to tourism development variables fall along a straight line, indicating that the variables have an impact on each other.

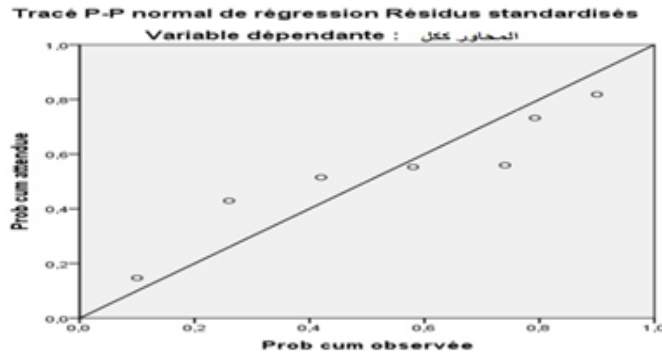


Fig. 10. Point spread of tourism development variables Yakouren (Source: Authors, 2024)

In the following points in order to further clarify the processed data from our sample study:

- The integration of devices and equipment that serve tourism activities leads to a reduction in time and ensures credibility in the process of providing services to tourists. This, in turn, reduces the error rate in work, ultimately satisfying the desires of tourists and providing a rapid response to changes in the tourism market in the municipality of Yakouren.
- Stakeholders in the tourism industry at the level of the municipality of Yakouren rely on qualified human resources to foster creativity in the provision of tourism services to visitors.
- Communication technologies and tools streamline the processing of tourism service requests, reducing the overall effort.
- The study confirmed that standard procedures for receiving tourists promote transparency, resulting in faster tourism decision-making.
- Tourism database processes enhance yakouren's ability to understand various variables within the tourism environment, including both nearby and distant influences on tourism activities.
- The study highlights the critical role of social media networks in facilitating effective information exchange between tourists and various tourism service providers. In addition, digital communication channels help to provide comprehensive regulatory procedures and laws with complete transparency.
- The study showed that tourism databases play a crucial role in future planning, developing management strategies and improving the review process.
- The results of the study analysis underline the significant importance of the tourism performance variable in tourism management. A strong correlation was observed between its variables, indicating a reliable indicator of management efficiency. This variable is also crucial for adapting to changes in the tourism environment.

Conclusion

Continuity of tourism activity is seen as a long-term approach to achieving sustainable development. This, in turn, promotes the sustainability of tourism and local development in the study area, which is characterised by its mountainous terrain and unique traditional tourist attractions. From a financial point of view, the study concludes that tourism activity generates positive returns, as indicated by the indicators analysed. It emphasises that financial feasibility is the basis for attracting both local and foreign capital to invest in tourism, which ultimately proves the viability of the project.

In the second section, which addresses the statistical study involving the local community and stakeholders in the tourism sector, the analysis results confirm the validity of the second hypothesis through Spearman's correlation test and impact assessment via linear analysis. The findings demonstrate its validity, as there is a strong correlation and a significant impact relationship between the key variables of tourism development at the level of Yakouren at TiziOuzou and other regions in Algeria with similar natural and tourist characteristics, thus promoting sustainable local tourism development in general. The following recommendations can be derived:

- The results of the study can be extrapolated to other regions in Algeria with similar natural and tourist characteristics, thus promoting sustainable local tourism development.

The financial study plays a crucial role in mobilising local, national and international capital, which in turn leads to the creation of jobs and wealth.

- The positive financial feasibility indicators confirm that the investment climate in the study area is favourable, both in terms of the regulatory framework and investment facilitation. This environment allows for the creation of employment opportunities for residents, income diversification for individuals, and the promotion of small-scale craft and traditional industries.

- The project in the study area serves as a starting point for implementing tourism development practices in its investment aspect. This includes instilling a culture of tourism investment in the local population, promoting local competition, and ultimately contributing to the sustainability of the sector.

- The analytical, statistical study of stakeholders in the study area revealed statistically robust correlations between different variables of local tourism development. As a result, efforts should be made to improve the quality of these variables, which in turn will contribute to the sustainability of local tourism activity.

- The results of the statistical analysis underline a significant influence between the variables of tourism development in the study area. Thus, any imbalance in one variable can have a negative or positive impact on all the other variables.

- It is imperative to disseminate the results of successful tourism studies so that Algeria can take advantage of its remarkable geographical and natural diversity, which is a valuable asset given its vast territory.

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