
Mobile App Integration: Advancing Tourism Service Innovation and Human Resource Enhancement

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Abstract:

The study aims to reveal the impact of modern technologies on tourism, with a focus on heritage and analysis of economic characteristics. The study also evaluates the interaction between heritage and technical improvements, intending to achieve a correct understanding of the best methods to benefit from these technologies to attract tourists and support human resources in the tourism sector.

Keywords: Tourism; Heritage; Mobile app; Virtual and Augmented Reality; Human Resource

Jel Classification Codes: O15, O31, O33, Z30, Z32.

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1. Introduction:

The tourist sector an essential column of the international economic climate grows on supplying extraordinary solution experiences that satisfy the ever-evolving requirements and also assumptions of vacationers. Nguyen(2021,p131) In an increasingly affordable landscape, solution technology has become important for tourist companies to differentiate themselves, boost client contentment, and also maintain lasting developmentShariffuddin et al.(2023,p04) Nonetheless the course to effective solution development is inherently connected to the reliable administration plus the use of personnel the driving pressure behind outstanding solution distribution.

The tourist industry is naturally labor-intensive with a hefty dependence on human communications as well as customer-facing functions. Ho and Gebombut (2019,p4198) From front-line personnel at resorts coupled with hotels to explore overviews together with holiday companies the top quality of solutions as well as the general site visitor experience are greatly formed by the understanding abilities, plus perspectives of the sector's labor forceLadkin et al.(2023,p02)As a result, promoting a society of advancement as well as encouraging workers to welcome and also add to solution technology campaigns have ended up being a tactical concern for tourist companies.

While technical breakthroughs such as electronic systems, mobile applications together with information analytics have actually changed numerous facets of the tourist market the human component stays crucial. Benckendorff et al (2019, p05)It is the harmony between modern technology and also personnel that is vital to opening the complete possibility of solution development.Uzorka et al.(2023,p14699) Cutting-edge solution offerings, procedures, together with company versions should be underpinned by a competent, encouraged, as well as customer-centric labor force with the ability of providing outstanding experiences constantly.

Identifying the crucial duty of human resources in driving solution development, this research study looks into the elaborate interaction between these two essential domain names.

By discovering the most recent academic structures, as well as the sector's finest techniques this study intends to offer an extensive understanding of exactly how tourist companies can properly utilize their human resources to speed up solution technology campaigns.

The objectives of this study are to analyze just how personnel monitoring methods nurture a society of advancement as well as enhance solution distribution abilities within the tourist industry. Furthermore, the research study intends to check out the impact of management designs as well as the business environment assisting in an atmosphere for solution advancement. Finally, it looks to determine and also recommends services for the obstacles that tourist companies deal with in straightening their human deposit techniques with solution advancement objectives.

2. Literature Review

The extensive effect of brand-new modern technologies on conservation, promo along with an understanding of social heritage has gathered substantial academic focus in recent times. Xiao et al.(2018;p391). Scientists from varied techniques, consisting of sociology, archaeology, gallery research studies, computer technology, and also social research have explored this wide domain name using useful understandings together with points of view.Lock(2003,200) Digital Paperwork as well as Visualization The arrival of electronic paperwork methods, such as 3D scanning, photogrammetry plus high-resolution imaging Apollonio et al.(2021,p486) , has changed the means social heritage properties are tape-recorded and also protected. Severo (2018,p261) discover the capacity of these devices to produce immersive online settings making it possible for remote gain access to together with involving experiences for social heritage websites and also artefacts. In addition, Samadzadegan et al.(2023np1397) highlight the value of precise 3D modeling for paperwork, and preservation, coupled with online gallery applications.

Virtual and Augmented Reality (VR/AR) The combination of Virtual and Augmented Reality (VR/AR) modern technologies right into social heritage methods has accumulated substantial focus from scholars. Gupta (2023,p160) look into the capacity of Virtual Reality to boost site visitor experiences in social heritage websites while Merchán et al. (2021,p04) take a look at the function of AR in on-site analysis and also involvement. Moreover, Parker with Saker(2020,p1163) checks out making use of immersive Virtual Reality settings for online galleries and also events making it possible for remote gain access to them together with democratizing social experiences.

Expert System (AI) and also Machine Learning(ML) The application of AI as well as ML strategies in social heritage has unlocked automated evaluation, category along anticipating modeling. Sarker (2022,p10) explore using computer system vision together with deep discovering for the recognition as well as category of social things while Labropoulos et al. (2018,p70) check out the capacity of anticipating modeling for threat analysis plus preservation initiatives. Furthermore, Yang (2020,p26) check out the duty of all-natural language handling in boosting multilingual accessibility to social heritage sources.

Blockchain and also Distributed Ledger Technologies The appearance of blockchain as well as dispersed journal innovations has stimulated conversations around their possible applications in social heritage. Batista et al. (2021,p120) check out using blockchain for provenance monitoring along with verification of social possessions while Guidi et al. (2018,p22) delve into decentralized possession plus monitoring versions for electronic social heritage. Furthermore, Bartoletti et al.(2018,p35) checks out the tokenization as well as money of social properties making use of blockchain modern technologies.

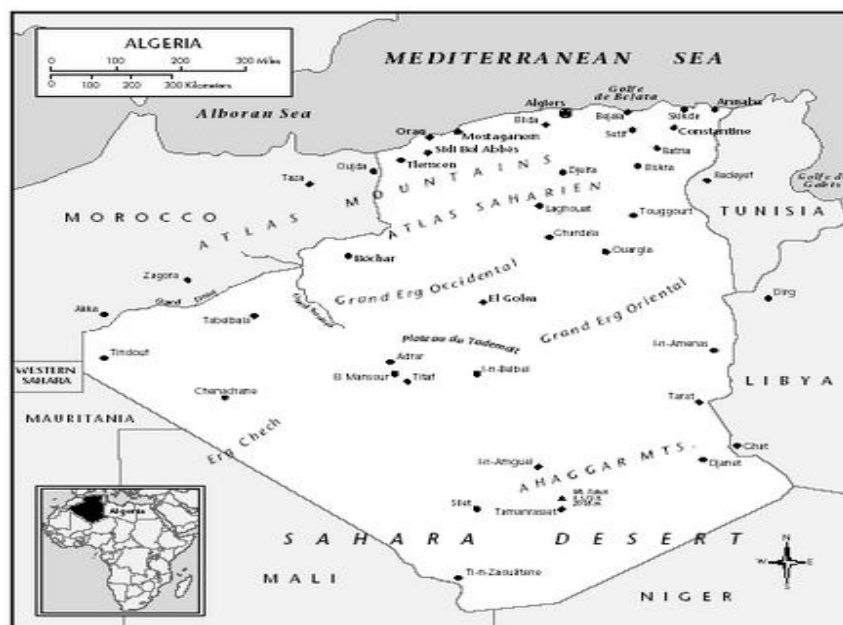
Moral plus Sustainability Considerations While recognizing the transformative capacity of brand-new modern technologies scholars have additionally increased vital issues about credibility, access as well as sustainability. Mah et al.(2019,p209) discovers the idea of credibility in electronic depictions of social heritage, highlighting the relevance of keeping social honesty and also the level of sensitivity. Additionally, Fang et al.(2019,p e02) stress the requirement for comprehensive plus fair accessibility to electronic sources dealing with the electronic divide and also varied social viewpoints.

3. Material and Method

3.1. Preserving Algeria's Rich Cultural Legacy through Digital Innovations

Algeria is a country with a millennia-old background as well as a tapestry of varied social impacts that flaunts a rich heritage that covers from old Roman to incredible mosques together with vibrant aboriginal practices.

Fig N° 1: Algeria Map



Source :<https://www.everyculture.com/A-Bo/Algeria.html>

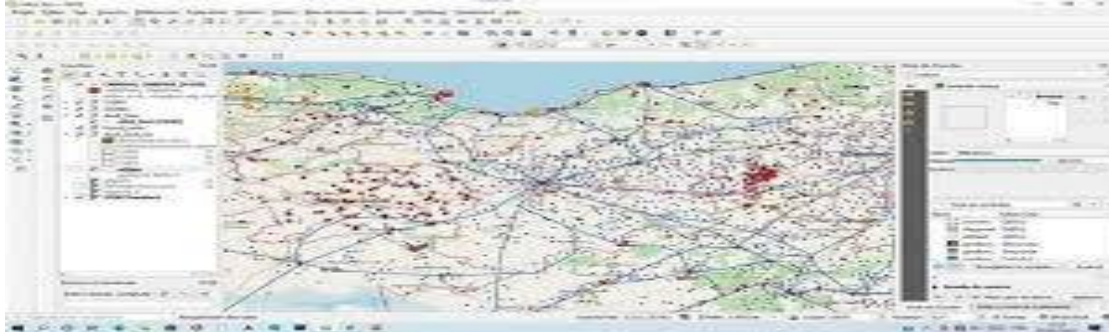
Nonetheless, the conservation together with the promo of this important tradition has encountered many obstacles, including restricted sources, ecological hazards plus socio-political changes. In the last few years, the combination of brand-new innovations has become a promising service, supplying cutting-edge strategies to protect and also commemorate Algeria's social inheritance.

3.2. Algeria's archaeological map as an interactive app

It is an archaeological map of Algeria that is shown on an interactive electronic system that gathers a stock of historical websites throughout the nation. It is thought about as an upgrade together with the exact variation of the 1911 atlas. (Embassy of Algeria in Portugal) The brand-new map consists of historical websites throughout numerous historical durations in Algeria.This map comprises " a realty computer registry which includes 15200

websites, consisting of 7640 websites provided in the Gessel Atlas and also 7652 brand-new websites, According to **Abdulrahman Khalifa**« and also will certainly quickly be offered on the internet site of the Ministry of Culture as well as Arts ».

Fig N° 2: Mapping the Past and Present: A Comprehensive Land Register



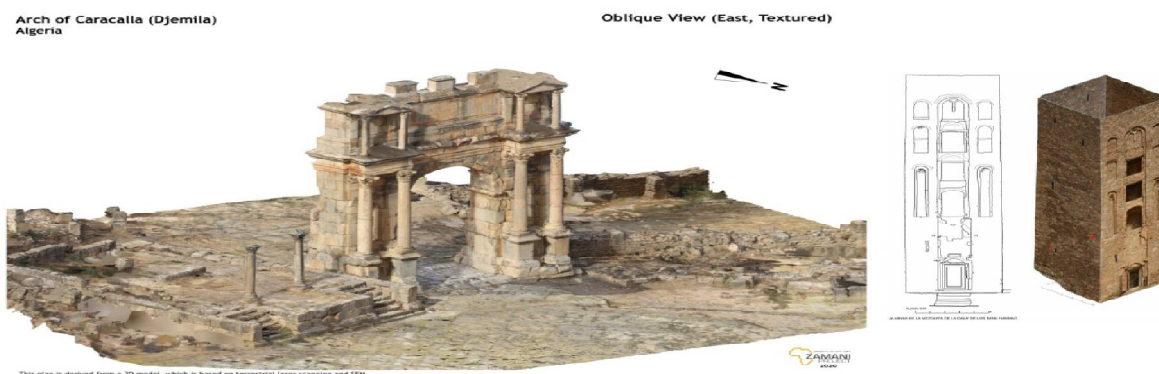
Source : <https://www.dzairworld.com/2021/01/19/patrimoine-le-ministere-de-la-culture-devoile-la-nouvelle-carte-archeologique-de-lalgerie/>

The map has tourist, historical, and economic purposes. It also offers a miniature archaeological map of each wilaya, which will contribute to the promotion of the archaeological sites of each region and their preservation during development projects.

3.3. Collaborative Efforts in Digitally Documenting Cultural Heritage Sites

The Algerian Ministry of Society progressed 3D scanning too as photogrammetry techniques have actually been utilized to establish extremely detailed digital records of internet sites such as the UNESCO World Heritage-listed Al Qal' an of Beni Hammad and also the Roman of Djemila (UNESCO,n.d)

Fig N° 3.Elevation and photographic 3D model of the Roman of Djemila and Al Qal' a of Beni Hammad



Source : <https://www.zamaniproject.org/site-algeria-djemila.html#gallery3-7h> Source : Almagro, A. (2013,p17)

3.4. The Digital Revolution in Preservation and Access

These electronic ownerships have not simply helped in conservation campaigns but have led the way to advance electronic gallery experiences. The Virtual Museum of Algerian Antiquities (VMAA) a joint job between numerous Algerian facilities plus global companions has leveraged these electronic repairs to offer immersive online exhibits, allowing remote access to Algeria's social prizes for scientists, educators, and the public. (Algerian Ministry of Culture)

Fig N° 4. views some objects from the National Museum of Antiquities and Islamic Art

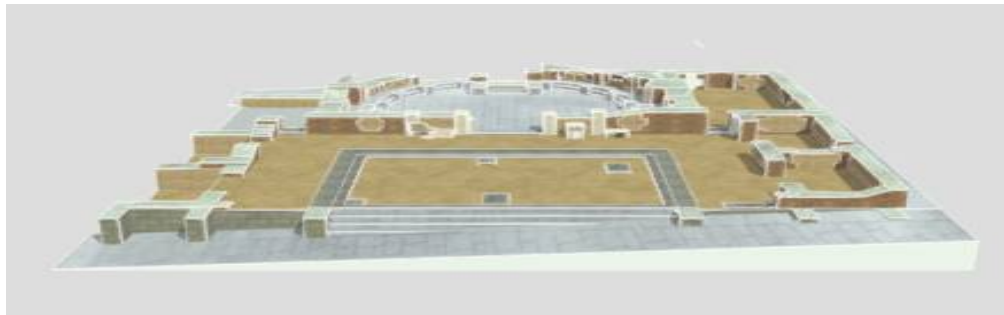


Source :https://islamicart.museumwnf.org/pm_museum_items.php?id=Mus01;dz&link=ISL

3.5. Augmented Reality Applications in Cultural Heritage Sites

Boosted Reality for On-Site Interpretation Complementing the online gallery efforts fact (AR) applications have been created to boost on-site analysis and communication at social heritage websites Bobocet al.(2022,p02). For instance developed AR experiences for websites like the Roman damages of Timgad as well as the Byzantine shelter of Djemila.

Fig N° 5. A simplified model of the remains of the public library in the Roman city of Timgad, Algeria.

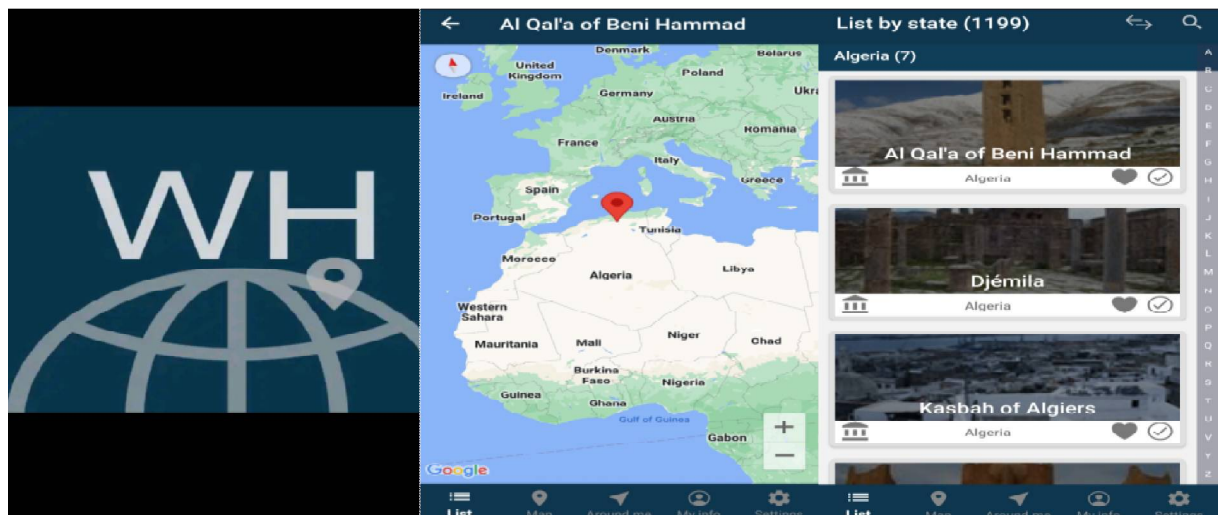


Source :<https://sketchfab.com/3d-models/ruins-of-roman-library-at-timgad-5495dc39d6fe4d1ebb437d234ba94743>

3.6. Interactive Smartphone Applications

With applications site, visitors can direct their smartphones to detail areas or artifacts as well as gain access to interactive visualizations, multimedia material as well as contextual info enriching their understanding as well as gratitude for the historical as well as social importance of these websites.

Fig N° 6. World Heritage app



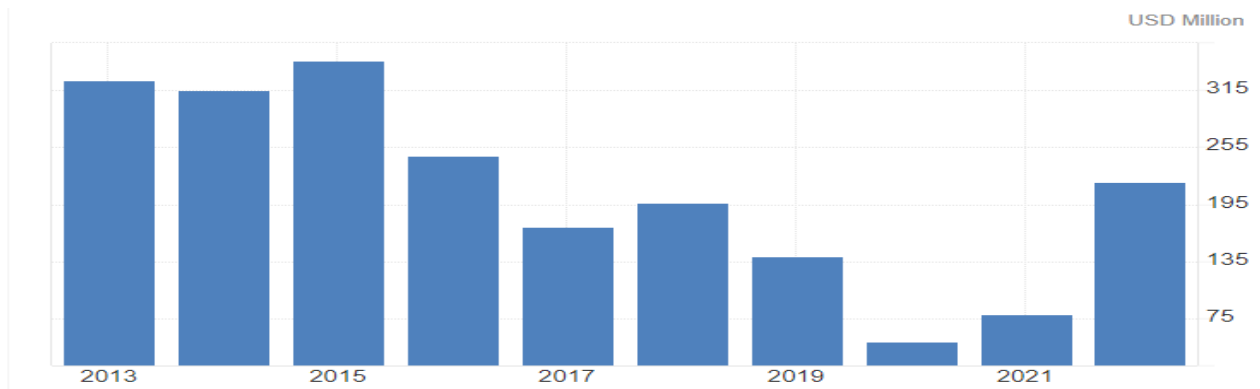
Source: image from World Heritage app in play store

4. Some of Tourism Indexes on Algeria

4.1. Algeria Tourism Revenues

The tourist market in Algeria experienced significant changes in profits over the years with a considerable rise noted in 2022 contrasted to the previous year. This rise mirrors a favorable pattern in visitor tasks as investing within the nation. Nonetheless, these profits have traditionally differed suggesting the field's vulnerability to outside aspects. Regardless of these variations, tourist stays an essential factor in Algeria's economic situation highlighting its capacity for development as growth.

Fig N° 7. Analyzing Algeria's Tourism Revenue Trends: Insights from 2013 to 2022



Source: SESRIC - The Statistical, Economic & Social Res. & Training Centre for Islamic Countries

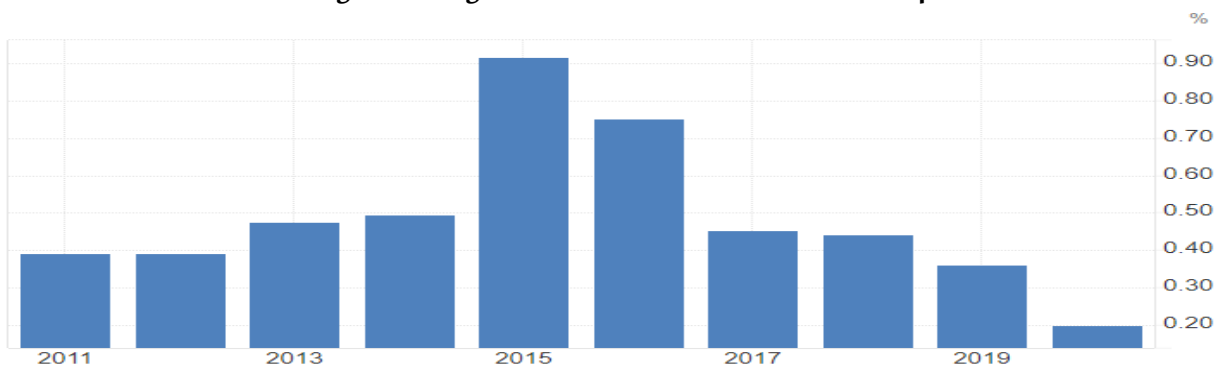
Comment on the result, Tourist Incomes in Algeria enhanced to 219 USD Million in 2022 from 79 USD Million in 2021. Tourist Revenues in Algeria balanced 211.07 USD Million from 1995 up until 2022 getting to an all-time high of 477.00 USD Million in 2005 as well as a document reduced of 28.00 USD Million in 1997.

4.2. Algeria - International Tourism

4.2.1. Receipts

International tourist receipts are costs by worldwide incoming site visitors, including payments to national carriers for international transport. These receipts consist of various prepayment-produced goods or services in the destination country. They additionally might be consisting receipts from same-day site visitors other than when these are essential to require different categories. In some countries, they do not have receipts for guest transportation products

Fig N° 8. Insights from International Tourist Receipts



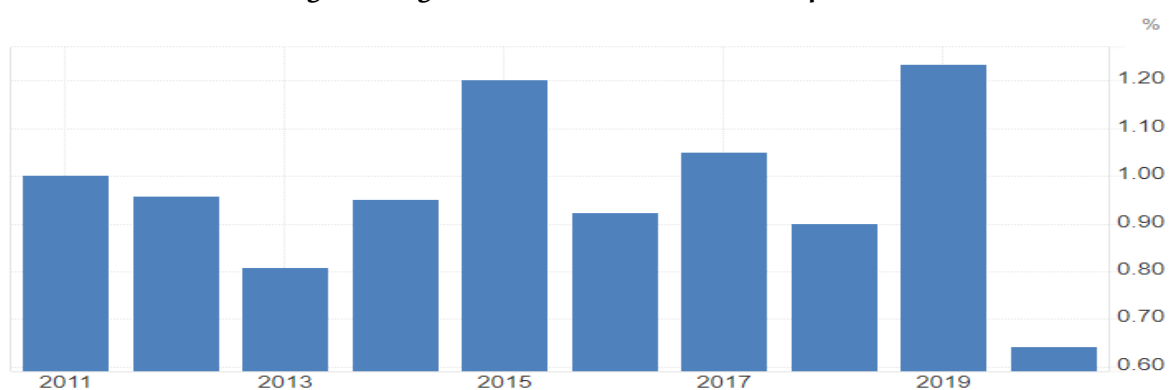
source: World Bankin April of 2024.

Comment on the result, Worldwide tourist receipts (percent of overall exports) in Algeria were reported at 0.20079% in 2020 according to the Globe Financial institution collection of growth indications assembled from formally acknowledged resources.

4.2.2. Expenditures

The expense of international tourism is the money spent by tourists from one country to visit other countries, which includes reimbursement for transportation costs. The calculation involves purchasing products and services as commodities, refining products, and non-monetary gold.

Fig N° 9. Algeria's International Tourism Expenditures



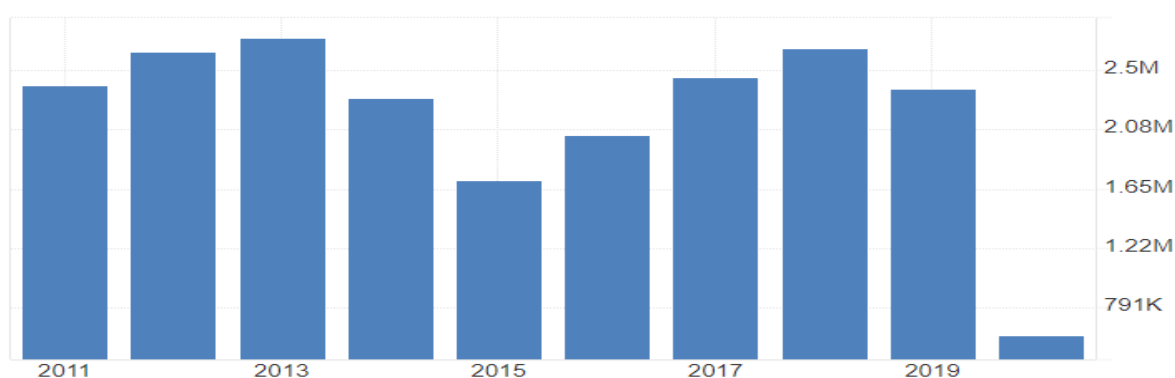
Source: World Bankin April of 2024

Comment on the result, In 2020, Algeria's international tourism expenditures, as a percentage of total imports, were recorded at 0.64231%, based on data from the World Bank's compilation of development indicators sourced from officially recognized outlets. This figure reflects the portion of total imports attributed to spending by international tourists visiting Algeria during that period.

4.3. Algeria - Number Of Arrivals

International incoming tourists are the number of tourists who travel to a country other than that in which they have their usual residence for as much as a year. "site visitors" consist of travelers, temporary site visitors, cruise ship guests plus staff participants. Information collection techniques differ by nation such as boundary stats or tourist facilities.

Fig N° 10. indicators International Inbound Tourist Arrivals



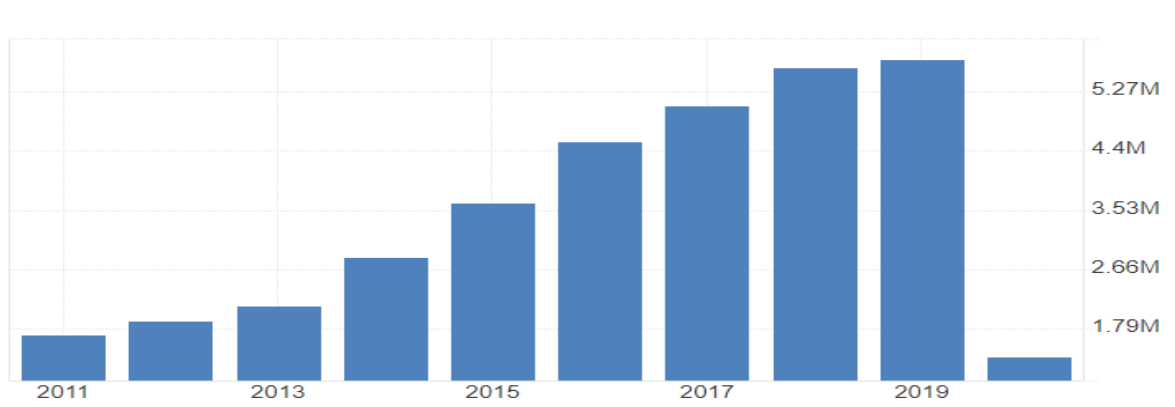
Source: World Bankin April of 2024

Comment on the result, In 2020, Algeria welcomed 591,000 international tourists, as reported by the World Bank's collection of development indicators sourced from officially recognized channels.

4.4. Number Of Departures

International outbound tourists are people carried out from their native land for any purpose other than a remunerated activity in the country visited. The information mirrors departures, not the real variety of vacationers. As a result, if an individual takes several journeys from a country within a certain amount of time, each separation is counted individually.

Fig N° 11. indicators International Outbound Tourism Departures



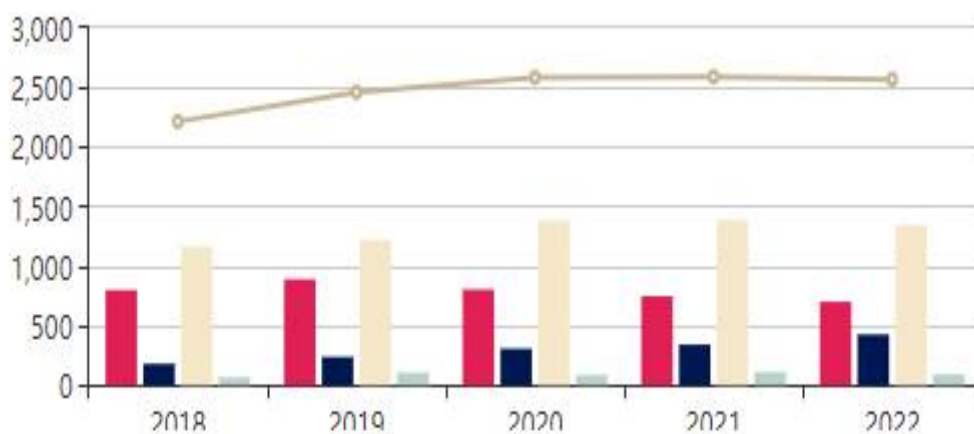
Source: World Bankin April of 2024

Comment on the result, In 2020 Algeria recorded 1,386,000 departures for international tourism as recorded by the Globe Financial institution's collection of growth indications sourced from officially recognized sources.

4.5. Status of tourism investment projects

This part provides insights into the dynamic nature of project management over five years, showcasing fluctuations in project activity levels such as realization, standstill, launches, and saved projects. It offers valuable information for stakeholders and decision-makers involved in project planning and execution.

Fig N° 12. Dynamic Trends in Project Statues: 2018-2022



Source: <https://www.mta.gov.dz/principaux-agregats-du-tourisme/?lang=fr#el-47b273aa>

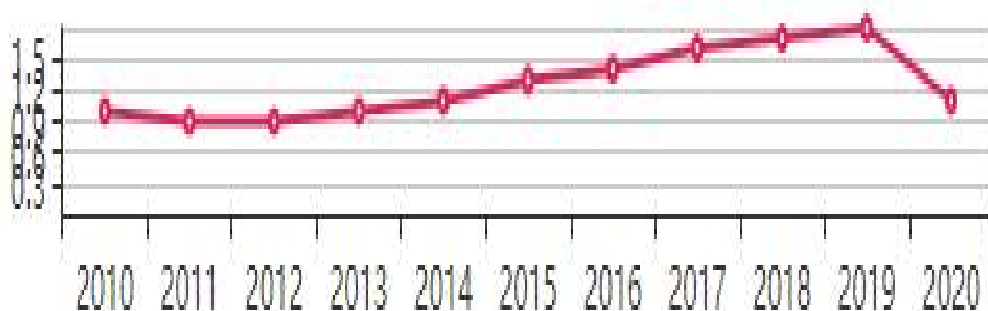
Comment on the result, the statistics for project status over the years reveal significant fluctuations. In 2018, there were 799 projects in realization, 181 projects at a standstill, 1,163 projects without launches, and 67 projects saved, resulting in a total of 2,210 projects. Moving into 2019, the number of projects in realization increased to 889, while those at a standstill also rose to 239. However, there was a decrease in projects without launches to 1,220, while saved projects saw a slight increase to 107, bringing the total to 2,455 projects.

4.6. Employment in tourism industry as share of total employment in Algeria

4.6.1 Contribution to tourism and Human resource

This part provides a brief overview of the tourism sector's influence on the Gross Domestic Product (GDP) over a decade, spotlighting branch hotels, cafes, and restaurants. It outlines fluctuations in the sector's contribution, notably increasing from 2013 to 2019 before experiencing a decline in 2020. This insight offers valuable perspectives on the sector's economic significance and adaptability to changing conditions.

Fig N° 13. Evolution of the tourism sector in the PIB (branch hotels, cafés and restaurants)



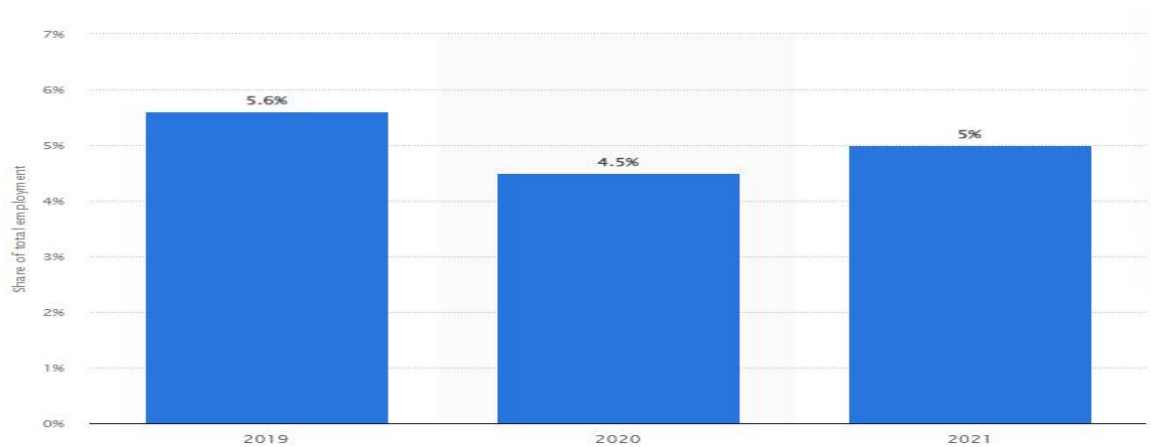
Source: <https://www.mta.gov.dz/principaux-agregats-du-tourisme/?lang=fr#el-47b273aa>

Comment on the result, The data illustrates the evolution of the tourism sector's contribution to the Gross Domestic Product (GDP) from 2010 to 2020, focusing on branch hotels, cafes, and restaurants. Over this period, there is a noticeable increase in the share of tourism in GDP, with a particularly notable rise from 2015 to 2019. However, there appears to be a slight decline in 2020, possibly influenced by external factors such as global economic conditions or specific challenges faced by the tourism industry that year. Overall, the data highlights the importance of the tourism sector as a significant contributor to the economy, with fluctuations observed over time.

4.6.2. Human Resource Trends in Algeria's Tourism Sector

Algeria's tourism sector witnessed an uptick in employment, signaling a positive trend for the industry. However, it didn't match the peak observed in previous years. This variability underscores the dynamic nature of Algeria's tourism landscape and calls for further investigation into its underlying factors.

Fig N° 14. Fluctuating Employment Trends 2019 to 2021



Source: Statista Research Department

Comment on the result. In 2021, the proportion of jobs in Algeria's tourism sector rose to five percent of total employment, marking an uptick from the previous year. Yet, the peak share within the reviewed years was in 2019, where tourism accounted for 5.6 percent of overall employment.

5. Discuss the result

Algeria's tourism sector has exhibited mixed trends in recent years. Tourism revenues rebounded from \$79 million in 2021 to \$219 million in 2022, though still well below the peak of \$477 million in 2005. The sector's economic contribution remains relatively modest, accounting for only 0.2% of total exports and 0.64% of total imports in 2020. International tourist arrivals were 591,000 in 2020, while departures numbered 1,386,000, indicating more outbound than inbound tourism.

Examining tourism's role in employment, the data shows an uptick, with the sector accounting for 5% of total jobs, up from the previous year. However, the peak share was in 2019 at 5.6%, suggesting some fluctuations in tourism's contribution to the job market over the reviewed period.

Moreover, the tourism sector's contribution to GDP from the hotels, cafes, and restaurants branches increased notably from 2015 to 2019 before a slight decline in 2020, potentially influenced by global economic factors or industry-specific challenges.

In contrast, the project management data reveals concerning patterns from 2018 to 2022. While the total project count peaked at 2,585 in 2021, active realization projects declined sharply from 799 in 2018 to 701 in 2022. Conversely, stalled projects surged from 181 to 427 over the same period. The persistently high number of non-initiated projects suggests systemic issues in project selection, planning, and resource allocation across various sectors, including tourism. Addressing these challenges is crucial for optimizing project execution capabilities and unlocking further economic growth potential.

❖ Recommendations

Tourism growth method: Establish a detailed tourist growth method that concentrates on boosting Algeria's allure as a location, enhancing the framework as advertising one-of-a-kind social and all-natural destinations. This can assist tourists, and worldwide arrivals with the industry's payment to GDP together with work.

Diversification of tourist offerings: Explore to diversify tourist offerings past conventional recreation tourists such as advertising eco-tourism, journey tourism along social heritage tourism. This can draw in a larger series of site visitors and prolong the tourist period minimizing seasonality impacts.

Local as well as global collaboration: Foster local, and global collaborations to advertise Algeria as a tourist location, share the finest techniques, as well as join joint advertising campaigns. This can enhance exposure, and bring in a more comprehensive swimming pool of worldwide site visitors.

Boost task monitoring capacities: Implement actions to improve task monitoring techniques throughout different fields, including tourists. This might entail reinforcing job choice requirements, administration methods, and business placement. Efficient task administration can ensure the effective implementation of tourist growth campaigns along with framework tasks.

Personnel advancement: Invest in training as capacity-building programs for the tourist labor force, concentrating on abilities such as language, and social recognition. A competent, and educated labor force can substantially boost the total site visitor experience.

Public-private collaborations: Encourage public-private collaborations (Public relations) in the tourist market, leveraging economic sector experience and sources while lining up with government concerns plans. Public Relations can increase tourist advancement along with boosting e-service quality.

The tourist industry in Algeria offers considerable development capacity as shown by the rising payment to GDP as work in recent times. Nevertheless, the industry's general financial effect continues to be reasonably small, and there is an area for more growth as a diversity of tourist offerings. Attending to obstacles in job monitoring throughout numerous markets, consisting of tourists, is essential for ensuring the effective implementation of advancement campaigns as framework tasks that can improve Algeria's charm as a traveler location.

6.Conclusion

By applying an extensive tourist growth technique, promoting local plus worldwide partnerships, boosting job administration abilities purchasing personnel advancement, and also urging public-private collaborations, Algeria can open the complete possibility of its tourist field. This, subsequently can add to financial development, and task production as the promo of social exchange.

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