



Airline strategy research: A bibliometric and thematic analysis (1980–2025)

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ABSTRACT

Research on strategic management in airlines has rapidly expanded since its inception in the 1980s, with studies providing valuable insights into topics such as alliances, competitiveness, sustainability, and digitalisation. To contribute to this effort, the present study presents an integrative bibliometric analysis of 306 documents indexed in either the Web of Science or Scopus (1980–2025). Using Bibliometrix (R), a performance analysis indicated that although this research topic shows steady growth, its citation impact is concentrated among a limited number of authors, institutions, and specialist journals. Competitive advantage, service quality, alliances, low-cost airlines, financial performance, business strategy, revenue management, and pricing strategy were identified as regularly studied themes with strong interconnections and depth within their respective topics. COVID-19 and sustainability were among the trending topics, but despite their importance, emerging topics such as air cargo, digital transformation, and decision support analytics have not yet been significantly targeted in this literature strand. Based on these insights, we provide a conceptual framework to understand strategic priorities in the airline sector and to identify future research opportunities.

1. Introduction

For decades, airlines have navigated turbulent external environments, in which companies that fail to adapt rapidly face a significant risk of collapse (Sun et al., 2025). As a result, air carriers have had to develop clear, formalised strategies that mitigate risks and seize emerging opportunities. Broadly defined, strategy is a plan that outlines actions to achieve a sustained competitive advantage. It often draws on Porter's (1985) foundational taxonomy, which classifies cost leadership, differentiation, and focus strategies as distinct approaches that firms can adopt to outperform competitors. This conceptual framework involves a careful consideration of uncertainty, alternative optimal actions based on different 'states of the world,' and a focus on internal strengths and weaknesses, trade-offs, and synergies (Porter, 1996; Puyt et al., 2023).

The formalisation of strategic management in aviation as a distinct field of research gained significant momentum around the 1980s, particularly following Michael Porter's (1980) seminal work on

competitive strategy. The sector's dominant market structures further amplify the need for strategic understanding. The sector typically operates in hybrid structures, such as oligopolies and monopolistic competition (Trischler & Lohmann, 2018), which require companies to react dynamically to competitor moves while navigating high levels of regulatory scrutiny and intervention.

Owing to the availability of large, publicly accessible datasets, the airline sector has become a premier empirical environment for testing complex theories of strategic management. Previous literature has explored diverse themes, such as competitive inertia during periods of growth (Miller & Chen, 1994), the use of opaque sales channels to protect long-term revenue (Jerath et al., 2010), and the strategic benefits and coordination constraints found in airline alliances (Gudmundsson, 1999; Park & Zhang, 1998). More recent research has examined strategic flexibility in response to global crises such as the COVID-19 pandemic, in which carriers employed strategies ranging from retrenchment to digital innovation (Albers & Rundshagen, 2020).

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Despite this wealth of research, the study of airline strategy remains marked by interdisciplinary fragmentation. As strategic concepts permeate adjacent fields such as economics (Hernandez & Wiggins, 2014), finance (Phillips & Sertsios, 2013), and marketing (Aghaie et al., 2022), discussions could occur in isolated ‘silos.’ The identified research gap originates from the absence of a comprehensive bibliometric analysis that maps these interconnections and tracks the field’s thematic evolution. Consequently, this study aims to conduct an integrative

bibliometric analysis of documents indexed in either the Scopus or the Web of Science (WoS) databases from 1980 to 2025 to characterise this literature. Accordingly, the remainder of this document is structured as follows. The methodology and research design are presented in [Section 2](#). [Section 3](#) presents the main findings. In [Section 4](#), the results are discussed, followed by conclusions in [Section 5](#).

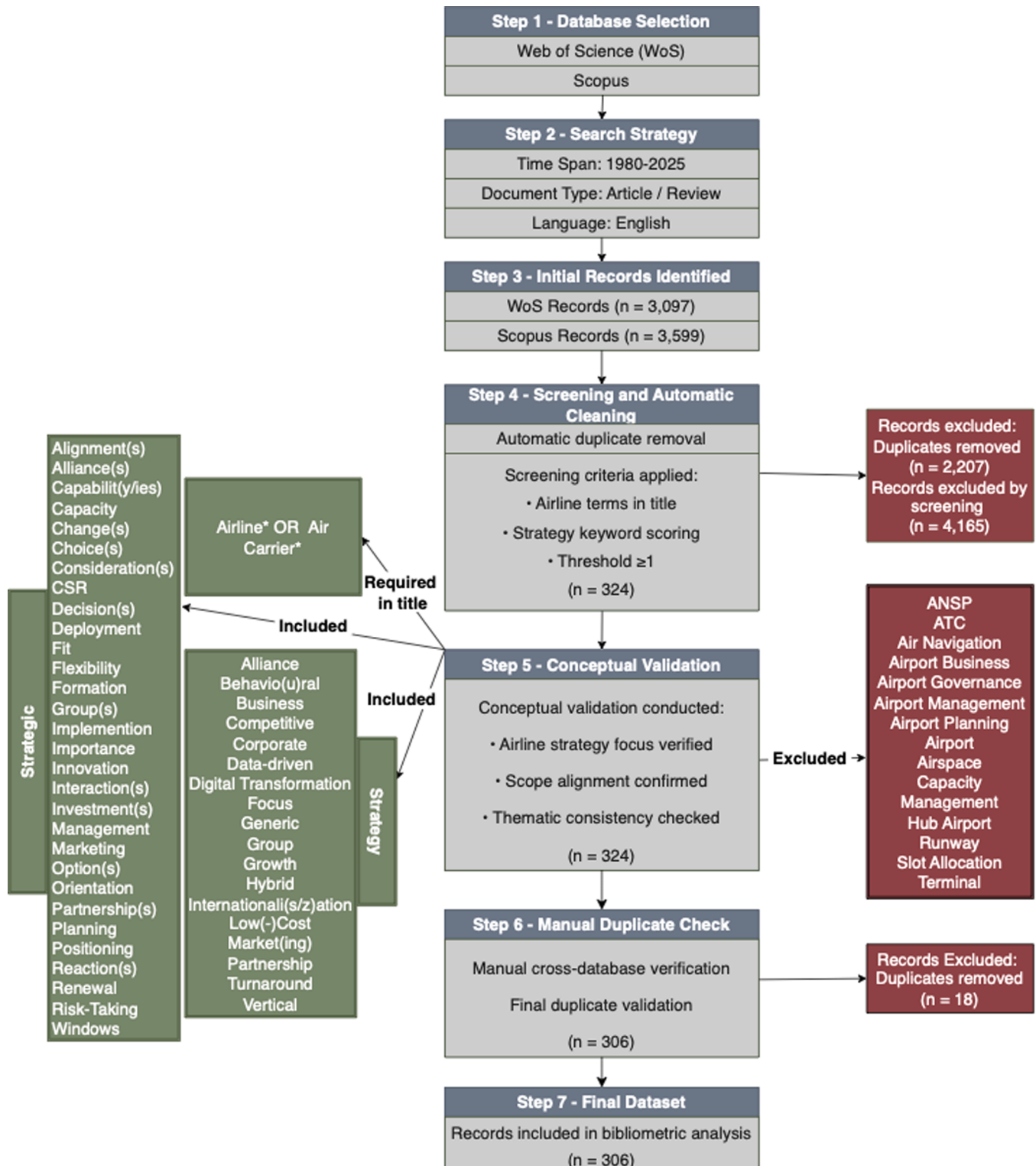


Fig. 1. Data collection and screening procedure.

2. Methods

2.1. Data collection

Although various academic databases have distinct advantages, this study adopted a dual-database approach to provide a comprehensive literature review and reduce database-specific bias (Mongeon & Paul-Hus, 2016; Zhu & Liu, 2020). We included records from both Scopus and the WoS to increase the robustness of the data collection process, given that Scopus is critical for comprehensive coverage of transport and business studies (de Oliveira et al., 2022). This procedure included the following: (1) exporting records from each database in bibliographic format, (2) converting and standardising file formats, (3) harmonising tag fields across databases, and (4) merging datasets and removing duplicates. This approach provides a more comprehensive and reliable bibliometric dataset by integrating complementary database scopes.

Data collection took place in January 2026, when we searched for documents containing combinations of Boolean strings in the 'title,' 'abstract,' or 'keyword' fields (with minor variations across both databases). Such strings were designed to return results intersecting the term 'strategy' with mentions of 'airline,' all of which were stripped to stems: 'strateg*' AND 'airline*.' The year 1980 was chosen because of Porter's (1980) seminal book on competitive strategy, which arguably marks the inception of the field in its current formalisation. This choice offers the convenience of being 'quasi-contemporaneous' with the deregulation of the US aviation industry. In 1978, deregulation gave US air carriers the freedom to select markets and set prices, removing a state-backed safety net for profitability and effectively thrusting these carriers into an environment in which strategic management suddenly mattered.

To reduce the risk of excluding potentially relevant documents, we adopted a broad, high-recall search strategy. A high-recall literature review employs a hybrid methodology to map the intellectual structure of the research field while ensuring maximal coverage of the literature. This approach combines the quantitative rigour of bibliometric mapping with the qualitative depth of a systematic literature review (Marzi et al., 2025). We limited document types to articles and reviews written in English. In this first step, we obtained 6696 records from the two databases.

We then proceeded to remove duplicate records. Because of the overlap in coverage between WoS and Scopus, a reasonable number of duplicates was expected (Caputo & Kargina, 2022). Accordingly, we performed an automated duplicate-removal process using title matching, which removed 2207 records. The remaining records were subjected to a structured, high-recall process (see Fig. 1).

Given the large number of studies that focus on airports, aircraft manufacturers, and air transportation more broadly, a filter using regular expressions (regex) in Python was employed, and we required the title to include either the terms 'airline' or 'air carrier' to ensure that the retrieved records focused on airline businesses specifically. Similarly, to ensure the inclusion of solely strategy-focused studies, we required that either the word 'strategy' appear in the title or that one of several identified strategy-related keywords appear in the title, abstract, or author keywords (see Fig. 1). To identify these keywords, we first applied flexible filtering to screen studies conceptually compatible with strategic management during the preliminary review.

As the term 'strategy' is used rather loosely, to improve our filtering outcomes, we applied a weighted keyword-scoring approach to exclude contextual or superficial uses of the term, thus limiting the inclusion of operationally focused studies. Expressions related to strategy in the title and author keywords were given full weight (1.0). Conversely, uses of the word 'strategy' in the abstract (via its stem and related derivational forms) were given lower weight (0.5). A minimal threshold score of 1.0 was used to retain studies in the dataset. In other words, if terms like 'strategy' or 'strategic' were mentioned in the abstract, only documents with at least two occurrences would pass this filter.

This rule-based, weighted scoring approach reduced the risk of subjective selection and increased the methodological traceability and transparency of the dataset-creation process, thereby supporting reproducibility. With this filtering, we obtained 324 records. Finally, to identify duplicates that could not be automatically detected due to minor differences in how document titles are processed across the two databases (e.g., due to the handling of special characters), we performed a manual duplicate check and removed an additional 18 records. Consequently, the final dataset included 306 documents.

2.2. Bibliometric data analysis

Bibliometric data were analysed using the Bibliometrix package in R (version 5.2.1). Although equally versatile tools, such as VOSviewer and CiteSpace, are available, Bibliometrix was chosen for its widespread use in recent research, particularly in aviation applications (Şahin & Durmaz, 2024; Yakath Ali et al., 2021). This prevalence is a consequence of R's popular use for statistical analysis and its many advantages as a programming language, including superior customisation and simplified integration with additional packages, which enable more nuanced and comprehensive analyses.

Before the bibliometric techniques were implemented, a set of systematic standardisation steps was undertaken to enhance the consistency of terms across the corpus. Synonym lists were developed to merge lexical variants denoting the same concept. For example, expressions such as low-cost airline(s), low-cost carrier(s), LCC(s), and LCA(s) were unified to prevent an artificial fragmentation of themes. Comparable consolidation was applied to terms such as alliance, strategic alliance, and airline alliance, as well as to the concepts of competitive advantage and competitiveness. In parallel, we removed generic words such as airline, airlines, strategy, and strategic, which, by design, are expected to occur widely across the dataset. Because these broad labels inherently reiterate the field's background context, their removal supports clearer cluster formation and improves the robustness and interpretability of the resulting maps (Lim et al., 2024; Nowakowska, 2025).

After processing our corpus, we applied a standard bibliometric framework that comprised two main techniques: *performance analysis* and *science mapping* (Bakır et al., 2022; Idrissi et al., 2024; Merkert, 2022). Performance analysis identifies influential authors, sources, and countries, while science mapping uncovers the field's conceptual structure.

The performance analysis identified the main countries and institutions that contribute to the field, the principal journals that serve as research sources, and the most influential authors and documents. This technique allows us to examine attributes such as keywords, citations, and publication years, as well as the co-occurrence patterns among these and other attributes for each document in a corpus. Such attributes and patterns permit the identification of the most productive authors, the most prolific collaborations, and the most impactful journals and papers (as measured by citations), among others (Caputo et al., 2021; Donthu et al., 2021).

In the science mapping technique, the procedures included a thematic analysis, thematic evolution, trend-topic analysis, and keyword co-occurrence analysis to visualise the conceptual structure of this field. A quantitative approach underlines the *structure* of the corpus and identifies (and depicts) the implicit relationships among researchers, research themes, and trends over time.

Following Callon et al. (1991), we used a counterclockwise nomenclature that differs slightly from that typically employed in mathematics, which thus requires some elaboration on its definition. Quadrant 1 (Q1), with high centrality and density, includes 'motor' themes, which drive further research. Q3 exhibits low centrality and high density and embeds 'niche' themes, which are well developed but too specialised to be positioned at the forefront. Q4, with low centrality and density, reflects slow further development and may characterise emerging or fading themes. Finally, Q2, with high centrality and low density, encompasses

the so-called ‘basic’ themes, which are highly central but less internally developed. Such characteristics are interpreted as originating from their role as foundational concepts on which other areas rest.

A variety of community detection algorithms have been proposed to reveal latent structures in large bibliometric and science-mapping networks, including Walktrap, Edge Betweenness, Infomap, Louvain, Label Propagation, and Spinglass (Aidara et al., 2024). Although these methods share a broad aim (i.e., partitioning networks into internally coherent communities), they are grounded in different principles and therefore entail different trade-offs in computational cost, stability, and interpretability (Smith et al., 2020). Accordingly, there is no clear consensus in the literature that any algorithm can be considered universally ‘best’ across all network types and research environments. By applying a two-stage iterative optimisation procedure, the Louvain algorithm seeks high-modulus solutions and enables scalable and repeatable ensemble detection of networks with a simple implementation (Blondel et al., 2008). The Louvain algorithm was chosen for this study because it is intuitive and easy to implement. The Louvain algorithm has been widely used in previous bibliometric studies, which supports its suitability for mapping complex scientific networks (Bakır et al., 2022; Yu et al., 2017).

3. Findings

3.1. Performance analysis

The field of aviation strategic management has experienced significant growth in the number of documents, with an average annual growth rate of 7.11% (from 1 document in 1980 to 22 in 2025). Notably, the average document received approximately 26.56 citations, was 12.7 years old, and had 2.33 authors (Table 1). However, the median document has received 10 citations, indicating a right-skewed distribution where a small number of highly cited documents push the average above the impact of a typical document.

The US is prominent in productivity, with 52 published documents; the UK follows in second place with 37. Despite ranking seventh in document count, South Korea ranks first in average citations per document, suggesting that its documents have a relatively strong academic impact (Table 2). Cranfield University and Embry-Riddle Aeronautical University rank first in terms of document output, with seven documents per institution.

As seen in Table 3, The Journal of Air Transport Management (JATM) is the dominant forum for aviation strategic management documents, with 41 documents collectively accounting for 1733 citations (an average of 42.2 per study). These numbers are substantially higher than those of the second-most-prolific outlet, Transportation Research Part E: Logistics and Transportation Review (TRE), which features 11 documents and 391 citations (35.5 citations per study). From an influence

perspective, Tourism Management has the second-highest total number of citations (501) across four documents and the highest per-document average (125.25 citations per document).

Yazan K. A. Migdadi was identified as the most productive author in our collection, with 7 documents. In contrast, Jong-Hun Park emerged as the most-cited scholar, with 355 citations across four documents, for an average of 88.75 citations per document (see Table 4 for details).

3.2. Science mapping

3.2.1. Thematic mapping and thematic evolution

Thematic mapping can be a valuable tool for understanding both current and future research directions (Agbo et al., 2021). Particularly, authors’ keywords and their interconnections are considered to identify dominant themes (Jain et al., 2022). For our analysis, we limited the set to the 250 most commonly used keywords (out of 949). We adopted the frequency threshold originally proposed by Barbosa and Galembeck (2022) and later applied by Bakır et al. (2022): a minimum of five occurrences per year for a keyword to qualify as a (potential) trending topic. The results of our thematic mapping analysis shed light on airline strategy research (Fig. 2). We identified service quality, business strategy, and airline operations as motor themes, which were the most central and actively researched areas. With respect to basic themes, discussions of alliances, pricing strategy, revenue management, low-cost airlines, product differentiation, deregulation, branding, capacity, COVID-19, sustainability, and business models were deemed foundational to this field. On this note, competitive advantage, financial performance, and marketing strategy extended across neighbouring thematic areas, with human resource management, quality, and the US positioned close to the centre of the map.

Concerning niche themes, specialised areas included digital transformation, fuzzy analytic hierarchy process (AHP), SWOT analysis, strategic change, environmental considerations, strategic risk-taking, stakeholders, and employee share ownership plans. The findings suggest that corporate strategy, governance, turnaround strategy, and air cargo are either emerging or declining themes. With these results, we provide a static overview of the current state of the literature.

Conversely, a thematic evolution analysis offers a longitudinal perspective on how research priorities develop over time, enabling the identification of ongoing, transforming, and emerging themes (Aria & Cuccurullo, 2017). To visualise these dynamics, we employed the Sankey diagram provided by Bibliometrix (Fig. 3). In this representation, the size of each node reflects the frequency of the associated keywords, and the links indicate the conceptual connections between themes across successive periods. The map, therefore, permits us to trace how topics persist, merge, or diverge as the conceptual structure of the literature changes from 1980 to 2025. Rather than imposing predefined historical breaks, Bibliometrix automatically identified periods based on the dataset’s temporal distribution. This approach ensures that the analysis allocates a similar number of documents to neighbouring intervals. As a result, more balanced time segments are produced, which supports the consistent interpretation of thematic transitions.

Across the analysed intervals (Fig. 3), alliances are a persistent theme, maintaining a visible presence from the early period to the most recent years, emphasising their foundational role. In the initial stage (1980–2005), product differentiation (foundational) and competitive advantage (motor) were central to this line of research. During the following period (2006–2012), attention shifted towards low-cost airlines (foundational) and airline pricing (motor), signalling a reorientation of the literature towards cost structures and market positioning.

From 2013 onwards, low-cost airlines continued to consolidate their position, while service quality (motor) emerged and remained stable during subsequent periods. Moreover, sustainability (foundational) became increasingly prominent and, in the most recent stage, evolved alongside discussions of COVID-19 (foundational). Competitive

Table 1
Main details about the corpus.

Description	Results
Timespan	1980–2025
Sources (Journals)	178
Documents (Articles and Reviews)	306
Annual Growth Rate (% Avg.)	7.11
Document Average Age (Years)	12.7
Avg. Citations per Document	26.56
Median Citations per Document	10
Keywords Plus® (additional keywords automatically generated from the titles of cited sources)	712
Author Keywords	949
Authors	597
Authors of Single-Author Studies	57
Single-Author Documents	72
Co-Authors per Study (Avg.)	2.33
International Co-Authorships (%)	0.65

Table 2

Top 10 most productive countries and institutions.

Country	Documents	Citations	Avg. Citations per Documents	Institution	Documents
US	52	2373	52.70	Cranfield University	7
UK	37	760	30.40	Embry-Riddle Aeronautical University	7
China	26	596	28.40	Kobe University	6
Türkiye	26	111	9.20	University of British Columbia	6
Australia	18	482	43.80	University of Scranton	6
Spain	14	228	20.70	Brunel University	5
South Korea	12	492	54.70	Arizona State University	4
Germany	11	344	31.30	City University of Hong Kong	4
Singapore	9	90	15.00	Griffith University	4
Canada	8	293	48.80	Kainan University	4

Table 3

Top 10 most productive journals.

Journal	Documents	Citations	H-Index	G-Index
Journal of Air Transport Management	41	1733	26	41
Transportation Research Part E: Logistics and Transportation Review	11	391	10	11
Strategic Direction	10	4	1	1
Transport Policy	8	205	6	8
Emerging Markets Case Studies	6	14	3	3
Tourism Management	4	501	4	4
Transportation Research Part B: Methodological	4	127	4	4
Journal of Travel and Tourism Marketing	4	88	4	4
Strategic Change	4	33	3	4
Benchmarking	3	68	3	3

Table 4

Top 10 most productive authors.

Author	Documents	Citations	Avg. Citations per Documents
Migdadi, Yazan, K. A.	7	66	9.43
Goll, Irene	5	114	22.80
Rasheed, Abdul	5	114	22.80
Park, Jong-Hun	4	355	88.75
Merkert, Rico	4	302	75.50
O'Connell, John F.	4	164	41.00
Zhang, Anming	4	156	39.00
Albers, Sascha	4	101	25.25
Golmohammadi, Davood	4	69	17.25
Alkhatib, Saleh F.	3	20	6.67

advantage, although present across several intervals, appears to play a secondary and supporting role compared with the more continuous trajectories observed for alliances and low-cost airlines. Overall, Fig. 3 portrays a field characterised by both stability and gradual thematic reorientation, in which long-standing strategic concerns coexist with newer challenges associated with global disruptions.

3.2.2. Trending topic analysis

Like thematic mapping, authors' keywords were used to identify trending topics. As in the analysis described in Section 3.2.1, a frequency threshold of 5 occurrences per year was adopted (Fig. 4). We note that owing to our minimal-frequency criterion, trending topics emerged only in the mid-2000s. First, alliance (57) and competitive advantage (37) were the dominant themes, alongside a broader discussion of low-cost airlines (26). Over time, attention moved towards product differentiation, pricing strategy, profitability, and business models. More recently, however, topics such as financial performance, the COVID-19 pandemic, service quality, and environmental sustainability have appeared as key

areas in the sector's research agenda.

3.2.3. Keyword co-occurrence analysis

The results of the keyword co-occurrence analysis provided similar insights, albeit with notably blurrier boundaries between different topics. For this analysis, we selected 250 nodes, which required a minimum keyword frequency of 2. The decision to set the keyword occurrence to 2 was a deliberate methodological choice to address data sparsity. This approach provides a more comprehensive and realistic mapping by capturing the subtle details and emerging themes in the field that would otherwise be overlooked.

The analysis once again revealed a set of closely connected thematic groupings organised around several dominant cores (Fig. 5). At the centre of the network, the formation of alliances and the pursuit of competitive advantage functioned as the primary gravitational pull, thereby connecting discussions on financial performance, globalisation, accounting, and network airline structures. These results suggest that cooperative arrangements are frequently examined alongside questions of strategic positioning and organisational outcomes, particularly performance and financial outcomes.

A second prominent cluster, centred on low-cost airlines and closely linked to product differentiation, deregulation, and market entry, also included themes such as network airlines and strategic management accounting techniques. This grouping reflects the sustained attention given to alternative competitive models and their structural implications.

Service quality was another major area, comprising customer satisfaction, firm performance, business strategy, quality management, and brand-related considerations. In this respect, the delivery of value to passengers appears closely intertwined with broader managerial discussions. The revenue management cluster remained centred on pricing strategy and was further associated with analytical approaches such as real options and simulation-based optimisation. Moreover, operations strategy and sustainability surfaced in a more compact and specialised configuration, indicating a focused but comparatively contained line of inquiry. Although COVID-19 is often mentioned across the corpus, it may lack the required number of pairwise co-occurrences with other keywords in the database, as the co-occurrence network demands not only individual term frequency but also the consistent simultaneous appearance of terms within the same document. Finally, several peripheral nodes, including AHP, SWOT analysis, and stakeholder-related topics, were positioned at the margins of the network, suggesting looser integration with the dominant conversations.

4. Discussion

This study aimed to provide a guide to the current state and trends of the academic discourse on strategic management in aviation, with a particular focus on identifying the main topics, existing relationships, key thinkers, and untapped frontiers. The results of our bibliometric analysis reveal the growth in the number of documents year over year. The 7.11% annual growth rate (from 1 document in 1980 to 22 in 2025)

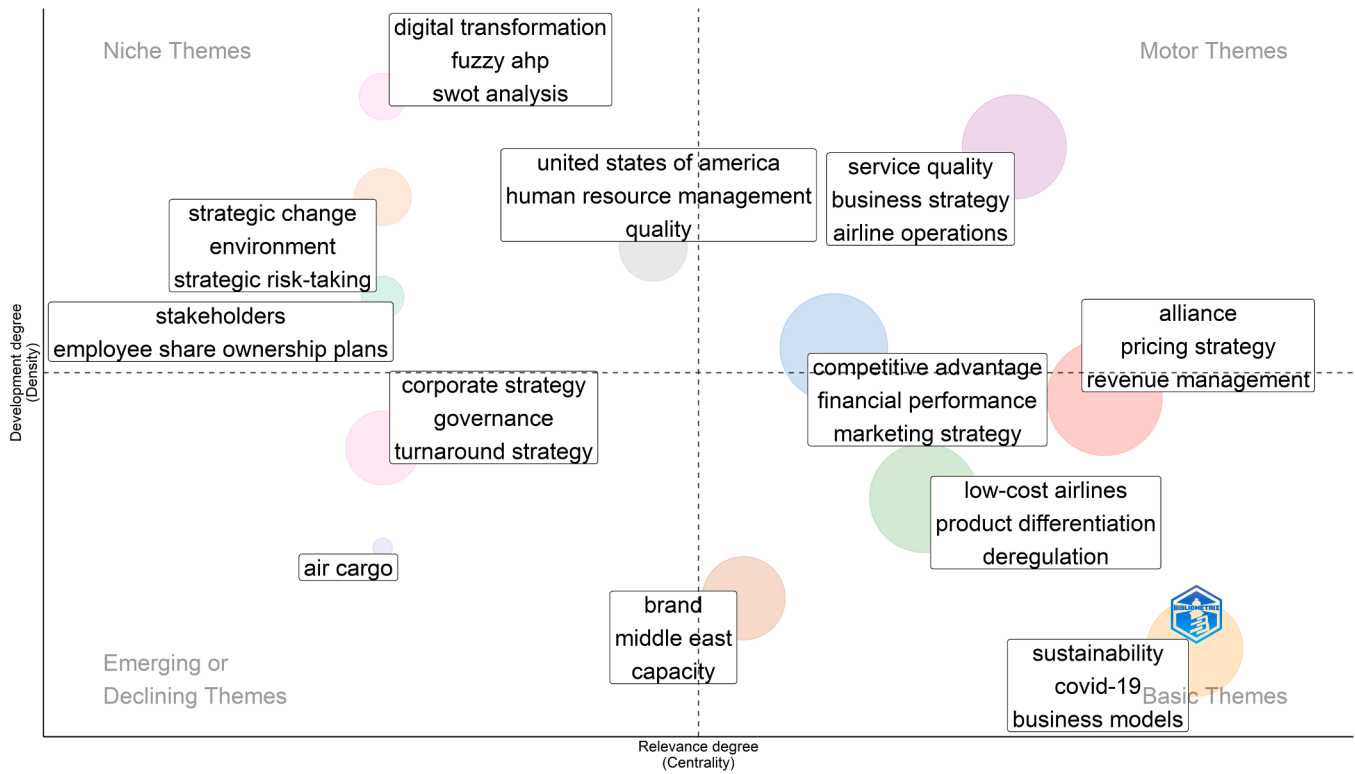


Fig. 2. Thematic mapping of the literature on airline strategy.

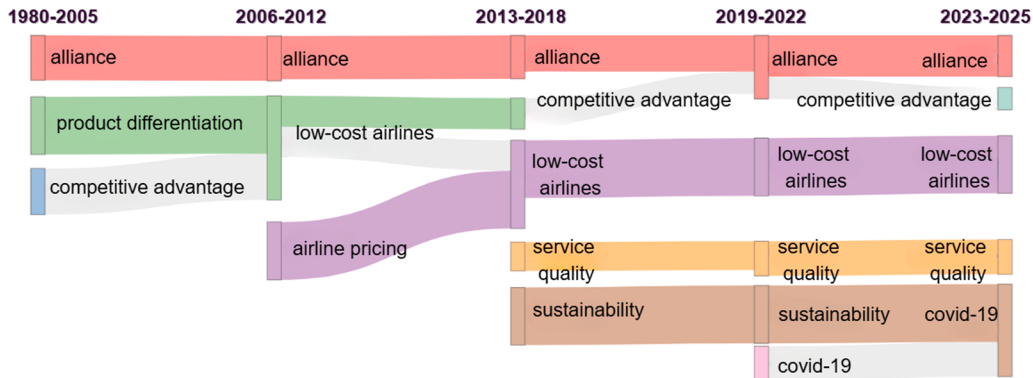


Fig. 3. Thematic evolution of the research on airline strategy.

observed in this context reflects a substantial increase over the 45 years analysed. It is worth noting that this (exponential) growth rate approximates the observed total number of documents, suggesting 315 documents, compared with the actual 306 studies included in our database. The field is also highly influential, with the average document receiving approximately 26.56 citations, showing that works are generally cited and built upon.

Although these results are neither unexpected nor novel, the prominence of researchers in the US, the UK, and China in terms of productivity confirms the general trends identified in previous studies (Yakath Ali et al., 2021; Raza et al., 2020). However, in terms of influence, these countries are not on a comparable footing, with studies from the US receiving substantially higher average citations per study (52.7) than those from the UK (30.4) and China (28.4). Notably, some countries with fewer documents, such as South Korea, Canada, and Australia, achieve comparatively high citation impacts (54.7, 48.8, and 43.8, respectively). Furthermore, despite producing the same number of documents, China and Türkiye show marked differences in average citations per study

(28.4 and 9.2, respectively), with a similar contrast observed between Germany and South Korea (31.3 and 54.7, respectively). JATM, a single outlet among the 41 in our corpus (2.4% of the sources), accounted for 13.4% of all documents, nearly four times that of its runner-up, TRE (3.6%).

One of the main aims of our study was to uncover the dominant themes and trends of the strategic management literature on airlines over recent decades. Taken together, our findings show that airline strategy research is grounded in a relatively stable core of well-established concepts and has gradually incorporated new ideas, redefining rather than replacing existing debates. Our analysis reveals that, in the literature, alliances, low-cost airlines, and service quality are the most important themes shaping aviation strategy. Since the results of our different analytical techniques converge on similar themes, these themes can be regarded as established and central rather than transient.

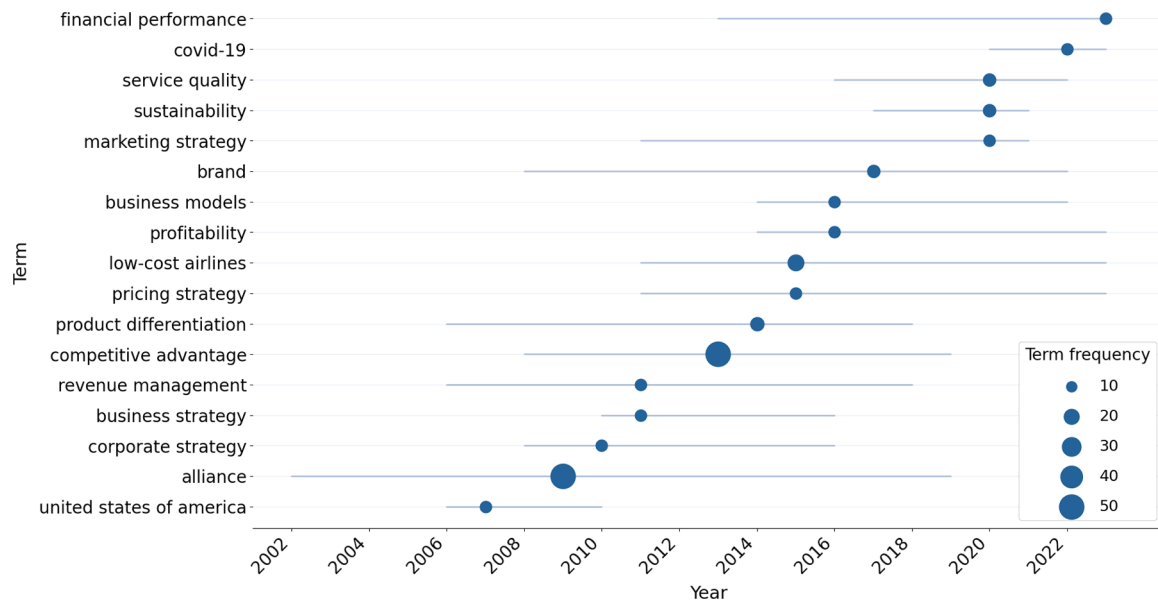


Fig. 4. Trending topics in the research on airline strategy.

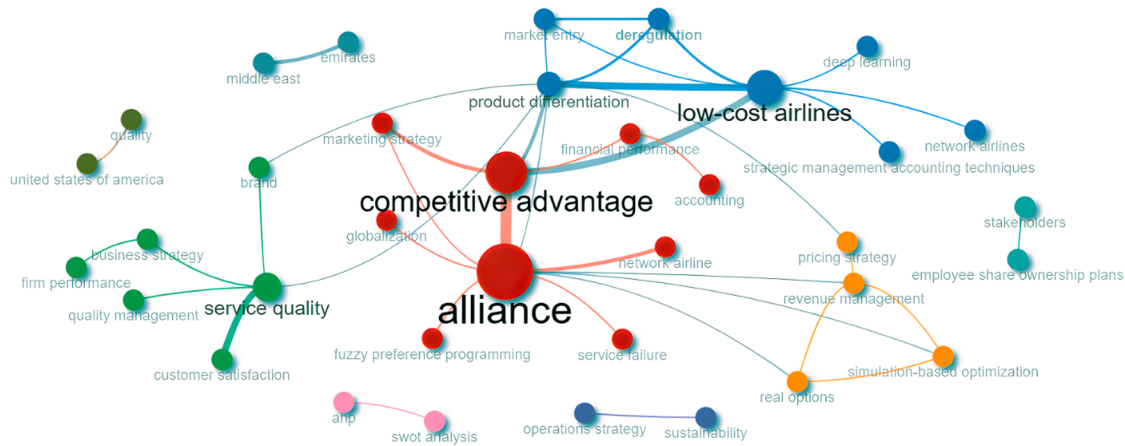


Fig. 5. Keyword co-occurrence analysis.

4.1. On core strategic themes

Alliances are a key structural element of the research in the field, linking discussions of financial performance, globalisation, network airline structures, and organisational coordination. Their ongoing prominence over time indicates that competition in the airline industry is often understood through network-based and collaborative strategies instead of solely through individual firm capabilities. The thematic evolution analysis reinforces this interpretation by showing that alliances recur across multiple periods. Moreover, the literature reflects a gradual transformation in the framing of cooperation. Codesharing initially emerged as a largely operational form of collaboration, particularly in the early phases of liberalisation. Still, it gradually evolved into broader strategic alliances from the 2000s onwards, reflecting deeper and more integrated forms of cooperation. This evolution from operational coordination to strategic integration aligns with the literature, which typically describes codesharing as the foundation for more comprehensive alliance structures and joint ventures (Oum & Zhang, 2001; Bilotkach, 2018). However, the visibility of such cooperative arrangements temporarily declined during major disruptions, such as the COVID-19 pandemic.

The continued presence of low-cost airlines is another example of how deregulation and cost-driven business models have reshaped the industry's strategic thinking over time. What initially emerged as an alternative competitive approach has become a mainstream reference point closely linked to debates on pricing, market entry, and operational design. The centrality of low-cost airlines and business models in the literature aligns with earlier work on deregulation, price dispersion, and entry dynamics, which highlight the structural implications of cost-based competition for market behaviour and strategic decision-making (Dobruszkes, 2006; Goolsbee & Syverson, 2008; Whyte & Lohmann, 2015).

Competitive advantage appears in the literature not as an isolated strategic construct but as a relational and outcome-oriented concept that connects multiple thematic strands. Rather than being discussed through abstract positioning frameworks, competitive advantage is articulated primarily through concrete mechanisms, such as alliances, low-cost business models, and service quality improvements (Lohmann & Spasojevic, 2018). As a result, research on airline strategy approaches competitive advantage less as a standalone objective and more as an emergent outcome of strategic choices related to cooperation, cost structures, and value creation. The central positioning of competitive

advantage within the co-occurrence analysis network reflects its role as a conceptual bridge that links strategy-oriented discussions to operational and organisational themes rather than as an independent driver of research attention.

As a key element of competitive advantage, service quality supports these discussions by linking customer satisfaction to firm performance, branding, and managerial decision-making, thereby integrating passenger experience into broader strategic conversations. The thematic evolution analysis indicates that service quality became particularly visible from the mid-2010s onwards and remained evident in subsequent periods. This persistence suggests that service quality has become a sustained line of inquiry instead of a transient trend, advancing along its trajectory while remaining closely connected to broader strategic concerns.

4.2. On fragmented, underdeveloped or underrepresented themes

Sustainability, despite its relatively high centrality, does not appear as a defining theme within the mainstream airline strategic management literature, as its low density suggests that the connections among its keywords remain insufficiently consolidated to constitute a coherent and self-sustaining research cluster. Evidence from the co-occurrence analysis indicates that sustainability is treated primarily as a focused, specialised area related to operational strategy, environmental concerns, and regulatory objectives, rather than as a central element of competitive strategy debates in a Porterian sense. These findings are consistent with earlier observations that sustainability is only partially integrated into discussions in air transport research (de Oliveira et al., 2022), where it is predominantly framed through emissions, regulatory targets, and performance or efficiency metrics (Foster et al., 2008) instead of as a direct source of competitive advantage (Li & Cui, 2017; Mallikarjun, 2015).

However, the thematic evolution analysis adds another significant perspective on sustainability. Although not central to the co-occurrence structure, the increasing prominence of sustainability in recent years suggests a gradual shift in academic focus and reflects an emerging industry trend. The growing prominence of financial performance themes reinforces this dynamic. A trend topic analysis further supports this dynamic by revealing how the importance of specific themes changes over time. Notably, the recent rise in financial performance as a key focus indicates growing interest in evaluating the outcomes of strategic and operational decisions. This shift aligns with an increased emphasis on external pressures, such as the COVID-19 pandemic and environmental sustainability, as recent studies have increasingly explored their combined impacts on airline performance (Kaffash et al., 2024; Wu et al., 2024). However, the co-occurrence network indicates that these relationships have not yet coalesced into a dominant pattern in the literature.

The positioning of air cargo within the emerging or declining themes indicates an area of incomplete integration in the literature. Historically marginalised by passenger-focused perspectives, cargo-related research remains fragmented and only loosely connected to mainstream strategic debates (Bombelli et al., 2020). Moreover, developments such as the expansion of e-commerce and heightened supply chain vulnerability underscore its growing strategic relevance in practice. This difference suggests a lag between industry transformation and academic consolidation. It underscores the need for air cargo to play a more prominent role in future discussions of competitive advantage, network resilience, and revenue diversification.

The co-occurrence analysis network also identifies the presence of analytical and decision-support techniques, such as fuzzy methods and optimisation tools, which are relatively less prominent and frequently co-occur with strategy-related themes. This pattern signals that information technology is increasingly used to support strategic decision-making rather than to constitute an independent strategic domain. That is, digital and analytical tools are evident in the literature, but their

role remains complementary to strategy rather than transformative.

4.3. On a conceptual integration of the literature

Building on the work of Michael Porter, specifically Porter's Five Forces, Porter's Diamond Model, and Porter's Generic Strategies (Porter, 1979), and informed by our results, we developed a conceptual framework explaining airline strategic management (see Fig. 6). The framework adopts an outside-in logic, linking macro conditions to firm performance.

External pressures form the outer layer, encompassing government policy, chance events, demand conditions, and supplier influences. Consistent with Porter's Diamond, these factors shape the environment in which firms operate and bound the range of feasible strategies without determining specific choices. Within these constraints, airlines pursue competitive advantage through strategic positioning, such as cost leadership, differentiation, or focus, and through firm-specific capabilities enabling superior value creation. Competitive advantage is enacted through structural competition choices, such as business models (e.g., low-cost versus full-service) and strategic alliances. These choices determine how airlines position themselves relative to rivals, entrants, and substitutes within the industry structure, as highlighted by the Five Forces framework. The outcome is performance, expressed as sustained profitability and the ability to outperform competitors. For clarity, relationships are depicted as predominantly unidirectional: external pressures shape feasible advantages, which guide competitive structures and ultimately performance. Feedback occurs when poor performance signals misalignment, prompting strategic adjustment.

5. Conclusion

Although bibliometric studies have investigated more specific topics, such as revenue management (Raza et al., 2020), airline productivity/efficiency (Yakath Ali et al., 2021), and business models (Bergiante et al., 2015), this research provides a more comprehensive overview of the entire field of airline strategic management. Many of the results are confirmatory (see Sun et al., 2024), but the proposed conceptual framework presents a much-needed refinement and synthesis of the research on this subject and bridges fragmented strands of the literature. It offers clear insights into the current state of discussion and highlights focal areas for further enquiry.

5.1. Practical considerations

The impact of this research on practical applications is significant,

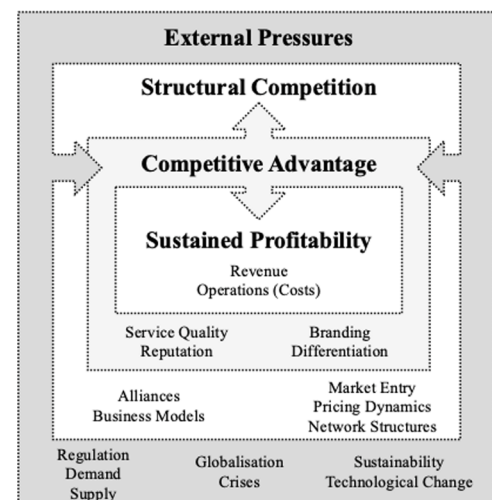


Fig. 6. Conceptual framework for airline strategic management research.

and it offers valuable insights for scholars who can leverage our framework to identify underexplored research domains, reinforce theoretical connections, and situate their work within the broader field of strategic management. At the sector level, the findings suggest that strategic management in aviation reflects broader sector trends, including a focus on alliances, service quality, airline business models, and competitive advantage. However, a gap between academia and the sector remains unaddressed. Although airlines face challenges related to environmental issues and workforce changes, academic research often emphasises economic performance, efficiency, and regulation. Sustainability and environmental concerns have become more prominent; however, our dataset indicates that sustainability is more strongly linked to operations than to strategic positioning.

Areas such as leadership, innovation, human capital, and social issues were either underrepresented or absent in the collection of strategic themes from our analysis. Taken together, these findings suggest that the field remains anchored in relational and competitive logics, whereas the strategic integration of broader organisational and sustainability-oriented transformations is still evolving.

5.2. Limitations

This research has some limitations that should be acknowledged. The first is potential selection bias, as we failed to consider documents written in languages other than English. However, we deem this issue to be relatively inconsequential, given the prevalence of English as the *lingua franca* of the scientific community.

Another limitation stems from our reliance on keywords rather than full-text analysis. Although keywords are intended to encapsulate the central themes of a document, they may not fully reflect its conceptual scope, methodological nuances, or secondary contributions. Consequently, studies addressing relevant strategic management topics more implicitly, or employing unconventional terminology, may have been underrepresented or overlooked altogether.

With respect to the citations, in line with our deductive approach, we relied on the premise that their volume provides an appropriate characterisation of a piece of research's influence. This consideration is consistent with principles established in seminal works such as Garfield (1955, 1972), which gave rise to the impact factor and the H-index, respectively. Nevertheless, although such measures are, at this point, deeply ingrained in academia, they are not without controversies, and they draw criticism for not capturing real impacts on society, such as influence on government policy, private sector initiatives, or the habits of the public (see Priem et al., 2012, for a discussion of alternative metrics).

5.3. Future research directions

Future research in strategic airline management should address topics that remain conceptually fragmented, such as sustainability, financial performance, and organisational aspects. Although sustainability has gained prominence, the literature still mainly considers it as an operational or regulatory matter rather than a key strategic capability. Researchers are thus encouraged to explore how environmental, social, and governance (ESG) commitments influence competitive advantage, alliance structures, and business model innovation across various regulatory environments and regions. This is especially important since ESG alignment is often essential for accessing certain financial investments. Regarding organisational aspects, the COVID-19 pandemic emphasised the strategic importance of airline workforce resilience, organisational culture, and leadership agility, all of which remain underexplored in bibliometric data.

Addressing thematic gaps in emerging or declining clusters, such as air cargo, digital transformation, and decision support analytics, also offers opportunities for further research. The increasing strategic importance of air cargo, driven by e-commerce and supply chain

fluctuations, provides possibilities to reconceptualise cargo not just as a supplementary activity but as a key factor in network resilience, revenue diversification, and competitive positioning. Similarly, although digital technologies (e.g., AI-enabled revenue management, predictive maintenance, and integrated customer experience platforms) are mentioned in the literature, they are often discussed in a narrow, tool-specific way. Future research could investigate how digitalisation influences strategic decision-making, shifts the boundaries between low-cost and full-service models, or changes alliance governance. Scholars working in these studies are also encouraged to utilise mixed methods, longitudinal designs, or comparative case studies to better understand how airlines institutionalise capabilities and how they interact with traditional strategic levers such as cost structures, partnerships, and network design. Moreover, extending science mapping approaches to full-text analyses, broadening to non-English sources, or triangulating bibliometric insights with industry expert interviews would enhance the methodological landscape and support a more nuanced understanding of how airline strategy develops in practice.

CRedit authorship contribution statement

Mustafa Kaya: Writing – original draft, Formal analysis, Data curation, Conceptualization. **Tuba Bayar:** Writing – original draft, Methodology, Data curation, Conceptualization. **Renan de Oliveira:** Writing – review & editing, Formal analysis, Data curation, Conceptualization. **Gui Lohmann:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Ferhan K. Sengur:** Writing – review & editing, Supervision, Project administration.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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