
Faculty Scholarship and Creative Works

9-1-2022

The Future of Destination Marketing Organizations in the Insight Era

Arthur Huang

University of Central Florida, Arthur.huang@ucf.edu

Efren De la Mora Velasco

Adam Haney

Sergio Alvarez

University of Central Florida, sergio.alvarez@ucf.edu



Part of the [Hospitality Administration and Management Commons](#)

Find similar works at: <https://stars.library.ucf.edu/ucfscholar>

University of Central Florida Libraries <http://library.ucf.edu>

This Paper is brought to you for free and open access by STARS. It has been accepted for inclusion in Faculty Scholarship and Creative Works by an authorized administrator of STARS. For more information, please contact STARS@ucf.edu.

Original Citation

Huang, A., De la Mora Velasco, E., Haney, A., & Alvarez, S. (2022). The Future of Destination Marketing Organizations in the Insight Era. *Tourism & Hospitality* (2673-5768), 3(3), 803–808. <https://doi.org/10.3390/tourhosp3030049>



Perspective

The Future of Destination Marketing Organizations in the Insight Era

Arthur Huang ^{*}, Efrén De la Mora Velasco , Adam Haney and Sergio Alvarez 

Rosen College of Hospitality Management, University of Central Florida, 9907 Universal Blvd,
Orlando, FL 32816, USA

* Correspondence: arthur.huang@ucf.edu

Abstract: There has been a growing interest in examining the implementation of insight-era technologies (e.g., AI, social media) and big data for sustainable tourism development. However, actionable guidelines to promote a holistic adaptation and the effective functioning of destination marketing/management organizations (DMOs) in the increasingly data-infused world are still needed. This perspective paper posits a research-based framework that DMOs can use to become more responsive and efficient in their marketing and planning efforts in the current AI-infused world. Four propositions are presented to support DMOs' transition to the insight-era: (a) DMOs' organizational adaptations and workforce development and training, (b) active engagement with destinations' stakeholders and data sharing, (c) leverage user-generated data and emergent technologies for destination marketing, and (d) DMOs' data-driven decision making.

Keywords: destination marketing organizations; artificial intelligence; insight Era; data-driven decision-making; data-driven eco-systems; big data; the Internet of Things



Citation: Huang, A.; De la Mora Velasco, E.; Haney, A.; Alvarez, S. The Future of Destination Marketing Organizations in the Insight Era. *Tour. Hosp.* **2022**, *3*, 803–808. <https://doi.org/10.3390/tourhosp3030049>

Academic Editor: Brian Garrod

Received: 30 March 2022

Accepted: 6 September 2022

Published: 13 September 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

The information era (i.e., the digital age) is a socio-economic concept that highlights the fundamental role of information technology, computational processing, and networking computing on firms' competitiveness [1]. Today's tourism and hospitality (T&H) organizations have recognized the need to fully utilize heterogeneous data to inform decision-making. Artificial intelligence (AI), the Internet of Things (IoT), and big data have shown the power to transform various industries, a developmental stage known as the insight era. The insight era refers to the era wherein data and analytical models and tools are applied in abundance to derive actionable insights from existing datasets [2]. It brings new opportunities to various organizations in constantly evolving situations.

Destination marketing organizations (DMOs) are teams of tourism professionals in charge of leading and coordinating tourism stakeholders and conducting tourism planning, marketing, and continued monitoring of tourism outcomes within and outside a tourist destination [3]. Recommended practices and roles for DMOs to effectively coordinate tourism efforts have been posited in the literature [3], including leadership, partnership, stakeholder relationships, planning, research, product development, marketing, and visitor management. DMOs have been increasingly impacted by digital technologies and evolving consumer behavior. For example, more and more tourists rely on self-help technologies (e.g., mobile apps) to find crowdsourced information about a destination or places of interest rather than relying on the "official" content created by DMOs. Younger generations have begun to turn away from the traditional marketing models used by DMOs and prefer personalized recommendations offered by other organizations or individuals via digital platforms or mobile devices [4]. Meanwhile, DMOs face crucial changes related to stakeholders' engagement and sustainability initiatives [5]. These challenges prompt DMOs to rethink their decision-making processes while endeavoring to maintain the intrinsic advantage of human connection from a destination's perspective [6].

DMOs have increasingly used various digital tools in marketing, such as websites, e-mail, traveler review sites, blogging, and mobile electronic guides. Studies show that DMOs have adopted social media content in their marketing efforts [7,8] and paid increasing attention to developing techniques such as big data analytics to rapidly and efficiently derive insights from user-generated data. However, directions on how to leverage insight-era technologies (e.g., AI-driven analytics and big data) to enhance DMOs' modus operandi are not offered by seminal destination management frameworks such as UNWTO's [9] and Morrison's [3]. To this end, this perspective paper develops a conceptual framework to inform DMOs' decision-making based on data-driven insights. This article posits and discusses four propositions on how DMOs can strategically adopt emergent insight-era technologies and data analytics over time to achieve excellence.

2. Conceptual Framework

Given the incremental usage of data analytics in the T&H industry [10], we posit a research-based framework that DMOs can use to become more responsive and efficient in their marketing and planning efforts in the increasingly AI-infused world. As shown in Figure 1, our framework begins by suggesting organizational adaptations facilitating AI-mediated operations. Furthermore, it recommends providing new training for DMO staff in key technical and non-technical skills to fully leverage AI-enriched research for destinations' data exploration and analysis. Our framework highlights the prominence of stakeholder engagement to enable a destination's data infrastructure and data sharing mechanisms that ensure the flow of ubiquitous data from multiple sources and devices. The dotted line between stakeholder engagement and data exploration indicates the feedback from stakeholders to verify and validate the findings from heterogeneous data sources. A robust and interoperable data sharing infrastructure should be established to integrate data insights into key destination marketing processes. The above procedure in the proposed model will support DMOs in leveraging real-time heterogeneous data to make more proactive and data-informed marketing decisions. Four propositions distilled from the proposed framework are elaborated as follows.

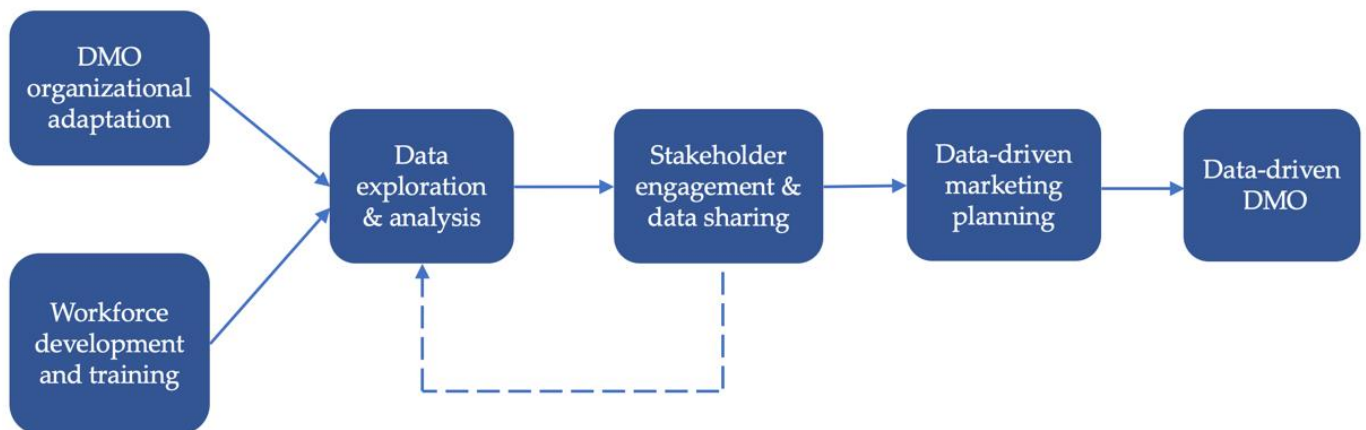


Figure 1. A framework for advancing DMOs' data-driven decision-making.

3. Propositions

3.1. DMOs' Organizational Adaptations and Workforce Training

The COVID-19 pandemic has accelerated the effect of digital technologies on work reorganization (e.g., adjusted job duties and new job roles). AI can play a critical role in enhancing tourism firms' competitiveness (e.g., financial performance) in the modern economic landscape [11–13]. Studies have identified AI readiness, AI skilled workforce, AI infrastructure, AI innovation, and other AI-related factors crucial for firm competitiveness [14]. DMOs must adapt their organizational structures by considering AI in three key operations: (a) providing personalized information to travelers (e.g., AI-powered

recommendation systems), (b) conducting AI-driven analytics to better understand visitors' behavior, and (c) enhancing visitors' engagement (e.g., through AI-powered voice assistants and chatbots). While typical organizational structures follow a vertical chain of command that is highly centralized, the adoption of AI calls for the decentralization of power towards a more horizontal model, where many independent actors can share information and reach across departments horizontally [15]. This would enable effective and efficient transferring of data and insights throughout the organization.

With digitalization comes the need for a workforce prepared to take on the challenges that AI integration presents. In particular, T&H organizations require a highly skilled workforce with both technical and non-technical skill sets [16]. DMOs should also consider providing training to improve workers' AI knowledge, resilience, and flexibility in the swiftly changing labor market [17]. In addition, the workforce needs to have advanced communication and critical thinking soft skills to provide consumer- and stakeholder-oriented services. DMO staff need to be well versed in digital tools and be capable of understanding the pros and cons of various AI applications in destination marketing. Given the richness of insights that can be extracted from user-generated data, DMOs need knowledgeable and skilled staff to administer destinations' massive databases, apply data mining and data scrapping procedures, and integrate data analytics into decision-making processes.

3.2. Active Engagement with Destinations' Stakeholders and Data Sharing

One of the main advantages that DMOs can leverage in the insight era is their unique relationship with small-to-medium businesses in their destinations [18]. This relationship allows DMOs to operate at the center of smart tourism developments by mobilizing resources, facilitating connections among key stakeholders, and engaging themselves in existing destination governance processes [19]. DMOs should promote partnerships and data-sharing, ensuring that data are freely flowing across the destination ecosystem. DMOs should also lead by leveraging AI tools to link consumers directly with small-to-medium level businesses. This smart tourism ecosystem would allow for stakeholder engagement by identifying relevant stakeholders through insights from data gathered by the DMO. Internally, DMOs can use the tools and information they already have along with emergent AI technologies to increase organizational efficacy and efficiency and fully engage different stakeholders via different platforms and mechanisms.

3.3. Leverage User-Generated-Data for Destination Marketing

Current research reveals that DMOs have used social media to supplement their traditional planning and marketing tools but have yet to fully capitalize on big data to supplement visitors' research and services [20]. With the abundance of data available to organizations to draw insights from, DMOs should leverage more user-generated data with appropriate ICT tools to gain a better understanding of how visitors and residents perceive the destination's image, as well as how to better meet their needs. Data such as "likes" on social media posts can be used as predictors of tourism demand, as shown in a study conducted by Önder et al. [21]. Textual data from real-time comments and posts can be mined to gauge tourists' multi-dimensional sentiments towards the destination and other subjective factors such as perceived quality [22]. Similarly, AI-based deep learning analysis of online travel agencies (OTA) and DMOs' website photos can aid in understanding destinations' tourism services and products, compare user-generated images with marketing strategies, and improve tourism services [23]. Geotagged user-generated photos can also be analyzed using machine learning techniques to examine perceptual differences between tourists and residents that converge on the same destination, thus, supporting the improvement of host-guest interactions [24]. Understanding the potential visitors' desires and using social media data to identify key strengths and weaknesses of a destination across time will help DMOs understand tourists' perceptions and preferences and adjust strategies accordingly in a timely manner. Similarly, the analysis of hetero-

geneous user-generated data can provide insight for mitigating issues such as diseases, crowding, or other emergent disruptors. Through the collection of user-generated data and AI-based applications, disease spread can be tracked throughout a destination, thus allowing for timely and effective mitigation efforts [25].

Today's DMOs desire to actively engage visitors throughout their experiences and market various services in various formats [3,26]. The evolving landscape of work has enabled DMOs to accelerate their adoption of insight-era technology and pursue new, data-driven marketing models [6]. Unique insights can be derived from social media and T&H review websites; such outlets also serve as an important channel for delivering marketing messages. Lee et al. [27] demonstrated that a DMO's social media presence and the richness of information on a DMO's social media page can positively affect visitors' engagement. Social media marketing also provides low-cost opportunities for DMOs to obtain insight from their residents to promote their quality of life. Various data from sensors are also useful to engage with past, current, and potential future visitors in a more customized fashion than what traditional marketing methods can offer. Similarly, virtual reality (e.g., 3D head mount immersive environments) is becoming a useful tool for providing immersive experiences to attract tourists [28]. For example, 360° video advertisements of urban destinations that include (a) real-time motion capture of people and objects, (b) compelling imagery of tourism destinations, and (c) a sense of what it feels to be there through a "try-before-you-buy" approach can enhance visitors' intentions to visit and satisfaction [29].

3.4. The Power of DMO's Data-Driven Decision-Making

In data-poor environments, managers tend to rely on experience and experts' opinions for decision-making. However, the adoption and use of data collection and analytics can bring significant changes to firms' management practices in the private sector [30]. In the public sector, the setting of priorities regarding which social problems to address has traditionally been a complex political process involving multiple stakeholders [31]. These decision-making processes in data-poor environments tend to favor the needs and opinions of well-connected and influential actors. In the realm of tourism management, it is no surprise that the needs and opinions of large and powerful businesses that cater to international tourists have an outsized influence on priorities and decisions that shape destinations [32,33]. Even when DMOs intend to consider the interests of a broad spectrum of stakeholders in a bottom-up approach, there is a strong reliance on a costly and lengthy process of seeking different stakeholders' opinions through public outreach [3].

The insight era has created a data-rich environment where the availability of platforms gives a variety of stakeholders the ability to express their thoughts and opinions on different topics in tourism. Therefore, DMOs can now mine various sources of data to identify the needs and opinions of residents, tourists, and tourism operators in real-time and combine such data with targeted public outreach activities. The potential for data mining to develop actionable insights has been revealed in recent studies, such as exploiting user-generated data to identify changing sentiments and opinions regarding specific destinations and attractions [34–37].

4. Conclusions and Future Directions

A handful of studies have highlighted the importance of insight-era technologies and big data for sustainable tourism development. Yet, few studies have posited insight-era guidelines or frameworks to promote the adaptation and effective functioning of DMOs in the current data-infused landscape. This paper offers a new perspective by positing key enablers and actionable insights for DMOs to become data-driven organizations. Four practical guidelines are developed in which DMOs may transition from the digital age to the insight era in the development of sustainable and smart destinations.

In addition, we propose guidelines that can be used to leverage insight-era technologies to enhance the DMOs' roles posited by the UNWTO [9] and Morrison [3]. Innovative

technological implementations could be adopted for different purposes. For instance, DMOs can implement machine learning predictive analytics to track tourism trends and share them with other stakeholders. DMOs could offer visitors digital/audio assistants (e.g., chatbots) for immediate and individualized information and assistance. DMOs' websites could transition into AI-enhanced booking engines that learn about visitor travel interests, provide personalized recommendations, and establish direct connections with local tourism service providers. Moreover, DMOs could coordinate urban services (e.g., transportation and infrastructure) and leverage real-time sensor networks and mobile apps to better understand tourists' flows and mitigate the effects of over-tourism.

In summary, the fast-developing insight era provides new opportunities for DMOs to transform their pre-existing comparative advantages into personalized data-driven services for visitors. The adoption of AI technologies would require changes to DMOs' workforce, organizational structure, workflow, and marketing strategies. DMOs need a well-prepared workforce with strong technical and non-technical skills. In addition, facilitating data-driven decision-making calls for more decentralization in organizational structure and a horizontal flow of data and insights. Traditional marketing methods should work in conjunction with emergent tools and models such as AI-enhanced data analysis to maximize the personal impact of marketing efforts. The proposed framework provides actionable guidelines for DMOs to leverage AI technologies and real-time data and thus attract targeted populations efficiently. Future research should examine DMOs' needs and efforts to diversify their workforce and support them in developing in-demand skills.

Author Contributions: Conceptualization, A.H. (Arthur Huang), S.A., and E.D.I.M.V.; writing of initial draft, A.H. (Adam Haney); review and editing, A.H. (Arthur Huang), E.D.I.M.V. and S.A. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Castells, M. The Information Age. *Media Stud. Read.* **2010**, *2*, 152.
2. Campbell, G. Bye Bye Big Data Era, the Insight ERA is Here. Open Data Science—Your News Source for AI, Machine Learning & More. 2019. Available online: <https://opendatascience.com/bye-bye-big-data-era-the-insight-era-is-here/> (accessed on 24 January 2022).
3. Morrison, A.M. *Marketing and Managing Tourism Destinations*, 2nd ed.; Routledge: New York, NY, USA, 2019.
4. Sheehan, L.R.; Ritchie, J.R.B. Destination stakeholders: Exploring identity and salience. *Ann. Tour. Res.* **2005**, *32*, 711–734. [CrossRef]
5. Arora, V. Destination Marketing Outlook 2022. Available online: <https://research.skift.com/report/destination-marketing-outlook-2022/> (accessed on 14 March 2022).
6. De Filippo, M.; Bencivenga, A.; Colangelo, D.; Pepe, A. The Digital Communication Strategies of Regional DMOs at the Time of COVID-19. *Fuori Luogo. Riv. Sociol. Territ. Tur. Technol.* **2020**, *7*, 81–87.
7. Stankov, U.; Jovanović, T.; Pavluković, V.; Kalinić, Č.; Drakulić-Kovačević, N.; Cimbalević, M. A regional survey of current practices on destination marketing organizations' facebook pages: The case of Eu and U.S. *Geogr. Pannonica* **2018**, *22*, 81–96. [CrossRef]
8. Allgeyer, T. The Importance of Twitter to Destination Marketing Organizations. Master's Thesis, University of South Carolina, Columbia, SC, USA, 2019.
9. World Tourism Organization. A Practical Guide to Tourism Destination Management. Available online: <https://www.e-unwto.org/doi/book/10.18111/9789284412433> (accessed on 25 January 2022).
10. Huang, A.; Chao, Y.; de la Mora Velasco, E.; Bilgihan, A.; Wei, W. When artificial intelligence meets the hospitality and tourism industry: An assessment framework to inform theory and management. *J. Hosp. Tour. Insights.* **2021**. [CrossRef]

11. Organization for Economic Co-Operation and Development. Using Artificial Intelligence to Detect, Respond and Recover from COVID-19. 2020. Available online: <https://www.oecd.org/coronavirus/policy-responses/using-artificial-intelligence-to-help-combat-covid-19-ae4c5c21/> (accessed on 24 January 2022).
12. Buhalis, D.; Law, R. Progress in information technology and tourism management: 20 years on and 10 years after the internet: The state of eTourism research. *Tour. Manag.* **2008**, *29*, 609–623. [[CrossRef](#)]
13. Fernandes, N. Economic Effects of Coronavirus Outbreak (COVID-19) on the World Economy. IESE Business School Working Paper No. WP-1240-E. 2020. Available online: <https://ssrn.com/abstract=3557504> (accessed on 24 January 2022).
14. Sharma, K.; Jain, M.; Dhir, S. Analysing the impact of artificial intelligence on the competitiveness of tourism firms: A modified total interpretive structural modeling (m-TISM) approach. *Int. J. Emerg. Mark.* **2021**, *17*, 1067–1084. [[CrossRef](#)]
15. Rudko, I.; Bashirpour Bonab, A.; Bellini, F. Organizational Structure and Artificial Intelligence. Modeling the Intraorganizational Response to the AI Contingency. *J. Theor. Appl. Electron. Commer. Res.* **2021**, *16*, 2341–2364. [[CrossRef](#)]
16. Autor, D.H.; Dorn, D. The growth of low-skill service jobs and the polarization of the US labor market. *Am. Econ. Rev.* **2013**, *103*, 1553–1597. [[CrossRef](#)]
17. De la Mora Velasco, E.; Huang, A.; Haney, A. An employee sharing model for the tourism and hospitality industry. *Tour. Hosp.* **2021**, *2*, 190–194. [[CrossRef](#)]
18. Sheehan, L.; Vargas-Sánchez, A.; Presenza, A.; Abbate, T. The use of Intelligence in Tourism Destination Management: An emerging role for DMOs. *Int. J. Tour. Res.* **2016**, *18*, 549–557. [[CrossRef](#)]
19. Gretzel, U. The Smart DMO: A new step in the digital transformation of destination management organizations. *Eur. J. Tour. Res.* **2022**, *30*, 3002. [[CrossRef](#)]
20. Kumar, P.; Mishra, J.M.; Rao, Y.V. Analysing tourism destination promotion through Facebook by Destination Marketing Organizations of India. *Curr. Issues Tour.* **2022**, *25*, 1416–1431. [[CrossRef](#)]
21. Önder, I.; Gunter, U.; Gindl, S. Utilizing Facebook statistics in tourism demand modeling and destination marketing. *J. Travel Res.* **2020**, *59*, 195–208. [[CrossRef](#)]
22. Cimbalević, M.; Stankov, U.; Demirović, D.; Pavluković, V. Nice and smart: Creating a smarter festival—The study of EXIT (novi sad, Serbia). *Asia Pac. J. Tour. Res.* **2021**, *26*, 415–427. [[CrossRef](#)]
23. Wang, R.; Luo, J.; Huang, S.S. Developing an artificial intelligence framework for online destination image photos identification. *J. Destin. Mark. Manag.* **2020**, *18*, 100512. [[CrossRef](#)]
24. Ma, Y.; Xiang, Z.; Du, Q.; Fan, W. Effects of user-provided photos on hotel review helpfulness: An analytical approach with deep learning. *Int. J. Hosp. Manag.* **2018**, *71*, 120–131. [[CrossRef](#)]
25. Maghded, H.S.; Ghafoor, K.Z.; Sadiq, A.S.; Curran, K.; Rawat, D.B.; Rabie, K. A novel AI-enabled framework to diagnose coronavirus COVID-19 using smartphone embedded sensors: Design study. In Proceedings of the IEEE 21st Int Conference on Info. Reuse and Integration for Data Science (IRI), Las Vegas, NV, USA, 11–13 August 2020; pp. 180–187.
26. Kaefer, F. Bill Geist on the future of destination marketing and DMOS. In *Insider's Guide Place Branding*; Springer: Berlin, Germany, 2021; pp. 81–85.
27. Lee, M.; Hong, J.H.; Chung, S.; Back, K.J. Exploring the Roles of DMO's Social Media Efforts and Information Richness on Customer Engagement: Empirical Analysis on Facebook Event Pages. *J. Travel Res.* **2020**, *60*, 670–686. [[CrossRef](#)]
28. Griffin, T.; Giberson, J.; Lee, S.H.M.; Guttentag, D.; Kandaurova, M.; Sergueeva, K.; Dimanche, F. Virtual reality and implications for destination marketing. In Proceedings of the 2017 ttra International Conference, Québec City, PQ, Canada, 20–22 June 2017.
29. Chang, H.H.; Chiang, C.C. Is virtual reality technology an effective tool for tourism destination marketing? A flow perspective. *J. Hosp. Tour. Technol.* **2022**, *13*, 427–440. [[CrossRef](#)]
30. Brynjolfsson, E.; McElheran, K. The rapid adoption of data-driven decision-making. *Am. Econ. Rev.* **2016**, *106*, 133–139. [[CrossRef](#)]
31. Stewart, J. Models of priority-setting for public sector research. *Res. Policy* **1995**, *24*, 115–126. [[CrossRef](#)]
32. Blichfeldt, B.S.; Hird, J.; Kvistgaard, P. Destination leadership and the issue of power. *Tour. Rev.* **2014**, *69*, 74–86. [[CrossRef](#)]
33. Hall, C.M. *Tourism and Politics: Policy, Power and Place*; John Wiley & Sons: Hoboken, NJ, USA, 1994.
34. Paolanti, M.; Mancini, A.; Frontoni, E.; Felicetti, A.; Marinelli, L.; Marcheggiani, E.; Pierdicca, R. Tourism destination management using sentiment analysis and geo-location information: A deep learning approach. *Inf. Technol. Tour.* **2021**, *23*, 241–264. [[CrossRef](#)]
35. Flores-Ruiz, D.; Elizondo-Salto, A.; Barroso-González, M.D.L.O. Using social media in tourist sentiment analysis: A case study of Andalusia during the COVID-19 pandemic. *Sustainability* **2021**, *13*, 3836. [[CrossRef](#)]
36. Ali, T.; Marc, B.; Omar, B.; Soulaïmane, K.; Larbi, S. Exploring destination's negative e-reputation using aspect based sentiment analysis approach: Case of Marrakech destination on TripAdvisor. *Tour. Manag. Perspect.* **2021**, *40*, 100892. [[CrossRef](#)]
37. Micera, R.; Crispino, R. Destination web reputation as “smart tool” for image building: The case analysis of Naples city-destination. *Int. J. Tour. Cities.* **2017**, *3*, 406–423. [[CrossRef](#)]