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Aspect-Based Sentiment Analysis in ihe Asean Tourism Sector: a Systematic Literature Review

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Abstract
Online reviews are becoming increasingly important for assessing tourist satisfaction, and although aspect-based sentiment analysis (ABSA) can offer in-depth insights, its use in the ASEAN tourism sector remains largely unexamined. This gap highlights a significant research issue, as there is insufficient knowledge regarding the current state, obstacles, and specific opportunities for applying advanced sentiment analysis methods in this distinctive, multicultural region. The main aim of this study is to systematically identify global research trends, highlight gaps, and describe the challenges of utilizing ABSA in the tourism industry, focusing on their implications for ASEAN. To accomplish this, a systematic literature review (SLR) was conducted on 61 selected articles following the PRISMA methodology. The findings reveal a notable research gap characterized by limited focus on the ASEAN region and the use of less sophisticated methods in existing studies; the primary challenges identified include language diversity, cultural differences, and a shortage of datasets in local languages. This organized review of the literature concludes by proposing a plan-based approach that enables the region to leverage online reviews to enhance its tourism competitiveness. It emphasizes the need to develop local data resources, promote interdisciplinary collaboration, and employ data-driven tools to support small businesses.

INTRODUCTION

In today's digital era, online reviews play a fundamental role in the tourism sector, which accounts for approximately 10% of the global economy (Nguyen et al., 2025). The

proliferation of user-generated content on platforms such as TripAdvisor, Booking.com, and regional equivalents has fundamentally transformed how tourists make destination and accommodation decisions, with research indicating that 93% of travelers consult online reviews before booking (Xie & Mao, 2017). Stakeholders are progressively utilizing sentiment analysis to obtain competitive advantages, as Aspect-based Sentiment Analysis (ABSA) provides detailed insights necessary to improve service quality by assessing granular aspects of the tourist experience —such as cleanliness standards, staff professionalism, location convenience, food quality, and amenities—rather than overall satisfaction ratings alone (Iswari & Afriliana, 2025). This aspect-level granularity enables targeted operational improvements: a hotel manager can identify that "staff friendliness" receives positive sentiment while "room cleanliness" generates negative feedback, allowing prioritized resource allocation for housekeeping training rather than generic service enhancement efforts (Wang et al., 2024).

However, the application of ABSA in the diverse and economically vital ASEAN region remains largely unexplored. The Association of Southeast Asian Nations (ASEAN) comprises ten member states—Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam—representing a tourism market that attracted over 130 million international visitors in 2019 (pre-pandemic) with tourism contributing 12.1% to regional GDP (ASEAN Tourism Statistics, 2020). The research problem lies in the significant lack of understanding related to the successful use of advanced ABSA techniques in the ASEAN tourism industry (AlMasaud & Al-Baity, 2023; Mehra, 2023; Pramono et al., 2024; Srianan et al., 2025). This sector encounters distinct challenges stemming from a complex sociolinguistic landscape characterized by a wide range of languages —including Bahasa Indonesia, Thai, Vietnamese, Tagalog, Khmer, and numerous regional dialects—, varying cultural norms governing sentiment expression (such as high-context communication, face-saving behaviors, and indirect criticism), and a significant shortage of well-developed, annotated datasets in local languages (Iswari & Afriliana, 2025). Furthermore, ASEAN languages exhibit unique computational challenges including extensive agglutination (Indonesian), tonal systems affecting sentiment (Thai, Vietnamese), and pervasive code-switching between local languages and English within single reviews [Iswari & Afriliana, 2025]. This gap hinders regional stakeholders from completely utilizing critical insights from online reviews to enhance service delivery, inform policy decisions, and strengthen competitive positioning in the global tourism marketplace (Charfaoui & Mussard, 2024; Jannah & Indraswari, 2024).

A main reason for undertaking this research is the noticeable absence of studies that integrate the distinctive methodology, area, practice, and regional emphasis presented in this paper. While numerous reviews cover comparable subjects, they fail to focus on this particular intersection. For example, a significant number of organized literature reviews have examined sentiment analysis targeted at particular languages such as Arabic, Russian, and several other low-resource languages, outlining various datasets and machine learning techniques (Ghallab et al., 2020; Smetanin, 2020). Although useful, these studies do not clearly relate their findings to the field of tourism. On the other hand, reviews that concentrate on the tourism sector frequently do not examine the specific methods used in ABSA (Mehraliyev et al., 2022; Mirzaalian & Halpenny, 2019).

These research activities usually investigate overall sentiment analysis at the document or sentence level, or focus on different approaches such as the multimodal analysis of content created by tourists (Gandhi et al., 2023). While beneficial, these studies do not provide the specific information needed to make targeted service enhancements, which are the main benefit and goal of employing ABSA (Ali et al., 2022; Luo et al., 2025; Sann et al., 2022).

This review addresses that gap by focusing on the ASEAN region, an important global tourism center that faces specific challenges due to its wide range of languages and different cultural backgrounds. This study goes further than just providing a simple overview of trends by clearly converting global information into a plan designed specifically for this region. This method offers a straightforward, data-supported resource designed to assist researchers, decision-makers, and specialists in efficiently utilizing ABSA to improve the competitiveness of the ASEAN tourism industry.

To tackle this issue, the aim of this study is to conduct a Systematic Literature Review (SLR) to thoroughly outline global research trends, pinpoint critical gaps, and summarize important challenges and findings associated with Aspect-Based Sentiment Analysis (ABSA) in the tourism industry with explicit focus on deriving actionable implications for the ASEAN context. The primary contribution of this paper is the development of a plan that converts these worldwide insights into practical, data-informed plans tailored to support ASEAN scholars, policymakers, and industry experts (Manosso & Domareski Ruiz, 2021).

The novelty of this research lies in its distinct synthesis; although numerous reviews generally address ABSA methods or tourism in various areas, this analysis is the first to directly connect advancements in global sentiment analysis technology with the real-world sociolinguistic challenges and opportunities found in the often-overlooked ASEAN tourism sector.

RESEARCH METHOD

This study aims to synthesize findings from existing research on ABSA within the tourism sector to derive actionable plans for the ASEAN region. To systematically assess current research trends and applications, this review utilizes the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology, which is outlined sequentially (Page et al., 2021). Figure 1 showcased the flow chart.

To accomplish the goals of this study, this review is directed by five specific research questions (RQ) aimed at thoroughly analyzing the current status of ABSA in the tourism sector. Table 1 details five research questions, namely: trends in publications (RQ1), sources of data and areas of study (RQ2), utilized models and its performance impact (RQ3), common challenges faced (RQ4), and practical uses of the research (RQ5). This organized investigation guarantees a thorough examination where the responses work together to develop plan for the ASEAN tourism sector.

Table 1. Research Questions Guiding the Systematic Review

RQ	Research Question	Rationale
RQ1	What are the publication trends in tourism ABSA research between 2021-2025, and how do ASEAN and non-ASEAN regions compare?	Identifies research productivity patterns and geographical disparities in ABSA tourism research

RQ2	Which data sources and tourism domains are most frequently studied?	Reveals platform preferences (global vs. local) and domain coverage (hotels, restaurants, attractions)
RQ3	What ABSA models and techniques are employed, and what is their performance impact?	Evaluates methodological landscape from lexicon-based to deep learning approaches and effectiveness benchmarks
RQ4	What are the primary challenges in tourism ABSA, and what solutions have been proposed?	Synthesizes implementation barriers (linguistic, technical, data-related) and mitigation strategies
RQ5	What are the implemented and proposed applications of ABSA in tourism?	Documents practical use cases demonstrating how ABSA enhances operational efficiency and competitiveness

The literature was sourced from seven reputable digital repositories renowned for their comprehensive academic coverage: ACM Digital Library, Emerald Insights, IEEE Xplore, ProQuest, Science Direct, SCOPUS, and Taylor & Francis. From these seven digital repositories, the authors retrieved 1167 research articles. This thorough selection process resulted in a final collection of 61 suitable articles, which included 56 journal publications and 5 conference papers. The selection process involves deduplicate 223 articles, exclude 868 irrelevant articles based on title and abstract, and excluding 15 articles based on full text. For further clarity, PRISMA's article selection flowchart is presented in Figure 1. The search query was constructed to be both specific and inclusive, using the final Boolean search string:
("tourist" OR "traveler" OR "guest") AND ("review" OR "feedback" OR "testimony") AND ("aspect-based" OR "absa") AND ("sentiment analysis" OR "opinion mining")

To ensure the relevance and rigor of this review, a stringent set of inclusion and exclusion criteria was applied using the open-source tool CADIMA. Table 2 presents these criteria, which were established to focus the analysis on the most current and impactful research. Key inclusion criteria, such as the publication window between January 2021 and June 2025, ensure the findings are timely, while the exclusion of other systematic reviews maintains the originality of this study's contribution.

Table 2. Inclusion and Exclusion Criteria for Article Selection

Criteria Type	Specification	Justification
Inclusion Criteria		
Publication period	January 2021 – June 2025	Captures recent methodological advances (deep learning, LLMs) and post-pandemic tourism dynamics
Publication type	Peer-reviewed journal articles and conference proceedings	Ensures academic rigor and quality control
Language	English	Enables consistent interpretation and synthesis by research team
Topic relevance	Studies explicitly implementing ABSA for tourism/hospitality reviews	Maintains focus on aspect-based (not document-level) approaches in tourism domain
Accessibility	Full text available	Required for comprehensive data extraction and quality assessment

Criteria Type	Specification	Justification
Exclusion Criteria		
Publication type	Systematic reviews, meta-analyses, books, theses	Focuses on primary empirical studies; prevents duplication and circular citation
Topic scope	Studies on general sentiment analysis without aspect-level extraction	Ensures alignment with ABSA-specific focus
Domain	Non-tourism applications (e.g., product reviews, political sentiment)	Maintains domain specificity for tourism industry relevance
Quality	Studies lacking clear methodology or empirical validation	Ensures scientific rigor and reliability of synthesized findings

The data extraction process was systematically managed using CADIMA to ensure consistency and thoroughness. This involved a full-text review of each selected article to gather information directly corresponding to the five research questions. The extraction was structured to capture key dimensions of literature. First, we identified publication trends, specifically comparing the annual output between ASEAN and non-ASEAN regions. Second, the process categorized the datasets and tourism domains most frequently studied, noting the distribution of data sources by platform and by country. Third, we documented the ABSA techniques and algorithmic pipelines to analyze their impact on performance outcomes. Fourth, the study cataloged the main challenges encountered in tourism ABSA and the solutions proposed by researchers, grouping them by theme. Finally, we extracted both implemented and proposed applications of ABSA to identify how technology can enhance tourism competitiveness.

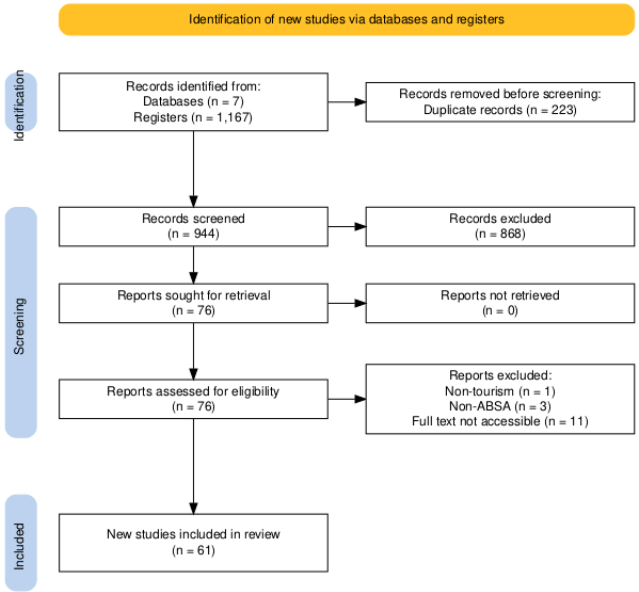

Figure 1. PRISMA flowchart

RESULTS AND DISCUSSION

This section presents the synthesized findings from a systematic literature review of 61 scholarly articles on Aspect-based Sentiment Analysis (ABSA) in the tourism domain published between January 2021 and June 2025. The results are organized according to the primary research questions of this study, with each figure and table explicitly introduced to clarify its purpose and structure.

Publication Trends

The analysis reveals a significant disparity in research output between ASEAN and non-ASEAN countries. Figure 2 is presented to visually contrast the research productivity between these two regions over the five-year study period. In the figure's two plots, the y-axis represents the publication count, and the x-axis shows the year, allowing for a direct comparison of output volume and publication venue quality which differentiated by quartiles and proceeding types. The left plot, displaying the trend for ASEAN, shows minimal and sporadic output, while the right plot for non-ASEAN countries demonstrates a substantially higher and more consistent volume of publications, particularly in high-quartile journals.

Datasets and Domains

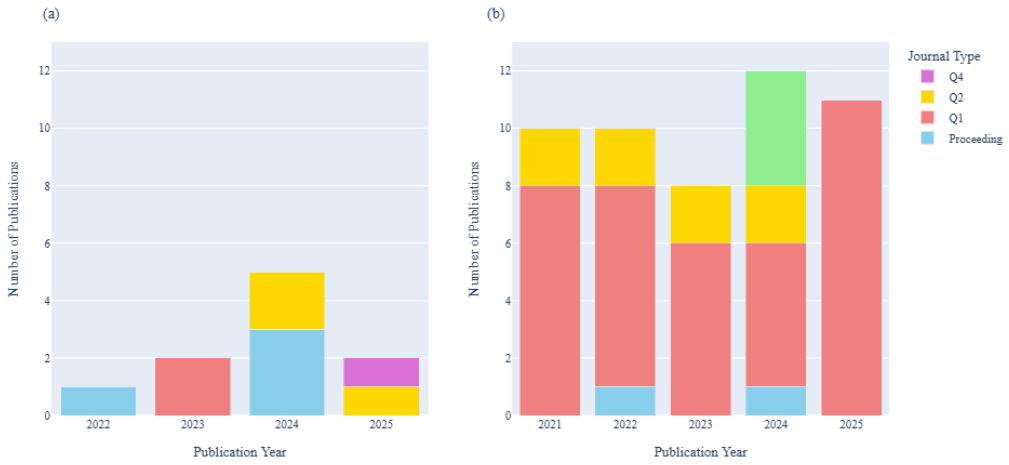

Figure 2. comparative publication trends

The primary source of data for the analyzed studies is TripAdvisor, which was utilized in 22 of the 61 articles (36%). Chinese platforms such as Ctrip, Dianping, and Mafengwo collectively represent the second most common data source. In contrast, ASEAN-specific platforms such as Traveloka, Tiket.com, and Pegipegi are significantly underrepresented. To highlight the geographical focus of existing research, Figure 3 provides a bar chart ranking countries based on the number of studies using their tourism data. Each bar represents a country, its length corresponding to the publication count, with color-coding to distinguish the highest value (China) from ASEAN countries and other nations. The figure makes the regional imbalance immediately apparent, with China being the location for 20 studies, while the most-researched ASEAN countries, Indonesia, Vietnam, and Thailand, were the focus of only 6, 3, and 1 publication, respectively. Most of the datasets are available in both Chinese and English. A review of tourism domains shows a focus on general hospitality industries such as hotels and

restaurants, while specialized areas like cultural heritage tourism and ecotourism receive minimal consideration.

Models and Performance

Table 3 provides a detailed breakdown of the primary models identified across the 61 articles, serving as a basis for evaluating the technical landscape of tourism ABSA. The table is structured for comparison, with columns for the algorithm, its reported performance impact (in metrics like accuracy and F1-score), and the corresponding citations. The findings indicate a spectrum of techniques, from lexicon-based models to advanced deep learning architectures. Lexicon-based approaches were used in 23 studies, with reported accuracy, precision, and recall are greater than 0.70. Traditional machine learning achieved an average accuracy of 0.8 and utilized in 3 studies. Deep learning models were featured in 13 studies and consistently achieved high performance, with both reported accuracy and F1-Scores are greater than from 0.83. While Large Language Models (LLMs), hybrid models, and unsupervised models are an emerging trend, their performance metrics were not explicitly benchmarked against other models in the reviewed articles.

Table 3. ABSA Models and Performance in Tourism Research

Model Category	Studies (n)	Avg. Accuracy	Avg. F1-Score	Key Characteristics	Example Citations
Lexicon-based	23 (37.7%)	0.74	0.71	Fast, interpretable, limited by dictionary coverage	[11-16, 62]
Traditional ML	3 (4.9%)	0.80	0.78	Feature-engineering intensive, moderate performance	[17-19]
Deep Learning	13 (21.3%)	0.87	0.86	High performance, resource-intensive, requires labeled data	[20-32, 48, 51]
Hybrid	6 (9.8%)	0.83	0.82	Combines multiple approaches, balances strengths	[54-56]
LLMs	8 (13.1%)	Not standardized	Not standardized	Promising for zero-shot, concerns on cost and interpretability	[30, 69]
Unsupervised	8 (13.1%)	0.76	0.73	No labeled data required, lower performance	[62, 64]

Challenges and Workarounds

A thematic analysis revealed three main categories of difficulties in tourism ABSA research. The challenges and their associated solutions are organized in Table 4 to give researchers a clear and structured summary. The table is structured with columns that outline the main theme (for instance, "Linguistic and contextual complexity"), the difficulties associated with that theme (such as "Nuances like sarcasm"), and the solutions suggested in academic works (like "Utilizing deep learning models such as BERT"). The most frequently mentioned issue regarding data is the absence of high-quality datasets that are labeled by hand,

especially for languages other than English. The most widely suggested solution for this problem is utilizing pre-trained models such as BERT for few-shot learning.

Table 4. Challenges in Tourism ABSA and Proposed Solutions

Challenge Theme	Specific Challenges	Proposed Solutions	Citations
Linguistic & Cultural Complexity	Sarcasm, negation, implicit sentiment	Deep learning with contextual embeddings (BERT, RoBERTa)	[20, 30, 51]
	Code-switching (multilingual mixing)	Multilingual models (mBERT, XLM-R) with language identification	[3, 48]
	Indirect criticism (cultural politeness)	Culturally adaptive sentiment lexicons; contrastive learning	[36, 41]
	Tonal language challenges	Multimodal approaches incorporating phonetic features	[71]
Data Quality & Availability	Lack of labeled corpora in ASEAN languages	Transfer learning; zero-shot/few-shot with LLMs; crowd-sourcing annotation	[30, 48, 50]
	Class imbalance (positive bias)	Synthetic data augmentation; cost-sensitive learning; SMOTE techniques	[3, 48]
	Low annotation consistency	Clear annotation guidelines; multiple annotators; adjudication protocols	[39, 51]
	Spam and fake reviews	Anomaly detection algorithms; reviewer credibility scoring	[43, 59]
Technical & Operational	Computational resource constraints	Cloud-based solutions; model distillation; lightweight architectures	[53, 56]
	Model interpretability requirements	Attention visualization; LIME/SHAP explainability methods	[38, 52]
	Real-time processing needs	Streaming architectures; incremental learning; edge computing	[29, 40]
	Domain adaptation complexity	Domain-specific pre-training; continued fine-tuning; active learning	[43, 56]

Implementations

To understand the practical application of ABSA, Tables 5 and Table 6 are presented. Table 5 documents the implemented ABSA applications found in the literature, categorized by their purpose (e.g., "Operational improvement") and the primary stakeholder involved (e.g., "Tourism SMEs"). The most common application, cited in 31 articles, is for operational improvement. Following this, Table 6 outlines future implementation opportunities suggested by the reviewed articles, such as "Hyper-personalization" and "Real-time monitoring," providing a potential roadmap for future development.

This section interprets the results presented in previous section, contextualizes them within the broader academic landscape, and discusses their implications with a specific focus on deriving plan for improving the ASEAN tourism industry.

Table 5. Implemented ABSA Applications in Tourism

Application Purpose	Studies (n, %)	Primary Stakeholder	Implementation Description	Example Citations
Operational service improvement	31 (50.8%)	Hotels, restaurants, attractions	Aspect-level feedback identifies specific service deficiencies for targeted enhancement	[39, 49, 54, 66]
Customer segmentation & personalization	12 (19.7%)	OTAs, hotel chains	Clustering customers by aspect preferences enables tailored marketing and services	[25, 37, 46]
Competitive benchmarking	8 (13.1%)	Hotel management, DMOs	Cross-property comparison of aspect sentiment reveals competitive positioning	[55, 61, 63]
Reputation monitoring	6 (9.8%)	Tourism boards, hotel brands	Temporal sentiment tracking enables proactive reputation management	[11, 16, 59]
Demand forecasting	4 (6.6%)	Revenue management teams	Sentiment features improve occupancy and pricing predictions	[29, 40, 43]

Table 6. Proposed Future ABSA Applications

Proposed Application	Studies Suggesting	Target Stakeholder	Value Proposition	Implementation Barriers
Hyper-personalization engines	[25, 46]	OTAs, hotel chains	Real-time content customization based on individual aspect preferences from past reviews	Requires integration with booking systems; privacy concerns
Real-time sentiment dashboards	[29, 52]	Hotel managers, restaurant owners	Live monitoring of incoming reviews with alerts for negative sentiment spikes	Demands API access; computational resources for stream processing
Voice-of-customer analytics	[33, 59, 67]	Service design teams	Aggregate aspect insights inform strategic service redesign and innovation	Requires cross-functional organizational buy-in; analytics expertise
AI-powered response generation	[68, 70]	Customer service teams	Automated personalized responses to reviews based on aspect-specific sentiment	Quality control challenges; authenticity concerns; cultural appropriateness
Multilingual cross-market insights	[36, 41]	International chains, DMOs	Compare sentiment patterns across linguistic/cultural markets for localization	Requires multilingual ABSA models; cultural interpretation expertise

Predictive maintenance triggers	[40, 43]	Hotel operations	Negative facility-related sentiment triggers preventive maintenance workflows	Integration with property management systems required

Growing Research Gap and Call for Cooperative Effort

The results presented notable difference in publication rates between ASEAN member countries and non-ASEAN countries. This difference is evident not only in statistics but also in research quality, as studies about ASEAN are rarely published in leading academic journals. This finding is consistent with wider reports indicating a slower pace of AI adoption and the commercialization of research in Southeast Asia. The suggestion is a possible cycle of dependency in which regional participants are required to depend on models and information created from data not specific to the region, which might not be contextually relevant. Moreover, studies conducted within ASEAN seem to primarily focus on a single field (computer science), unlike the multidisciplinary methods observed in research outside ASEAN that combine data science with business and tourism studies. This restricts the real-world use of research outcomes. Consequently, an essential takeaway for the area is the urgent requirement for institutional funding and policies that promote interdisciplinary research groups, linking technical specialists with tourism professionals to address practical challenges.

The Paradox of Data Between Global Platforms and Local Contexts

The significant dependence on TripAdvisor standardizes the research environment and disregards the valuable, context-specific information accessible on local platforms such as Traveloka. This is a significantly missed opportunity because local platforms include reviews in native languages that express genuine cultural details and feelings, which are frequently overlooked in translation or are missing on international platforms. This discovery strengthens the claim that there is a substantial lack of research in creating NLP resources for Southeast Asian languages that have limited resources. The plans for researchers in ASEAN consists of two main points: first, it is essential to make a planned move towards utilizing local data sources to create datasets that reflect cultural relevance; second, this attention should also encompass under-explored niche tourism areas such as cultural and ecotourism, which are valuable resources for the economies of ASEAN but are presently overlooked by the worldwide research community.

Shifting from Methodological Adoption to Innovation

The performance information presented in Table 3 reveals that although advanced models such as deep learning exhibit better performance, their use is still in its early stages. The ongoing use of lexicon-based approaches indicates that challenges like complicated technology and the lack of labeled training data continue to be important issues. This establishes a reliance on pre-trained models created by major companies, which frequently do not cater to the linguistic variety found within ASEAN. The success of these models depends on large datasets that are specific to each language, which are generally not available for many

Southeast Asian languages. The most important plan is the need for a collaborative, region-wide initiative to develop and share open-source NLP resources. This comprises models that have been previously trained and word embeddings related to tourism for languages including Indonesian, Vietnamese, and Thai.

Addressing ASEAN's Distinctive Contextual Challenges

The challenges summarized in Table 4, which mostly can be categorized as linguistic complexity and data integrity, are universal in ABSA. However, they are amplified in the ASEAN context. The region's vast linguistic diversity presents a formidable obstacle for standard NLP models. Moreover, cultural differences heavily influence sentiment expression; politeness and indirect criticism, prevalent in many ASEAN cultures, can be easily misinterpreted by Western-trained models. This reinforce the argument that model effectiveness in ASEAN is deeply tied to its "cultural intelligence". Hence, the appropriate plan is to move beyond language translation and develop models that are culturally aware, leveraging zero-shot learning with multilingual base models as an effective approach for low-resource languages.

Enabling SMEs Growth through Accessible Technology

Tables 5 and 6 outline the current and proposed ways to improve tourism competitiveness. Nevertheless, the tourism SMEs in ASEAN frequently does not possess the necessary resources and knowledge to successfully utilize advanced analytical tools. Although recent studies show the advantages of ABSA for enhancing operations, these benefits will not be available to most companies unless there is a strong initiative to make the technology more widely accessible. The last and most useful plan is to convert advanced ABSA research into cost-effective, easy-to-use dashboards designed for small and medium enterprises (SMEs). At the level of government, creating a joint intelligent platform that combines regional data may assist in developing tourism policies based on evidence and improving the shared brand image of the region.

CONCLUSION

Based on the systematic literature review, it concludes that while Aspect-Based Sentiment Analysis (ABSA) offers powerful tools for granular insight into tourist experiences, its application in the ASEAN tourism sector is critically underdeveloped. There is a significant research gap, with few ASEAN-focused studies present in high-impact journals, and the region relies heavily on global platforms and Western models that neglect local languages and cultural contexts. Effective ABSA in ASEAN requires cultural and linguistic intelligence to interpret regional nuances such as indirect criticism, politeness, and code-switching. Therefore, existing ABSA methodologies need adaptation to fit ASEAN's multicultural landscape. Future research should prioritize creating comprehensive, open-source, linguistically diverse datasets covering major ASEAN languages and code-switching. It should also innovate culturally adaptive ABSA models through mixed-method studies exploring cultural expression and sentiment interaction. Additionally, Human-Computer Interaction research should develop user-friendly ABSA tools for tourism SMEs to bridge research and practice. Expanding the scope beyond

generic hospitality to niche tourism sectors like ecotourism, wellness, and cultural heritage will provide targeted insights for sustainable regional development and competitiveness.

REFERENCES

AlMasaud, A., & Al-Baity, H. H. (2023). Destination image analysis and marketing strategies in emerging panda tourism: A cross-cultural perspective. Cogent Business & Management, 11(1).

Charfaoui, K., & Mussard, S. (2024). Sentiment analysis for tourism insights using machine learning algorithms. Stats (Basel), 7(4), 90.

Gandhi, A., Poria, S., Cambria, E., & Gerla, A. (2023). Multimodal sentiment analysis: A systematic review of history, datasets, multimodal fusion methods, applications, challenges and future directions. Information Fusion, 91, 424–444.

Ghallab, A., & Mohsen, A. (2020). Arabic sentiment analysis: A systematic literature review. Applied Computational Intelligence and Soft Computing, 10(4), 764–790.

Iswari, N. M. S., & Afriliana, N. (2025). Enhancing aspect-based sentiment analysis in tourism reviews through hybrid data augmentation. Journal of Applied Data Sciences, 6(3), 2192–2206.

Luo, T., et al. (2025). Using large language models to investigate cultural ecosystem services perceptions through few-shot and prompt-based methods. Landscape and Urban Planning, 258, 105323.

Mehra, P. (2023). Unexpected surprise: Emotion analysis and aspect-based sentiment analysis (ABSA) of user-generated comments to study tourists' behavioral intentions. Tourism Management Perspectives, 45, 101063.

Mehraliyev, F., Chan, I. C. C., & Kirilenko, A. P. (2022). Sentiment analysis in hospitality and tourism: A thematic and methodological review. International Journal of Contemporary Hospitality Management, 34(1), 46–77.

Nguyen, P. C., Schinckus, C., Chong, F. H. L., Onpium, P., & Tran, D. L. T. (2025). Tourism and contribution to employment: Global evidence. Journal of Economics and Development, 27(1), 22–37.

Nguyen, P. C., et al. (2021). Using sentiment analysis in tourism research: A systematic, bibliometric, and integrative review. Zenodo.

Pramono, B. A., Gernowo, R., & Sofwan, A. (2024). Tourism destination recommendation using aspect-based sentiment analysis and SAW decision support system: Evidence from Central Java. In Proceedings of the 3rd International Conference on Creative Communication and Innovative Technology (ICCIT) (pp. 1–7).

Sann, B., Pei-Chun, L., Liaw, S.-Y., & Chi-Ting, C. (2022). Predicting hospitality customers' online complaining behavior using big data analytics. Sustainability, 14(3), 1800.

Sann, T., Liaw, S.-Y., & Chi-Ting, C. (2022). LDA topic-based sentiment approach for tourism review insights. MethodsX, 9, 101894.

Smetanin, S. (2020). The applications of sentiment analysis for Russian language texts: Current challenges and future perspectives. IEEE Access, 8, 110693–110719.

Srianan, S., Nanthaamornphong, A., & Phucharoen, C. (2025). Analyzing emotional experiences through UGC: A cross-cultural perspective from Bali and Phuket. Journal of Quality Assurance in Hospitality & Tourism, 1–29.

Xie, K., & Mao, Z. (2017). The impacts of quality and quantity attributes of Airbnb hosts on listing performance. International Journal of Contemporary Hospitality Management, 29(9), 2240–2260.

Wang, Z., Udomwong, P., J. Fu, P., & Onpium, B. A. (2025). Destination image and marketing strategies of emerging panda tourism: A cross-cultural perspective. Cogent Business & Management, 11(1).