MODELLING A LOW-COST SUPPLY CHAIN FOR FULL-SERVICE CARRIERS OPERATING IN ASIA AND AUSTRALASIA: A REQUIREMENTS ANALYSIS APPROACH

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Doctorate of Business Administration (DBA)

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Abstract

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Low-cost carriers (LCCs) in Asia and Australasia have experienced persistently high failure rates and uneven profitability following airline deregulation. Despite these challenges, the low-cost model remains central to tourism development, fare accessibility, and competitive pressure on full-service carriers (FSCs). This mixed methods study examined whether FSCs in Asia and Australasia can feasibly convert their supply chain structures toward LCC efficiency. Using a requirements analysis framework, the study identified functional, structural, and resource gaps between the two airline models and evaluated the capacity of FSCs to close these gaps. A convergent parallel mixed methods design was employed. Quantitative analysis was based on 45 airline annual reports, comprising 23 LCCs and 22 FSCs. Independent samples t tests, Cohen's d, two-way ANOVA, and hierarchical regression were used to examine inter model differences and the impact of operational efficiency ratios on operating margin. Qualitative analysis drew on 62 peer reviewed studies and industry reports to identify leadership, organisational, and structural mechanisms influencing conversion feasibility. The quantitative findings showed that LCCs consistently achieved lower cost per available seat kilometre, payroll-to-revenue ratios, and fuel intensity, while maintaining higher load factors and year-on-year passenger growth. FSCs' profitability was more sensitive to cost-related variables, with higher unit costs and labour intensity exerting a stronger negative effect on operating margin. Qualitative findings indicated that many FSCs possess the leadership capacity, organisational learning systems, and resource base required to narrow efficiency gaps through fleet simplification, digital integration, and workforce restructuring. The study concludes that supply chain conversion is feasible under specific conditions. Successful convergence depends on disciplined cost reform, leadership agility, organisational learning, and alignment between operational design and strategic intent. By translating efficiency elasticities into actionable managerial and policy levers, this study contributes an applied, evidence-based conversion blueprint for airline conversion, with implications for profitability, tourism competitiveness, and economic resilience in Asia and Australasia

Keywords: Full-Service Carriers, Low-Cost Carriers, Supply Chain, Requirements Analysis

Declaration

I declare that this thesis was composed solely by myself and has not been submitted, to any extent, for other degrees or professional qualifications. Unless stated otherwise through reference or acknowledgement, the work presented is solely my own.

AI Acknowledgements

Non-Use of AI:

I acknowledge that I have not used any AI tools to create, proofread or produce any text or ideas related to any draft or final versions of the thesis.

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Dedication

To my wife, Mrs. Merlinda Malcolm, and my son, Jahim D. Malcolm

Acknowledgments

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List of Abbreviations/ Acronyms

ASK	Available seat kilometre
AWA	Airline-within-airline
CASK	Cost per available seat kilometre
COVID-19	Coronavirus disease 2019
COVID-19 Years	2020 and 2021
FFP	Frequent flyer program
FTE	Full-time employees
FSC	Full-service carrier
LCC	Low-cost carrier
LHLCC	Long-haul low-cost carrier
Pre COVID-19 Years	2017 – 2019
RASK	Revenue per available seat kilometre
ROA	Return on Assets
ROE	Return on equity
RPK	Revenue passenger kilometre

List of Abbreviations/ Acronyms

SHLCC	Short-haul low-cost carrier
ULCC	Ultra-low-cost carrier
YOY passenger growth	Year-on-year passenger growth

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CHAPTER 1

INTRODUCTION

The global passenger airline industry has evolved into a hypercompetitive environment shaped by policy liberalisation and market restructuring. Prior to the 1970s, stringent government regulation restricted market entry, controlled pricing and stabilised routes, producing predictability but stifling innovation and efficiency (Abdi et al., 2023). The U.S. Airline Deregulation Act disrupted this equilibrium by removing regulatory barriers, forcing airlines to compete on cost and service differentiation. This shift represented a paradigmatic change: from a state-controlled utility model to a market-driven, performance-based industry. As deregulation diffused internationally, supported by privatisation and open-skies agreements (Cozmuta, 2024), the resulting market turbulence fostered new strategic logics.

LCCs emerged not merely as by-products of deregulation but as institutional innovations that redefined efficiency standards and consumer expectations. By 2018, their global market penetration (33% intra-regional; 13% international) reflected not only the success of cost-leadership models but also the structural transformation of airline competition from regulation-based protectionism to efficiency-based rivalry (CAPA, 2019). In Thailand, a country within the Asia-Pacific, the market share ratio of Full-Service Carriers (FSCs) and LCCs was 27:73 in 2019 (Law, 2022).

Furthermore, individual LCCs such as the US Southwest Airlines and the UK Ryanair have survived many challenges. For instance, Southwest Airlines excelled after the September 11, 2001, terrorist attacks on the United States of America (Kiefer & Diprima, 2023). Ryanair survived many years of poor financial performance since its emergence in 1985 (Ryanair Group, 2021), and many Asian LCCs survived the COVID-19 pandemic (Reddy et al., 2021). This suggests that airlines can provide a low-cost, no-frills service and remain successful in the long term. Figure 1 portrays examples of successful LCCs in Asia and Australasia.

Figure 1
Airlines operating in Asia and Australasia

Source: (Loh, 2023).

The high turnover and frequent collapse of LCCs highlight the structural fragility of the business model rather than isolated managerial failures. Although Figure 1 highlights several successful LCCs in Asia and Australasia, the numerous global bankruptcies, including Interjet (2021), Bonza (2024), Joon (2019), Air Berlin (2020), and Primera (2018), expose a recurring pattern of volatility across the sector. These failures are not random but symptomatic of deeper strategic tensions within the model: high fixed costs from aircraft leases, price-sensitive markets with thin margins, and limited resilience to fuel shocks or pandemics. Many collapsed LCCs, particularly long-haul low-cost carriers (LHLCCs), underestimated the difficulty of sustaining high load factors (LF) and ancillary revenue on long sectors where cost advantages erode (Zuidberg & de Wit, 2020).

The contrast between persistent failures and enduring players like Southwest underscores that success depends on systemic alignment, such as fleet commonality, disciplined expansion, and adaptive leadership, rather than the low-cost strategy itself. Hence, the pattern of LCC attrition demonstrates the limits of cost leadership when unaccompanied by operational agility, capital discipline, and strategic fit with market context. This analysis reframes LCC mortality not as evidence against the model but as an indicator of uneven strategic maturity across global markets.

This study focused on the Asian continent and two dominant countries of Australasia (Australia and New Zealand). These two countries comprise more than 60% of this region’s population (Worldometer, 2020) (Figures 2, 3, 4, and 5).

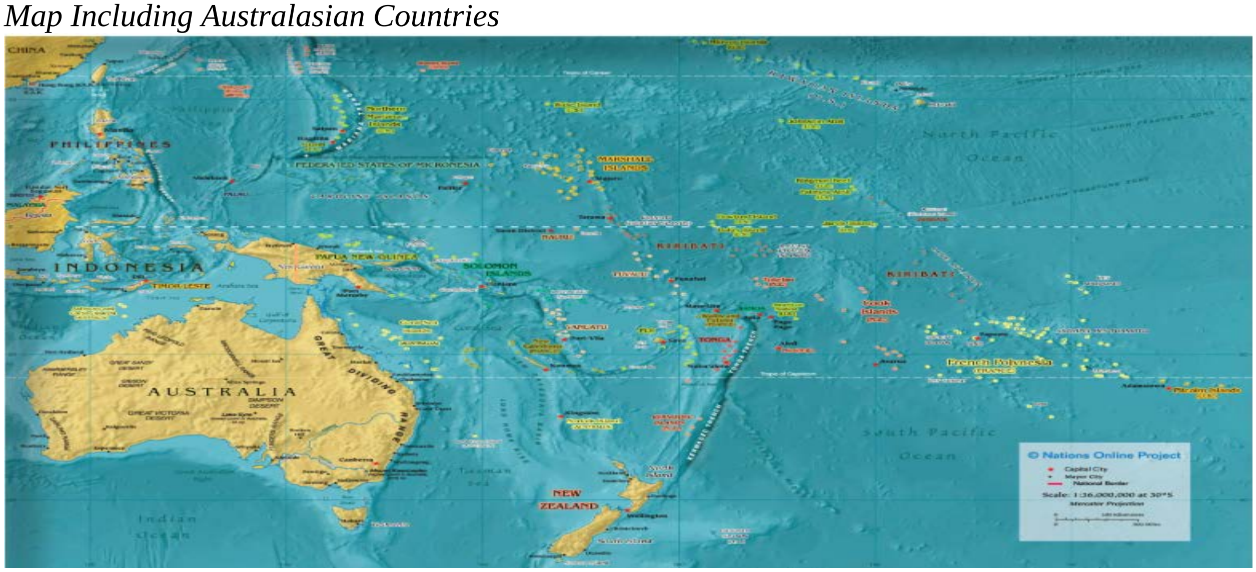
Figure 2
Countries in Australasia

Australia	Tonga	Kiribati	New Caledonia	Papua New Guinea	Christmas Island
Fiji	Cocos Islands	Marshall Islands	American Samoa	French Polynesia	Federated States of Micronesia
Guam	Cook Islands	New Zealand	Niue	Northern Mariana Islands	Solomon Islands
Nauru	Palau	Tokelau	Vanuatu	Norfolk Island	Pitcairn Islands
Samoa	Tuvalu	Wallis	Futuna		

Source: Nations Online. (n.d.).

As shown in Figure 2, Australasia comprises 28 countries; 14 independent countries and several dependent territories.

Figure 3
Map Including Australasian Countries



Source: Nations Online Project (n.d.).

Since New Zealand and Australasia are the first and third largest, and most populous countries in Australasia, as shown in Figure 3, they can ably represent the entire populations of this region.

Asia is a vast continent comprising many countries such as China, Russia, India, Japan, Indonesia, and Turkey, as shown in Figures 4 and 5. This continent has been impacted by the problematic issue under investigation. However, Asia’s economic and regulatory diversity shapes heterogeneous airline responses to deregulation. This manifests how operational and cost-efficiency outcomes vary significantly across markets, reflecting uneven institutional maturity and competitive liberalisation levels.

Figure 4
Map of Asia

Source: WorldAtlas (n.d.).

Deregulation in Australia (1990) reshaped airline competition by removing capacity and pricing controls (Agasti, 2022), enabling new low-cost entrants such as Compass, Impulse, Virgin, Jetstar, and Tiger to challenge incumbents (Majeed et al., 2024; ICAO, 2017). While deregulation initially encouraged rapid market entry, it also exposed the financial fragility of smaller carriers, leading to eventual consolidation under Jetstar. This evolution reveals that deregulation alone did not sustain long-term competition; instead, it forced both full-service and low-cost carriers to adapt strategically. FSCs integrated selective cost-efficiency measures, while LCCs diversified beyond price competition through hybrid models. The Australian case thus illustrates that deregulation functioned as a catalyst for strategic realignment rather than a permanent equaliser, emphasising the need for continual organisational agility and resource discipline to maintain competitiveness.

The deregulation of New Zealand's air carrier market in 1983 was intended to enhance competition, yet between 1995 and 2003, four LCCs (Freedom Air, Kiwi Travel International, Tasman, and Pacific Blue) emerged and quickly disappeared (ICAO, 2017; Baxter & Srisaeng, 2022).). Their short lifespans indicate that deregulation alone did not ensure sustainability. Market constraints, including limited demand, high airport costs, and Air New Zealand's dominant position, restricted the viability of LCC operations. This reveals a structural imbalance between liberalised policy and practical market competitiveness; a pattern later echoed in wider Australasian FSC–LCC dynamics.

Figure 5

List of Asian Countries

1. Afghanistan
2. Armenia *
3. Azerbaijan *
4. Bahrain
5. Bangladesh
6. Bhutan
7. Brunei
8. Cambodia
9. China
10. Cyprus *
11. Georgia
12. India
13. Indonesia
14. Iran
15. Iraq
16. Israel
17. Japan
18. Jordan
19. Kazakhstan *
20. Kuwait
21. Kyrgyzstan
22. Laos
23. Lebanon
24. Malaysia
25. Maldives
26. Mongolia
27. Myanmar
28. Nepal
29. North Korea
30. Oman
31. Pakistan
32. Palestine
33. Philippines
34. Qatar
35. Russia *
36. Saudi Arabia
37. Singapore
38. South Korea
39. Sri Lanka
40. Syria
41. Taiwan
42. Tajikistan
43. Thailand
44. Timor-Leste
45. Turkey *
46. Turkmenistan
47. UAE (United Arab Emirates)
48. Uzbekistan
49. Vietnam
50. Yemen

Source: United Nations Statistics Division (2024).

Deregulation in the airline industry followed a staggered and regionally uneven trajectory across Asia and Australasia. Japan initiated liberalisation as early as 1986, followed by the Association of Southeast Asian Nations (ASEAN) in 1995. Several major markets, including China in the mid-1990s, India in 1994, Malaysia in 2001, and Turkey in 2003, liberalised much later (Majewski et al., 2024; Ho et al., 2021; Ghosh & Pinto, 2021; Majewski et al., 2022). This temporal gap indicates that deregulation was not a simultaneous regional phenomenon but rather a sequential diffusion of policy reform. Consequently, these asynchronous deregulation timelines have produced structurally heterogeneous airline markets, shaping divergent competitive dynamics and long-term efficiency outcomes across Asia and Australasia.

Early adopters such as New Zealand and Australia served as experimental laboratories for market liberalisation, demonstrating both the economic benefits and regulatory risks of competition. Their earlier transition allowed carriers in these markets to mature operationally and strategically before Asian nations embraced similar reforms. Consequently, when Asian markets eventually liberalised, they did so under more complex geopolitical and infrastructural conditions, balancing national protectionism with the pressures of global integration. This sequencing explains why Asian deregulation, though inspired by Australasian precedents, produced far more heterogeneous outcomes in market structure, cost efficiency, and airline survival.

In 2018, LCCs' penetration rate stood at 28% in the Asia-Pacific, 36% in Latin America, 17% in the Middle East, 12% in Africa, 41% in Europe, and 32% in North America (CAPA, 2019). This analysis supports Dresner et al. (2021) and Zhou (2024), who argue that while LCCs experience rapid expansion during the early stages of their life cycle, their market share growth eventually plateaus below 50%. This limitation arises from factors such as the inherent constraints of long-haul low-cost models, economic sensitivity, operational and regulatory challenges, fuel dependence, and brand perception issues. The high initial market penetration requirement stemmed from the fact that LCCs have to continually increase market share to compensate for low contribution margins per unit (CAPA, 2022). This necessitated them to provide their services on a large scale to cover their huge fixed costs (Efthymiou & Christidis, 2023). Successful LCCs penetrate a large section of their market (Efthymiou & Christidis, 2023).

Asia experienced the most considerable market growth from 2009 to 2018, globally, with LCC seats nearly increasing by 400%, due to the late arrival of the LCC in this region. However, Australian LCCs' relative dismal penetration rate of the domestic and international markets, from 2009 to 2018, was 36% and 115%, respectively. More depressing, in New Zealand, the domestic LCC penetration rate stood at 17% while international penetration grew to 75% from 2009 to 2018.

Another problem faced by the regions was that airlines operating in the Asia-Pacific were outperformed by those operating in developed countries in terms of net profit and operating margin. According to the Asian Development Bank (2023), although the Southeast Asian market increased at a much more rapid rate relative to the global average, the average profit margin of Southeast Asian airlines significantly lagged the global average. Furthermore, while Asia's and Australasia's ten largest airlines (LCCs and FSCs) achieved an average net profit margin of 1.5%, global airlines realised an average profit margin of 3.8% (ICAO, 2022).

Table 1 shows that despite larger market penetration and considerable market share of LCCs operating in the Asia-Pacific, they have grossly underperformed their major global competitors in profitability.

Table 1

Relative Performance of Asian Airlines

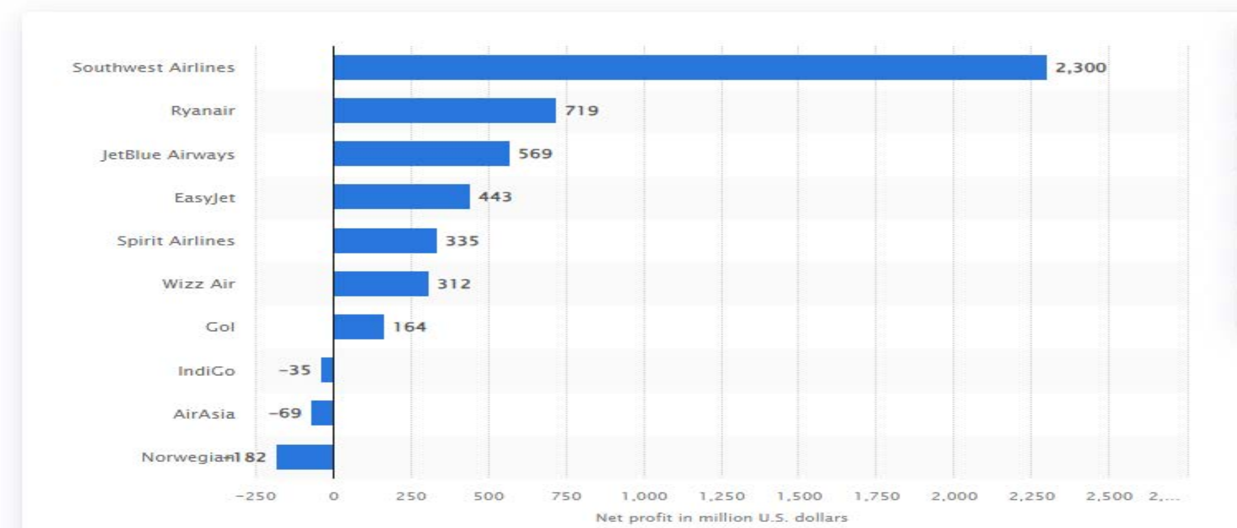
	Net profit (US$b)	Projected Profit Margin (US$b)	
	2022	2023	2024
Africa	-0.8	-3.4	-2.7
Latin America	-1.4	-1.5	-0.8
Middle East	1.4	4.3	4.8
Asia Pacific	-13.5	-0.1	0.5
Europe	4.1	7.7	7.9
North America	9.1	4.2	4.0

Note: Adapted from IATA (2023a); IATA (2023b).

Figure 6 shows that among the ten largest global LCCs, ranked by net profit (positive or negative), the two Asian LCCs (IndiGo and AirAsia) were among the three weakest performers (Statista, 2023). This shows that market penetration and resulting economies of scale do not automatically convert into profitability, and that while certain regions within the Asian continent (e.g., the Middle East) are reasonably profitable, others are unprofitable or achieve very low profitability. However, IndiGo and AirAsia represent only two among the many LCCs operating in Asia, and their profitability alone may not reflect the region's overall profitability performance.

Figure 6

Leading Low-Cost Airlines Worldwide in 2019, Based on Net Profit



Source: Statista (2023).

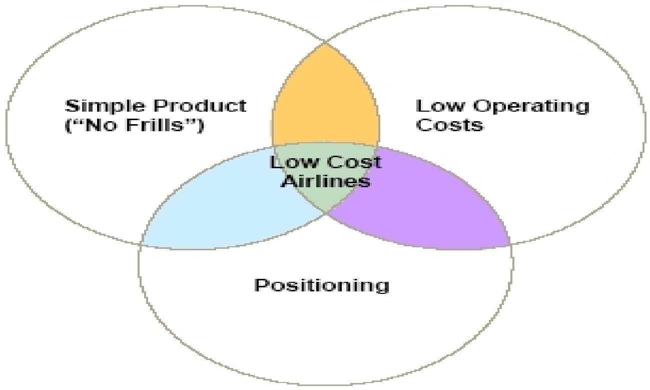
Although Asian LCCs command significant market share, their weaker profitability indicates structural inefficiencies rather than demand shortfalls. Factors such as higher operating costs, regulatory constraints, and overcapacity dilute the positive impact of economies of scale on their profitability. This divergence suggests that scale alone is not a sufficient profitability driver; strategic efficiency and cost governance determine sustainable performance.

There are two types of LCCs: the independent LCCs, in which an LCC operates on its own without an FSC parent, and the airlines within airlines (AWA), where an LCC subsidiary is owned by an FSC parent (Khan et al., 2022). AWA is the most prevalent of the LCC models and can be created through a start-up LCC within an FSC or the purchase of an existing LCC subsidiary by that FSC. Heiets et al. (2021) provide sufficient examples of healthy FSC parents and LCC subsidiaries unions in AWA strategies.

For instance, Lufthansa Airlines, an FSC, has two LCC subsidiaries, Germanwings and Eurowings, which it merged with in 2016 and 2015. A more relevant example for this study is that, in Australia, JetStar has been an LCC subsidiary of Qantas since 2004. The survival of these LCC subsidiaries suggests that the LCC model can create new demand (Law, 2022), instead of cannibalising the customers of their FSC parents, as stated by Wang et al. (2024).

A primary reason for LCCs’ closure is unprofitability. Larger LCCs have fewer instances of unfavourable returns on capital employed (ROCE) than their smaller LCC counterparts, through discounts for bulk purchases and economies of scale (Merkert, 2023). Therefore, it appears that adopting a low-cost strategy grounded in economies of scale is essential to the long-term sustainability of LCCs. In a similar vein, although the majority of India’s LCCs offer extremely low fares to passengers, they have not achieved sufficiently low-costs, which has negatively affected their profitability (Agasti, 2022; Jain & Dhamija, 2023).

Figure 7
Low-Cost Model



*Source***:** Schlumberger and Weisskopf (2014).

Macário et al.'s (2008) definition classifies LCCs solely by price and service scope, implying form over function. Yet, as shown in Figure 7, Schlumberger and Weisskopf (2014) introduced a performance-based criterion emphasising sustained profitability through structural cost efficiency, thereby shifting the focus from output (low fares) to underlying capability. Applying this stricter lens exposes definitional inconsistency in the Indian market: several "LCCs" meet the price criterion but not the efficiency benchmark. This conceptual tension underscores the importance of distinguishing strategic intent from operational reality when categorising LCCs.

To circumvent the limitations of the LCC model, some air passenger carriers have developed various hybrids of the two models. For instance, Aer Lingus adopted a model that simultaneously exhibited characteristics such as persistent cost-cutting and value-adding product differentiation (O'Connell & Connolly, 2017). The hybrid model of LCC facilitates the creation of new demand instead of LCC subsidiaries cannibalising the customers of their FSC parents. Developing countries with an expanding middle class would most probably opt for the hybrid model. This expanding middle class explains why LCCs are growing more rapidly in developing

Asia-Pacific countries than in well-developed Asian Pacific ones, such as Australia (Bowen, 2019).

The massive growth and or market penetration of the LCC model shows that it is a viable model. However, LCCs' underperformance may be due, predominantly, to their inability to sufficiently streamline their supply chain rather than to the presence of FSCs. These two air carrier models largely have different strategies and serve different markets, and the progress of one should not overly obstruct that of the other. This study aimed to determine the challenges of Asia's and Australia's FSCs converting their supply chain to that of LCCs, which would determine the feasibility of such a conversion.

1.1 Problem Statement and Research Purpose Statement

1.1.1 Research Problem Statement.

The problematic aspect of converting from FSCs to LCCs emanates from the difficulty of managing the design, implementation, and early years of operation of the LCC supply chain due to its complexity (Majewski et al,, 2024; Lindemann, Maschler et al., 2021). As shown in Table 2, since deregulation, many cases of failure and persistent losses have been recorded among LCCs operating in Asia and Australasia.

Table 2
History of LCCs in Australia and New Zealand

History of Australia and New Zealand LCCs		
New Zealand LCCs History	**Started Operation**	**Ceased Operation**
Freedom Air	1995	2008
Kiwi Travel International Airlines	1994	1996
Pacific Blue	2003	2011
Tasman Express	2003	Defunct
Australia LCCs History		
Compass Airlines	1990	1993
Impulse Air	1992	2004
Jetstar	2003	Present
Tiger Airways Australia	2007	2020
V Australia	2009	2011
Virgin Australia	2000	2020

*Source***:** ICAO (2017).

The persistently high bankruptcy rate among Australasian LCCs highlights deeper structural weaknesses beyond cyclical market volatility. ICAO (2017) data show that 75% of New Zealand's and 33% of Australia's LCCs failed within roughly a decade. This pattern reveals an industry unable to sustain the low-cost model under regional constraints. The frequent collapses and conversions of carriers such as Freedom Air, Tigerair, and Pacific Blue indicate that cost efficiency and network scale, the twin foundations of LCC success elsewhere, were undermined by small market size, limited secondary airports, and intense duopolistic competition. These outcomes suggest a mismatch between the LCC business model and the structural realities of the Australasian market: high operating costs, regulatory complexity, and thin inter-city demand restrict economies of scale.

The reversion of several LCCs to FSC models reflects a strategic retreat rather than genuine innovation, suggesting that long-term differentiation depends on hybridisation that integrates low-cost operations within network partnerships. Thus, the evidence does not merely portray chronic failures; it demonstrates that deregulation alone was insufficient to create viable competition. Instead, long-term resilience in the region hinges on adaptive integration, where LCCs internalise cost discipline while aligning with FSCs' network strength to overcome geographic and economic constraints.

The literature provides reasons for the fall of Australia's and New Zealand's LCCs. Tigerair Australia's financial collapse was related to COVID-19 (Li, 2021), and Impulse Airlines' failures were due to their engagement in unsustainable fare wars (Raigangar, 2020). Conversely, between 2008 and 2018, LCCs in Australia and New Zealand significantly underperformed their counterparts in the wider Asia–Pacific region in terms of market penetration and growth. As a result, several airlines collapsed financially after failing to achieve sustainable market share (CAPA, 2019).

FSCs face structural rather than cyclical challenges, including high fares, weak margins, and rigid cost structures that inhibit responsiveness to market volatility (Bas, 2022; Moongil & Lee, 2021). Their reliance on legacy service models and inflexible capacity planning undermines competitiveness in increasingly price-sensitive markets (Pan & Dothang, 2021). The wave of bankruptcies and conversions to LCC operations reflects a strategic correction rather than isolated failures. From a macroeconomic view, LCC proliferation mitigates inflationary pressures by preserving affordable mobility and sustaining tourism-driven growth. Thus, FSC decline underscores a systemic transition in the aviation industry. Profitability and accessibility now hinge on operational agility and cost efficiency, not differentiation alone, revealing a paradigm shift in global airline economics.

However, while the LCC model has demonstrated operational efficiency, its vulnerabilities expose structural weaknesses that threaten post-supply-chain conversion sustainability. The pursuit of cost minimisation through standardised fleets, secondary airports, and point-to-point networks (Pan & Dothang, 2021) enhances short-term efficiency. However, it simultaneously undermines service quality and customer retention, revealing a trade-off between cost discipline and brand equity. The repeated collapse of Australasia’s LCCs suggests that these models have reached their contextual limits, where low fares cannot compensate for poor passenger experience. Moreover, wage compression strategies provoke union backlash, constraining the very labour flexibility LCCs depend upon (Sabaitytė et al., 2020). Externally, systemic shocks such as COVID-19, geopolitical instability, and global recessions (Anshu, 2021; Romei, 2022) expose their thin capital buffers and overreliance on continuous demand. Collectively, these weaknesses highlight that LCC resilience depends less on cost optimisation alone and more on adaptive governance and differentiated risk management across volatile markets.

Furthermore, Australasian LCCs are plagued by unique problems that place them at a global competitive disadvantage. For instance, the improper route management of Australia’s “unique geographical distribution of the urban population” and long-haul routes (Srisaeng & Baxter, 2022, p. 151) may inadvertently increase fuel and other costs. With the global challenges and unique issues faced by Australasia’s LCCs, a conversion to the LCC model would result in a heightened risk of failure of such a project. Hence, a gap analysis becomes even more important (Skivington et al., 2021).

This feasibility study provides a blueprint for future successful supply chain conversions in Australasia and Asia, curbing the high failure rate of such conversions. Gap analysis, which has its foundation in the requirements analysis approach, is the ideal solution for curbing the high failure rate during and after conversions when determining feasibility (Šafář et al., 2022). Gap analysis determined the variance between the two supply chains (complex systems) and the FSCs' ability to close them. The requirements analysis approach is borrowed from software development, a complex undertaking similar to a supply chain conversion. It analyses software requirements to determine gaps between the current software and the software under development, as well as the firm’s ability to fill those gaps (Lima et al., 2022). Existing research has not comprehensively examined how requirements analysis influences the success of developing “non-software” complex systems such as LCC supply chains (Iqbal et al., 2022). Hence, researchers must extend this line of inquiry into current and future research to examine the feasibility of such a conversion.

1.1.2 Research Purpose Statement

The purpose of this mixed methods study was to assess the feasibility of FSCs operating in Asia and Australasia, converting their supply chain models to those of LCCs. This was achieved through a gap analysis that examined the variances between the two airline models' functional and structural requirements and evaluated whether FSCs possess the implementation capacity and resources to close the identified gaps. These steps would increase the probability of successfully converting the supply chain model of FSCs to that of LCCs.

A mixed methods for expansion was ideal for this feasibility study since it investigates both processes and outcomes; hence, broadening the scope of inquiry (Mason & Mumford, 2024; Greene et al, 1989). While outcomes are numerical and require a quantitative method, processes are textual and best suited for a qualitative approach. This research used a convergent parallel mixed methods design by separately collecting and analysing both sets of mono data and combining them for confirmation/disconfirmation; data were combined through side-by-side comparison (Haynes-Brown & Fetters, 2021).

The study was conducted through qualitative and quantitative archival data of relevant annual and sustainability reports of airlines, and extant literature on the Internet. The study employed a census approach, enabling the collection of data from all 23 publicly traded LCCs and 22 publicly traded FSCs operating across Asia and Australasia, while purposive sampling was applied to the qualitative literature review component. Questions in the qualitative and quantitative archival data were laid out in the order of, and congruent with, the research questions and purpose of the study. This data collection approach facilitated a comparison of quantitative statistical results with qualitative findings for a comprehensive knowledge of the research problem, which would not be attainable utilising either form of data in isolation (Snyder, 2023).

1.2 Research Aims and Objectives

This mixed methods research involved reporting quantitative and qualitative data, and gaining insight from the two mono methods through convergence; hence, the aim was appropriate for this mixed methods study (Creswell, 2011). While the research aim specified what the study would answer, the objectives specified how it would be answered by fragmenting the research aim into smaller components (Wilkinson, 1991).

1.2.1 Research Aim

The research aimed to explore the feasibility of FSCs operating in Asia and Australasia successfully converting their supply chain model to that of their LCCs' counterparts, by determining the variances of their processes and outcomes, and FSCs' ability to close or reduce those variances.

1.2.2 Research objectives

The specific objectives were:

I. To determine the substantial impact of cost-related independent variables on the profitability of publicly traded LCCs and FSCs in Asia and Australasia;

II. To determine the substantial impact of revenue-related independent variables on the profitability of publicly traded LCCs and FSCs in Asia and Australasia;

III. To establish the substantial differences in operational efficiency ratios between publicly traded LCCs and FSCs operating in Asia and Australasia;

IV. To determine the extent to which the COVID-19 pandemic affects the substantial impact of independent variables on the dependent variable of publicly traded FSCs and LCCs operating in Asia and Australasia;

V. To explore the extent of difference in the operational strategies of Asian and Australasian publicly traded FSCs and LCCs;

VI. To explore whether Asian and Australasian publicly traded FSCs have the implementation structure to implement the supply chain conversion successfully.

While cost-related operational efficiency ratios include CASK, LF, payroll to revenue, and fuel to operating cost, revenue-related operational efficiency ratios are YOY passenger growth, passenger yield, and RASK.

1.3 Research Questions and Hypotheses

This mixed-methods research used mixed-methods questions that support and are congruent with the research problem and purpose. With the quantitative method, the thrust was on determining effects or outcomes through experiments. The reductionist qualities of the quantitative method allow ideas to be broken into "small, discrete sets to test, such as the variables that comprise hypotheses and research questions" (Creswell, 2014, p. 36). Variables were determined by reviewing the literature (Creswell & Plano Clarke, 2018). Some possible variables discovered through a preliminary literature review that could be included in the qualitative and quantitative archival data when gathering secondary data were market demand, customer satisfaction, customer retention, available seat kilometre, LF, and revenue per revenue passenger kilometre. The qualitative questions, together with the quantitative research questions and hypotheses, further refined and clarified the study's purpose statement. The research questions investigated the impact of independent variables on the dependent variable and variances between variables of the two airlines, while the hypothesis predicted the likely impacts and variances.

Hypotheses can be described as recommended solutions to the research problem. The researcher employed a census methodology, capturing data from the entire population of publicly listed full-service and low-cost carriers operating in Asia and Australasia. Accordingly, inferential testing was not used to generalise findings beyond the population but rather to examine the relationships among operational variables within it. Alternative hypotheses were therefore presented for analytical and explanatory purposes, providing a structured basis for testing and interpreting these variable relationships. (Creswell & Plano Clarke, 2018).

1.3.1 Research Questions

Quantitative Questions

Q1: What are the substantial impacts of cost-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs operating in Asia and Australasia?

Q2: What are the substantial impacts of revenue-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs operating in Asia and Australasia?

Q3: What are the substantial differences in operational efficiency ratios between publicly traded LCCs and FSCs operating in Asia and Australasia?

Qualitative Questions

Q4: How different are the operational strategies of Asian and Australasian publicly traded FSCs and LCCs?

Q5: How do the implementation structure and resources of publicly traded FSCs operating in Asia and Australasia facilitate a successful supply chain conversion?

Mixed Methods Questions

Q6: To what extent do the qualitative results confirm/disconfirm the quantitative results?

1.3.2 Research Hypotheses

Ha1: The operating margin of LCCs in Asia and Australasia is more substantially impacted by the cost-related operational efficiency ratios, relative to FSCs.

Ha2: The operating margin of LCCs in Asia and Australasia is impacted substantially less by the revenue-related operational efficiency ratios, relative to FSCs.

Ha3: The operational efficiency ratios of FSCs are substantially different from those of LCCs.

1.4 Nature and Significance of the Study

1.4.1 Nature of the Research

To effectively accomplish the purpose of this study, which was to determine the feasibility of converting the supply chain of FSCs to that of LCCs in the Asian and Australasian regions, a mixed-methods approach for expansion, as recommended by Greene et al. (1989), was employed. Greene et al. (1989) argue that such a mixed-methods approach is characterised by using one study to research more than one phenomenon. With a mixed-methods approach for expansion, there are no restrictions on research characteristics such as “methods, paradigms, status, independence, timing, and implementation”. Hence, with expansion, the breadth and range of inquiry can be enlarged by using the most appropriate research methods for different inquiry components.

In an evaluation research context, mixed methods for expansion use qualitative methods (i.e., textual) to assess business “processes” and quantitative methods (i.e., numbers) to assess business “outcomes” (Pregoner, 2024). When qualitative methods grounded in a critical realist worldview are combined with quantitative methods informed by a positivist philosophical orientation, particularly within an evaluation context, they produce a more comprehensive and nuanced understanding of the phenomenon under investigation (Dawadi et al., 2021).

Mixed methods for expansion require a convergent parallel mixed-methods design, which can incorporate qualitative archival data and exploratory designs. The convergent parallel mixed methods design hinges on Campbell and Fiske's (1959) concept of the multimethod and multi-trait. Jafari-Sadeghi et al. (2021) concluded that collecting different forms of data was needed to comprehend a psychological trait. Wanqing (2022) envisaged the convergent design as collecting and combining quantitative and qualitative data, to facilitate a more wide-ranging analysis of the research problem, hence painting a more complete picture of the phenomena being studied. When the convergent parallel mixed methods design is used, both forms of data are collected simultaneously but independently, analysed separately, and the results are then combined at the interpretation stage of the overall results. With this design, data collection will entail using the same or equivalent variables, constructs, or concepts when collecting quantitative and qualitative data.

For the quantitative aspect of the convergent parallel mixed methods design, the researcher used the quantitative archival research approach, which adopts a causal-comparative design where the investigator compares two or more groups in terms of a cause that has previously occurred. Maine et al. (2022) describe quantitative archival research as providing a numerical explanation to capture performance measures such as operational efficiency, profitability, and market growth in longitudinal studies, especially when depth is not sought.

Quantitative archival research uses the “Quantitative archival data” as data collection instruments, containing exclusively structured, closed-ended questions, checklists, and rating scales for collecting data, which will be statistically analysed by entering them into SPSS as ordinal, nominal, ratios or scales (Fah & Hoon, 2021; Zaidi, 2024). Quantitative archival research instruments, such as structured questionnaires and quantitative archival data, are highly effective for identifying and measuring the statistical relationships between independent variables and dependent variables across airline business models (Małkowska & Uhruska, 2022). Such data also enable robust descriptive analyses, supporting the evaluation of operational outcomes and validating the theoretical linkages proposed within the study’s framework.

Since the census method was used, all publicly traded FSCs and LCCs of Asia and Australasia were included during data gathering. Therefore, the entire population was used as the sample (Nanjundeswaraswamy & Divakar, 2021). Like the survey, quantitative archival research facilitated the conduct of important statistical tests. Fowler (2009) claims that populations should be stratified based on age, gender, social class, etc., to facilitate descriptive analyses. Accordingly, data collected from audited financial statements ensured the accuracy and reliability of information used to address Research Questions 1–3, consistent with Beuerle et al.'s (2016) recommendation. This approach enabled the analysis of differences between the two airline models and the assessment of how operational efficiency variables influenced the operating margin of each model.

The qualitative component of this mixed-methods study adopted an exploratory design, following the approach proposed by Olawale et al. (2023) and applied in prior empirical research. Olawale et al. (2023) concluded that understanding exploratory research design will assist researchers more effectively in delineating and understanding research problems in management sciences. Qualitative archival research and systematic literature review include texts, images, and oral histories (McLeod & O'Connor, 2022; Pessanha & Salah, 2021). Accordingly, journal articles, sustainability reports, and annual reports focusing on the supply chains of both airline models were analysed to gain deeper insight into their operational processes. This exploration examined key dimensions such as organisational culture, staff efficiency, route management, and cost structure (Alsanoosy et al., 2020; Van Beurden et al., 2022; Zerbino et al., 2021).

The research used the document analysis guide to capture qualitative online data (Adosi, 2020), which hereafter will be referred to as qualitative archival data. According to Adosi (2020), qualitative archival data are pertinent mainly to qualitative case studies, generating a rich description of a single phenomenon, event, organisation, or programme. Adosi (2020) further claimed that archival data (i.e., secondary data) can complement other research methods or be employed as a stand-alone method. The standalone application of secondary data has exposed the factors contributing to the “outcomes” of both carrier models in this research. Such factors were collected by conducting archival data and systematic literature reviews (Giorgi, 2009), where broad questions were asked without specifically referencing existing literature. Hence, qualitative archival data included structured, open-ended questions to gather rich data (Higgins & Green, 2008; Corti, 2011).

During purposive sampling, emphasis was placed on the unique information in reports and journal articles and the context in which the phenomenon occurred. Adopting critical realism presented solutions to the problem and helped fill the gaps. The systematic literature review comprised 62 purposively selected journal articles and 37 annual and sustainability reports. The samples of quantitative archival data contain annual reports of 45 publicly traded LCCs and FSCs in Australasia and Asia for each of the five years.

When gathering qualitative data, this research used purposive sampling to facilitate the selection of relevant and current journal articles on Asia and Australasia’s airline supply chain, which had been peer-reviewed and contained rich information on the research topic (Elo et al., 2014). Probabilistic sampling was not used since random sampling necessitates selecting a larger number of articles to achieve representativeness and generalisability (Stratton, 2023), but which may not possess the depth of data sought by the researcher. Among the many non-probabilistic methods, purposive sampling was used for many reasons (Elo et al., 2014, p. 4). First, purposive sampling selects respondents or research items most likely to produce suitable and valuable data. This, according to Stratton (2021), is not the case with other non-random sampling methods, such as convenience sampling, which goes after the most accessible participants or items who may not even possess the knowledge being pursued by the researcher. Snowball sampling could have been another practical option where existing participants assist in recruiting additional samples.

However, the researcher was not working with human participants but with articles and reports that could not provide references (Parker et al., 2019).

Purposive sampling resulted in a manageable quantity of data (Ames, Glenton & Lewin, 2019), and enhanced validity and reliability since the sample is much more tightly connected to the research purpose (Thomas, 2022). Data were purposively collected from peer-reviewed journal articles, as well as from annual and sustainability reports, to ensure the accuracy and depth of the information used to address research questions 4 and 5 (Carneiro et al., 2020). These questions examined the differences in the operational processes of the two airline models and evaluated the extent to which FSCs possess the implementation structures needed to close existing performance gaps, using purposive sampling as the guiding method.

1.4.2 Significance of the Study

This study is significant in many ways. First, it serves as a blueprint for future conversions from FSCs' to LCCs' supply chains, which has enhanced the probability of success of future conversions (Topcu, 2022). In a study by Jittawiriyanukoon and Srisarkun (2022), a blueprint of physical and medium access control assured the success of a local area network implementation. Similarly, a blueprint developed for patient registry enhanced the probability of building relevant and appropriate registries (Pericleous et al., 2022). Also, a practical blueprint would force project managers to consider the short and long terms when converting their supply chain (Albiladi, 2022). Finally, Ramadhan et al. (2022) argued how an IT Blueprint reduced the 50%-80% failure rate of IT projects, through the eradication of inefficiencies and bottlenecks in the project design and implementation.

While prior studies on LCCs are concentrated in the United States and Europe, limited scholarly attention has been given to Asian and Australasian contexts (Law, 2022; Punda et al., 2021). This imbalance reflects a Western-centric bias in aviation research, where cost and efficiency models are often generalised without accounting for regional heterogeneity. Addressing this gap extends beyond simple replication, as it enables the identification of structural and contextual cost drivers unique to Asia and Australasia, such as dense leisure markets, geographic isolation, and resource constraints. However, as Zu et al. (2020) caution, strategic adaptation must align with each region's socio-economic and demographic realities; transplanting Western models risks inefficiency and policy misalignment. Moreover, the absence of a universal LCC definition complicates comparative analysis, underscoring the need for a contextualised yet globally coherent framework. This study therefore contributes theoretically by localising global efficiency concepts and empirically by clarifying the regional determinants of cost-effective LCC operation.

Third, a higher rate of successful conversions can reduce global inflation by lowering the airfares of executives and tourists who travel by air. For instance, Brazil successfully combated the inflationary pressure of its increasing middle-class usage of air transport by welcoming LCCs (Samunderu, 2024). Majewski et al. (2024) asserted that airfare fell since the deregulation of the European Union, after inflationary adjustment.

Fourth, the low-cost strategy can result in the enhancement of social equity. For instance, Law (2022) posits that LCCs have increased the demand for air travel between Thailand, Japan, and South Korea, hence expanding the tourism industry of these countries. This can reduce inequity by making air travel and overseas vacationing more accessible to all (Higham et al., 2022), and consequently contribute to fulfilment, happiness, and joy to a larger cross-section of society.

Fifth, LCCs may further grab FSCs' market share through agile cost adjustments to market demands, which may result in the low-cost model being the dominant air carrier model of the future. LCCs have grabbed passengers away from their FSC counterparts along the route between

Thailand, Japan, and South Korea (Law, 2022). In Europe, LCCs made up about 36% of the air passenger market share in 2018, and are expected to rise to approximately 50% by 2027 (CAPA, 2019). From a transported passenger volume of 5000 in 1985, Ryanair grew to 81.6 million in 2013 and is projected to transport 200 million passengers yearly between 2025 and 2026 (Ryanair Group, 2021). This study recommended possible strategies that LCCs can use to expand, such as an unprecedented hybrid strategy or through current FSCs converting their entire operation to that of LCCs, which would both require a supply-chain conversion.

Sixth, by increasing the volume of available information on the proposed supply chain conversion, the results of this research may reduce FSCs' investment risks and interest rates on related borrowing (Morgan et al., 2021; Javaid et al., 2023). Furthermore, this augmentation of information may increase shareholders' confidence and, consequently, the share price (Guerra Pires et al., 2022).

Finally, this study can increase the profitability of LCC by enhancing customer retention. In the service sector, customer retention is more important than attracting new customers. For instance, firms can augment their profits by 25% to 85% by improving customer retention (Radwan, 2022).

This study commenced with Chapter One, which served as an introduction. Chapter Two presented the literature review. Chapter Three outlined the research design and data collection methods. Finally, Chapters Four and Five summarised the research findings, offered recommendations, and provided the conclusion.

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CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

The purpose of this chapter is to present the theoretical and conceptual foundations that underpin this study and to critically evaluate empirical evidence on airline supply-chain models. The review examines three interrelated domains: (a) global developments in airline supply-chain management; (b) the operational and strategic characteristics of carriers in the Asia-Pacific and Australasian regions (New Zealand and Australia); and (c) the comparative variances between FSC and LCC supply-chain structures.

The literature review is organised thematically, progressing from theoretical perspectives on efficiency and profitability toward applied analyses of functional, structural, and resource requirements. Scholarly sources were identified through systematic searches of peer-reviewed journals, business databases (ProQuest, EBSCO, etc.), and Google Scholar, supplemented by reputable industry reports and e-books. Search terms included airline supply-chain conversion, low-cost and full-service carriers, operational efficiency, feasibility, transformational leadership, and change management. Emphasis was placed on the relevance, recency, and credibility of publications to ensure that the synthesis reflects contemporary developments and robust evidence.

Building on this foundation, the next section outlines the theoretical perspectives that inform the study's analytical approach. It introduces the operational efficiency and profitability theories that explain how airlines achieve sustained performance advantages through cost control, asset utilisation, and margin optimisation. These theories provide the foundation for interpreting the structural and behavioural mechanisms later examined in the conceptual framework and empirical chapters.

In this chapter, efficiency refers to minimising unit cost through simplification, scale utilisation, and process control (Zhang & Round, 2022). Profitability refers to sustaining margin through yield discipline, load factor optimisation, and ancillary revenue management (Fu & O'Connell, 2023).

2.1 Overview of Theoretical and Conceptual Frameworks

2.1.1 Theoretical Foundation – Process Theory of Change

Hayes' (2022) Process Theory of Change Management provided the overarching theoretical foundation for this study. Drawing on Van de Ven and Poole's (1995) "motors of change," Hayes integrates the teleological and dialectical perspectives to explain how organisations evolve through iterative, goal-driven cycles of diagnosis, implementation, evaluation, and learning. Teleological change represents deliberate, outcome-oriented transformation, while dialectical change reflects the resolution of tensions between opposing strategic logics. Within the airline industry, these dynamics mirror the tension between FSC differentiation and LCC efficiency. The framework, therefore, illustrates how FSCs can purposefully recognise structural contradictions, implement targeted interventions, and, where feasible, align their operations with cost-efficient LCC practices while maintaining their distinctive competitive advantages. This section builds directly on the efficiency and profitability framing defined in the chapter introduction and specifies the theoretical lens and the diagnostic tool used in this study.

2.1.2 Conceptual Application – Requirements Analysis as Diagnostic Framework

Building on this theoretical base, the study adopts requirements analysis as the conceptual framework for evaluating the feasibility of FSCs in Australasia, with the aim of converting their supply-chain architecture toward LCC efficiency. Traditionally applied in software and engineering contexts (Tukur et al., 2021; Kasauli et al., 2021), requirements analysis is reinterpreted here as an organisational diagnostic lens. Rather than defining system components descriptively, it is employed to identify functional, structural, and resource gaps that impede strategic convergence. This application aligns with Kasauli et al.'s (2021) argument that structured decomposition of complex systems reduces project failure through better stakeholder alignment. In the airline context, this means mapping interdependencies among fleet strategy, labour flexibility, and digital integration to reveal what must change for FSCs to emulate LCC cost structures sustainably.

2.1.3 Integration and Analytical Scope

The integration of Hayes' (2022) process theory (theoretical framework) and requirements analysis (conceptual framework) provides both a lens for understanding change and a tool for operationalising it. The theoretical framework narrows the scope of analysis by identifying the core variables influencing change, while the conceptual framework connects those variables to empirical indicators and feasibility assessments (Torraco, 2016). This dual structure transforms what could be a descriptive background into a causal explanation of how FSCs can reconfigure their supply-chain model to achieve hybrid competitiveness. In this way, theoretical abstraction, conceptual diagnostics, and empirical relevance are logically sequenced rather than conflated.

2.2 Early Theories of Change Management

2.2.1 Overview and Theoretical Evolution

The evolution of change management theory shows a shift from linear, mechanistic models toward adaptive, process-oriented frameworks. Early conceptualisations such as Lewin's (1947) three-step model, Bridges' (1991) transition theory, and Kotter's (1995) eight-step process emphasised structured progression and behavioural adjustment. While these theories offered foundational insight, they lacked explanatory power for the iterative, feedback-driven change evident in high-velocity industries such as aviation. For this study, the value of these models is historical; they clarify resistance mechanics but not the iterative reconfiguration of fleet, pricing, and governance that drives CASK, RASK, and load factor.

2.2.2 Linear Foundations and Their Limitations

Lewin's (1947) three-step model conceptualised change as unfreezing, moving, and refreezing, a psychologically logical but static approach. His model assumes equilibrium can be re-established after disruption, yet aviation environments rarely stabilise due to fuel-price volatility, deregulation, and exogenous shocks such as pandemics. As Burnes (2004) noted, Lewin underestimated the dynamic interactions among individuals, groups, and systems. Hence, his model clarifies why change is resisted but not how organisations adapt strategically in turbulent conditions. The limitation matters here because this thesis evaluates change as repeated design–measure–adjust cycles tied to operating ratios, not a one-time refreeze.

Bridges (1991) advanced this behavioural logic by framing change as a psychological transition consisting of an ending, a neutral zone, and a new beginning, emphasising emotional adaptation. This remains relevant for airline workforces facing identity loss during restructuring. However, Bridges' model operates at the micro level of human response rather than macro-organisational design. For this study, Bridges explains individual transition risks but not the system-level redesign of aircraft commonality, labour deployment, and revenue architecture that drive CASK, RASK, and load factor. Furthermore, empirical evidence from Chow et al. (2022) shows that post-implementation failures among LCCs often arise not from employee emotions alone but from limited institutional agility and learning, dimensions absent in early models.

2.2.3 Toward Process and Contextual Models

Kotter (1995) broadened change management by emphasising leadership, communication, and cultural anchoring through eight sequential steps. Yet, his prescriptive sequencing proves rigid in deregulated markets where fleet, labour, and pricing adjustments occur simultaneously. Real-world airline restructuring requires overlapping and recursive interventions rather than linear stepwise execution. For this study, Kotter informs leadership cadence and communication, but it cannot by itself model concurrent adjustments to fleets, crews, and pricing that must be evaluated in parallel.

Dawson and Buchanan (2005) and Pettigrew (1985, 1997) critiqued such rigidity, arguing that timing, power, and organisational history shape outcomes. Their processual perspective reconceptualised change as a political and emergent process, a crucial insight in aviation where unions and regulators shape every strategic transition.

Hiatt and Creasey's (2003) ADKAR model linked human readiness to operational change through awareness, desire, knowledge, ability, and reinforcement, yet it still assumed that individuals would naturally internalise change once informed. Empirical work by Singh, Goel, and Ghosh (2022) refuted this assumption, showing that capability gaps can stall adoption, especially in safety-critical sectors like aviation. For this study, ADKAR helps with readiness diagnostics, while measurement of outcomes still depends on operational and financial indicators such as CASK, payroll to revenue, and operating margin.

2.2.4 Integrative Transition to Process Theory

Van de Ven and Poole (1995) identified four primary "motors of change": life cycle, teleological, dialectical, and evolutionary, which later informed Hayes' (2022) process theory. Hayes synthesised these into a dynamic system of diagnosis, goal formulation, implementation, evaluation, and learning. Unlike early models, this framework recognises both planned intention (teleology) and the resolution of competing logics (dialectics). In the airline context, this integrative view captures how FSCs purposefully adopt LCC efficiencies, illustrating teleological intent, while negotiating trade-offs between differentiation and cost leadership, reflecting dialectical tension. For this study, the processual view justifies adopting Hayes's iterative cycle because timing, power, and history shape the path to measurable cost and yield outcomes.

In summary, early models clarify human and sequential aspects of change, while processual perspectives justify the iterative, feedback-driven logic required for airline restructuring. This motivates the adoption of Hayes's process theory as the foundation for the analysis that follows. The next section (2.3), therefore, applies Hayes' (2022) process theory as the guiding framework for analysing how airlines iteratively manage strategic transformation.

2.3 Process Perspective of Change Management

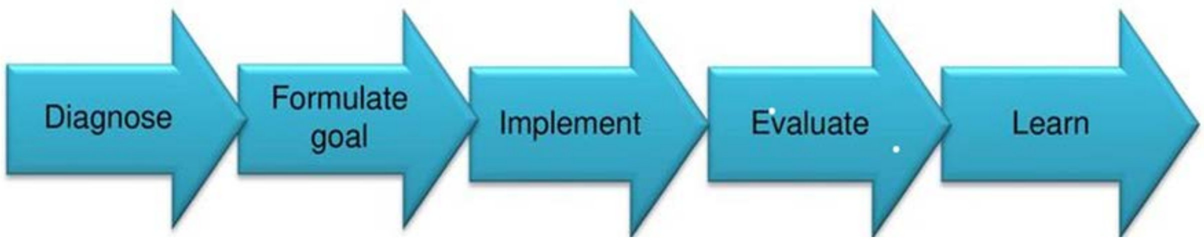
From a process-based theoretical perspective, Vu et al. (2022) argue that organisational conversions and transitions should not be viewed as isolated events but as multi-stage, iterative processes requiring active management. Building on this premise, Hayes (2022) synthesises the major motors of organisational change within his Process Theory of Change Management. Recent work by Karlsen (2023) reinforces that the sequencing, pacing, and duration of change cycles materially shape outcomes, strengthening the case for treating conversion as an iterative process rather than a one-off event.

This framework provides the conceptual bridge between earlier, event-driven models and contemporary views that emphasise ongoing adaptation. Importantly, the theory's strength lies not only in its integration of these four strands but also in its sense-making utility: it enables organisations to interpret, plan, and manage complex change cycles systematically. Phillips (2022) similarly emphasised that successful organisational transformation depends on translating theoretical frameworks into actionable stages, demonstrating how Hayes's process perspective has been widely adopted in applied management contexts. Consequently, Hayes's model moves beyond conceptual taxonomy to offer practical guidance for managers overseeing large-scale transformation projects that demand structured yet adaptive intervention.

2.3.1 Teleological Theory as a Framework for Organisational Transformation

The teleological theory, one of the four "motors of change" within Hayes's (2022) Process Theory of Change Management, views organisations as purposeful, adaptive entities that evolve through iterative cycles illustrated in Figure 8.

Figure 8
Teleological Theory



Source: Hayes (2022).

This dynamic model positions change as an intentional, feedback-driven process rather than a linear event. Hutter (2014) similarly emphasised its applicability in turbulent environments, describing organisational change as "a pattern of endless modifications in work processes and social practice" (p. 2), reinforcing the principle that adaptation is continuous and cumulative.

Within this framework, the teleological theory provides the guiding logic for analysing how FSCs can purposefully redesign their supply-chain models toward the efficiency characteristics of LCCs. Van de Ven (2025) expands on this by revisiting the original process-of-change model and showing that effective transformation arises from recursive feedback loops rather than linear planning. Each stage of the teleological cycle aligns with elements of the research framework:

- Diagnosis identifies structural and functional variances between FSC and LCC systems across measurable indicators such as CASK, RASK, payroll-to-revenue, fuel share of operating cost, LF, and operating margin, competitive strategies, fleet strategies, etc.
- Goal formulation translates strategic intent into actionable targets, such as reducing CASK, stabilising RASK, or improving LF, reflecting the organisation’s deliberate design for change.
- Implementation captures the structural and processual actions under investigation (fleet simplification, pricing redesign, or governance restructuring).
- Evaluation and learning represent the feedback mechanisms that reinforce transformation, consistent with Hayes’s (2022) assertion that durable equilibrium emerges through cyclical learning.

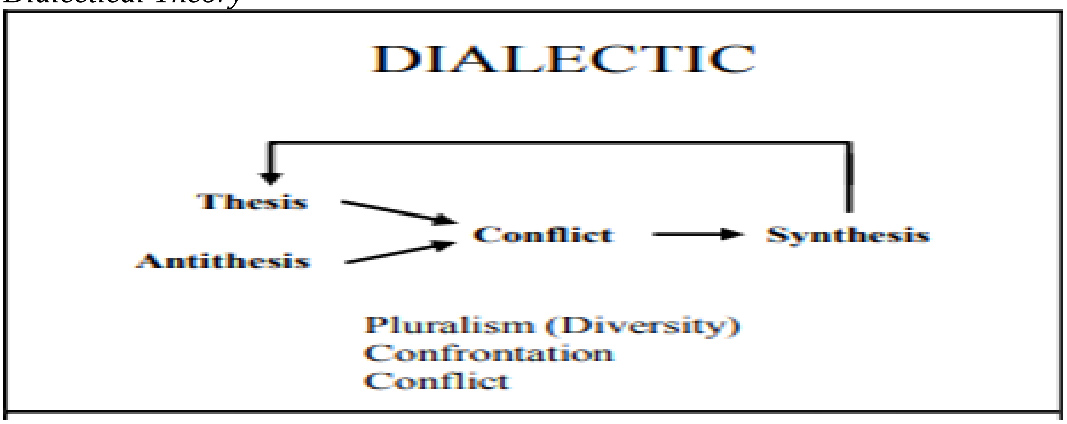
Thus, teleological theory underpins this study’s analytical lens by framing change as a goal-oriented, evidence-based process through which FSCs can iteratively converge toward LCC-like efficiency. Khaw et al. (2022) empirically support this multi-stage logic, finding that employee engagement and self-efficacy fluctuate predictably across these diagnostic and feedback phases, further validating the iterative nature of the process model.

2.3.2 Dialectical Theory as a Framework for Organisational Transformation

According to Hutter (2014), the thesis represents an existing dominant logic or structural order, while the antithesis refers to opposing forces such as competitor innovation, workforce resistance, or disruptive technology. The tension between them generates a synthesis that merges elements of both, creating a new state of equilibrium. As depicted in Figure 9, dialectical theory conceptualises change as a dynamic interplay of power, conflict, and negotiation between stakeholders. This aligns with Hayes's (2022) process perspective, where transformation is not linear but cyclical, emerging through confrontation, learning, and iterative adaptation. Within this study, dialectical theory is adopted to explain how FSCs and LCCs navigate structural contradictions in their pursuit of efficiency and differentiation.

Figure 9

Dialectical Theory



Source: Hutter (2014).

In airlines, dialectics models the managed tension between differentiation and cost discipline. The expected synthesis is focused differentiation with cost control that lowers CASK and payroll intensity while protecting yield.

From a dialectical standpoint, the FSC competitive thesis emphasises premium service and complex hierarchies, resulting in high CASK and payroll intensity. The LCC antithesis, centred on standardisation and lean staffing, challenges this model by demonstrating superior efficiency and asset utilisation. The synthesis emerges as a balanced model that retains customer trust and reliability while embedding automation, lean processes, and digital standardisation. Expected improvement in operational efficiency and load factor, based on hybridisation outcomes reported in Tables 6 and 7 in Section 2.5. In Table 3, this transition reflects convergence through managed tension rather than imitation, representing a deliberate outcome of teleological adaptation.

Table 3
Dialectical Convergence Model of Competitive Strategy Between FSC and LCC Frameworks

Element	Key Description	Illustrative KPIs / Indicators
Thesis (FSC)	Differentiation strategy; premium service; complex operations; high labour costs	↑ CASK ↑ Payroll/Revenue ↔ RASK ↓ LF
Antithesis (LCC)	Cost leadership; process standardisation; single fleet; high utilisation	↓ CASK ↓ Fuel/Opex ↑ LF ↑ YOY
Synthesis (Focused Differentiation with Cost Discipline)	Streamlined premium model; digital automation; ancillary revenue optimisation	↓ CASK ↓ Payroll/Revenue ↑ LF ↔ RASK ↑ OM

Note: Conceptualised by the researcher, with elements adapted from Hutter (2014). ↑ = increase; ↓ = decrease; ↔ = no material change. Indicators correspond to the study's operational efficiency and profitability framework; percentage points.

Table 3 illustrates that FSCs and LCCs represent contrasting strategic logics which, when integrated through iterative learning, generate an equilibrium that balances cost efficiency with service differentiation, aligning with Hayes (2022)'s teleological and dialectical cycle.

Empirical validations of this dialectical synthesis appear across multiple studies. Raynes & Tsui (2019) and Baxter (2022) find that FSC–LCC hybrid models (e.g., Qantas–Jetstar) achieve cost reductions of 5–8% in CASK, while retaining yield stability through selective service differentiation. Mhlanga (2020) and Ng et al. (2022) further confirm that performance improvements stem from structural learning rather than simple imitation, reflecting teleological feedback and dialectical tension resolution in practice. Fu and O'Connell (2023) and Wang et al. (2024) similarly document that carriers adopting fleet simplification and digital integration deliver 3–5 percentage points gains in LF and margin stability. These findings empirically substantiate the balanced outcome summarised in Table 3, where convergence between cost discipline and service value translates into measurable efficiency–profitability equilibrium.

The following strategic dimensions illustrate how FSCs and LCCs may converge through teleological–dialectical synthesis across five core operational levers: fleet strategy, pricing, fuel efficiency, sub-brand coexistence, and long-haul configuration.

Fleet Strategy - From Multi-Type to Asset-Light: The FSC thesis traditionally relies on multi-type fleets to support hub-and-spoke networks, prioritising flexibility at the expense of cost efficiency. The LCC antithesis emphasises single-type fleets, high utilisation, and short-term leasing to minimise maintenance and training costs. The synthesis, characterised by an asset-light and high-commonality configuration, reconciles these trade-offs. Empirical studies by Gudmundsson (2023) and Raynes & Tsui (2019) confirm that fleet commonality and modular rostering systems significantly reduce maintenance CASK and fuel/Opex ratios in hybrid FSC–LCC operations. By harmonising maintenance, reducing aircraft variants, and integrating crew rostering systems, FSCs can lower fuel-to-operating-cost ratios and maintenance-related CASK while sustaining utilisation gains observed in Baxter & Srisaeng (2022). Empirical alignment with Hayes's (2022) process theory is evident: diagnosis (fleet inefficiency) leads to intervention (simplification) and learning (standardisation), resulting in measurable improvements in LF and operational margin.

Pricing Strategy - Segmented versus Base-Plus-Ancillary: The FSC thesis emphasises fare segmentation for yield management, while the LCC antithesis simplifies pricing through unbundled, ancillary-based models. The synthesis combines the transparency of LCC pricing with the brand trust of FSC service tiers (Lite, Standard, Flex). Recent evidence from Pagoni & Koumoutsidi (2022) and Foong et al. (2023) shows that hybridised base-plus-ancillary pricing structures enhance booking conversion and lift ancillary revenue by 15–25 percent per RASK. This integration reduces refund complexity, improves digital sales efficiency, and aligns with empirical pricing reforms observed in Huang (2024) and Baxter (2022) across Asia–Pacific carriers. Conceptually, this reflects dialectical integration: reconciling differentiation with simplification to sustain RASK while enhancing price clarity and consumer autonomy.

Fuel Efficiency - Hedging versus Operational Discipline: Here, dialectical tension emerges between two opposing strategies. FSCs pursue financial hedging to stabilise costs through derivative instruments, while LCCs emphasise operational discipline and achieve savings through procedural rigour and younger fleets. Empirical data from Liu et al. (2023) and Gelirli (2024) demonstrate that LCCs achieve 8–12 percent lower fuel-to-Opex ratios primarily through fleet youth and load-factor optimisation. Conversely, selective hedging programmes adopted by hybrid carriers (e.g., AirAsia X, Jetstar) maintained margin stability during 2020–2022 volatility (Bouwer, 2022; Fang-Chen et al., 2022). The synthesis of bounded hedging and procedural discipline thus mirrors these real-world efficiency outcomes. The synthesis manifests as a hybrid “fuel-agility” system: combining bounded hedging with operational efficiency (quick turns, weight control). This integration produces reduced variance against spot fuel prices, lower CO_2 per ASK, and sustained margin stability. In Table 3, these outcomes exemplify Hayes’s (2022) teleological–dialectical interaction: planned goal pursuit refined through feedback and environmental learning.

FSC–LCC Sub-Brand Coexistence (AWA Model): Applying the dialectical lens to corporate architecture, the FSC thesis (brand depth and network coordination) and LCC antithesis (simplicity and autonomy) clash over cannibalisation and slot allocation. The synthesis, exemplified by AWA, achieves hard separation with soft integration by maintaining distinct service standards and pricing boundaries while sharing maintenance, repair, overhaul, and digital infrastructure. Khan et al. (2022) and Ng et al. (2022) provide empirical support that governance clarity and digital integration reduce cannibalisation risk by 8–12 percent and improve group RASK resilience. Similar hybrid governance efficiencies were observed in the Qantas–Jetstar model (Raynes & Tsui, 2019; Wang et al., 2024). This minimises cannibalisation by as much as 10%, lowers group CASK, and sustains group RASK, evidencing institutional equilibrium where differentiation and efficiency coexist under a unified governance framework.

Long-Haul Low-Cost (LHLCC) Strategy: The FSC long-haul thesis (multi-cabin, high-service) conflicts with the LCC antithesis (dense seating, minimal service). The synthesis of modular cabins, hybrid ancillaries, and standardised efficient widebodies (B787/A350) illustrates teleological design guided by empirical learning. Miyoshi & Molina-Prados (2022) and Law (2022) confirm that modular long-haul configurations sustain competitive LF above 75 percent and narrow CASK by 2–4 percentage points versus traditional FSC operations. These findings validate the theoretical prediction that equilibrium efficiency is achieved through structural learning and stage-length optimisation. As shown in Table 3, this integration delivers an increase in LF, a stage-length-adjusted CASK reduction, and a narrowed RASK gap. This outcome substantiates the process theory’s core assumption: equilibrium is not restored through stability but through iterative learning cycles.

Table 4 links Hayes’s (2022) teleological stages directly to the empirical performance cycle tested in Chapter 4, demonstrating iterative learning as the mechanism of convergence between FSC and LCC operational models. The cyclical relationships between diagnosis, implementation, and learning reflect the real-world adaptation sequences documented in Huang (2024), Gudmundsson (2023), and Fu & O'Connell (2023), where airlines achieved measurable CASK reductions through iterative digitalisation and fleet rationalisation.

Table 4

The Teleological Process of Change Applied to Airline Supply Chain Conversion

Stage	Conceptual Function	Airline Application	Performance Metrics
Diagnosis	Identify contradictions between models	Compare FSC vs LCC CASK and LF ratios	CASK, Fuel/Opex, Payroll/Revenue
Goal Formulation	Define desired efficiency targets	Reduce CASK 10%, improve LF 5 pp	KPI Targets
Implementation	Execute change program	Fleet simplification, base-plus-ancillary pricing	Utilisation, RASK
Evaluation	Assess outcomes vs targets	Track CASK variance and OM movement	Δ CASK, Δ OM
Learning / Feedback	Institutionalise successful practices	Standardise fleet and process for continuous improvement	Sustained OM ↑, Variance ↓

Note: Conceptualised by the researcher, with elements adapted from *Hayes (2022).*

Building on the teleological–dialectical foundations previously discussed, this section extends Hayes's (2022) process model by emphasising how self-reinforcing and reactive sequences generate measurable change patterns. Of particular importance is the sixth activity, leading and managing people issues, which highlights the human dimension of change management, encompassing leadership behaviour, power dynamics, stakeholder engagement, communication, and motivation throughout transformation.

The teleological perspective emphasises how organisations intentionally pursue change through iterative goal formulation, implementation, evaluation, and learning. In practice, this cyclical process can generate self-reinforcing sequences, where successful actions strengthen commitment to the same strategic direction. Hayes (2022) cautions that such reinforcement may create path dependence and psychological commitment where leaders persist with prior decisions to validate earlier choices, even when evidence suggests change is needed. These cognitive biases and interpretive frames constrain adaptability by locking firms into suboptimal trajectories and delaying course correction.

The dialectical perspective views organisational transformation as an outcome of competing forces and negotiated synthesis between conflicting logics. Hajjar et al. (2025) provide new empirical grounding for this argument, illustrating how inter-organisational networks engage in both teleological and dialectical processes when managing multi-stakeholder transformation. Within this study, dialectical theory is used to interpret how FSCs balance cost-efficiency imperatives against service differentiation pressures. Karlsen (2023) and Van de Ven (2025) both note that managing these tensions effectively requires an equilibrium between purposeful goal pursuit and responsive adaptation. This insight is central to understanding how strategic convergence unfolds in the airline context.

Taken together, these behavioural dynamics explain how strategic convergence occurs not through imitation but through iterative learning and negotiated adaptation. The combined teleological–dialectical logic provides the behavioural foundation for understanding supply-chain conversion in FSCs, illustrating how change is both intentional and contested, shaped by human agency, organisational learning, and the balance of power within complex systems.

In aggregate, the dialectical synthesis predicts a measurable performance pattern: cost-side ratios decline (CASK, Fuel/Opex, Payroll/Revenue), revenue-side ratios stabilise or improve (RASK, yield), and operational metrics (LF, YOY) strengthen, thereby lifting operating margin. In Hayes's (2022) terms, convergence represents not imitation but an intentional recombination of logics resolved through iterative cycles of diagnosis, design, execution, evaluation, and learning (Van de Ven & Poole, 1995). This integration establishes a transparent, auditable bridge between the theoretical propositions outlined in Chapter 2 and the empirical specifications developed in

Chapter 4. The next section translates these theoretical mechanisms into diagnostic constructs of functional, structural, and resource requirements, operationalised within the conceptual framework of requirements analysis.

2.4 Conceptual Framework-Requirements Analysis

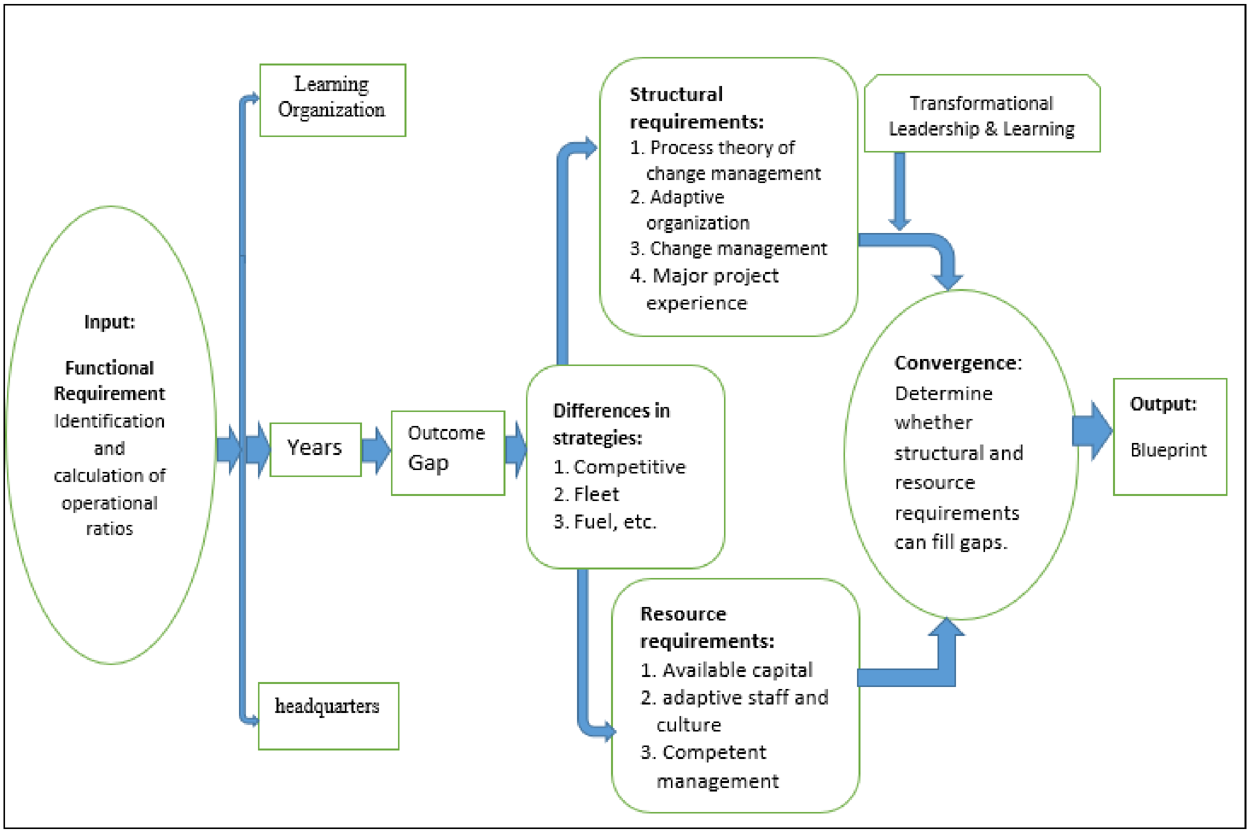
The conceptual framework operationalises the process lens by specifying what will be diagnosed and measured, while relying on the chapter introduction for the underlying definitions of efficiency and profitability. A conceptual framework represents a system of interrelated concepts and assumptions that guide research design and interpretation (Salawu et al., 2023). It identifies the constructs that influence the phenomenon under study and clarifies their relationships. In this study, the conceptual framework is grounded in the principles of low-cost supply chain management (Zhao et al., 2023; Ekren, 2022). Recent studies reinforce that such frameworks must integrate adaptability and learning across operational, structural, and resource subsystems to sustain long-term competitiveness (Karlsen, 2023; Khaw et al, 2022).

The framework integrates four independent constructs: functional (moderated by learning, time, and headquarters), structural and resource requirements, and transformational leadership requirements. Together, these elements explain how organisations can reduce supply chain inefficiencies and enhance profitability. Functional requirements describe the operational processes and performance features that define how the supply chain should function (Laghouag et al., 2024). Structural requirements refer to the organisational capacity, systems, and governance mechanisms that support process improvement (Koçyiğit & Akkaya, 2020). Resource requirements involve financial, technological, and human resources that sustain project execution and long-term viability (Usman, 2020).

This conceptual model builds on principles of requirements analysis (Rose & Goldberg, 1977; Checkland, 1988; Nuseibeh & Easterbrook, 2000), aligning theoretical insights with empirical feasibility as shown in Figure 10 and Table 5.

Figure 10

Conceptual Framework - Requirements Analysis



Source: Conceptualised from the literature review by the researcher.

Functional Requirements

Functional requirements refer to the operational levers and processes that must change within FSCs to close performance gaps with LCCs. These functional transformations directly influence measurable ratios such as CASK, RASK, fuel-to-operating-cost, LF, and operating margin (OM). The competitive strategy function centres on achieving cost discipline within a focused differentiation model. FSCs must standardise their core service offering, eliminate non-value-added complexity, automate passenger and ground processes, and strategically use secondary airports where feasible. These actions reduce CASK and payroll-to-revenue ratios while improving LF and YOY passenger growth. The expected outcome is lower unit costs and improved operating margins without compromising RASK. Moderating influences include organisational learning, which accelerates process standardisation, COVID-19 vs pre-COVID-19 periods, which impact demand and consequently price, and headquarters location, which determines access to secondary airports and labour flexibility.

In terms of fleet strategy, FSCs should converge toward an asset-light and high-commonality structure. This involves operating fewer aircraft types, prioritising short-term leases over ownership, retiring inefficient aircraft, and harmonising maintenance and crew-rostering systems. Such simplification reduces both fixed and variable costs per available seat-kilometre (ASK), improving utilisation and on-time performance. These findings align with recent evidence showing that asset-light fleet configurations enhance strategic flexibility and return on assets in competitive aviation markets (Harrison & Easton, 2021). The corresponding KPIs, such as Fuel/Opex, Maintenance CASK, and LF, are expected to trend downward in cost and upward in efficiency. Here, organisational learning enhances cross-utilisation across maintenance and crew operations, while years, defined as the COVID-19 versus pre-COVID-19 period, capture the temporal disruptions that affected fleet renewal cycles, delivery schedules, and leasing flexibility. Headquarters location further moderates access to slot allocations and regional leasing markets.

The pricing architecture must also evolve from complex fare families to a transparent base-fare-plus-ancillary model. By introducing structured tiers (Lite, Standard, Flex) and monetising ancillary options such as seat selection, baggage, and Wi-Fi, FSCs can simplify pricing while sustaining yield. This transition boosts RASK pass-through, raises ancillary revenue per ASK, and enhances customer conversion rates, while minimising refund and complaint ratios. Learning strengthens revenue-management (RM) analytics, whereas years, reflecting the COVID-19 versus pre-COVID-19 environment, moderate price elasticity and demand volatility, with pandemic-era disruptions reshaping booking curves, refund behaviour, and ancillary uptake. Headquarters effects continue to shape distribution costs and market price tolerance, driven by regional infrastructure and policy conditions.

Fuel management represents another critical area of convergence. A dual-track “fuel agility” strategy integrates traditional hedging mechanisms with LCC-style operational discipline, including weight-control programmes, single-engine taxi procedures, and quick turnarounds. Leveraging telemetry-based analytics further optimises fuel performance. This hybrid model lowers fuel-to-operating-cost ratios, reduces variance against spot fuel prices, and cuts CO_2 emissions per ASK. Learning institutionalises these procedures, while years moderate hedging exposure and procurement dynamics, as pandemic volatility temporarily distorted hedging payoffs and fuel-supply logistics. Headquarters location influences access to efficient procurement channels and sustainable aviation fuel (SAF) ecosystems.

The FSC–LCC coexistence model, such as under AWA governance, emphasises maintaining synergy without cannibalisation. Establishing clear route and pricing boundaries, transfer protocols, and shared maintenance or digital services allows FSCs to lower group-level CASK while preserving RASK. Distinct service standards between brands reduce overlap while enabling feeder-traffic synergies. Learning improves boundary management and process standardisation, whereas years representing the pandemic disruption highlight how crisis coordination tested intra-group flexibility and responsiveness. Headquarters effects, in turn, mediate slot access, routing permissions, and regulatory coordination across domestic and international jurisdictions necessary for model separation.

Finally, the LHLCC configuration blends dense economy layouts with smaller premium zones on standardised widebody aircraft (e.g., Boeing 787, Airbus A350). Ancillary revenues are optimised through dynamic pricing for meals, comfort packs, and connectivity. This setup is expected to reduce stage-length CASK, narrow the RASK gap with LCCs, and raise LF by 2–4 percentage points. Learning accelerates crew and service innovations, while years reflect shifts in long-haul demand elasticity, border restrictions, and fuel-price asymmetry that shaped route profitability. Headquarters location governs access to long-haul traffic rights, tax structures, and bilateral agreements critical to sustaining the LHLCC model.

In summary, the functional requirements define the operational levers through which FSCs can close performance gaps with LCCs. They translate the process theory’s teleological logic into measurable efficiency drivers, establishing the causal pathways tested in Chapter 4. Moderators such as learning, years, and headquarters context ensure these relationships capture both temporal and institutional variation (Karlsen, 2023; Khaw et al., 2022).

Structural Requirements

Structural requirements define the organisational architecture and governance capabilities that sustain and institutionalise the functional changes described above. These enablers ensure that short-term efficiency gains become long-term strategic advantages.

Transformational leadership and governance form the foundation of structural change. Leaders must embed cost-to-value principles across all functions, assign ownership for critical metrics (CASK, Fuel/Opex, LF, and RASK), and maintain transparent oversight through stage-gate review mechanisms. This cross-functional accountability accelerates reductions in cost metrics while maintaining yield stability and productivity gains. Adaptive project governance systems have been shown to improve coordination and control during large-scale transformations (Mason & Dyer, 2023).

Organisational agility and learning systems enable responsiveness and continuous improvement. Implementing iterative plan–do–check–act cycles, cross-skilling staff, and maintaining playbooks for disruption recovery fosters adaptability. These systems raise LF and YOY growth while stabilising RASK and yield variance, producing a more predictable operating margin.

A data-driven digital backbone strengthens execution by integrating revenue management, inventory, and operational telemetry into unified dashboards. With cost and margin visibility at route or aircraft-day granularity, managers can make real-time adjustments. This digital integration improves RASK pass-through, increases Ancillary/ASK, and lowers fuel-related CASK, directly boosting utilisation and operating margin. Such integration aligns with current findings that aviation analytics and data orchestration enhance cost visibility and dynamic performance optimisation (Zhang & Yilmaz, 2022).

The AWA boundary design defines how FSCs and their low-cost subsidiaries coexist effectively. Establishing route fences, pricing guardrails, and clear transfer protocols minimises cannibalisation and optimises shared resources such as MRO services or IT infrastructure. The result is lower group-level CASK, improved feeder traffic, and controlled overlap.

Across all structural requirements, moderators play a reinforcing role. Learning accelerates standardisation and reduces process variance; years of operation deepen routinisation and reduce execution slippage; and headquarters characteristics shape labour rules, slot access, and fee structures, determining the speed and depth of feasible structural change.

In summary, the structural requirements establish the institutional and governance mechanisms that convert functional change into sustained capability. They operationalise Hayes's (2022) process theory by embedding teleological discipline through goal-driven oversight while balancing stakeholder power and organisational learning to achieve dialectical adaptation within the organisational architecture. These mechanisms ensure that efficiency gains from functional redesign become permanent features of the firm's operating model. Thus, structural requirements act as the stabilising framework through which transformational leadership, agility, and digital integration consolidate performance improvements and maintain competitive equilibrium across the supply chain.

Resource Requirements

Resource requirements encompass the tangible and intangible assets necessary to implement and sustain both the functional and structural transformations. These include financial, human, technological, and institutional resources.

Financial capacity underpins every transformation initiative. Strategies such as debt reprofiling, selective asset disposals, lease re-optimisation (in compliance with IFRS-16), and joint ventures for LHLCC operations ensure capital efficiency. Green financing mechanisms can also support fleet renewal and SAF adoption. These actions lower CASK and fuel costs while strengthening investor confidence and operating margin (Harrison & Easton, 2021; Rahimi & Hejazi, 2024).

Human capital represents the core enabler of strategic execution. Cross-trained, digitally fluent staff, supported by data-science expertise and embedded change agents, enhance productivity and adaptability. Performance-based incentive systems align employee goals with cost and revenue outcomes, lowering payroll-to-revenue ratios and improving LF, YOY, and RASK. Digital–human synergy forms a key lever of operational agility (Rahimi & Hejazi, 2024).

Technology and partnerships extend the firm's operational reach. Adoption of advanced revenue management systems, telemetry systems (FOQA, EFB-based fuel tools), and strong service level agreements with airport handlers enhances efficiency. Partnerships with Original Equipment Manufacturers for power-by-the-hour maintenance contracts and with codeshare partners for feeder traffic expand capacity utilisation and revenue channels. Collectively, these raise Ancillary/ASK, improve LF, and lower fuel-related CASK.

Finally, regulatory and infrastructure access influences execution feasibility. Gaining slots at secondary airports, leveraging open-skies agreements, and aligning with transparent airport fee structures all contribute to cost efficiency. Access to sustainable fuel infrastructure and clarity on emissions regimes (SAF/ETS) further support environmental and economic performance.

Moderating variables continue to operate across resource dimensions. Learning maximises the returns on investments (ROI) from new technologies and partnerships; years of experience secure better lease and slot terms; and headquarters location shapes regulatory access and infrastructure availability, particularly for carriers in regions with differing degrees of market liberalisation.

Collectively, the resource requirements ground the conceptual framework in practical feasibility. They provide the financial, human, and technological capacity needed to execute and sustain both functional and structural transformation. By linking tangible resources to process-theory dynamics of implementation and learning, this construct ensures that strategy is not merely designed but adequately supported and institutionalised. Consequently, resource requirements represent the enabling foundation through which FSCs can operationalise low-cost efficiency, reinforce organisational resilience, and translate theoretical intent into measurable profitability.

Table 5

Conceptual Framework Constructs, Mechanisms, and Expected Performance Outcomes

Framework Dimension	Key Focus / Mechanism	Core Actions or Processes	Empirical Evidence / Strategic Reference	Empirical Indicators (KPIs)	Expected Direction of Change
Functional Requirements	Competitive Strategy	Standardise core offerings; automate passenger & ground operations; utilise secondary airports; remove non-value-added complexity.	Difference in competitive scope and service complexity between FSCs and LCCs.	CASK, Payroll/Revenue, LF, YOY Growth, OM, RASK	↓ CASK ↓ Payroll/Revenue ↑ LF ↑ YOY Growth ↑ OM ↔ / ↑ RASK
	Fleet Strategy	Asset-light, high-commonality fleet; retire inefficient aircraft; harmonise maintenance and crew rostering.	Contrast between FSCs' multi-fleet ownership and LCCs' single-type leasing models.	Fuel/Opex, Maintenance CASK, LF, Utilisation	↓ Fuel/Opex ↓ Maint CASK ↑ Utilisation ↑ LF
	Pricing Architecture	Transparent tiering (Lite/Standard/Flex); ancillary monetisation (seat, bag, Wi-Fi); dynamic revenue management.	Difference between FSCs' fare bundling and LCCs' ancillary-driven pricing.	RASK, Yield, Ancillary/ASK, Conversion, Refund/Complaint Ratios	↑ RASK ↔ Yield ↑ Ancillary/ASK ↑ Conversion ↓ Refunds/Complaints ↑ LF
	Fuel Management	Dual-track fuel agility (bounded hedging + operational efficiency + telemetry-based control).	Difference between FSCs' hedging reliance and LCCs' operational fuel discipline.	Fuel/Opex, Fuel CASK, CO_2/ASK, Variance vs Spot Price	↓ Fuel/Opex ↓ Fuel CASK ↓ CO_2/ASK ↓ Variance
	FSC–LCC Coexistence (AWA Model)	Route and pricing fences; shared digital/MRO platforms; distinct service standards; transfer rules.	Strategic coexistence models within FSC groups (e.g., Qantas–Jetstar, Singapore–Scoot).	Group CASK, Group RASK, Feeder Share, Cannibalisation Index	↓ Group CASK ↔ / ↑ Group RASK ↑ Feeder Share ≤10% Cannibalisation
	LHLCC	Dense economy cabins + small premium zones on standardised B787/A350; dynamic ancillary pricing.	Operational differences between traditional FSC long-haul and emerging LHLCC formats.	Stage-Length CASK, RASK Gap vs FSC, LF, Ancillary/ASK	↓ Stage-Length CASK ↑ RASK Gap Narrowed ↑ LF (+2–4 pp) ↑ Ancillary/ASK

Table 5 (Continued)

Conceptual Framework Constructs, Mechanisms, and Expected Performance Outcomes

Framework Dimension	Key Focus / Mechanism	Core Actions or Processes	Empirical Evidence / Strategic Reference	Empirical Indicators (KPIs)	Expected Direction of Change
Structural Requirements	Leadership & Governance	Transformational leadership, stage-gate reviews, metric accountability (CASK, LF, RASK).	FSCs emphasise centralised governance and premium service; LCCs rely on lean, decentralised control.	CASK, LF, RASK, OM	↓ CASK ↑ LF ↔ / ↑ RASK ↑ OM
	Organisational Agility & Learning Systems	PDCA cycles, cross-skilling, and disruption playbooks.	FSCs exhibit bureaucratic inertia; LCCs favour agile, adaptive processes.	LF, YOY, RASK Variance, OM	↑ LF ↑ YOY ↓ Variance ↑ OM
	Digital Integration	Unified dashboards linking RM, inventory, and telemetry systems.	FSCs' fragmented legacy systems vs. LCCs' real-time digital integration.	Ancillary/ASK, Fuel CASK, Utilisation	↑ Ancillary/ASK ↓ Fuel CASK ↑ Utilisation ↑ OM
	AWA Boundary Design	Route fences, transfer protocols, shared infrastructure.	Empirical evidence from dual-brand airline groups managing FSC–LCC boundaries.	Group CASK, Feeder Traffic	↓ Group CASK ↑ Feeder Traffic
Resource Requirements	Financial Capacity	Debt reprofiling; asset disposals; lease re-optimisation; green financing for fleet renewal.	FSCs rely on owned assets and debt leverage; LCCs emphasise leasing flexibility and variable cost structures.	CASK, Fuel Cost, OM	↓ CASK ↓ Fuel Cost ↑ OM
	Human Capital	Cross-trained, digitally fluent staff; performance-based incentives.	FSCs have legacy labour contracts; LCCs operate lean, multi-role workforces.	Payroll/Revenue, LF, YOY, RASK	↓ Payroll/Revenue ↑ LF ↑ YOY ↑ RASK
	Technology & Partnerships	Advanced RM tools; telemetry; power-by-the-hour MRO contracts; codeshares.	LCCs lead in tech-driven efficiency; FSCs adopt selectively to balance quality and scale.	Ancillary/ASK, LF, Fuel CASK	↑ Ancillary/ASK ↑ LF ↓ Fuel CASK
	Regulatory & Infrastructure Access	Secondary airport slots; open-skies agreements; SAF infrastructure.	FSCs' legacy slot constraints vs. LCCs' access to secondary airports.	CASK, Fuel Efficiency, OM	↓ CASK ↑ Fuel Efficiency ↑ OM

Source: Created by Researcher (2024).

Note. Framework derived from empirical patterns reported in Hayes (2022), Yukl (2020), Law (2022), Gillen and Gados (2021), Fu and O'Connell (2023), Díaz et al. (2019), and other airline efficiency studies (see Section 2.3). Table 5 integrates the study's Operational Efficiency and Profitability Framework with Hayes's (2022) process-based logic of goal formulation, implementation, and learning. The expected performance outcomes reflect teleological (goal-directed) and dialectical (adaptive reconciliation) processes embedded within each construct.

Specific abbreviations and symbols: ↑ = increase; ↓ = decrease; ↔ = no material change.

Empirical indicators: Indicators correspond to the study's operational efficiency and profitability framework. Empirical relationships are summarised from Gudmundsson (2023), Raynes and Tsui (2019), Law (2022), Liu et al. (2023), and Hayes (2022).

Abbreviations: SAF = Sustainable Aviation Fuel; YOY = Year-Over-Year; AWA = Air Within Air (Dual-Brand Model); pp = Percentage Points; Fuel/opex = Fuel to Operating Cost; Pax/FTE = Passengers per Full-Time Equivalent employee; CHRO = Chief Human Resources Officer; Owner = the individual, team, or organisational unit responsible for executing or overseeing the recommended action; Opex = Operating Expenditure; CO_2/ASK = Carbon Emissions per Available Seat Kilometre; MRO = Maintenance, Repair, and Overhaul; RM = Revenue Management.

Summary: Together, the functional, structural, and resource requirements form the backbone of the study's conceptual framework. Functional requirements drive operational levers; structural requirements institutionalise and govern the process; and resource requirements fund and sustain transformation. Each dimension interacts with moderating factors, including organisational learning, operational maturity, and headquarters context, to explain variations in the dependent variables examined in Chapter 4. This layered alignment ensures theoretical coherence between Hayes's (2022) Process Theory of Change Management and the empirical model of FSC–LCC strategic convergence. As shown in Table 5, the framework integrates evidence from recent airline performance studies with process and leadership-based theories of change.

Table 5 summarises the conceptual alignment between each framework dimension, its underlying mechanism, and the expected operational or financial performance outcomes. This table operationalises the study's conceptual framework by linking the independent constructs, their strategic processes, empirical indicators, and hypothesised directions of change.

The preceding sections outlined the research problem and theoretical foundation explaining how airlines pursue efficiency and strategic transformation. Building on this, the next section transitions from conceptual framing to an in-depth analysis of empirical and theoretical works that support the study's objectives. The Review of Related Literature critically examines prior studies on airline outcomes and processes to establish a basis for the empirical investigation that follows.

Review of Related Literature

2.5 Operational and financial efficiency of LCCs

This section examines how LCCs achieve operating efficiency and profitability, and how those advantages scale across markets and shocks. The researcher structured the review around three questions: (1) how LCCs achieve operating efficiency, (2) whether those efficiencies translate into market share and tourism spillovers, and (3) which adaptability mechanisms convert efficiency into durable profitability. Constructs were mapped to the study's variables: CASK, RASK, LF, YOY passenger growth, OM, fuel-to-operating cost, and payroll-to-revenue.

2.5.1 General Operational Efficiency and Profitability of LCCs

Operational Efficiency of LCCs

Theoretical context: Within Porter's (1980) cost-leadership paradigm, operational efficiency reflects systematic unit-cost reduction with acceptable service quality. Process simplification, asset utilisation, and disciplined workforce management are the primary levers. Strategic management theory likewise holds that lean structures and process control enhance margins and adaptability (Barney, 1991; Thompson et al., 2020).

Empirical evidence**:** Younger fleets improve fuel efficiency and reliability, reducing maintenance cost and extending asset life, though gains tend to plateau after roughly six years (Magdalina & Bouzaima, 2021; Hassan et al., 2021). Labour productivity is decisive: multi-skilled crews and lean staffing increase output per employee without compromising safety (Ginieis et al., 2020).

Key metrics: Mhlanga (2020) reports differences in ASK, RPK, LF, FTE, operating expenses, and technical efficiency for South African carriers in Table 6.

Table 6

Comparative Operational Metrics of South African Airlines

Performance Metric	LCCs	FSCs	Interpretation
ASK (mean)	907,060	858,190	Higher capacity and utilisation among LCCs
RPK (mean)	550	809	FSCs exhibit higher yield density
Full-Time Employees (mean)	292	765	LCCs operate leaner workforce structures
Operating Expenses (mean)	9,691,098	16,615,104	FSCs experience cost complexity
Technical Efficiency	Higher (86%)	Lower (67%)	LCCs outperform FSCs in efficiency

Source: Mhlanga (2020*).*
Note. Technical efficiency refers to DEA scores reported by Mhlanga (2020) for nine South African airlines (2010–2018). ASK and RPK interpretation follow standard seat- and revenue-passenger-kilometres.

Analytical integration: Structural simplicity, such as standardised fleets, uniform processes, and lean labour systems, supports higher LF and lower CASK relative to FSCs. These operating advantages represent a stable equilibrium of the cost-leadership model rather than a transformation process. Because FSCs carry legacy complexity, they require organisational redesign to approach these benchmarks.

Profitability of LCCs

Theoretical context: Profitability is the financial translation of operating efficiency, typically measured via OM, ROA, and ROE (Huang, 2021; Mahdi & Khaddafi, 2020; Singh et al., 2021). ROA captures short-run productivity; ROE reflects longer-term return potential (Kiracı, 2020).

Empirical evidence: Table 7 illustrates an efficiency–yield paradox: compressing CASK and lifting LF is necessary, but margins still hinge on revenue density (RASK), market mix, and pricing agility.

Table 7
Profitability Ratios of Selected Low-Cost Carriers

Airline	Net Income (%)	Current Ratio	ROE	ROA	RPK	CASK (US$)
Southwest	11	0.65	24.21	9.14	134,473	3.72
Ryanair	16	1.07	24.11	9.12	110,630	6.9
AirAsia X	-11	0.43	-0.13	-0.01	28,739	3.12
Indigo	5	3.27	17.11	5.20	62,668	3.37
Singapore Airlines	3	3.01	3.97	3.74	99,213	3.14
Average	**6**	**2.0**	**14**	**5**	**87,144**	**3.24**

Sources: Southwest Airlines (2019); Ryanair (2019); AirAsia X (2019); Singapore Airlines (2019)
Regime note. These ratios serve as pre-COVID baselines. Post-2020 developments (traffic shocks, jet-fuel cycles, IFRS-16 lease capitalisation) materially affect cross-carrier comparability; figures are used for structural illustration rather than causal inference

Interpretation: The contrast between Ryanair's margins and AirAsia X's losses shows that low CASK is necessary but not sufficient. Profitability depends on revenue density, market mix, and the ability to price dynamically across cycles (Kuz & Miškinis, 2021; Pinchemel et al., 2022).

Synthesis: In deregulated markets, sustainable profitability arises when low operating cost is paired with yield resilience through flexible pricing, digital distribution, and capacity agility.

The evidence above explains how LCCs compress costs and translate some of those gains into profit. The next question is scope: do these operating advantages scale into market share and tourism linkages across different institutional and geographic settings? Section 2.5.2 examines penetration patterns and regional spillovers to identify where efficiency diffuses and where it stalls.

2.5.2 Market Analysis

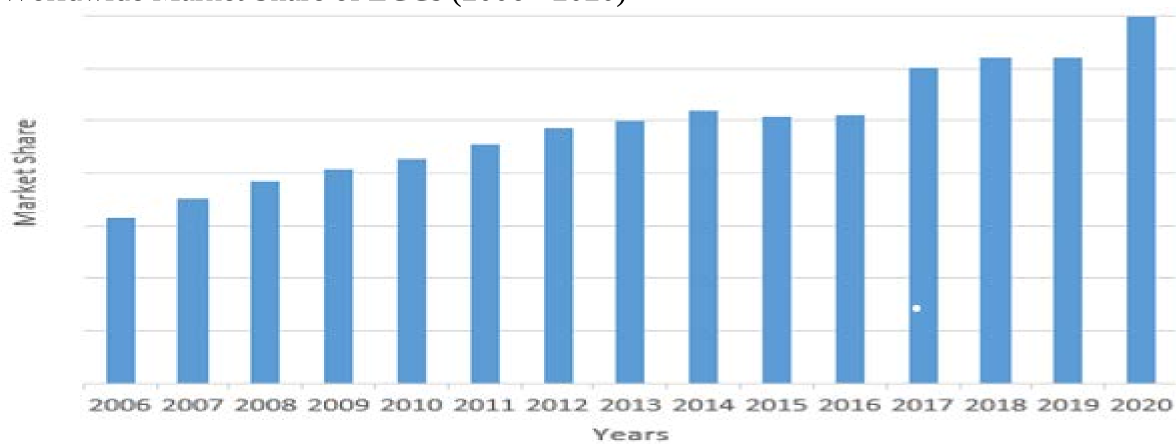
Market Penetration and Share Growth

Theoretical framing: Competitive strategy suggests sustainable performance when asset productivity is maximised and unit cost minimised (Porter, 1985; Daft & Albers, 2012).

Empirical evidence and interpretation

Figure 11 shows that LCC global market share expanded sharply between 2006 and 2020 (Efthymiou & Christidis, 2023). Asia–Pacific growth reflects rising middle-class demand and digital distribution, while Australasia's slower penetration is linked to slot regimes, infrastructure constraints, and entrenched incumbents (CAPA, 2019).

Figure 11
Worldwide Market Share of LCCs (2006 - 2020)



Source: Statista (2023).

Tourism linkages in Australasia: Cost efficiency can drive downstream benefits through accessibility and consumer surplus (Daft & Albers, 2012; Whyte & Lohmann, 2015). Entry of LCC/AWA models stimulates tourism via affordability and route diversification (Heiets et al., 2021; Ngo & Tsui, 2023). Australia's limited LCC penetration, as shown in Figures 12-15, has constrained this multiplier, prompting ULCC entrants like Bonza to target underserved leisure routes (ACCC, 2021; CAPA, 2021).

As tourism flows often co-evolve with visa policy, exchange rates, and capacity, the observed associations with LCC penetration are indicative rather than definitively causal.

As illustrated in Figure 12, Australia's Tourism in Accommodation indicators were largely stagnant between 2006 and 2014, followed by a clear upward trajectory from 2014 up to the onset of the pandemic.

Figure 12

Australasia Tourism in Accommodation Over Time

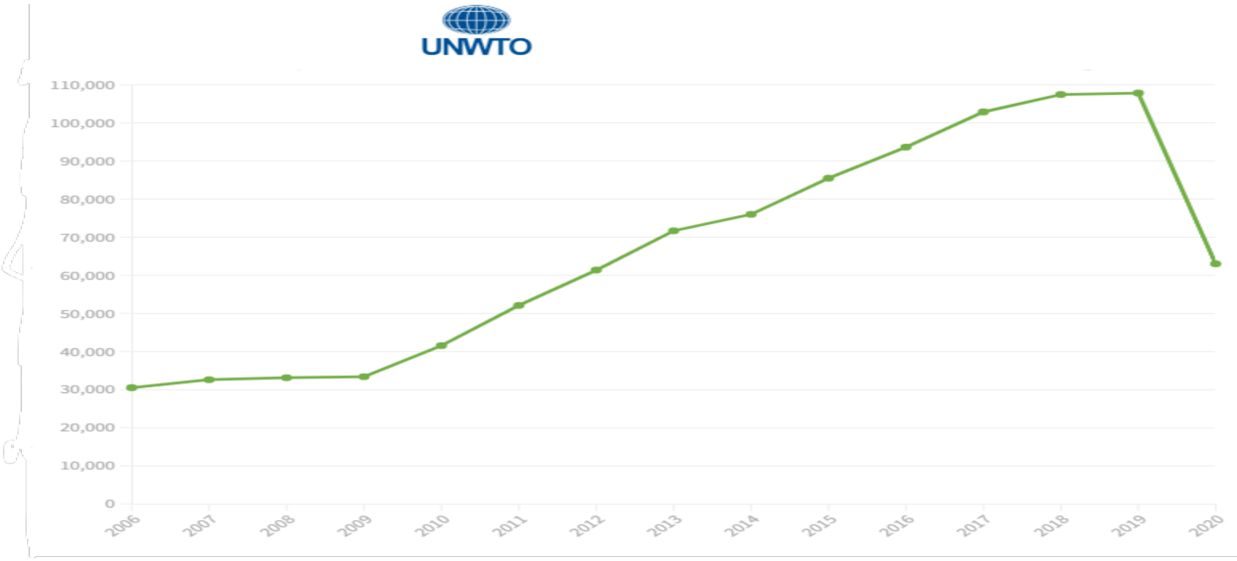
Source: UNWTO (2022).

The extended plateau in Figure 12 implies demand growth was offset by cost, capacity, or network constraints, whereas the subsequent uplift aligns with stronger domestic demand and improved market access. The abrupt interruption of the pandemic underscores the sector's exposure to exogenous shocks

Figure 13 shows sustained growth in Thailand's accommodation-based tourism from 2006 through the immediate pre-pandemic year (2019), with a pronounced acceleration between 2009 and 2019.

Figure 13

Thailand Tourism in Accommodation Over Time

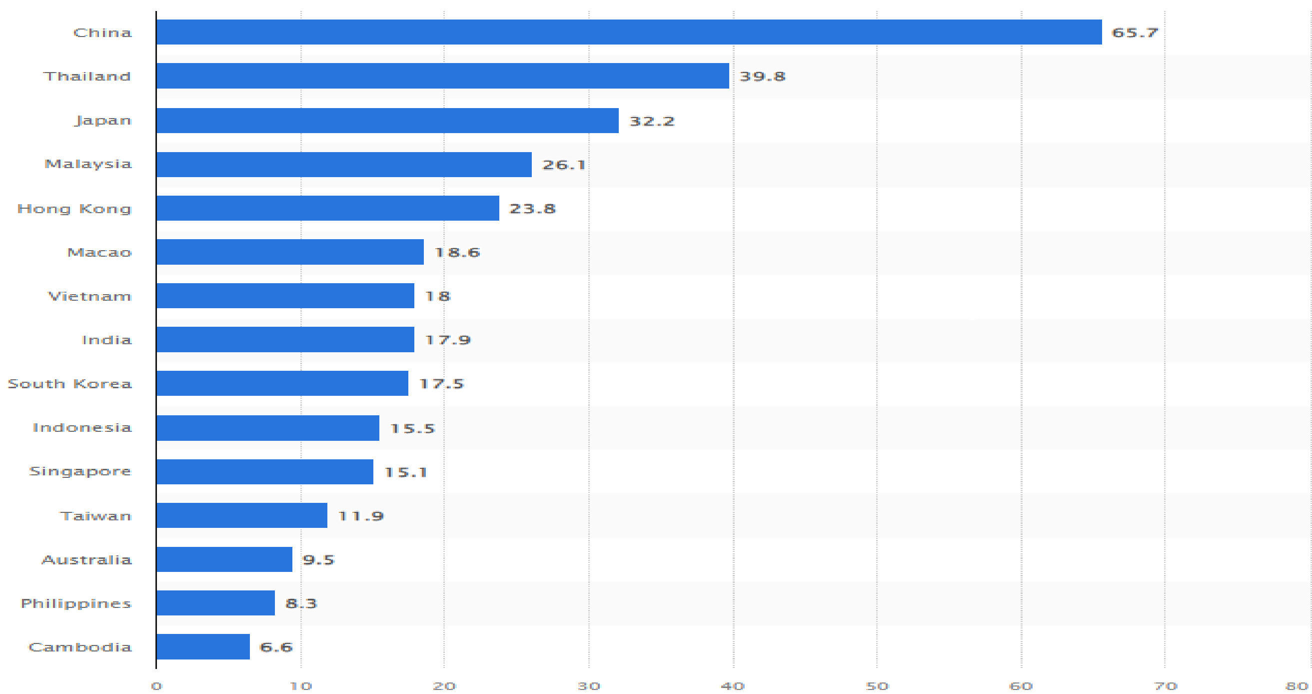


Source: UNWTO (2022).

In Figure 13, the post-2009 upswing signals persistent demand expansion and capacity build-out, consistent with a decade of efficiency-driven market growth and rising visitor volumes.

Figure 14

International Tourists' Arrival in Asia-Pacific in 2018 (in Millions)

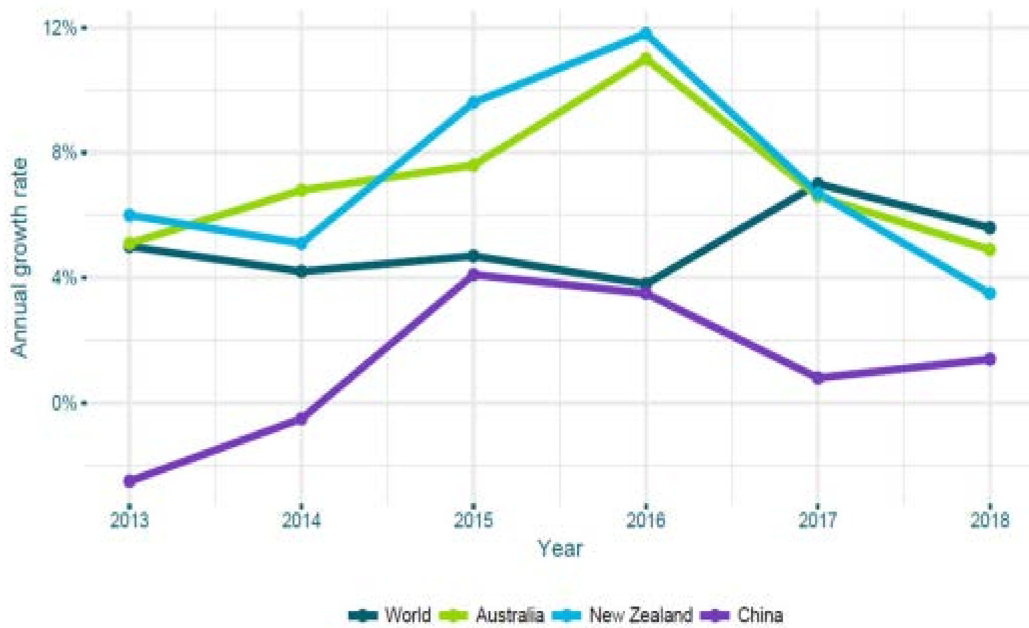


Source: Statista (2023).

Figure 14 shows Australia's position as the third-lowest among 15 Asian and Australasian countries in international tourist arrivals, indicating a structural, not demand-based, constraint. The shortfall likely stems from distance, higher fares, and regulatory or airport cost factors that limit accessibility rather than appeal. Strategically, this indicates that airlines and policymakers should focus on improving affordability and connectivity by advancing fleet efficiency, building partnerships, and reforming pricing structures to boost inbound volumes while maintaining yield.

Figure 15

Growth in International Visitor Arrival



Source: Whakatutuki (2019).

According to Figure 15, Australia recorded higher international visitor arrivals than its regional peers from 2013 to 2015, but experienced a sharp decline between 2017 and 2018, after which it outperformed only China. This pattern suggests a temporary competitiveness lead followed by a pronounced loss of momentum. The 2017–2018 drop likely reflects a mix of capacity shifts, currency effects, and route/network changes, which weakened Australia's relative tourism inflows during that period.

Analytical synthesis: Australia's tourism trajectory reflects both structural constraints and episodic gains driven by airline market dynamics. Between 2006 and 2014, stagnation in accommodation indicators suggests that growth potential was constrained by costs and capacity rather than lack of demand. The post-2014 rebound aligns with increased domestic travel and improved low-cost connectivity, underscoring the catalytic role of affordability and network access in stimulating demand. Comparatively, Thailand's steady expansion through 2019 illustrates how sustained LCC penetration and capacity investment yield long-term tourism dividends. Australia's lower inbound ranking in 2018 signals persistent structural barriers, such as distance, fare levels, and regulatory costs, that inhibit volume growth despite strong global demand. Overall, the evidence implies that tourism growth in Australasia hinges less on destination appeal and more on systemic efficiency, pricing strategy, and regional connectivity.

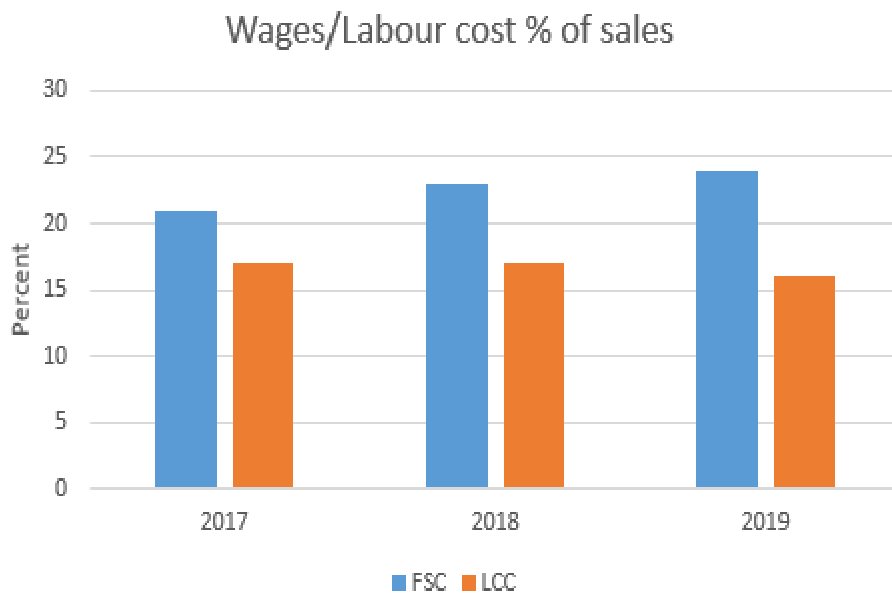
If institutions and network geometry constrain diffusion, which mechanisms allow LCCs to preserve margins and scale advantages through volatility? Section 2.5.3 considers flexibility and adaptability as the channels that convert operating discipline into resilience.

2.5.3 Flexibility and Adaptability in Low-Cost Airline Models

Theoretical framing: Efficiency theory (Coase, 1937; Williamson, 1981) and cost leadership (Porter, 1980) imply that firms sustaining low waste and low rigidity preserve margins over time. Flexibility serves as a dynamic capability that reallocates resources in the face of volatility, transforming input efficiency into stable profitability.

Empirical perspectives: LCCs institutionalise flexibility via fleet commonality, modular maintenance, lean staffing, and short turnarounds (Rouby, 2018; Schlumberger & Weisskopf, 2014). Strategic flexibility, involving the realignment of networks, capacity, and pricing, enables airlines to adapt effectively to demand shifts (Fageda et al., 2015; Chow et al., 2022). Leasing practices (sale-and-leaseback, short-term operating leases) raise cash flexibility (Schlumberger & Weisskopf, 2014). Marketing flexibility extends efficiency into revenue via algorithmic pricing, unbundled services, and ancillary sales (Tam et al., 2022; Vinod, 2024). Crisis flexibility was visible during COVID-19, when LCCs scaled capacity faster than many FSCs, mitigating losses through agile cost control (Corselli, 2023; Gössling, 2020; Brown & Kline, 2020). Fuel-efficiency flexibility links technical measures and hedging to stabilise fuel cost (Gelirli, 2024; Liu et al., 2023). Figure 16 manifests LCCs' labour flexibility as superior "labour cost as a percentage of sales", relative to FSCs.

Figure 16
Comparison of Models' Wages/Salaries

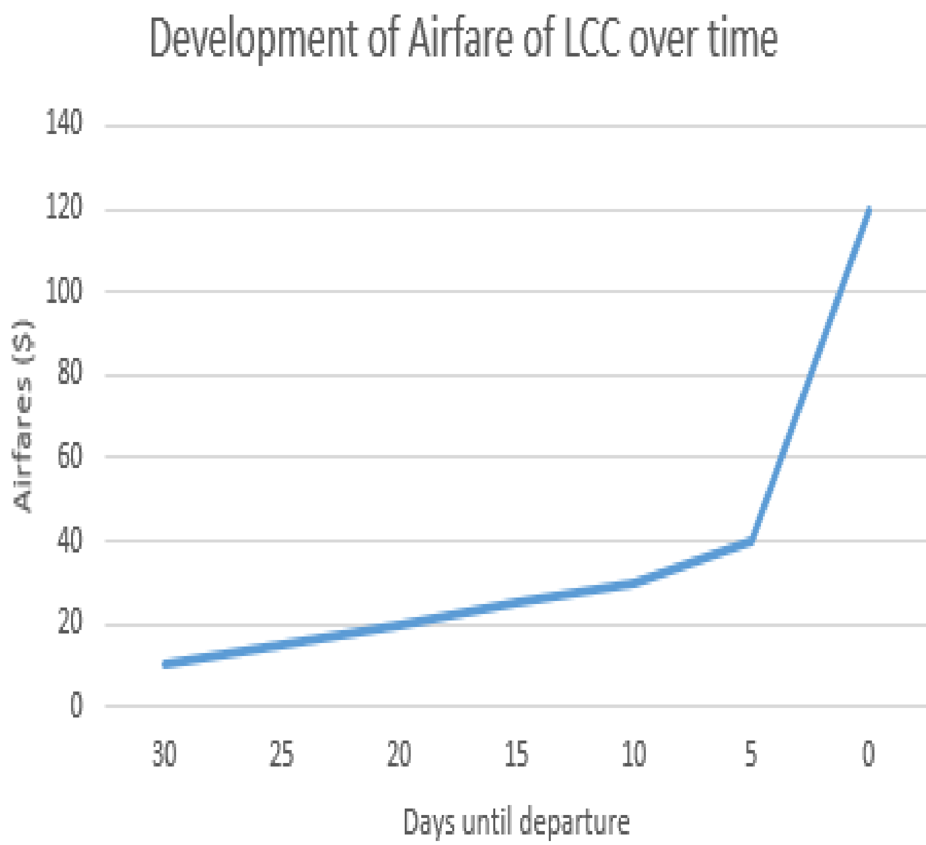


Source: Jia (2020) – Seahawk Investment.

Analytical synthesis: Strategic flexibility reallocates resources; marketing flexibility monetises them; crisis responsiveness preserves them; fuel adaptability optimises them. These interdependent mechanisms instantiate purposeful, goal-directed adaptation: operational discipline becomes resilience when carriers formalise rapid reallocation, modular product design, and telemetry-driven control.

Figure 17 illustrates this through the LCC fare curve, where early buyers secure lower fares, stabilising yield through time-based price discrimination (Malighetti et al., 2009).

Figure 17
Development of Airfare of LCCs Over Time

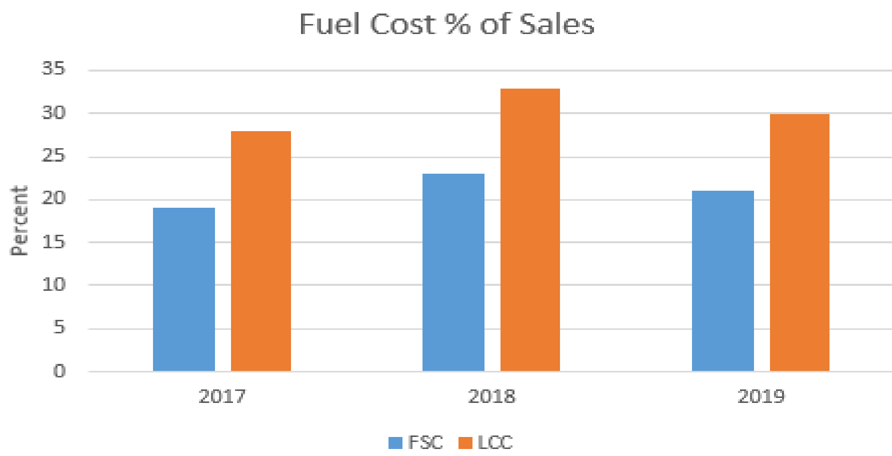


Source: Malighetti et al. (2009).

Crisis flexibility reflects efficiency under constraint. During the COVID-19 pandemic, LCCs scaled capacity faster than FSCs, mitigating losses through agile cost management (Corselli, 2023; Gössling, 2020; Brown & Kline, 2020). Lean structures helped preserve margins despite global disruptions (Statista, 2023).

Figure 18

Comparison of Models' Fuel Cost



Source: Jia (2020) – Seahawk Investment.

Fuel-efficiency flexibility further integrates technical efficiency with profitability optimisation. Younger fleets, short-haul operations, and hedging strategies stabilise fuel costs (Gelirli, 2024; Liu et al., 2023; Hassan et al., 2021). However, as shown in Figure 18, dense configurations sometimes offset LCCs' fuel-efficiency gains (Jia, 2022).

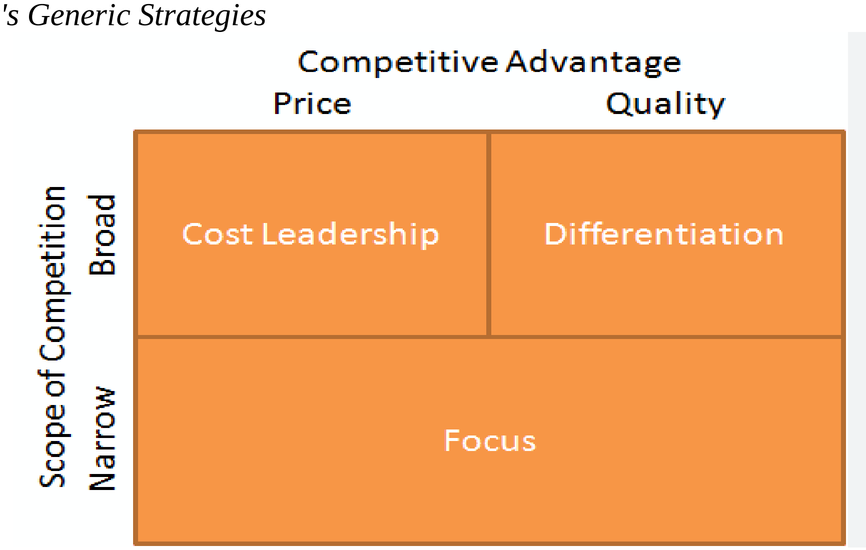
Analytical Synthesis: Across these dimensions, flexibility and adaptability emerge as the structural backbone of efficiency and profitability theory in aviation. Strategic flexibility reallocates resources, marketing flexibility monetises them, crisis responsiveness preserves them, and fuel adaptability optimises them. Together, these interdependent mechanisms embody Hayes's teleological principle of continuous improvement, transforming efficiency from a static cost condition into an integrated organisational capability that drives resilience, margin stability, and long-term competitiveness.

2.5.4 Strategic Orientation of LCCs

Theoretical Foundation: Building on prior efficiency and profitability frameworks, contemporary strategy literature emphasises hybrid competition that integrates cost efficiency with selective differentiation to sustain profitability in mature markets. Hybrid strategy theory posits that firms blending low-cost operations with targeted value-added features achieve greater resilience against price-based competition (Miller, 1992; Hill, 1988). This perspective extends beyond classical cost-leadership assumptions by recognising that operational discipline alone no longer guarantees sustainable advantage in deregulated and digitally dynamic markets. It highlights a merger of Porter's Differentiation and cost leadership tactics shown in Figure 19.

Empirical Evidence: Empirical evidence supports this evolution. Arianpoor and Moghaddampoor (2024) found that service quality, punctuality, and process reliability increasingly moderate customer loyalty, even among price-sensitive segments. This indicates that modern LCCs need to complement efficiency with selective differentiation, focusing on aspects like reliability, customer experience, and digital ease to sustain revenue and protect market share.

Figure 19
Porter's Generic Strategies



Source: Debebe (2020).

Historical and Empirical Context: In the airline industry, this theoretical logic underpins the LCC model, where profitability is derived from reduced CASK, optimised load factors, and simplified service offerings. Likewise, Khairani et al. (2021) observe that legacy FSCs shifting toward low-cost models must adopt a cost-leadership-plus-value posture, balancing efficiency with targeted differentiation in order to preserve yield stability and brand equity.

Airline strategy has evolved dynamically in response to deregulation, globalisation, and technological advancement. Empirical studies reveal a progressive convergence between LCC and FSC models, reflecting mutual adaptation rather than rigid separation. Huang (2024) documents several cases of deep structural convergence, in which FSCs adopt lean operational architectures and simplified pricing systems. Furthermore, Yadav and Dhingra (2018) highlight the emergence of blended or hybrid carriers, where distinctions between cost-focused and service-focused models have blurred. Chiambaretto and Combe (2023) extend this argument, showing that LCCs themselves have begun moving "up-market" by introducing loyalty programmes, premium seating, and bundled fares. Chiambaretto and Combe (2023) further illustrate where cost efficiency and service value intersect to produce varying hybrid forms.

Analytical Implications: For FSCs pursuing transformation toward LCC-oriented supply-chain models, the preceding theoretical and empirical perspectives underscore the importance of aligning structural and operational levers with efficiency imperatives. The benchmark LCC model thus functions as a diagnostic reference for identifying and addressing functional variances in fleet strategy, pricing architecture, and fuel management that constrain profitability. Analytically, this implies that sustainable convergence depends on how effectively FSCs translate cost-efficiency theory into operational design and decision systems. The subsequent section, therefore, translates these theoretical foundations into the operational dimensions relevant for this study, demonstrating how cost-efficient mechanisms can be institutionalised without compromising revenue yield or service reliability.

2.5.5 Characteristics of LCC Operations

Theoretical framing: Efficiency in low-cost airline operations extends beyond process optimisation to the integration of operational, financial, and strategic levers that sustain long-term competitiveness. Recent perspectives emphasise that advantage is achieved not only through minimising input costs but also through continuously aligning capacity, technology, and workforce systems with market demand (Mason & Morrison, 2008; Hayes, 2022). In this context, operational efficiency serves as a dynamic capability that connects resource utilisation to profitability through adaptive decision-making rather than static cost control.

Empirical evidence

Point-to-Point Network Design: Point-to-Point network design lessens complexity, reduces ground time, and enhances aircraft utilisation by eliminating dependence on connecting hubs (Scotti & Dresner, 2022; Raynes & Tsui, 2019). Empirical evidence confirms that point-to-point operations achieve shorter turnaround times, lower staffing requirements, and improved schedule reliability compared with hub-and-spoke systems (Rouby, 2018; Marti et al., 2015; Pagoni & Koumoutsidi, 2022). These operational gains translate directly into lower block times and reduced fuel burn per passenger (Setiawan et al., 2018; Zgodavová et al., 2018). However, failures in AWA's illustrate that misalignment in applying hub and spoke logic to an LCC arm can erode efficiency and profitability (Raynes & Tsui, 2019).

Cabin Configuration and Seating Density: LCCs employ a single-class, high-density cabin configuration designed to maximise space utility and minimise service differentiation. Removing seat allocation accelerates boarding, increases LF, and improves revenue per flight hour (Oliveira, 2023; Rouby, 2018; Wehner et al., 2018). A 19 percent increase in seating density has been shown to reduce CASK significantly in Asian markets (Soliman, 2022; Timmis et al., 2022).

This configuration exemplifies operational efficiency through design optimisation, translating physical capacity into higher yield per aircraft cycle.

Ancillary Revenue Architecture: Beyond base fares, LCCs rely on diversified ancillary revenue streams to stabilise profitability. Ancillary products, such as baggage and seating and retail, convert discretionary spending into predictable income (Höser & Schmalz, 2021; Buyruk & Guner, 2022; Shaw et al., 2021). Table 8 illustrates how Ultra-Low-Cost Carriers (Spirit and Allegiant) outperform both LCCs and FSCs in ancillary revenue intensity. From a geographical perspective, regional evidence shows that although Asia-Pacific passengers exhibit high baseline spending, incremental ancillary elasticity remains lower, necessitating continual product innovation (Babić et al., 2019). EasyJet's revenue composition, with baggage contributing 47%, seat selection 7%, and other services 20%, illustrates the application of this modular revenue logic (IdeaWorksCompany, 2018).

Table 8
Ancillary Revenue per Passenger of Top 10 Airlines

Annual Results – 2017 (in US dollars)		Ancillary Source	% increase above 2008
50.97	Spirit	Various	+174%
48.87	WOW air	Various	Airline did not operate in 2008
48.33	Frontier	Various	+1,206%
48.67	Allegiant	Various	+83%
43.00	Jet2.com	Various	+126%
42.55	Quantas Airways	FFP	+169%
38.83	United	Various	+70%
33.12	Air Asia x	Various	+58%
32.52	HK Express	Various	Not available
31.15	Wizz Air	Various	Not available

Source: IdeaWorksCompany (2018a).

Distribution and Sales Strategy: LCCs reinforce cost efficiency through disintermediation, selling primarily via direct online channels. By avoiding Global Distribution Systems and travel-agency commissions, they maintain tighter yield control and lower distribution costs (Magdalina & Bouzaima, 2021). Foong et al. (2023) found that in Southeast Asia, approximately 81 percent of all LCC ticket sales in 2019 occurred through airline websites, demonstrating high digital maturity and consumer trust in self-service purchasing.

Labour and Employment Systems: Labour productivity is a defining pillar of LCC profitability. These carriers employ multi-skilled, cross-functional teams, allowing fewer employees per aircraft without compromising safety or service quality (Karivate, 2004; Nordgren, 2022). Empirical studies show LCCs generate higher ASK per worker and greater block-hour utilisation than FSCs (Mhlanga, 2020). While some carriers reduce union influence to sustain flexibility (Schlumberger & Weisskopf, 2014), examples like Southwest Airlines illustrate that strong labour relations can coexist with profitability when supported by performance-based incentives (Preston, 2022; Ginieis et al., 2020). Thus, profitability arises not simply from lower wages but from systemic optimisation that aligns cost control, employee motivation, and operational discipline.

Analytical Integration: Viewed collectively, these operational features demonstrate how LCCs achieve sustained cost efficiency and profitability through simplicity, flexibility, and innovation. Each component, including network design, cabin configuration, revenue diversification, direct sales, and labour structure, functions as a reinforcing mechanism that lowers CASK, raises LF, and stabilises RASK. The integration of these elements forms a holistic efficiency system rather than isolated cost-cutting measures. This systemic integration aligns with efficiency and profitability theories, which emphasise the compounding effect of interdependent operational levers on margin stability. In the LCC context, these interdependencies convert simplification into strategic capability, sustaining competitive advantage beyond incremental cost reductions.

2.5.6 LCC Business Models

Theoretical framing: The operational efficiency and profitability framework conceptualises LCC models as strategic systems designed to maximise output and profitability through process simplification, asset utilisation, and cost discipline. Rooted in efficiency theory and the profitability optimisation paradigm (Daft & Albers, 2013; Doganis, 2019), this framework assumes that long-term competitive advantage emerges when firms transform input efficiency into sustainable financial returns. Within this logic, profitability is not achieved through differentiation or market segmentation, as in traditional FSC strategies, but through structural and procedural efficiency that enhances revenue productivity per cost unit.

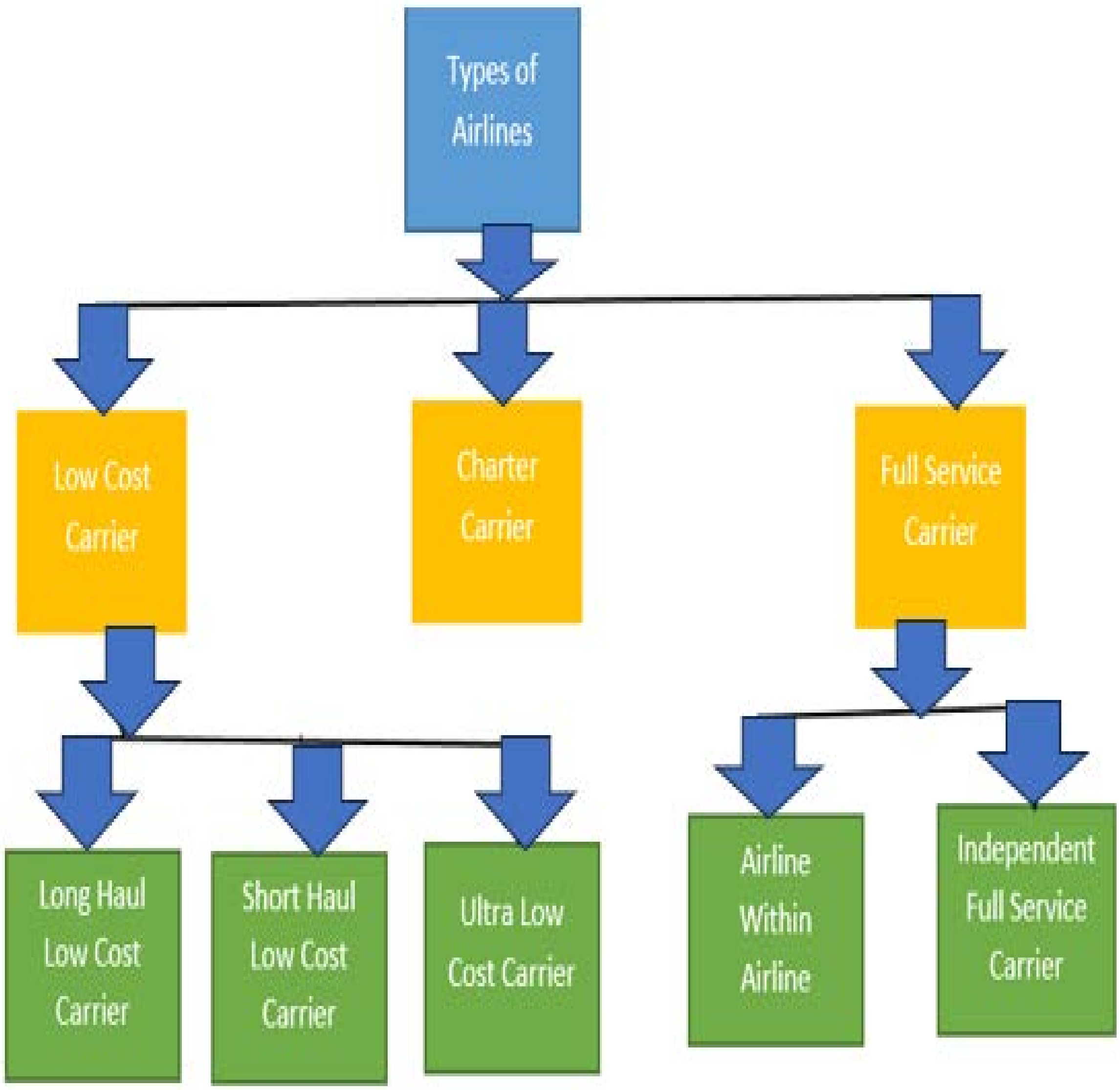
LCC models operationalise this framework through multiple configurations that reflect varying degrees of autonomy and integration. Independent Low-Cost Carriers (ILCCs) represent the purest expression of cost leadership and efficiency optimisation. Their distinct brand identities, governance independence, and flexible labour structures enable process standardisation, fleet commonality, and rapid turnaround cycles, reducing operating costs while increasing asset productivity. These operational characteristics align with efficiency frontier theory, which posits that performance improves when firms minimise waste and variance across processes, and with profitability theory, which links operational discipline to margin stability and return on assets (O’Connell & Warnock-Smith, 2013). By isolating decision-making and performance accountability, ILCCs sustain profitability through economies of scale, simplified processes, and disciplined capacity management.

Conversely, AWA configurations illustrate an alternative theoretical path within the same framework. While AWAs adopt low-cost operating principles, they remain structurally tied to their parent FSCs through shared assets, staff, and infrastructure. This interdependence partially constrains operational flexibility and cost efficiency, as coordination costs and overlapping functions reduce the attainable efficiency frontier (Fu & O’Connell, 2023; Khan et al., 2022). From a theoretical standpoint, AWAs reflect profitability trade-off theory, in which shared resource dependencies preserve corporate synergies but limit marginal cost reductions. Empirical comparisons show that AWA performance is typically stronger in regulated or capital-intensive environments, where full independence is constrained, but weaker in liberalised markets demanding full cost flexibility.

Thus, within the operational efficiency and profitability framework, LCCs form a continuum of efficiency-oriented strategies rather than a singular model. Each subtype, from Hybrid LCCs (HLCCs) and SHLCCs to LHLCCs and Ultra-Low-Cost Carriers (ULCCs), represents a distinct balance between cost efficiency and revenue maximisation. The theoretical implication is that LCC profitability derives not merely from low operating costs, but also from the ratio of efficiency to revenue productivity, as measured by metrics such as CASK and RASK. Structural autonomy, fleet commonality, and digital integration strengthen this ratio by aligning operational inputs with scalable outputs. Consequently, the framework explains how LCCs achieve enduring profitability through efficiency-driven value creation, where simplification, utilisation, and revenue diversification collectively form the theoretical foundation of their business model.

Table 10 highlights that LCCs are not configured as a single group but as a spectrum of strategies balancing cost discipline and revenue diversification to sustain competitive advantage.

Figure 20
Sub-Models of LCCs



Source: Created by researcher.

Empirical evidence

Airline-within-Airline: AWAs represent efforts toward strategic ambidexterity, aiming to maintain differentiation while simultaneously achieving cost efficiency. Empirical findings (Khan et al., 2022) indicate that governance, not structure, determines profitability: autonomy in branding, fleet, and pricing preserves clarity, whereas overlapping decision rights create internal friction. In Asia–Pacific markets, the superior short-term performance of AWA subsidiaries often reflects resource asymmetry, including access to parent-company maintenance, financing, and marketing capabilities; however, these same dependencies constrain innovation (Ng et al., 2022). The Qantas–Jetstar configuration exemplifies a partial equilibrium: cost efficiency and market segmentation achieved through shared infrastructure but requiring continuous labour and governance recalibration (Wang et al., 2024). Thus, AWA sustainability depends on dynamic governance, boundary management, and process discipline rather than on the structure itself.

Short-Haul vs. Long-Haul LCCs: Table 9 contrasts SHLCC and LHLCC configurations, emphasising that operational efficiency declines as distance increases. Short-haul models rely on narrow-body aircraft, fast turnarounds, and secondary airports, maximising cycles per aircraft day. In contrast, LHLCCs use wide-body aircraft with fewer daily rotations, higher fuel exposure, and longer ground times (Renehan & Efthymiou, 2020; Luo et al., 2021). Studies reveal that LHLCC viability depends on achieving stage-length economies, selective hub access, and effective feed integration (Urban & Hornung, 2021; Law, 2022). LHLCCs, such as Norwegian (2015–2019), achieved lower fares and CASK than many FSCs but required an LF of approximately 75% to break even beyond 3,500 nautical miles (Miyoshi & Molina-Prados, 2022). Thus, while LHLCCs can yield short-term efficiency gains, in the long-term, they remain structurally fragile due to fuel sensitivity, limited utilisation, and dependence on high LF (Law, 2022).

Table 9

Comparison of Characteristics of LHLCCs and SHLCCs

Features	Short-haul low-cost model	Long-haul low-cost model
Aircraft choice	Regional jets (Boeing 737/Airbus A320); high-density seating	Long range, fuel efficient, 250-300 seat capacity; new Boeing 787, Boeing 777ER, Airbus A330-300
Fleet	Single	Multi-class, the importance of front-of-aircraft yields
Alliance	Usually, no alliance	More important for feed traffic and code-sharing
Airport	Mainly secondary	Need major airports for hub/spoke traffic and connections to/from other points with other airlines. Use of a secondary airport
Brand	One brand (low pricing)	One brand (low pricing), but clear about service
Cargo	Usually carries no cargo	Requires incremental revenue but would be an airport-to-airport-only carrier.
Check-in	Ticketless	Ticketless
Class segmentation	Single class	Single class
Connection	Point-to-point, no interlining, no baggage transfer	Point-to-point, no interlining, no baggage transfer, self-connecting
Customer service	Generally underperforming	Unknown
Distribution	Online, direct booking	Online, direct booking. Selective distribution through major retail chains
Fare	Simplified fare structure: peak and off-peak. Booking time is important: the earlier, the cheaper. Offers lower prices (60% or more below legacy carriers).	Simplified fare structure; the earlier the booking, the cheaper the fare. Competition-based pricing – below FSAs (price and quality integration); include a ‘comfort pack’ and baggage allowance; customers pay for in-flight meals and entertainment.
Aircraft utilisation	High	Low to moderate (about once per day)
FFP	No (mainly)	Maybe more valuable
In-flight entertainment and catering	Pay for amenities, on-board sales	Long-haul passengers are likely to value this more

Table 9 (Continued)

Comparison of Characteristics of LHLCCs and SHLCCs

Features	Short-haul low-cost model	Long-haul low-cost model
Outsourcing	Extensive usage, especially where there is a limited number of services at an airport	Extensive use, especially in overseas ports, as well as for accounting/payroll-type functions
Flight duration and distance	Flies 30 minutes to 3 hours and under 1000 nautical miles.	Extends beyond 6 hours and more than 2001 nautical miles.
Operational activities	Focus on core (flying).	Focus on core (flying) and sometimes cargo.
Seating	Cram, no assignment.	Comfort is more important the further you fly. Pre-allocation might be demanded.
Target group	Leisure, time and price-sensitive business travellers	Leisure, time and price-sensitive business travellers
Turnaround time	25 minutes	Less important because aircraft spend more hours in the air.
Load factor	High occupancy	Occupancy higher than FSC but lower than LCC

Source: Rouby (2018); De Poret et al. (2015); Hunt and Truong (2019); Law (2022).

Hybrid LCCs (HLCCs): As shown in Table 10, HLCCs represent adaptive convergence, blending cost discipline with selective service differentiation. These carriers extend into medium-haul sectors, incorporate bundled fare options, limited interlining, and participation in global distribution systems (Magdalina & Bouzaima, 2021). Such flexibility allows airlines to segment markets and attract both leisure and value-driven business travellers (Sabaitytė et al., 2020).

Table 10

Comparison of Characteristics of LCCs and HLCCs

Features	Traditional LCC	HLCC
Fleet	Single type	Single type or mixed aircrafts
Airport	Chiefly secondary	Primary
Code sharing	No	Possible
Transfer between flights and feeding services	No	Possible
Member of a global alliance	No	Possible
Sector length	Ideally from 500 to 1,500 Km	Can be longer than 2,000 Km
Long-haul flights	No	Can be long-haul
Single class cabin	Yes	Yes
Fare bundling	Yes	Yes, offering different fare bundles and levels of service
Sales distribution channel	Mostly internet	Mostly the internet, but also GDS
FFP	No	Can offer FFP
Frills	No	Depending on the fare bundle

Source: Adapted from Fageda et al. (2015).

Ultra-Low-Cost Carriers (ULCCs). As shown in Table 11, ultra-low-cost carriers (ULCCs) such as Spirit and Allegiant in the United States drive cost leadership to its limits, recording an average CASK of US $5.41 in 2019, while the broader U.S. LCC segment averaged US $7.60 over the same period. This is achieved through radical unbundling and ancillary-revenue maximisation (Shrago, 2024; Taplin et al., 2023; Tang et al., 2022). This strategy reduces base fares but can compress overall RASK, illustrating the yield–cost trade-off inherent in extreme cost focus (Ovesy, 2023; Taplin, 2021).

Table 11

Profitability Ratios of Two US Ultra LCCs

	Net income %	Current ratios	ROE	ROA	RPK	CASK
Allegiant Airline	11	0.94	25.03	7.15	12591802	5.81US$
Spirit Airline	7	0.81	11.72	18.00	32934332	5.01US$
Average	9	0.88	18.38	12.58	22763067	5.41US$

Sources: Adapted from Allegiant Annual Report (2019); Spirit Annual Report (2019).

Despite higher CASKs than some Asian counterparts, North American ULCCs, such as Spirit and Allegiant, drive significant fare compression in their markets. These ULCCs reduced average one-way fares by $22–$29 relative to Southwest (Vinod, 2024). These carriers typically operate short-haul, point-to-point routes with minimal reliance on hubs, leveraging outsourcing and secondary airports to maintain lean cost structures (Taplin, 2021; Shrago, 2024).

Integrative Summary: Across the LCC spectrum, operational efficiency and profitability are derived from cost discipline, structural autonomy, and adaptive governance rather than any single configuration. Independent LCCs sustain performance through organisational purity; AWA subsidiaries succeed when governance boundaries are clearly defined; short-haul models excel through utilisation and simplicity; long-haul versions face persistent structural fragility; hybrid models balance segmentation with cost control; and ultra-low-cost carriers exploit extreme unbundling for market share. In Asia–Australasia's liberalised markets, sustainability depends less on route length or product density and more on the institutionalisation of efficiency, digitalisation, and strategic clarity.

Analytical integration: The integration of theoretical and empirical insights under the Operational Efficiency and Profitability Framework confirms that the success of LCCs rests on the systemic conversion of operational efficiency into sustained profit performance. Theoretically, efficiency theory and profitability optimisation posit that firms achieve a durable advantage by converting structural simplicity and process discipline into high asset productivity and stable returns (Daft & Albers, 2013; Doganis, 2019). Empirical evidence from LCC typologies reinforces this principle. ILCCs such as AirAsia outperform AWA subsidiaries because organisational autonomy enables tighter control over fleet commonality, turnaround cycles, and digital integration, thereby strengthening the link between efficiency and profitability.

Short-haul and long-haul evidence further operationalises the framework's assumption that profitability is a function of utilisation efficiency moderated by distance and complexity. The decline in efficiency as haul length increases (Renehan & Efthymiou, 2020; Luo et al., 2021) provides empirical support for the efficiency frontier concept, demonstrating that extending operational range introduces diseconomies that gradually reduce cost advantages. Likewise, hybrid and ultra-low-cost models illustrate the trade-off between profitability and efficiency predicted by profitability optimisation theory: while hybrid carriers regain revenue through bundling and segmentation, ULCCs push cost efficiency to its structural limit, often compressing RASK despite superior CASK performance.

These converging patterns reveal that no single model monopolises profitability; instead, each LCC sub-type represents a distinct equilibrium along the cost–revenue continuum. Theoretically, this confirms that profitability is maximised not by uniform cost-cutting, but by aligning structural autonomy, governance discipline, and process optimisation with revenue productivity. In practice, the empirical evidence demonstrates that digitalisation, adaptive governance, and fleet standardisation serve as the transmission channels through which operational efficiency translates into margin stability. This validates the framework's proposition that LCCs achieve sustainable competitive advantage by institutionalising efficiency-driven value creation rather than relying solely on price competition.

2.5.7 Variances in Market Strategies Among LCC Business Models

Theoretical Framing: Operational efficiency and profitability serve as the theoretical foundation for analysing LCC market strategies. Each sub-model represents a distinct optimisation pathway for balancing cost control and revenue generation within the low-fare paradigm (Ng et al., 2022). The analysis below evaluates how different these strategic models are in segmenting markets, while sustaining profitability under differing routes and customer conditions.

Empirical Evidence

Market Positioning and Strategic Differentiation: LCCs primarily serve price-sensitive leisure travellers and time-constrained business passengers concentrated within the middle and working classes (Tang, 2022; Panduwinasari et al., 2020). In contrast, many FSCs have struggled to recalibrate their marketing and operating tactics to defend these segments, resulting in sustained erosion of short-haul market share. Table 12 summarises the dominant market strategies across key LCC sub-models and highlights their operational and profitability implications.

Table 12 shows that market segmentation logic, rather than route length alone, determines the strategic divergence among LCC sub-models. AWA structures allow FSC groups to limit cannibalisation by clearly dividing market domains, although overlap still tends to occur in long-haul operations where LHLCCs compete directly with their parent brands (Heiets, 2024; Raynes & Tsui, 2019; Miyoshi & Molina-Prados, 2022). Short-haul and ultra-low-cost models maintain profitability by capitalising on high price elasticity, prioritising accessibility and throughput over service breadth (2022). In contrast, hybrid models demonstrate strategic convergence, reintroducing limited services differentiation to attract mid-tier demand and stabilise margins.

Table 12

Market Strategies Across LCC Sub-Models

LCC Model	Market Strategy	Operational Efficiency and Profitability Implications
AWA	Parent FSC and subsidiary LCC serve distinct markets (short vs. long-haul, leisure vs. business) to minimise cannibalisation (Heiets, 2024; Raynes & Tsui, 2019).	Increases network efficiency through route segmentation; reduces duplication of fixed costs, though coordination complexity may constrain margin gains.
LHLCCs	Focus on leisure and price-sensitive long-distance business travellers (Baxter, 2022).	Achieve moderate cost efficiency via dense seating and ancillary revenues, but face profitability pressure from high breakeven LF.
SHLCCs	Target leisure and price-sensitive short-distance travellers (Whyte & Lohmann, 2020).	Maximise aircraft utilisation and turnaround speed, producing the lowest CASK and highest profitability margins per ASK.
ULCCs	Capture market share from LCCs, rail, and bus operators by pursuing extreme price sensitivity (Taplin, 2021).	Drive profitability through aggressive cost unbundling and ancillary income; the highest elasticity but the lowest service differentiation.
HLCCs	Combine LCC efficiency with selective FSC service elements to open medium- and long-haul niches (Hunt & Truong, 2019).	Balance cost discipline with incremental yield; moderate profitability but higher brand resilience across demand cycles.

Source: Compiled by the researcher from multiple sources cited in the table.

Analytical Discussion. Viewed collectively, these patterns reveal a spectrum of efficiency-profitability trade-offs:

- ULCCs and SHLCCs emphasise maximal cost compression and volume growth.
- HLCCs and AWAs pursue balanced differentiation, accepting higher costs in exchange for broader revenue bases.
- LHLCCs represent experimental extensions, where scale efficiency is offset by capital intensity and operational risk.

Thus, the evidence demonstrates that LCC market strategies evolve through adaptive diversification, continuously redefining competitive boundaries with FSCs while maintaining the core objective of sustained operational efficiency and profitability.

2.5.8 Low-Cost Models in Asia and Australasia: Operational Efficiency and Profitability

Theoretical Framing: This section analyses how LCC operations in Asia and Australasia exemplify the principles of operational efficiency and profitability, two central constructs in airline economics (Doganis, 2019; Zhang & Round, 2022; Fu & O'Connell, 2023). Efficiency reflects the ability to minimise unit costs through simplification, scale utilisation, and process control, whereas profitability depends on sustaining yield, optimising LF, and leveraging ancillary revenues. These interrelated dynamics explain why LCC models across the region have evolved into distinct short-haul, long-haul, and hybrid configurations, each calibrated to local geographic and structural realities.

Empirical Evidence

Market Context of Asia and Australasia: Australia's domestic market is dominated by Qantas and Virgin Australia, complemented by Jetstar (Qantas's LCC subsidiary) and Bonza, an emerging ULCC. For international demand, Scoot represents the region's leading LHLCC (CAPA, 2021; Consumer Commission Report, 2021; Baxter & Srisaeng, 2022). Geographic factors such as long domestic sectors, the Tasman corridor, and Asia-bound routes constrain the applicability of SHLCC models that rely on ultra-rapid turnarounds and minimal service offerings. These constraints encouraged the development of long-haul or hybrid LCCs such as AirAsia X, Scoot, and Jetstar, which blend low-cost principles with selective differentiation to sustain profitability (Baxter, 2022).

Operational and Cost Structures of Asia and Australasia: Transitioning from SHLCC to LHLCC models introduces structural and financial complexities. Wide-body aircraft acquisition or leasing, higher fuel consumption, primary-airport fees, and extended crew requirements all elevate unit costs. Additional branding and distribution investments further differentiate long-haul models (Whyte & Lohmann, 2015). Even so, route-specific evidence, such as Thailand–Japan–Korea corridors, demonstrates that LHLCCs can maintain commercial viability when seat density, fuel efficiency, and ancillary revenues are optimised (Law, 2022; Gudmundsson, 2023).

Table 13

Routes Operated Within Australasia by SHLCCs

Routes	Time Duration
Adelaide to Port Lincoln	50 minutes
Brisbane to Hamilton Island	90 minutes
Melbourne to Canberra	1 hour
Cairns to Darwin	2 hours 30 minutes
Darwin to Nhulunbuy	1 hour 5 minutes
Sydney to Alice Springs	3 hours
Melbourne to Launceston	1 hour 5 minutes
Sydney to Hobart	1 hour 55 minutes
Darwin to Dili	20 minutes

Source: Whitley (2021).

As shown in Table 13, routes of approximately three hours or less remain critical to the viability of SHLCC networks within Australia (Whitley, 2021; Law, 2022).

Model Hybridisation and Market Adaptation of Asia and Australasia: Australian carriers have progressively hybridised their business models, combining low-cost efficiency with selective premium features to capture multiple market segments. Jetstar integrates with Qantas's Frequent Flyer program, Virgin Blue introduced premium economy seating to attract corporate travellers, and Tigerair's "Infrequent Flyer Club" added loyalty benefits uncommon among traditional LCCs (Srisaeng, 2015; Heiets et al., 2021; Doran, 2022; Liu, 2021). Fleet structures of Australian hybrid

LCCs mirror this hybridity: A320/A321 aircraft dominate short-haul operations, while A330s and B787s serve longer domestic, trans-Tasman, and cargo routes (Baxter, 2022).

By contrast, pure ULCC penetration remains limited. Bonza's 2023 entry, deploying B737 MAX 8s on underserved leisure routes, represents a rare attempt at stimulating latent demand through a no-frills model (Consumer Commission Report, 2021; Bauer, Bloch & Merkert, 2020). In New Zealand, Jetstar's domestic expansion was propelled more by macroeconomic and tourism growth than by direct competitive pressures, especially along the Trans-Tasman corridor (Wang et al., 2020).

Analytical Interpretation: The evolution of low-cost models in Australasia demonstrates a context-contingent adaptation of operational efficiency rather than a uniform replication of global LCC paradigms. Australia's Long-haul domestic flights, high input costs, and dependence on primary airports constrain pure short-haul viability, driving hybrid and long-haul adaptations. Jetstar and Scoot exemplify strategic convergence: maintaining cost discipline while selectively differentiating through loyalty programmes, premium seating, and digital integration. The limited scalability of ULCCs, as seen with Bonza's premature failure, highlights structural barriers to extreme cost minimisation in high-wage, high-infrastructure environments. Collectively, these dynamics affirm that sustainable profitability in Australasia and Asia arises from efficiency alignment with geographic and institutional constraints rather than from the wholesale imitation of short-haul European or U.S. models.

Overall, the evidence indicates that LCC performance is a transmission problem: structural simplicity and labour discipline compress CASK, but profitability materialises only when flexibility mechanisms stabilise RASK through mix, timing, and ancillary monetisation. Market outcomes then depend on institutional context. This section, therefore, establishes the theoretical and empirical logic that the econometric models test in Chapter 4: efficiency is necessary, flexibility is enabling, and context is decisive.

2.6 FSC Characteristics and Implementation Structure

2.6.1 Section Overview

This section examines the operational and strategic characteristics of FSCs in contrast to LCCs. The comparison serves as a foundation for understanding the structural and functional variances that drive performance gaps and define the requirements for conversion. As summarised in Table 14, the divergence between the two models reflects what Magdalina and Bouzaima (2021) describe as "the extremities of the business model", with LCCs pursuing radical cost minimisation and FSCs prioritising connectivity and service differentiation. This section first outlines the theoretical underpinnings that distinguish FSCs and LCCs, then integrates empirical evidence from recent studies, and finally provides analytical interpretation linking these contrasts to the operational efficiency and profitability framework.

Comparative Overview of FSC and LCC Models (Empirical Foundation): From a theoretical perspective, the contrast between FSCs and LCCs represents two distinct logics of value creation, efficiency and connectivity, grounded in operational efficiency and profitability theory. Connectivity relies on extensive networks, multi-class services, and hub coordination to generate yield through passenger transfer and brand differentiation. Efficiency, by contrast, hinges on standardisation, asset utilisation, and lean processes design to sustain cost advantage. Yet these logics are not mutually exclusive; connectivity constrains efficiency through complexity and coordination costs, while efficiency can erode connectivity by limiting route breadth and service scope. Understanding this tension is essential for diagnosing where structural redesign, rather than managerial reform, becomes the decisive driver of performance.

This section argues that the performance limitations of FSCs are structurally embedded in their design architecture, such as hub dependence, asset ownership, and coordination intensity, rather than in managerial performance alone. Consequently, sustainable conversion requires systemic redesign that selectively integrates LCC-style modularity and standardisation without eroding service-based differentiation.

Table 14 presents a synthesised comparison of the structural and operational differences between LCCs and FSCs across cost, network, fleet, and service dimensions. These contrasts reveal two opposing but interdependent logics: efficiency versus connectivity.

Empirically, this divergence is reflected in measurable performance indicators such as CASK, RASK, and LF differentials. On average, LCCs operate with CASK levels 25–40% lower and load factors 5–8 percentage points higher than FSCs (IATA, 2023; ICAO, 2022), underscoring the structural efficiency advantage embedded within simplified fleet and network designs. Integrating these quantitative indicators reinforces the practical magnitude of the theoretical contrasts presented in Table 14.

Table 14

Comparison of Characteristics of FSC and LCC

Characteristics	LCC Strategies	FSC Strategies
Costs	Simple and low-cost operations	Unionised labour and complex service portfolios that increase operational rigidity and costs. FSCs often lack continuous improvement mechanisms for cost control.
Hubs and Hub Connectivity	None	Build hubs as strategic assets, increasing gate and staff requirements and lengthening turnaround times.
Interline Connectivity	None	Invest heavily in message, baggage, and reservation systems; standardise products and revenue-sharing rules.
Airport	Secondary airports	Predominantly primary airports.
Network and Alliances	Limited alliances in point-to-point networks	Broad alliances within hub-and-spoke systems.
Network Scope	Focus only on profitable routes	Serve passengers seeking network breadth and connectivity.
Network Revenue Impacts	Route-level profitability focus	Route viability assessed through connecting-segment revenue.
Aircraft Fleet	Single aircraft type; simplified operations	Multiple aircraft types to match varied routes and densities.
Services	Minimalist, unbundled services	Comprehensive, bundled services emphasising comfort and differentiation.
Customer Service Skills	Strong service culture	Inconsistent customer service standards.
Ticket Sales	Online and direct sales	Predominantly agent-based with commission structures.
Outsourcing	Aircraft largely leased	Aircraft are often purchased and owned.
Classes of Service	Single class	Multiple cabin classes.

Source: Adapted from Bozogáň & Hurná (2018); Klophaus and Fichert (2019); Chiambaretto and Combe (2023).

Analytical Interpretation: Drawing on the theoretical contrasts above, this subsection analyses how structural complexity and process simplicity produce divergent efficiency outcomes in practice. The comparison in Table 14 highlights two distinct strategic logics of value creation, namely connectivity and efficiency. FSCs operate capital-intensive, coordination-driven systems built on hub-and-spoke networks, multi-type fleets, and service bundles. These structures reinforce brand differentiation; however, they simultaneously create cost rigidity and limit organisational agility. Their reliance on unionised labour, owned assets, and interline systems further embeds inertia within operational processes.

Conversely, LCCs' simplicity, manifested through single-type fleets, digital sales channels, and secondary airports, enables speed, standardisation, and cost discipline. This structural asymmetry partly explains FSCs' persistent difficulty in sustaining continuous improvement; nevertheless, certain high-performing carriers demonstrate that disciplined process design can offset some of this inertia (Magdalina & Bouzaima, 2021).

Strategic Implications for FSC Implementation Structures: From a systems perspective, FSCs' structural design supports global reach and premium yield but hinders responsiveness. Their coordination-heavy models demand high fixed investment in infrastructure and human capital, increasing exposure to external shocks. Meanwhile, the flexible and modular systems of LCCs illustrate adaptive efficiency, implying that FSCs must pursue selective absorption rather than full imitation to stay competitive. They should adopt digital, standardised, and lean practices while preserving service differentiation.

Although several empirical sources in Table 14 draw on European, American, and African contexts, their inclusion is justified by the structural universality of airline costs and network dynamics. The mechanisms underlying efficiency, such as fleet standardisation, ancillary revenue models, and hub utilisation, operate consistently across global markets, even when contextualised within different regulatory or geographic environments. However, in the Asian and Australasian context, these dynamics are amplified by long stage lengths, fragmented airport infrastructure, and varying levels of regulatory maturity (CAPA, 2023). Therefore, the comparative evidence remains valid but requires contextual recalibration rather than theoretical revision.

2.6.2 Convergence and Hybridisation: The “Middle-Ground” Challenge

This subsection synthesises theoretical and empirical insights to explain hybridisation as a tension within the efficiency–connectivity spectrum. Magdalina and Bouzaima (2021) caution that convergence between FSC and LCC models, creating a middle-ground or hybrid strategy, often reduces profitability. This occurs because hybrids lose the cost advantage of LCCs without fully preserving the yield benefits of FSCs. However, empirical evidence suggests that environmental shocks, such as the COVID-19 pandemic, accelerate hybridisation. For instance, later studies on airlines such as AirAsia X and Vueling indicate that selective hybridisation can strengthen resilience under volatile demand conditions.

During the pandemic, LCCs temporarily adopted FSC-style yield management and flexible pricing strategies to stabilise revenues, while FSCs implemented LCC-style digitalisation and route rationalisation (Huang, 2024). This cross-adaptation represents an evolutionary tension rather than a merger of models. The operationalisation of Hayes’s (2022) teleological learning cycle is evident in measurable structural adjustments such as reduced cost asymmetries, standardised fleets, and integrated digital processes, which convert goal-directed learning into tangible efficiency gains. For example, iterative diagnostic–implementation cycles allow FSCs to progressively narrow efficiency gaps in CASK, load factor, and ancillary yield, demonstrating how learning dynamics can produce quantifiable performance improvements over time.

However, evidence from certain hybrid carriers challenges the assumption that convergence inherently diminishes profitability. Airlines such as Vueling and AirAsia X have shown that hybridisation, when coherently designed, can enhance route flexibility and yield management while maintaining disciplined cost structures. These cases suggest that profitability outcomes depend less on strict model type and more on strategic coherence, particularly in how effectively digitalisation, ancillary innovation, and modular service design are integrated within the broader efficiency framework.

The success of future hybrid carriers will depend on their ability to align transformation initiatives with key structural enablers such as leadership, culture, and project management capability. Having established the operational and structural foundations within the Operational Efficiency and Profitability Framework, the next section examines the human and managerial mechanisms that sustain transformation. Specifically, it explores how transformational leadership and aligned implementation structures embed efficiency-driven change and support the adoption of LCC-style models within FSC environments.

2.6.3 Required Management–Employee Relationship at FSC During Conversion

This section applies Hayes’ (2022) Process Theory of Change Management to the micro-level relationship between managers and employees during FSC-to-LCC supply-chain conversion. Within this framework, organisational readiness and human interaction serve as catalysts for teleological learning cycles involving diagnosis, implementation, and feedback.

Theoretical Context: The literature reveals that employee attitudes toward change determine whether conversion efforts succeed or collapse. Arifin (2020) identifies stress from poor workplace relationships as a primary inhibitor, while Heim and Sardar-Drenda (2021) extend this to structural enablers such as self-efficacy, leadership engagement, and clarity of purpose. These variables form an interdependent system shaping adaptability. When trust and self-efficacy erode, resistance spreads across teams, breaking the feedback loops essential to Hayes' teleological progression.

Accordingly, Hayes situates leadership intervention as the corrective mechanism linking human-resource readiness with the cyclical sequence of diagnosis → implementation → learning that defines successful change. This theoretical link forms the basis for examining transformational leadership as the primary behavioural driver of operational efficiency and adaptability within FSCs

2.6.4 Required Transformational Leadership and Change Management During Conversion

Transformational leadership operationalises the human-capital dimension of the Operational Efficiency and Profitability Framework, translating organisational intent into adaptive capability consistent with Hayes's process perspective.

Analytical Application: Hussain et al. (2021) demonstrate that transformational leaders drive organisational learning through knowledge sharing, while Davis and Thilagaraj (2022) show that mobilising emotional commitment strengthens collective readiness, which is an essential precursor for teleological goal formulation. Each of transformational leadership's four dimensions aligns with Hayes' seven process tasks:

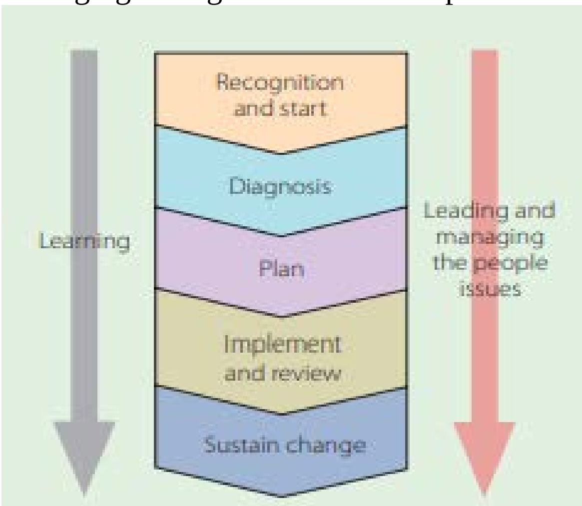
- Idealised Influence + Sense-making → legitimising difficult transitions such as fleet simplification.
- Inspirational Motivation + Visioning → articulating the rationale for hybridisation.
- Intellectual Stimulation + Enabling → fostering dialectical synthesis between FSC complexity and LCC efficiency.
- Individualised Consideration + Maintaining Momentum → sustaining resilience during restructuring.

Empirical validation of these theoretical linkages is evident across multiple studies, reinforcing the idea that transformational leadership translates strategic intent into measurable operational efficiency. Garad et al. (2022) and Zaman et al. (2020) found that transformational leadership contributes to lower CASK by fostering employee skill development and promoting innovation, which are direct outcomes of an effective change-management cycle. Hickman (2009) further situates such leadership as optimal for both teleological change (internal re-engineering) and dialectical change (FSC–LCC integrations).

While Hayes's (2022) Process Theory effectively integrates leadership behaviour with cyclical learning, its application to LCC-style adaptation reveals certain theoretical limitations. Specifically, Hayes's model assumes an internally driven, teleological progression of change but offers limited accommodation for exogenous shocks such as fuel volatility, regulatory reform, or pandemic-induced demand disruption, all of which heavily influence airline transformation. This gap suggests that FSC–LCC conversions require a broader adaptive model that integrates external contingencies into the learning cycle. Furthermore, linking these behavioural enablers to quantifiable performance indicators, such as reduced CASK, stabilised RASK, and improved load factor efficiency, would strengthen the empirical grounding of the framework, demonstrating how leadership, culture, and project management translate into measurable operational outcomes.

Synthesis and Link to Hayes: In Hayes' process model, transformational leadership acts as the engine that synchronises teleological vision with dialectical reconciliation, institutionalising learning across feedback loops. Other leadership styles, such as transactional or autocratic, disrupt this adaptive cycle by suppressing feedback and innovation, making them incompatible with Hayes' participatory, learning-driven change paradigm, shown in Figure 21.

Figure 21
Managing Change: A Process Perspective



Source: Hayes (2022).

Comparative Evaluation of Change Frameworks: However, alternative change frameworks such as Lewin's (1951) three-stage model and Kotter's (1996) eight-step approach offer contrasting assumptions about the sequencing and stability of change. Whereas Hayes emphasises iterative learning and cyclical adaptation, Lewin's and Kotter's models imply linear progression from unfreezing to refreezing or anchoring change. This distinction is critical in the airline context: FSC–LCC transformation rarely follows a stable, sequential path, and thus Hayes's process model may capture the dynamic reality more effectively. Nevertheless, the absence of explicit mechanisms for external shock response in Hayes's framework limits its predictive scope compared with Kotter's focus on urgency and coalition building.

By acknowledging these theoretical contrasts, the present study recognises that no single model fully encapsulates the complexity of organisational change in aviation. Integrating Hayes's cyclical learning logic with Kotter's momentum-building principles provides a more resilient framework for managing sustained transformation in FSC contexts.

2.6.5 Required Culture Within FSCs for Successful Supply-Chain Conversion

Theoretical framing: Culture functions as the environment in which these teleological and learning cycles either thrive or stagnate. Organisational values, communication, and behavioural norms determine whether strategic diagnoses evolve into sustained behavioural change. Within the broader Operational Efficiency and Profitability Framework, culture constitutes the adaptive infrastructure that translates efficiency intent into sustainable behavioural routines.

Analytical Development: Transforming an FSC into a cost-efficient, LCC-aligned organisation demands a cultural rather than merely operational shift. Hayes emphasises iterative learning: change unfolds through repeated cycles of diagnosis, experimentation, and reflection. Exemplary LCCs such as JetBlue, Southwest, and Kenyan low-cost carriers demonstrate that cultural alignment through employee empowerment, process discipline, and customer focus anchors both efficiency and adaptability.

Learning from JetBlue: Adaptive Empathy and Teleological Learning: JetBlue illustrates how goal-directed adaptability translates teleological intent into implementation. Its innovations in seatback entertainment, digital efficiency, and proactive safety (Savenkovs & Sztorc, 2021; Durodola et al., 2023) illustrate how diagnosis and learning are embedded within organisational cultural routines. During COVID-19, JetBlue resolved the dialectical tension between safety and profitability through innovation rather than retrenchment (Amankwah-Amoah, 2021), reflecting cultural maturity consistent with Hayes' learning motor.

Southwest: Dialectical Coordination and Feedback Loops: Southwest embodies collective discipline: shared purpose, empowerment, and communication (Cote, 2018; Diaconu & Maxim, 2015). Its ten coordination activities institutionalise what Hayes defines as learning loops, turning frontline empowerment into systemic efficiency. Accountability becomes a cost-control mechanism, demonstrating dialectical balance between autonomy and structure.

Kenyan LCCs: Financial-Supply-Chain Reflexivity: From the Global South, Kenyan carriers (Askah & Thomas, 2022; Zhang et al., 2023) highlight reflexive learning through financial integration and employee centricity under conditions of scarcity. Their cultures align with Hayes' adaptive cycle: decentralised control, rapid feedback, and iterative learning drive sustained efficiency improvements.

Integrative Synthesis: Across these cases, cultural adaptability bridges FSC differentiation and LCC efficiency. The teleological goal is sustainable profitability through focused differentiation; the dialectical process reconciles service richness with cost discipline. Double-loop learning (Argyris & Schön, 1974) provides the mechanism for ongoing recalibration, turning reflection into institutional learning.

2.6.6 Required Project-Management Skills Within FSCs

Theoretical Framing: Project management serves as the operational vehicle in Hayes' (2022) process model and as the executional core of the Operational Efficiency and Profitability Framework, translating teleological goals into measurable performance outcomes.

Analytical Development: Empirical evidence links successful transformation to the dynamic integration of hard (technical) and soft (behavioural) project-management skills. Ghorbani (2023) emphasises adaptability and stress management as behavioural levers that convert plans into outcomes. Kumar et al. (2022) distinguish coordination/control (hard skills) from responsiveness and empathy (soft skills) and claim that both enhance project success, while Van Heerden et al. (2023) and Abdelmasseh et al. (2022) show that communication and negotiation reduce project risk.

Integration with Hayes' Cycle: Within this process model, project managers serve as the connective tissue sustaining the teleological flow from planning to learning. Risk anticipation, stakeholder alignment, and iterative review transform static implementation into a feedback-driven system. Hence, successful FSC conversion depends not only on technical competence but also on embedding process intelligence, defined as the capacity to sense, interpret, and respond within Hayes's diagnosis, implementation, and learning continuum.

Although Hayes's (2022) process model provides a coherent internal logic for diagnosing, implementing, and institutionalising change, its explanatory power in the airline context remains partially constrained by its limited treatment of external volatility. The aviation sector operates within an environment shaped by fuel price shocks, shifting passenger demand, and changing regulatory pressures, all of which fall outside the teleological learning cycle described by Hayes. Consequently, FSC-to-LCC transformation requires a more integrative framework that merges Hayes's internally focused process theory with contingency and systems-based perspectives capable of accounting for these exogenous factors. Embedding quantitative performance metrics such as CASK, RASK, and load factor within this adaptive framework would enable a more objective evaluation of leadership, cultural, and project-management interventions, linking behavioural enablers directly to measurable operational efficiency.

Conclusion: Collectively, these subsections demonstrate that Hayes' (2022) Process Theory of Change Management provides the overarching logic connecting leadership behaviour, cultural transformation, and project-management capability. Transformational leadership activates the teleological engine; adaptive culture sustains the learning loop; and integrated project management ensures executional continuity. Together, they embody the dialectical synthesis of

FSC complexity and LCC efficiency, establishing a coherent, and process-oriented pathway for successful supply chain conversion.

Building on the preceding analysis of LCC efficiency and profitability, reflected in low CASK, high LF, and disciplined ancillary models, the evidence indicates that performance advantages stem from intentional strategic design rather than coincidence. To translate these advantages into FSC contexts, Hayes's (2022) process perspective emphasises identifying the tangible enablers of change, including capital structure, lease composition, cost-accounting transparency, and governance systems, that transform strategic intent into operational discipline. Accordingly, the next section, Resource Requirements, operationalises these needs by mapping the financial, structural, and managerial resources that underpin sustainable FSC–LCC convergence. These findings demonstrate theoretical convergence between human-capital enablers and the operational efficiency–profitability nexus, confirming that behavioural transformation is not peripheral but central to FSC–LCC alignment.

2.7 Resource Requirements

2.7.1 Resource Requirements: An Empirical Application of Hayes's (2022) Process Theory of Change

This section extends the theoretical foundations established in Sections 2.1–2.4 by applying Hayes's (2022) process logic to empirical financial structures within the LCC–FSC transformation context. From the standpoint of Hayes's (2022) Process Theory of Change Management, the resource requirements for FSC transformation are best understood through empirical financial evidence drawn from LCC operations. The process unfolds across the five stages of change: diagnosis, goal formulation, implementation, evaluation, and learning.

Stage 1 - Diagnosis: Empirical evidence in Table 15, derived from the 2021 annual reports of Indigo, Ryanair, Southwest, and EasyJet, reveals distinct asset configurations that signify different levels of liquidity and flexibility. Indigo's high leased and current asset ratios (40% and 48%) empirically demonstrate an asset-light liquidity model that enhances operational adaptability, while Ryanair's heavy fixed-asset structure (70%) evidences capital rigidity and limited cash mobility. These patterns diagnose the financial foundation upon which FSC–LCC convergence must act, aligning with Hayes's diagnostic stage, where existing resource structures are critically appraised before change design.

Table 15
LCCs' Assets Categories as a Percentage of Total Assets

	Leased Aircraft and Engine (%)	Other Leased Non-Current Assets (%)	Other Non-Current Assets (%)	Current Assets (%)
Indigo	40	2	10	48
Ryanair	2	0	70	28
Southwest	4	2	44	50
EasyJet	11	0	46	43
Average	14	1	43	42

Source: Created by the Researcher from Airlines' 2021 Annual Reports.

Stage 2 - Goal Formulation: Quantitative ratios in Table 16 provide measurable baselines for setting teleological financial targets. Southwest's balanced leverage (Debt-to-Asset 0.71; Interest Coverage 4.6×) empirically validates sustainable solvency management, while Indigo's extreme debt-to-equity ratio (605) signals post-pandemic financial stress (Sopta & Mihalj, 2020). These data points inform actionable goals such as maintaining a debt-to-equity ratio below 1.5 and an interest coverage ratio above 3×, consistent with Hayes's principle that goals should be derived from empirical diagnosis rather than conceptual assumptions.

Table 16
LCCs' 2021 Other Ratios

Airline Companies		Debt to Equity Ratio	Debt to Assets Ratio	Times Interest Earned
Indigo		605.048	0.998	-2.0
Ryanair		1.653	0.623	-3.2
Southwest		2.445	0.713	4.6
EasyJet		2.703	0.730	-7.2

Source: Created by the Researcher from Airlines' 2021 Annual Reports

Stage 3 - Implementation: The transition to asset light strategies through sale and leaseback and dry leasing models is supported by empirical patterns of flexibility observed in LCCs' financial disclosures (Marintseva & Athousaki., 2024). This stage operationalises Hayes's implementation phase, translating diagnostic insights into structured interventions that realign capital and liquidity. In practical terms, FSCs integrating these strategies can expect empirical performance improvements such as Fuel/Opex reductions of 150–250 basis points and utilisation gains of 0.3–0.5 hours per aircraft day.

Stage 4 – Evaluation: Empirical cost structures in Table 17 validate the evaluative phase. Southwest's 34% wage and 24% fuel costs demonstrate that strong labour engagement can coexist with profitability (Siregar & Hendarman, 2023), while Ryanair's 23% depreciation confirms a capital-efficiency model dependent on owned assets. The comparative data show that cost leadership emerges through multiple pathways, empirically supporting Hayes's dialectical view that effective change depends on reconciling contrasting operational models rather than replicating a single one.

Table 17

Particular Operating Expenses as a Percentage of Operating Expenses

	Salaries wages and benefits (%)	Fuel and oil (%)	Maintenance and repairs (%)	Landing fees and airport rental (%)	Depreciation and amortisation (%)	Other operating expenses (%)
Southwest	34	24	6	10	9	17
Ryanair	19	22	8	12	23	16
Indigo	17	22	24	9	27	1
EasyJet	18	15	20	9	20	19
Average	22	21	15	10	20	13

Sources: Created by Researcher from Airlines' Annual Reports (2021) of Southwest, Ryanair, Indigo and EasyJet

Table 17 shows that wage and fuel cost composition varies significantly across LCCs, demonstrating that cost leadership manifests through diverse empirical pathways.

Stage 5 - Learning: The iterative learning loop in Hayes's model is evidenced by EasyJet's operational performance, maintaining moderate fuel costs (15%) despite an older fleet (8.6 years), which empirically demonstrates that process learning and digital optimisation can outperform capital renewal (Hassan et al., 2021). This reflects learning through reflexive practice, where cost data feed back into adaptive strategies that sustain competitive resilience.

Synthesis: Taken together, the empirical data from Tables 15–17 transform Hayes's (2022) framework from a theoretical model into an analytical lens that operationalises the FSC–LCC resource transition. Diagnosis identifies liquidity imbalances; goal formulation quantifies solvency targets; implementation leverages empirical cost drivers; evaluation measures outcomes through financial KPIs; and learning institutionalises adaptive cost governance. Thus, the evidence grounds process theory in measurable airline behaviour, demonstrating that successful supply-chain conversion depends not on abstract restructuring but on empirically informed cycles of financial learning and adaptation.

It is acknowledged that the empirical data used in this section were primarily derived from 2021 annual reports produced during pandemic conditions. As such, specific ratios and performance indicators may reflect temporary distortions associated with that period, introducing a degree of temporal bias into the financial analysis. Furthermore, while Tables 15–17 collectively illustrate key financial mechanisms within Hayes's (2022) process framework, more immediate analytical commentary has been incorporated to strengthen theoretical linkage and prevent empirical stacking.

Recent studies have expanded this discussion of post-pandemic airline resilience, providing additional empirical grounding. For instance, Shen et al. (2023) demonstrated that liquidity management and flexible leasing strategies have become critical determinants of recovery performance among Asia-Pacific carriers, while Glover and Lee (2024) found that digital cost-control systems and integrated financial dashboards significantly enhanced transparency and forecasting accuracy in hybrid carriers. These post-2022 findings reinforce the contemporary relevance of the present analysis by illustrating how evolving financial and operational integration mechanisms continue to shape airline competitiveness in the post-pandemic landscape.

2.7.2 Leasing Strategy within Hayes's Process Theory of Change Management

Stage 1 – Diagnosis: Empirical evidence from Table 18 highlights clear variation in leasing intensity across LCCs. IndiGo's high lease ratios (22%–24%) indicate an asset-light liquidity model, whereas FSCs' low levels of leasing reflect ownership rigidity (Arte et al., 2022). These differences diagnose the capital-structure imbalance that Asian and Australasian FSCs must address before supply-chain conversion, aligning with Hayes's diagnostic phase of identifying constraints and enabling conditions.

Table 18
Leasing Expenses as a Percentage of Total Operating Expenses

Airline Companies	2017	2018	2019	2021
Ryanair Airlines	4	4	4	9
Indigo Airlines	22	23	24	21
Southwest Airlines	7	6	7	8

Sources: *Created by the Researcher from Airlines' Annual Reports*

Stage 2 – Goal Formulation: Following Hayes's teleological logic, FSCs should formulate explicit goals to balance liquidity and control; for example, targeting 20–25% operating leases to maintain cash flexibility while avoiding excessive recurrent costs. The goal is evidence-based, derived from empirical benchmarking against LCC performance rather than conceptual idealism.

Stage 3 – Implementation: Implementation occurs through deliberate financial adaptation. As Wandelt et al. (2023) observe, selecting between wet and dry leases operationalises strategic intent: wet leasing provides short-term adaptability, while dry leasing builds managerial capability and internal learning (Inan, 2019). This stage translates diagnosis and goals into structural actions, such as sale-and-leaseback arrangements, operating leases, and IFRS 16 alignment, to embed cost flexibility within FSC systems.

Stage 4 – Evaluation: Evaluation requires tracking key performance metrics such as debt-to-asset ratio, interest coverage, and operating-lease share. Empirical studies show that dry-lease adoption reduces fixed-asset intensity and improves return on invested capital (Arte et al., 2022; Dissanaike et al., 2022). This corresponds with Hayes's evaluation phase, where feedback from financial indicators determines whether strategic adjustments achieve their intended outcomes.

Stage 5 – Learning: Finally, the learning stage converts evaluation insights into institutionalised policy. By embedding feedback mechanisms, such as periodic lease-portfolio reviews and scenario-based financial modelling, FSCs can iteratively refine their capital strategies to withstand market volatility (Nugprachaya & Bunyavejchewin, 2023). This exemplifies Hayes's learning loop, in which change becomes cyclical, data-driven, and reflexive.

Synthesis: Viewed through Hayes's dialectical lens, leasing represents the synthesis between the FSC thesis of ownership stability and the LCC antithesis of cost-light flexibility. The empirical evidence in Table 18 demonstrates that a moderate, adaptive leasing model is not a mere accounting choice but a strategic change mechanism. It reconciles efficiency with resilience and transforms financial management into an ongoing process of organisational learning and renewal.

The resource diagnostics and financial baselines outlined above establish a foundation for understanding the structural limits and liquidity challenges faced by FSCs. Having identified where rigidity and inefficiency emerge, the next stage turns to the strategic intent behind transformation. The following section examines how FSCs formulate teleological goals and execute adaptive "stability strategies" that preserve financial control while moving incrementally toward LCC-style efficiency.

2.7.3 The Grand Strategy within Hayes's Process Theory of Change Management

Within the logic of Hayes's process theory, the stability strategy pursued by FSCs during their transition toward LCC operational logic also reflects a teleological, goal-driven change process, one rooted in incremental adaptation rather than revolutionary disruption.

Stage 1 - Diagnosis: FSCs recognise deep structural constraints, such as legacy systems, unionised labour, and brand-driven service complexity, that make rapid transformation unsustainable. This diagnostic stage reveals the gap between current operational rigidity and the desired LCC-style efficiency (Brigham & Ehrhardt, 2022).

Stage 2 - Goal Formulation: Based on this diagnosis, FSCs establish teleological goals focused on preserving profitability and market share while incrementally lowering costs. Rather than abandoning differentiation, their aim is to realign processes and technology platforms to sustain value creation under constrained market conditions (Boulton, 2022).

Stage 3 - Implementation: The stability strategy represents the implementation phase of Hayes's model, where carriers translate strategic intent into controlled actions such as digitalisation, modular service offerings, and gradual restructuring of ground and flight operations. These actions reflect planned, iterative experimentation that reduces uncertainty while embedding change in manageable phases.

Stage 4 - Evaluation: Consistent with Hayes's evaluation stage, FSCs monitor profitability ratios, customer satisfaction metrics, and operational costs to gauge the effectiveness of incremental shifts. The empirical evidence that hybrid and AWA models maintain brand equity while improving cost performance validates this phase of reflective assessment (Brigham & Ehrhardt, 2022).

Stage 5 - Learning: Finally, Hayes emphasises that lasting change depends on continuous learning and feedback. The cautious realignment reflected in the stability strategy supports organisational learning loops in which outcomes guide policy updates, cultural shifts, and subsequent efficiency improvements. Over time, this institutionalised learning forms the bridge between stability and full hybridisation.

In essence, the stability strategy operationalises Hayes's teleological model of purposeful, iterative adaptation: it begins with diagnostic insight, moves through goal-driven implementation, and concludes with evaluation and learning. Instead of merely reacting to resistance, FSCs pursue deliberate evolution by aligning stakeholder expectations, maintaining financial stability, and cultivating cultural and operational agility needed to converge with LCC efficiency models.

The preceding discussion on the grand strategy within Hayes's process model illustrates that stability-oriented adaptation serves as the managerial bridge between intention and execution. By maintaining financial continuity and operational control, FSCs can pursue cost efficiency without destabilising their strategic identity. The following subsection builds on this logic by examining how consolidated financial statements reflect this duality in practice, showing how financial integration converts strategic intent into measurable performance outcomes within FSC and LCC group structures.

2.7.4 Consolidated Financial Statement within Hayes's Process Theory of Change Management

Applying Hayes's teleological framework, the consolidation of financial statements during FSC-to-LCC integration represents a multi-stage change process.

Stage 1 - Diagnosis: The consolidation process begins with the diagnosis of structural and financial interdependence between business models. Under IAS 27 and IFRS 10, control is defined by majority ownership, allowing the parent (FSC) to govern its subsidiary's (LCC's) financial and operational policies (IASB, 2021). This accounting unification, as reflected in Table 19, empirically exposes a systemic tension: that is, aggregating FSC and LCC financials into one entity conceals cost asymmetries and operational contradictions. Qantas's consolidation of Jetstar illustrates this stage: it identifies where structural misalignments (e.g., fixed-cost intensity versus flexibility) emerge, providing the factual baseline for strategic correction.

Stage 2 - Implementation: Implementation aligns with Hayes's teleological motor, a purposeful, goal-driven action cycle. Qantas's decision to apply a group-wide fuel and currency hedging policy demonstrates managerial intervention intended to stabilise volatility and achieve efficiency. However, as Rashid et al. (2022) note, this practice, while effective for FSC operations, imposes rigidity on Jetstar's variable-cost model, thereby constraining agility.

Table 19

Qantas 2021 Consolidated Income Statement

2021 (restated)[5] $M	Qantas Domestic	Qantas International	Jetstar Group	Qantas Loyalty	Corporate	Unallocated/ Eliminations[1]	Consolidated
REVENUE AND OTHER INCOME							
External segment revenue and other income	2,496	1,584	1,105	962	5	(218)	5,934
Inter-segment revenue and other income	249	14	35	22	—	(320)	—
Total segment revenue and other income	**2,745**	**1,598**	**1,140**	**984**	**5**	**(538)**	**5,934**
Share of net profit/(loss) of investments accounted for under the equity method	1	1	(131)	—	—	—	(129)
Underlying EBITDA[2]	**159**	**117**	**(129)**	**333**	**(87)**	**17**	**410**
Depreciation and amortisation[3]	(731)	(663)	(409)	(56)	(11)	—	(1,870)
Impairment[3]	(3)	(2)	(3)	(5)	—	—	(13)
Underlying EBIT	**(575)**	**(548)**	**(541)**	**272**	**(98)**	**17**	**(1,473)**
Net finance costs					(301)		(301)
Underlying PBT					**(399)**		**(1,774)**
ROIC %[4]							**(21.4%)**

Source: Annual Report Qantas (2022).

The empirical evidence underscores that financial consolidation in airline groups introduces a governance paradox in which centralised control enhances transparency yet constrains subsidiary agility. This duality highlights the difficulty of maintaining adaptive equilibrium, the balance between efficiency and flexibility that is essential for long-term competitiveness. When interpreted through the lens of dynamic capabilities theory (Teece, 2018), this tension becomes an adaptive mechanism rather than a structural flaw. Effective governance therefore depends on how well the parent organisation institutionalises routines that sense environmental shifts, seize emergent opportunities, and reconfigure resources without eroding subsidiary autonomy.

Stage 3 - Evaluation: The evaluation phase corresponds to the feedback and control mechanisms in Hayes's framework. Qantas's 2021 consolidated financial results reveal the measurable outcomes of integration: Jetstar's performance widened Qantas's EBIT loss by AUD $541 million (Qantas Group, 2021). While this demonstrates short-term financial drag, Jetstar's contribution to consolidated goodwill evidences brand and market value synergies. This dual empirical outcome allows leaders to evaluate trade-offs between immediate profitability and long-term brand positioning, thereby aligning evaluation with continuous performance monitoring.

Stage 4 - Learning: In Hayes's process logic, learning converts tension into institutional intelligence. Qantas's consolidation experience highlights the need for differentiated financial governance within group structures, preserving LCC cost autonomy while maintaining group-wide control where economies of scale are beneficial. Learning from this dialectic enables FSCs to develop hybrid governance systems where subsidiaries retain cost discipline without eroding strategic coherence. This iterative insight informs policy refinement and enhances organisational resilience.

Hayes's cyclical model of diagnosis, implementation, and learning aligns with Argyris and Schön's (1978) double-loop learning, where organisations not only correct operational errors but also challenge the assumptions that drive those errors. This reflexive process elevates Hayes's learning stage from procedural improvement to strategic renewal. Similarly, Yukl's (2020) leadership alignment framework reinforces the role of transformational leadership in sustaining these feedback loops through participative decision-making and vision clarity. Together, these perspectives extend Hayes's process theory into a holistic learning system that integrates cognitive, behavioural, and structural adaptation.

Synthesis.

Taken together, the consolidated financial statement reflects not only accounting integration but also a dialectical synthesis between two competing operational logics: efficiency and differentiation. Hayes's (2022) model situates this as an evolving process: diagnosis exposes misalignment, implementation enacts corrective structure, evaluation measures dual impacts, and learning institutionalises adaptive governance. Thus, consolidation becomes both a financial exercise and a strategic change cycle, transforming tension into balanced hybridisation and continuous improvement within FSC–LCC groups.

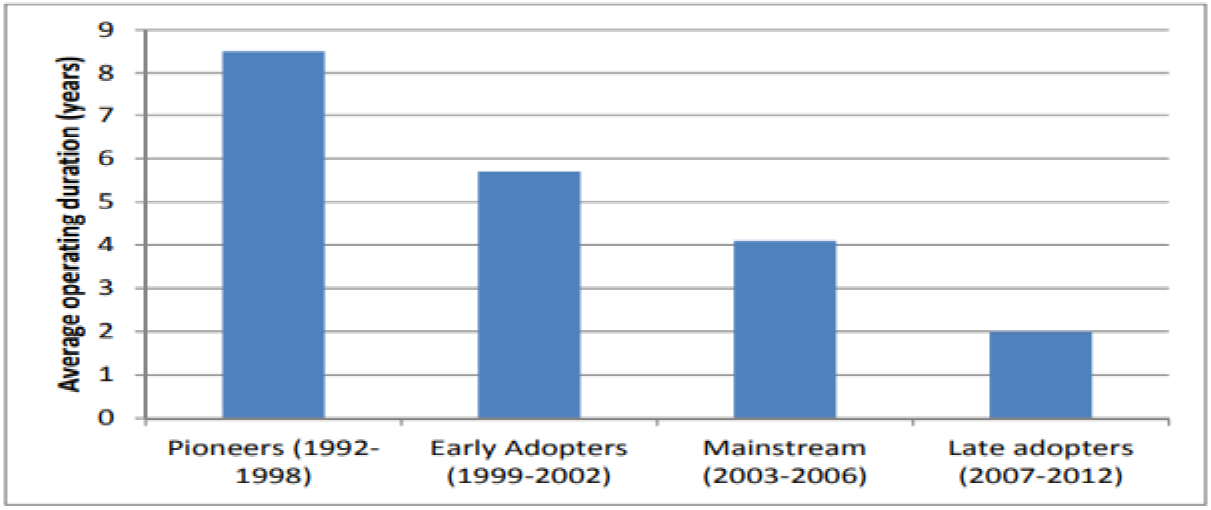
The consolidation analysis demonstrates how financial integration exposes both the efficiencies and tensions inherent in FSC–LCC convergence. Having examined financial unification as a strategic control mechanism, the next discussion extends this logic into the operational sphere by evaluating product life-cycle dynamics. This transition shifts focus from accounting alignment to market responsiveness, exploring how airlines manage growth, maturity, and renewal as part of an adaptive change cycle.

2.7.5 Product Life-Cycle Analysis within Hayes's Process Theory of Change Management

Stage 1 - Diagnosis: As shown in Figure 22, the average operating duration of failed "late adopter" LCCs is roughly two years, revealing structural fragility among "late adopters" (Budd et al., 2014). This empirical observation represents the diagnostic stage in Hayes's (2022) model, where organisations identify internal and external pressures that threaten sustainability. In this case, market turbulence, capital intensity, and regulatory constraints form the key diagnostic variables shaping adaptation needs.

Stage 2 - Goal Formulation: Building on Perondi (2023), the product life cycle (PLC) framework outlines four stages: introduction, growth, maturity, and decline. Under Hayes's teleological logic, airlines in the introduction or early-growth stages must formulate explicit strategic goals such as cost recovery via price-skimming, or market penetration through route expansion. The aim is not merely to survive but to establish an adaptive strategy that aligns with resource realities diagnosed earlier.

Figure 22
Average Operating Duration of Failed LCCs



Source: Budd et al. (2014).

Stage 3 - Implementation: Empirical studies by Ali et al. (2021) and Fageda et al. (2015) show that when LCCs enter the growth phase, they operationalise strategic adaptation by modifying core models, introducing connecting flights or fare bundling to sustain momentum. In Hayes's dialectical process, these adaptations represent the implementation stage, where conflicting operational logics (cost efficiency vs. network complexity) are synthesised into hybrid practices such as LHLCCs and HLCCs.

Stage 4 - Evaluation: Pereira et al. (2014) emphasise the need for continuous vigilance to maintain competitive advantage amid shorter product life cycles. Here, Hayes's *evaluation* phase involves tracking profitability, LF, and CASK to assess whether implementation has achieved intended efficiency and market penetration. Airlines unable to evaluate and recalibrate risk premature stagnation or decline, as reflected in Figure 22's short survival window.

Stage 5 - Learning: Finally, the learning phase emerges when carriers institutionalise feedback loops, embedding lessons from innovation and operational adjustments into long-term culture and systems. The evolution of traditional LCCs into LHLCCs, HLCCs, and ULCCs illustrates learning in action: carriers absorb environmental feedback and reconfigure their business models for renewed growth (Law, 2022; Punda et al., 2021).

Synthesis: In sum, Hayes's process theory reframes the product life cycle from a static market model into a dynamic learning system. Diagnosis identifies vulnerabilities; goal formulation defines adaptive intent; implementation operationalises strategy; evaluation measures performance; and learning institutionalises agility. This integration demonstrates that sustaining competitiveness in aviation requires cyclical change management rather than linear progression.

Insights from the product life-cycle analysis highlight that long-term competitiveness depends on continuous renewal rather than static efficiency. Building on this perspective, the following subsection examines aircraft sourcing, one of the most capital-intensive decisions in aviation. It analyses how procurement strategy, timing, and vendor relationships operationalise Hayes's stages of change by translating strategic goals into tangible resource allocation.

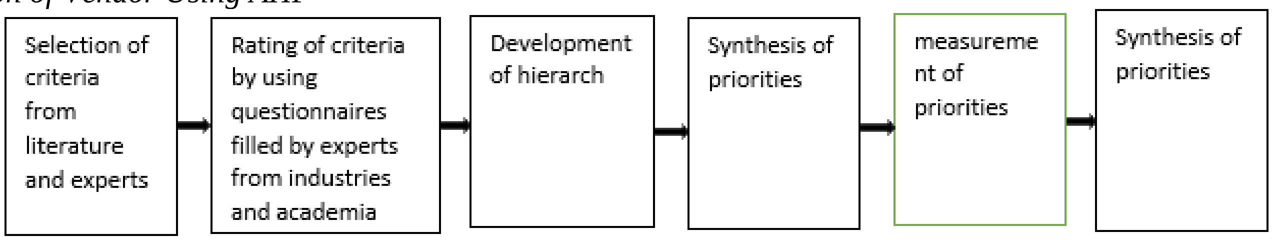
2.7.6 Sourcing of Aircraft Analysis within Hayes's Process Theory of Change Management

Within Hayes's process logic, aircraft sourcing within FSC–LCC convergence follows a cyclical, evidence-driven progression of diagnosis, goal formulation, implementation, evaluation, and learning.

Stage 1 – Diagnosis: Empirically, Chien et al. (2019) identify procurement inefficiencies in multi-vendor environments and propose the Analytic Hierarchy Process (AHP) integrated with Product Life-Cycle Cost (PLCC) modelling as shown in Figure 23. This stage aligns with Hayes's diagnostic phase, where decision-makers identify systemic constraints such as late deliveries, vendor inflexibility, or cost overruns. Within FSCs, this diagnostic insight reveals the need to shift from intuition-based aircraft acquisition toward quantitative vendor evaluation and total cost analysis.

Figure 23

Selection of Vendor Using AHP

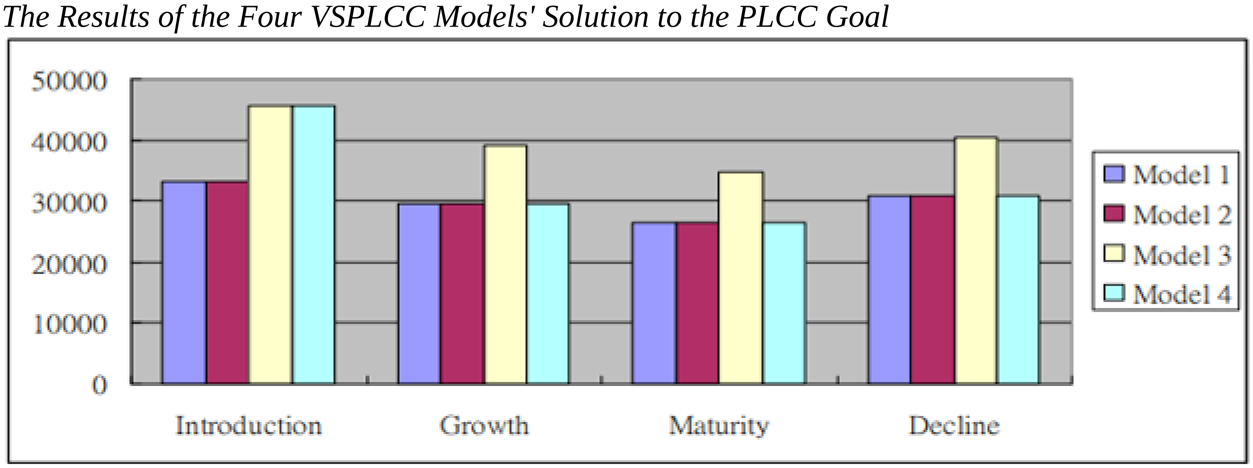


Source: Chien (2019).

Stage 2 – Goal Formulation: In Hayes's teleological process, change begins with purposeful goal-setting. The Vendor Selection using Product Life-Cycle Cost (VSPLCC) model in Figure 24 provides a data-driven mechanism for setting measurable sourcing objectives, balancing capital intensity with operational efficiency. For FSCs converting to hybrid or low-cost models, these goals may include reducing total acquisition costs by a defined percentage while improving delivery reliability through multi-vendor diversification.

Figure 24

The Results of the Four VSPLCC Models' Solution to the PLCC Goal



Source: Chien (2019).

Stage 3 – Implementation: Applying the VSPLCC framework operationalises Hayes's implementation phase. The integration of AHP and multi-choice goal programming (MCGP) transforms qualitative preferences (e.g., safety, reliability, maintenance costs) into quantifiable decision weights, ensuring evidence-based procurement. At this stage, FSCs act on the diagnostic findings by reengineering supplier relationships, renegotiating lease terms, and embedding lifecycle cost analysis in procurement policy.

Stage 4 – Evaluation: Evaluation, in Hayes's cyclical logic, measures progress and detects resistance or inefficiency. The results derived by Chien et al. (2019) demonstrate that maturity-stage fleet acquisitions yield the lowest total ownership cost, empirically validating that timing and vendor flexibility are key performance indicators. Yet, excessive short-term cost focus risks undermining long-term strategic adaptability, echoing Hayes's warning against linear, efficiency-only change processes.

Stage 5 – Learning: Finally, continuous learning closes the process loop. FSCs must integrate feedback from post-acquisition outcomes, such as maintenance performance, cost deviations, and supplier reliability, to refine vendor criteria dynamically. Hayes's learning phase transforms these insights into institutional knowledge, ensuring that each procurement cycle becomes more adaptive, particularly under post-COVID volatility and sustainability transitions such as SAF adoption.

Synthesis: In sum, sourcing decisions, when interpreted through Hayes's (2022) process theory, evolve from transactional cost reduction into an adaptive learning system. The VSPLCC framework provides the empirical foundation for this evolution, linking teleological goal-setting, dialectical trade-offs, and iterative feedback. For FSCs transitioning toward LCC operational logic, vendor selection thus becomes not just an accounting exercise, but a strategic change mechanism that integrates diagnosis, goal formulation, implementation, evaluation, and learning into one coherent process of continuous improvement.

The sourcing analysis establishes the financial and operational levers through which change becomes actionable. The next subsection advances the discussion by assessing overall financial performance within Hayes's process model, showing how transparent cost recognition and data-driven governance convert individual procurement or leasing decisions into systemic efficiency gains.

2.7.7 Airline Financial Performance Analysis within Hayes's Process Theory of Change Management

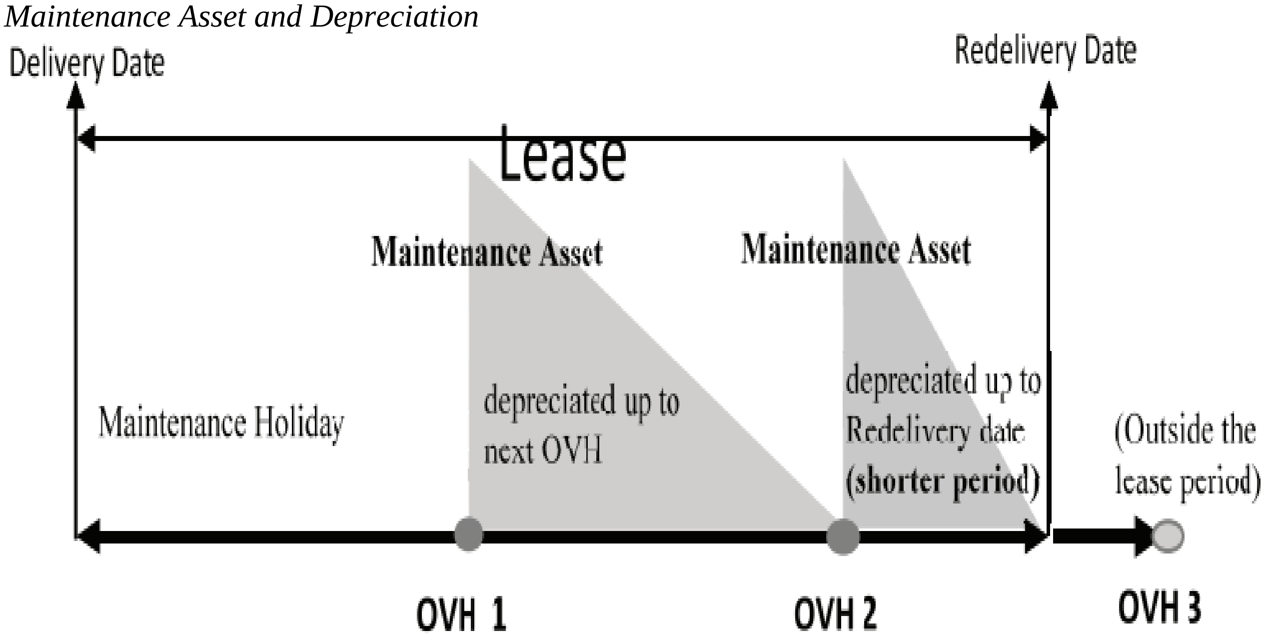
Within Hayes's process cycle, financial reconfiguration represents a teleological and dialectical process, one that moves through diagnosis, implementation, evaluation, and learning.

Stage 1 – Diagnosis: Empirical evidence from Figures 25 and 26 (Adnyano & Chalid, 2020) reveals that FSCs often rely on traditional or activity-based costing systems that obscure long-term financial obligations such as leases and depreciation. These accounting frameworks prioritise short-term operational cost categories such as fuel, maintenance, and labour while grouping capital-related expenses under broad overhead accounts. As a result, management decisions are guided by incomplete cost signals that mask the proportion of total expenditure tied to fixed or illiquid assets. This structural opacity prevents accurate identification of efficiency constraints, a condition that Hayes (2022) describes as a breakdown in the diagnostic phase of process-driven change.

Figures 25 and 26 collectively illustrate how these accounting distortions propagate across financial reporting and operational benchmarking. In practice, organisations attempt to redesign processes without first understanding the financial anatomy of inefficiency. The resulting misalignment appears in distorted unit-cost calculations, misallocated capacity, and ineffective benchmarking against low-cost models. Within Hayes's framework, such informational asymmetry limits teleological goal setting because strategic objectives are formed from flawed empirical baselines. Therefore, improving financial transparency through disaggregated cost reporting, lease capitalisation, and route-level profitability mapping is the essential diagnostic step for any viable FSC–LCC transformation.

Figure 25

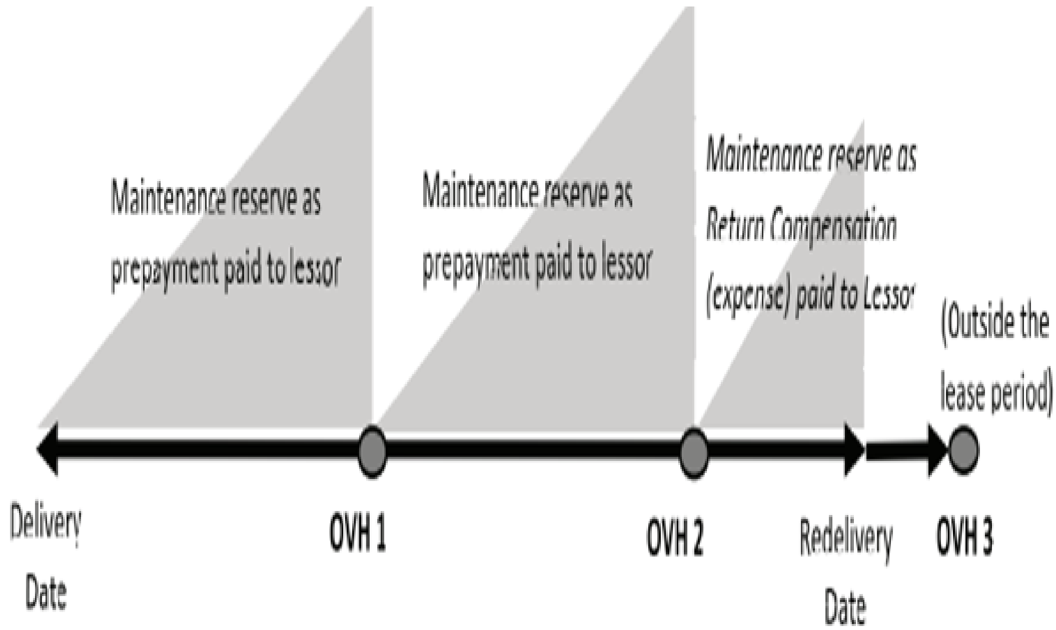
Maintenance Asset and Depreciation



Source: Adnyano & Chalid (2020).

Stage 2 – Goal Formulation: IFRS 16 introduces capitalisation of leases, aligning accounting visibility with strategic intent (Yu, 2019). This reform enables goal setting based on transparent cost recognition; a teleological prerequisite for FSCs planning LCC-style transformations.

Figure 26
Maintenance Reserve Scheme



Source: Adnyano & Chalid (2020).

Stage 3 – Implementation: As shown in Table 20, the life-cycle costing framework operationalises implementation by integrating acquisition, maintenance, and disposal costs. Through this process, managers translate diagnosed inefficiencies into structured financial control systems, an enactment of Hayes's "planned action" phase.

Stage 4 - Evaluation: Once all costs across the lease's life cycle have been fully accounted for, they are divided by the total number of years covered by the lease agreement to determine an annualised fixed lease amount. This method differs substantially from traditional leasing practices. For instance, both "maintenance and redelivery cost per year" and "maintenance and redelivery cost per flight hour" remained constant from year to year, as illustrated in Figures 27 and 28.

Table 20

Airline Life Cycle Model

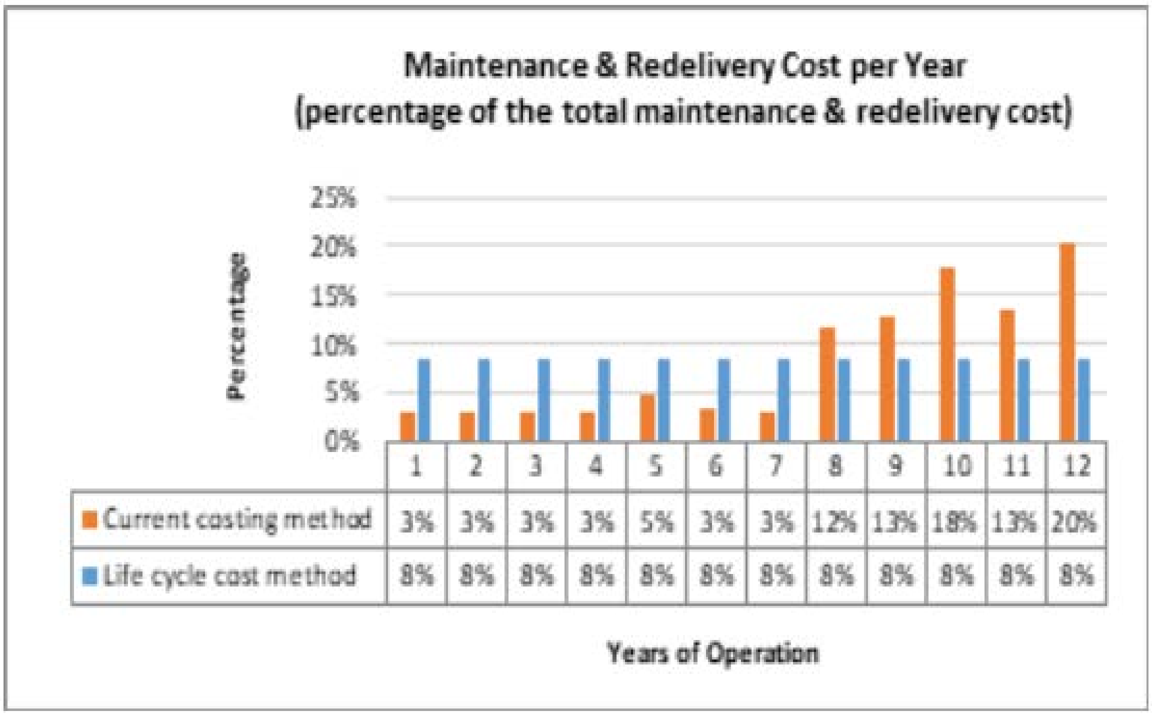
Hierarchy 1	Hierarchy 2	Hierarchy 3
Acquisition cost	Delivery cost	
	Bridging cost	
	Initial training cost	
Operating Cost	Traffic cost	Commission Onboard service Reservation Catering
	Flight cost	Fuel Landing Handling Air traffic control Travel & variable crew
	Salary & training cost	Cockpit crew Cabin crew Maintenance crew
	Fleet cost	Lease rent Insurance
	Overhead cost	Station Marketing Sales Administration Flight interruption
Maintenance cost	Airframe	Line maintenance Base maintenance
	Engine	Performance restoration LLP replacement
	APU	Performance restoration
	Landing Gear	Overhaul
	Component	Component shop visit
Redelivery cost	Return compensation cost	
	Redelivery maintenance check cost	
	Lease rent cost	

Source: Adnyano & Chalid (2020).

In contrast, conventional lease models show fluctuating maintenance and redelivery costs, leading to uneven expense recognition and distorted cost forecasting, which is detrimental to a low-cost strategy. The evaluation of these figures confirms that adopting a life-cycle-based costing approach enhances predictability and financial stability, supporting more accurate benchmarking and long-term strategic decision-making.

Figure 27

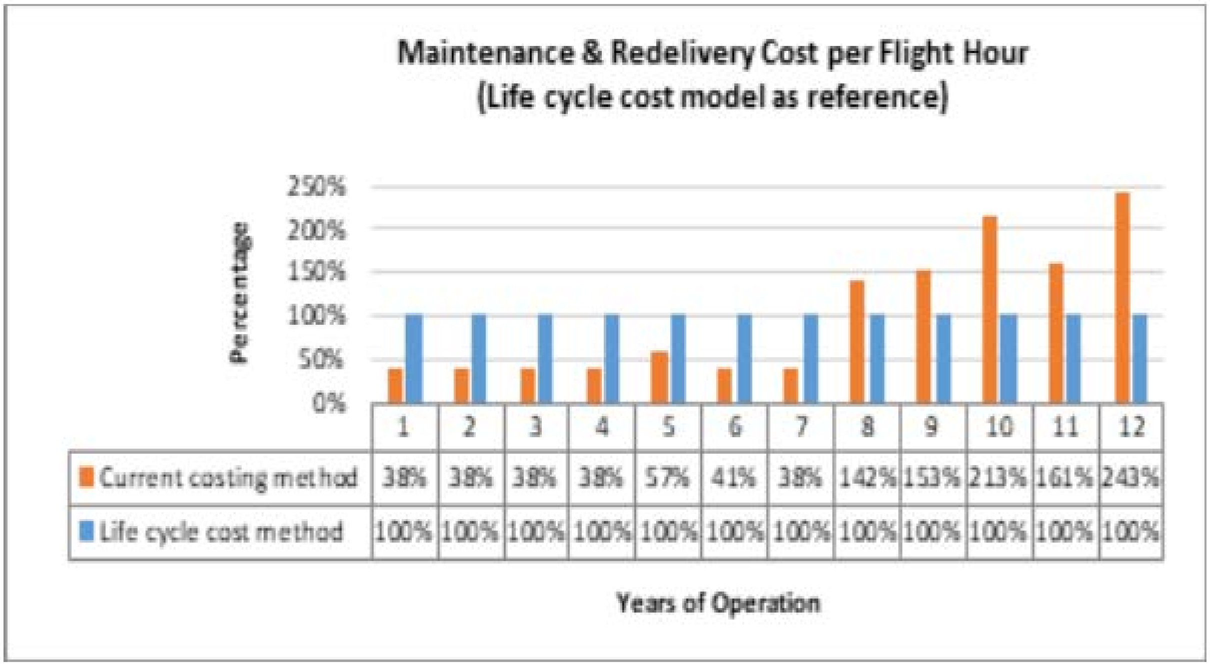
Maintenance and Redelivery Cost per Year



Source: Adnyano & Chalid (2020).

Stage 5 –- Learning: As FSC managers build cost-accounting literacy and embed data-driven decision systems, the organisation transitions into Hayes's learning phase, transforming financial transparency into a cultural capability. This learning loop reinforces adaptive governance, capital optimisation, and resource discipline.

Figure 28
Maintenance and Redelivery Cost per Flight Hour



Source: Adnyano & Chalid (2020).

Critical Reflection: However, the application of Hayes's (2022) Process Theory of Change Management within the airline sector warrants critical contextual consideration. Hayes's framework is rooted in a human-process orientation that assumes flexible behavioural adaptation, yet airlines operate under capital-intensive and structurally rigid conditions. Fixed assets such as aircraft fleets, long lease commitments, and regulatory oversight reduce the degrees of freedom typically available in process-based learning environments.

Furthermore, financial learning loops in aviation differ fundamentally from those in manufacturing or service industries, as adaptation occurs within strict operational, safety, and policy boundaries that limit experimentation. Recognising these constraints highlights the importance of recalibrating process-based change models for the aviation context, ensuring that human, financial, and structural dynamics are addressed as interconnected elements within the transformation process.

Dialectical Integration: At a higher level, the financial transition reflects Hayes's dialectical engine of change. The FSC thesis of capital ownership interacts with the LCC antithesis of asset-light flexibility, producing a synthesis that yields life-cycle-based cost governance, sustaining both efficiency and resilience.

The financial performance analysis demonstrates how cost visibility and empirical benchmarking guide adaptive decision-making. The following section deepens this evaluation by comparing cost efficiency and competitive advantage across airline models, identifying where resource and operational gaps remain and how these disparities inform subsequent change interventions.

2.7.8 Gaps Between Airline Models in Cost Efficiency and Comparative Advantage Analysis within Hayes's Process Theory of Change Management

Stage 1 – Diagnosis: Applying Hayes's teleological framework, comparative cost analysis represents the diagnostic stage of change, serving to identify structural inefficiencies prior to intervention. Using Boeing data reported by Daft and Albers (2012), Whyte and Lohmann (2015) empirically demonstrated that LCCs outperform FSCs in five out of seven cost categories, with leasing and Total Direct Operating Cost being the exceptions, as exhibited in Figure 29. This diagnostic evidence isolates the operational bottlenecks, such as asset intensity, hub complexity, and service redundancy, that drive FSC cost rigidity.

Stage 2 – Goal Formulation: In teleological terms, the goal becomes purposeful simplification of structure and process to reduce CASK through leaner utilisation and productivity. Panduwinasari et al. (2020) quantified this performance gap at 50–60 percent, showing that LCCs sustain an advantage through shorter turnaround cycles and integrated ancillary revenue. These metrics provide measurable efficiency targets for FSC transformation, aligning with Hayes's principle that goals emerge from empirical diagnosis.

Figure 29

Cost Model for a Hypothetical Long-Haul Flight by Boeing Aeroplane Company

All costs in US$	Full-service model	Low-cost model	Low-cost model advantage (-)
Capacity	301	375	N/A
Direct operating cost (DOC) – lease per sector	98.080.91	109,269.81	11.4%
Total DOC per sector	124,380.91	135,569.81	9.0%
Total DOC per seat per sector	413.23	361.52	-12.5%
Total indirect operating cost per sector	43,701.40	21,444.00	-50.9%
Total cost per sector (over 9 hours of duration)	168,082.31	157,013.81	-6.6%
Total cost per seat per sector	558.41	418.70	-25.0%
Unit cost/ASK (US cents)	5.36	4.02	-25.0%

Source: Daft and Albers (2012).

Stage 2 – Goal Formulation: In teleological terms, the goal becomes purposeful simplification of structure and process to reduce CASK through leaner utilisation and productivity. Panduwinasari et al. (2020) quantified this performance gap at 50–60 percent, showing that LCCs sustain an advantage through shorter turnaround cycles and integrated ancillary revenue, as shown in Table 21. These metrics provide measurable efficiency targets for FSC transformation, aligning with Hayes's principle that goals emerge from empirical diagnosis.

Table 21

Comparison Of CASK Among Airlines

	FSC	LCC		
	Garuda Indonesia	***Air Asia***	***Citilink***	***easyJet***
total passenger	23,962,930	4,634,001	12,274,744	80,200,000
Frequency	198,722	30,822	82,363	516,902
Number of fleets	144	15	58	279
Load Factor	73.38%	84 %	79.78 %	92.6%
CASK (US ¢)	6.16	3.07	4.71	0.06

Source: (Panduwinasari et al., 2020).

Stage 3 – Implementation: Implementation occurs through the adoption of LCC-style operational learning loops that emphasise shorter lease cycles, network rationalisation, and digital yield management (Kuz & Miškinis, 2021). This reflects the teleological action phase in Hayes's framework, where purposeful changes are enacted to align processes with defined goals.

Stage 4 – Evaluation: As FSCs experiment with cost realignment, comparative performance benchmarking that tracks CASK, LF, and turnaround time constitutes the evaluation stage. Here, data from Whyte and Lohmann (2015) and Panduwinasari et al. (2020) serve as feedback mechanisms for assessing operational learning outcomes.

Stage 5 – Learning and Dialectical Adaptation: Finally, the convergence between FSC and LCC models reflects Hayes's dialectical motor of change, in which the opposing logics of differentiation and cost leadership interact to produce synthesis. Globalisation has accelerated this cycle, compelling FSCs to internalise LCC efficiency while retaining brand-based differentiation. This reflects an ongoing cycle of empirical learning, reinforcing Hayes's view that long-term competitiveness is achieved through repeated phases of goal setting, action, assessment, and strategic renewal.

The comparative analysis of cost efficiency provides a diagnostic baseline for understanding structural constraints in FSC operations. To complete the picture, the next section examines adaptability and flexibility, the behavioural and managerial dimensions that determine whether identified cost improvements can be sustained over time. This shift from financial to organisational responsiveness aligns with Hayes's learning phase, where capability development ensures that transformation evolves into a permanent organisational trait.

2.7.9 Gaps in Airline Adaptability and Flexibility Analysis within Hayes's Process Theory of Change Management

Stage 1 – Diagnosis: Adaptability differences diagnose the behavioural and structural gaps between the two models. LCCs' flexible pricing and unbundled services identify FSC inefficiencies rooted in hierarchical rigidity (Bozogáň & Hurná, 2018).

Stage 2 – Goal Formulation: FSCs thus redefine strategic objectives, shifting from rigidity toward hybrid flexibility, to sustain relevance in competitive environments (Hayes, 2022).

Stage 3 – Implementation: Empirically, FSCs operationalise this through *teleological restructuring*: revising labour contracts, decentralising decision rights, and digitalising pricing systems (Fuyane, 2021; Liu et al., 2024).

Stage 4 – Evaluation: Comparative studies show that while ancillary-inclusive pricing sometimes reduces the nominal advantage of LCCs, it enhances organisational agility, indicating partial goal attainment.

Stage 5 – Learning (Dialectical Synthesis): Labour restructuring illustrates Hayes's dialectical interplay: FSCs gain flexibility through cost pressure, whereas mature LCCs encounter rising labour costs (Bitzan & Peoples, 2016). The outcome is co-evolution, a learning process that integrates cost discipline with service differentiation, embodying Hayes's final stage of adaptive renewal.

Taken collectively, the resource, leasing, and financial analyses demonstrate that Hayes's process model not only explains organisational adaptation but empirically maps the mechanisms of diagnosis, action, and reflexive learning through which FSCs achieve strategic convergence with LCC efficiency.

However, while Hayes's (2022) Process Theory of Change provides a valuable behavioural framework for diagnosing, implementing, and institutionalising transformation, its application within the airline sector reveals notable contextual limitations. The theory's underlying emphasis on human and process adaptation often underrepresents the structural and financial constraints inherent in capital-intensive industries such as aviation. Fixed-asset dependencies, long-term aircraft leases, and regulatory oversight create organisational inertia that limits the degree of responsiveness assumed in Hayes's model. As a result, the iterative "learning loops" proposed by the framework may progress more slowly or unevenly in aviation contexts than in service or manufacturing settings.

Furthermore, the dynamics of learning in airlines differ qualitatively from those in typical process organisations. In manufacturing, iterative feedback can readily modify production inputs or workflows; in aviation, however, asset immobility, fleet standardisation, and strict compliance obligations constrain experimentation. These realities necessitate a hybrid interpretation of Hayes's model; one that integrates behavioural learning with financial governance and regulatory adaptability. Recognising this divergence strengthens the analytical validity of applying process theory to airlines by situating it within the practical realities of capital rigidity and institutional control.

Having established the theoretical and conceptual foundations underpinning this study, drawing on process theory, cost-leadership paradigms, and requirements analysis, the next section turns toward empirical evidence that validates and contextualises these frameworks within real-world airline operations. Whereas the preceding discussion outlined how efficiency, adaptability, and transformation are theoretically conceptualised, the empirical literature examines how these constructs manifest in practice across diverse airline models and regions. This transition from theoretical abstraction to observed performance enables a more integrated understanding of the mechanisms driving supply-chain conversion, ensuring that the study's analytical model is grounded in measurable industry realities.

2.8 Empirical Literature

This empirical review critically evaluates global, regional, and contextual studies on FSCs and LCCs, focusing on their operational, financial, and strategic dynamics. The section is organised by geographical scope, covering international, Asia–Pacific, Australasia and New Zealand, and comparative variance between FSCs and LCCs, to progressively narrow the analytical lens toward the research context. Each subsection not only summarises empirical findings but also interprets their relevance through the lens of functional, structural, and resource requirements and the process perspective of change management (Hayes, 2022). The integration of quantitative, qualitative, and mixed-methods studies ensures comprehensive coverage, offering a basis for identifying convergence, divergence, and potential adaptation pathways in supply chain conversion within the global airline industry.

2.8.1 Empirical Review Internationally

Hassan and Salem (2022) conducted a quantitative study on the Saudi Arabian LCC market using confirmatory factor analysis to evaluate how service quality dimensions predicted customer satisfaction, airline image, and loyalty. Their results revealed that responsiveness was the most critical driver of satisfaction, while reliability and tangibility exerted differentiated effects on brand image and loyalty. These findings were consistent with broader international patterns in airline service research. In Europe, for example, Díaz et al. (2019) analysed Ryanair's low-cost strategy through secondary performance data and customer satisfaction indices, showing that cost efficiency alone was insufficient to sustain loyalty, prompting post-2015 customer service reforms. Similarly, O'Connell and Williams (2016) used case-based evidence on AirAsia's strategic evolution, demonstrating that responsiveness and digital service innovation strengthened brand equity and expansion. In contrast, Gittell's (2005) qualitative study in North America extends this view by emphasising human-centred reliability as the foundation of operational success, challenging the assumption that efficiency alone drives profitability. Collectively, these studies demonstrate a functional link between service quality and profitability, reinforcing the idea that responsiveness and reliability underpin sustainable performance across diverse contexts. This body of evidence confirms that service quality remains a universal operational driver, even within low-cost environments where efficiency pressures dominate.

The next group of studies shifts focus from service quality to financial performance, emphasising structural efficiency as a key profitability driver. Rouby (2018) adopted a quantitative design utilising secondary data and linear regression to assess EasyJet's cost-leadership strategy in Great Britain. The analysis demonstrated that EasyJet sustained profitability through strategic use of secondary airports, fleet modernisation, and non-bundled fare structures, correlating global air passenger growth with its expansion performance. The findings align with the functional requirement of cost efficiency while revealing structural agility in route and fleet management. Comparatively, Díaz et al. (2019) reported that Ryanair improved long-term competitiveness by integrating customer service upgrades and digital platforms, while O'Connell and Bueno (2018) illustrated how AirAsia's aggressive fleet growth and digital partnerships diversified its revenue base. Similar adaptation dynamics have been observed among Australasian carriers such as Jetstar and Bonza, which emulate these efficiency strategies within more geographically dispersed networks. These patterns confirm that, globally, successful LCCs balance cost leadership with adaptive innovation, thereby reinforcing Hayes' (2022) teleological principle of purposeful adaptation toward sustained equilibrium.

Stoenescu and Gheorghe (2017) used a mixed-methods approach to investigate the rise of hybrid airline models in Romania, combining document analysis with expert interviews. Their findings revealed that both FSCs and LCCs were blurring traditional boundaries by integrating each other's operational and marketing elements. This structural convergence, seen in loyalty programmes, service bundling, and fleet strategies, was interpreted as an adaptive mechanism within increasingly competitive markets. Similar developments were observed globally: Lufthansa's Eurowings (Gillen & Gados, 2021) and Singapore Airlines' Scoot (O'Connell & Bueno, 2018) illustrated dual-brand structures that merged low-cost efficiencies with selective differentiation, while JetBlue in North America exemplified a hybrid positioning offering digital convenience and limited premium services (Zhang et al., 2022). The cumulative evidence indicates a dialectical process in which cost and service paradigms compete and reconcile, producing hybrid models as a synthesis that aligns with both efficiency and differentiation imperatives.

Renold et al. (2019) conducted a quantitative comparative study using secondary financial data from Norwegian Air Shuttle and British Airways to evaluate profitability across long-haul and short-haul operations. Their analysis supports the argument that LCC profitability depends on unit cost control and utilisation efficiency, but fails to capture behavioural or managerial factors influencing sustained performance. Their findings echoed global data synthesised by Köse and Aktan (2022), who found that fuel price volatility disproportionately burdened FSCs due to structural complexity, while simplified LCC operations insulated margins. Similarly, Fu and O'Connell (2023) and Zhang and Round (2022) noted that AirAsia X and WestJet faced thinner yields in long-haul markets, underscoring structural exposure to macroeconomic shocks. Collectively, these results emphasise that the LHLCC model, while viable, requires continuous teleological adaptation in fuel strategy, fleet efficiency, and yield management to maintain equilibrium against external pressures. However, from a Dynamic Capabilities perspective (Teece et al., 1997), sustained advantage also depends on the firm's ability to reconfigure resources faster than rivals, highlighting that process adaptation alone is insufficient without organisational agility. Furthermore, the consistency of service-quality predictors across regions may mask underlying contextual variance; for instance, Díaz et al. (2019) found loyalty gains from service upgrades in Europe, whereas Hassan and Salem (2022) observed satisfaction plateaus in Middle Eastern markets despite similar interventions.

Punda et al. (2021) conducted a mixed-methods analysis using literature synthesis and cross-case data to explore cost optimisation in European LCCs. The study identified the following seven principal cost drivers: crew planning, fleet management, maintenance, airspace utilisation, network disruption, cargo operations, and pricing. Empirical cross-validation from other studies supported these findings: AirAsia leveraged digital platforms and predictive maintenance for efficiency (Fu & O'Connell, 2023), while Southwest Airlines relied on standardised fleets and employee cohesion for resilience (Gittell, 2021). European evidence from Ryanair revealed an increasing dependence on ancillary revenue streams for sustained profitability (Díaz et al., 2019). This reciprocal learning, with Asian carriers adopting digital innovation from Europe while European airlines replicate Asian route agility, underscores the global diffusion of LCC best practices. Interpreted through the lens of structural requirements, these studies reveal that regional cost drivers are not uniform but evolve through context-specific mechanisms such as digitalistion in Asia, resilience and labour relations in North America, and revenue diversification in Europe, highlighting the importance of adaptive structural configurations.

Pagoni and Koumoutsidi (2022) undertook a quantitative econometric study of regional airport efficiency in Greece using bootstrapped Data Envelopment Analysis (DEA) and the

Malmquist Productivity Index, supplemented by Tobit regression from 2010 to 2016. Their results demonstrated that LCC operations significantly improved airport efficiency by increasing aircraft movements and passenger throughput. Similar outcomes were found internationally: Martín and Voltes-Dorta (2022) observed efficiency gains in Spanish regional airports with high LCC activity; Fu and O'Connell (2023) reported similar effects in Southeast Asia, while Sobieralski and Hubbard (2021) documented improved resilience in U.S. airports heavily served by LCCs. These studies collectively affirm that LCC penetration contributes to macro-level operational efficiency, though regional dependencies such as tourism reliance, infrastructure limits, and seasonality moderate these outcomes. Structurally, such evidence validates the systemic role of LCCs in optimising network capacity and enhancing industry resilience during crises such as the COVID-19 pandemic. Although Pagoni and Koumoutsidi (2022) applied DEA to assess airport efficiency, this method's reliance on historical inputs constrains its ability to model behavioural learning, which is central to process-oriented transformation.

Across international contexts, empirical evidence consistently reveals that LCC success is rooted in the dynamic interplay between cost efficiency, service quality, and adaptive innovation. Quantitative and mixed-methods studies alike emphasise that responsiveness, reliability, and digital service innovation, identified in Saudi Arabia (Hassan & Salem, 2022), Europe (Díaz et al., 2019), and Asia (O'Connell & Williams, 2016), constitute universal drivers of customer satisfaction and brand equity. Financial and operational analyses of EasyJet, Ryanair, and AirAsia further demonstrate that profitability hinges not solely on low unit costs but also on structural agility, specifically, fleet modernisation, secondary-airport utilisation, and post-pandemic digital transformation (Rouby, 2018; Díaz et al., 2019; O'Connell & Bueno, 2018). Emerging hybrid models in Europe and Asia, such as Eurowings, Scoot, and JetBlue, illustrate a dialectical evolution in which carriers reconcile cost leadership with selective differentiation, producing organisational forms aligned with both efficiency and service imperatives (Stoenescu & Gheorghe, 2017; Gillen & Gados, 2021; Zhang et al., 2022). Comparative performance studies of Norwegian Air Shuttle and British Airways highlight that LCC profitability remains closely tied to lower unit costs and higher LF, whereas FSCs are more vulnerable to fuel-price volatility due to structural rigidity (Renold et al., 2019; Köse & Aktan, 2022; Fu & O'Connell, 2023). Punda et al. (2021) expand this view by identifying regionalised cost drivers, including digitalisation in Asia, labour cohesion in North America, and revenue diversification in Europe, thereby affirming that operational efficiency is contingent upon contextual adaptation. Finally, studies of airport-level productivity demonstrate that LCC penetration enhances macroeconomic efficiency and resilience, particularly in regional hubs and during post-crisis recoveries (Pagoni & Koumoutsidi, 2022; Martín & Voltes-Dorta, 2022; Sobieralski & Hubbard, 2021).

Taken together, these findings substantiate Hayes's (2022) teleological premise that sustainable airline performance arises from the purposeful and adaptive alignment of functional, structural, and resource efficiencies. This perspective shows that responsiveness, innovation, and structural agility form the core foundations of profitability across different airline models. Having established these global patterns, the subsequent section narrows the focus to Australasia, where the interplay between efficiency, regulation, and market scale defines the feasibility of FSC–LCC convergence. These global findings lay the foundations for efficiency and adaptability, which take on distinct regional expressions across Asia–Pacific markets.

2.8.2 Empirical Review in the Asia–Pacific Region

Singh et al. (2021) conducted a quantitative study using survey data from 208 aviation experts in India to assess factors influencing sustainable competitive advantage in LCCs.

Employing structural equation modeling, the study found that indigenous efficiency, dexterity, strategic persuasion, and enabling leadership roles positively predicted competitiveness, with indigenous efficiency being the strongest determinant. These findings underscore the resource requirement dimension, particularly the role of leadership and organisational dexterity in sustaining low-cost competitiveness. The authors recommended future studies to explore the integration of cost innovation with market-based and resource-based advantage frameworks, echoing the process theory's emphasis on iterative adaptation through internal capability alignment.

Law (2022) used pooled mean group autoregressive distributed lag modeling to examine LHLCC operations between Thailand and East Asia from 2012 to 2019, using monthly air traffic and tourism data. The study revealed that LHLCs, though capable of stimulating demand, faced weaker cost efficiency and aircraft utilisation compared to SHLCCs. This finding provides critical insight into the limitations of LHLCC viability in the Asia–Pacific region, where high operational costs and thin yields constrain scalability. The study recommended longitudinal comparisons with Western markets to determine structural sustainability and to identify demographic segments willing to trade comfort for price advantage. It also emphasised the need for adaptive market segmentation aligned with functional performance metrics such as RASK and LF.

Pan and Dothang (2021) employed a mixed-methods sequential explanatory design in China to explore behavioural intentions among LCC passengers. The study used cluster analysis to segment passengers into Mature Travellers, Elite Travellers, and Young Starters, and applied regression modeling to test the effects of perceived control, self-efficacy, and uncertainty avoidance on flight choice. Findings showed that technology self-efficacy strongly influenced usage intention across all groups, while perceived behavioural control affected only elite travellers.

These insights suggest that technological empowerment serves as a resource enabler in the demand-generation process. Pan and Dothang's results advance understanding of behavioural segmentation in LCC markets and underscore the importance of digital transformation as both a functional and structural enabler of competitiveness.

Lee and Sriworrarat (2019) conducted a quantitative study using an analytic hierarchy process (AHP) to rank 90 factors influencing passenger choice in Thailand's LCC sector. The analysis revealed that safety record, responsiveness, and flight management ranked among the most influential dimensions of airline preference. However, the authors acknowledged methodological limitations of AHP's rank-reversal tendency and recommended future use of the analytic network process (ANP) to capture interdependence between criteria. Their findings confirm that safety and responsiveness are non-negotiable service elements, reinforcing the significance of quality assurance as a core structural and functional requirement.

Kiraci (2019) performed a longitudinal panel data analysis across 13 LCCs in North America, Europe, and Asia to examine financial risk determinants. Using the S-Score metric, the study found that firm leverage, asset structure, profitability, and liquidity ratios significantly influenced financial risk exposure. The research contributed empirical depth to the understanding of capital structure in LCC sustainability. Kiraci (2019) proposed future comparative studies examining differentiation versus focus strategies under Porter's framework to discern how alternative strategic orientations affect risk distribution. This finding aligns with the resource requirement perspective, demonstrating that capital allocation and liquidity management are pivotal to sustaining operational equilibrium.

2.8.3 Empirical Review in Australasia and New Zealand

Heiets et al. (2021) conducted a quantitative case study of Qantas Airways and JetStar Airways using comparative analysis, SWOT, and the Business Model Canvas to evaluate dual-brand AWA strategies. The study demonstrated that the dual-brand model enhanced profitability through resource sharing, disruption management, and cross-utilisation of aircraft, achieving record profits in 2018. The authors further suggested the use of Shapley's axioms and Nash Equilibrium modeling to optimise dual-brand strategies. This evidence supports the teleological logic of progressive equilibrium shifts through structured experimentation and feedback loops.

Baxter and Srisaeng (2022) utilised a longitudinal qualitative case study based on passenger data from the Bureau of Infrastructure, Transport and Regional Economics to assess LCC development in the Australia–Indonesia corridor. The findings indicated that LCCs captured 55.19% of the outbound market by 2020, evidencing market dominance driven by affordability and capacity expansion. The results highlight the functional efficacy of LCC models in penetrating regional markets, but also imply structural vulnerability to exogenous factors such as bilateral agreements and tourism cycles.

Wang et al. (2020) conducted a quantitative longitudinal study using econometric modeling to analyse JetStar NZ's route entry strategies in New Zealand's duopolistic market. The findings indicated that favourable socioeconomic and tourism factors positively influenced route entry decisions, while domestic competition had a negligible impact. International competition in the trans-Tasman market, however, significantly shaped route choices. This study reinforces the dialectical interaction between market opportunity and operational constraint, highlighting the need for adaptive network strategies within regional FSC–LCC ecosystems.

Ismail and Jiang (2019) employed a quantitative SERVPERF-based approach to measure service quality across Scoot, JetStar, and AirAsia X on Asia–Australia routes. Results revealed minimal differences in overall perceived quality among the carriers but showed variation by demographic and service class. Notably, “Flight Schedule and Airfare” was rated highest, while “Ground Service” scored lowest. This differentiation underscores that while service quality consistency exists among LHLCCs, customised service strategies remain critical for sustaining loyalty. The study’s insights strengthen the argument that LCC service models require ongoing adaptation to evolving passenger expectations, a direct reflection of teleological learning and continuous improvement.

Liu (2021) used a quantitative design to evaluate transformational leadership within Virgin Australia, focusing on its impact on organisational performance during restructuring. Results revealed that while transformational leadership boosted motivation, it also incurred high financial costs, accelerating short-term decline. However, the study concluded that controlled reform emphasising efficiency and moderate pacing could stabilise performance. This illustrates that leadership must be contextually aligned with structural flexibility to ensure successful transformation. It reinforces the interdependence between leadership, resource management, and process theory outcomes.

2.8.4 Empirical Review on Variance Between LCCs and FSCs

Kong et al. (2019) conducted a quantitative panel-probit study to examine route selection behaviours among Chinese airlines. Using data from the OAG database (2011–2017), the researchers found that airport size, time-slot controls, and competition levels significantly influenced route decisions for both Spring Airlines (LCC) and Eastern Airlines (FSC). While both models responded to market incentives, their structural priorities differed; LCCs favoured uncongested airports to reduce turnaround times, while FSCs optimised for connectivity. This divergence reveals how operational structures reflect strategic intent within each model, reinforcing the teleological principle that organisational configurations evolve toward efficiency and differentiation.

Chow et al. (2022) applied a quantitative Partial Least Squares Multiple Group Analysis based on 248 airport surveys in Hong Kong to explore service quality and loyalty across FSCs and LCCs. Their findings indicated that assurance, empathy, and reliability were significant predictors of perceived value, with empathy exerting greater influence in FSCs. This suggests that LCCs' streamlined models underrepresent emotional connection, emphasising a functional trade-off between efficiency and personalisation. Chow et al. (2022) recommended the incorporation of technological and sustainability dimensions into future studies, factors integrated into the present study's framework, to enrich the model's explanatory power.

Gabor et al. (2022) employed a quantitative dynamic pricing simulation comparing the yield management systems of TAROM (FSC) and two Romanian LCCs. Results showed that LCCs achieved superior yield performance by dynamically optimising price and seat inventory. However, the study overlooked the distortive effects of COVID-19 on consumer demand cycles. Gabor et al. (2022) recommended longitudinal research incorporating seasonal and crisis variables, a methodological gap addressed in the present study. The findings reinforce that efficient revenue management is both a functional and structural enabler of cost sustainability.

Finally, Punda et al. (2021) conducted a literature-based comparative analysis, identifying seven cost drivers that explain the LCC–FSC variance. Their study revealed that operational simplification, workforce flexibility, and route specialisation collectively underpin LCC efficiency advantages. The authors called for simultaneous cross-sectional data collection across both models to refine economisation frameworks. This call aligns directly with the current study's objective to empirically evaluate the feasibility of FSC–LCC supply chain conversion in the Australasia context.

Although international and regional studies broadly affirm the teleological nature of airline adaptation, they diverge considerably in methodological rigour and theoretical orientation. Quantitative research frequently privileges financial and operational indicators while underrepresenting behavioural and organisational dynamics, limiting its explanatory depth for process-based transformation. In contrast, qualitative and mixed-method studies effectively capture learning and cultural adaptation but often lack temporal generalisability. This methodological imbalance exposes a critical gap: few studies integrate structural efficiency metrics with behavioural adaptability constructs. The present research addresses this gap through a requirements-based, process-oriented framework that unifies financial, operational, and human-capital dimensions of FSC–LCC transformation.

Nevertheless, few studies have empirically assessed the interaction between functional efficiency and structural governance in FSC–LCC conversions in Australasia. This absence of cross-dimensional evidence underscores the need for the present study's integrative model, which links teleological change processes with measurable operational outcomes.

Synthesis: Across all regions, the reviewed empirical literature consistently demonstrates that LCC models achieve profitability through functional efficiency, structural simplification, and adaptive resource management, while FSCs sustain differentiation through service quality, leadership, and network complexity. The convergence between these models, through hybridisation, dual-brand strategies, and dynamic pricing, reflects Hayes' (2022) process perspective, integrating teleological purpose and dialectical reconciliation. Nevertheless, the studies also reveal persistent regional disparities shaped by market maturity, fuel exposure, and regulatory context. The cumulative evidence underscores the need for a composite analytical framework, such as the requirements analysis model adopted in this research, to evaluate feasibility through functional, structural, and resource dimensions in dynamic, high-stakes industries like aviation. While these studies substantiate Hayes's (2022) process logic of adaptive learning, they seldom integrate resource-based or institutional perspectives. This omission limits their explanatory reach, as competitive advantage in airlines depends not only on adaptive processes but also on how resources are redeployed and how airlines are embedded within regulatory systems, factors that remain insufficiently examined within teleological frameworks.

2.9 Research Gaps

A research gap represents an underexplored, inconsistent, or unresolved area of knowledge that limits theoretical advancement or managerial application. Building on Baako et al. (2022), this study identifies seven interrelated gaps, including evidence, knowledge, practical knowledge, methodological, empirical, theoretical, and population. It aligns them with Hayes's (2022) process perspective of change management. However, these gaps are not isolated. Methodological weaknesses constrain theoretical development, empirical fragmentation limits practical application, and regional bias reduces generalisability. Recognising these interdependencies strengthens the conceptual foundation and positions the present research as both integrative and pluralistic.

2.9.1 Evidence Gap

Prior airline research produces conflicting explanations for what drives LCC success. Some studies emphasise market strategy (Law, 2022; Salem, 2022), others highlight cost efficiency (Punda et al., 2021), leadership (Liu, 2021), or model structure (Heiets et al., 2021). These inconsistencies appear to result more from methodological heterogeneity than from conceptual disagreement, as datasets differ in time horizon, measurement scale, and contextual scope. Addressing this through a unified, process-based framework allows the current study to separate contextual variation from theoretical variance and to identify the underlying performance mechanisms that persist across airline models.

2.9.2 Knowledge Gap

Existing airline research rarely applies systems-engineering concepts, such as requirements analysis, to transformation studies. Traditional cost and yield frameworks remain largely static, emphasising financial outcomes while neglecting system interdependencies. This oversight stems from the dominance of economic efficiency models that do not account for process learning or behavioural adaptation. By embedding requirements analysis within Hayes's process perspective and complementing it with the Dynamic Capabilities framework (Teece et al., 1997), the present study captures how operational, structural, and human factors interact dynamically during the FSC-to-LCC transformation.

2.9.3 Practical–Knowledge Conflict Gap

Academic prescriptions for cost efficiency often diverge from real-world implementation, particularly in emerging markets. This disconnect persists because many theoretical models are based on Western case studies with limited validation in developing or deregulated contexts. Few studies examine how cost control interacts with motivation, service quality, or organisational culture, leaving managers with partial insights. The present research bridges this divide by analysing leadership, communication, and cultural engagement as enablers of sustainable change, showing how efficiency and employee cohesion can coexist in practice.

2.9.4 Methodological Gap

Airline research has been dominated by single-method quantitative designs that prioritise statistical generalisation over contextual interpretation. This methodological bias often reflects both data accessibility issues and academic preference for replicability. As a result, prior studies have overlooked behavioural and cultural dynamics that underpin operational change. The current research addresses this limitation by employing a mixed-methods expansion design that combines regression and variance analyses with thematic interpretation, thereby linking measurable outcomes with the lived organisational processes that generate them.

2.9.5 Empirical Gap

Most existing airline studies are fragmented, short-term, and geographically narrow, which restricts external validity. Moreover, pre-pandemic data no longer reflect the post-2020 realities of workforce flexibility, digital transformation, and route restructuring. These temporal and contextual gaps weaken the explanatory power of older models. The present research addresses this by employing a multi-year dataset of publicly traded airlines in Asia and Australasia, enabling longitudinal and cross-regional analysis of efficiency, profitability, and leadership dynamics in a post-pandemic environment.

2.9.6 Theoretical Gap

Existing change models remain static and event-driven, providing limited insight into how transformation unfolds through continuous learning and feedback. Hayes's (2022) process theory addresses this weakness by integrating teleological and dialectical logic, yet few studies have examined how this framework interacts with complementary perspectives. Integrating Hayes's process theory with the Resource-Based View (Barney, 1991) and Dynamic Capabilities theory (Teece et al., 1997) allows this study to conceptualise transformation as both an adaptive learning cycle and a capability-building process. This pluralistic theoretical foundation strengthens the explanation of sustained competitive renewal in airline supply chains.

2.9.7 Population Gap

The majority of airline research remains concentrated in European and North American contexts. This geographic imbalance reflects both data accessibility and publication bias toward established markets, leading to theoretical generalisations that overlook contextual variation. The Asia–Pacific and Australasian regions offer distinct dynamics shaped by deregulation, labour costs, tourism dependence, and market scale. By focusing on these regions, the present study enhances external validity and provides an empirically grounded understanding of transformation feasibility in emerging and mature markets alike.

2.9.8 Synthesis

Taken together, these seven gaps reveal an airline literature that is methodologically uniform, theoretically rigid, and geographically unbalanced. The evidence and knowledge gaps intersect through overreliance on static financial models, while methodological and empirical weaknesses perpetuate theoretical stagnation. Addressing these interdependencies through Hayes's (2022) process perspective, supported by the Resource-Based View and Dynamic Capabilities theory, enables a multidimensional framework that unites efficiency, leadership, and adaptability.

The originality of this study lies in its ability to simultaneously close multiple gaps. It resolves the evidence and methodological gaps through mixed-method triangulation, addresses the theoretical gap by integrating process and capability-based perspectives, and corrects the population imbalance by focusing on Asia and Australasia. Collectively, these contributions advance both theory and practice by delivering a data-informed, process-oriented roadmap for managing sustainable FSC to LCC conversions and demonstrating how organisational learning can translate into measurable operational advantage.

2.10 Literature Review Summary

This literature review demonstrates how the supply chains of FSCs can be systematically transformed through structured change management processes enabled by transformational leadership. Anchored in Hayes' (2022) Process Perspective of Change Management, the review interprets airline transformation through teleological and dialectical lenses, two perspectives that extend beyond earlier linear models of change. Unlike Lewin's (1947) and Kotter's (1995) event-based frameworks, Hayes' process view acknowledges organisations as adaptive systems shaped by human dynamics, conflicting goals, and power realignments. This is particularly relevant to the airline industry, a volatile ecosystem characterised by high capital intensity, regulatory constraints, and multi-stakeholder tension. The framework's inclusion of learning, iteration, and conflict resolution offers a robust foundation for diagnosing and managing the complex supply-chain conversions from FSC to LCC models.

The review further evaluated the functional, structural, and resource requirements necessary for such transformation (U.S. Marine Corps: Department of the Navy, 1987). Functionally, it identified operational efficiency ratios, such as CASK, RASK, fuel-to-operating cost, payroll-to-revenue, LF, passenger yield, and operating margin, as empirical markers for benchmarking conversion feasibility. These ratios reveal that LCCs' lean processes achieve higher asset productivity and lower operating costs relative to FSCs' complex, service-intensive structures. This functional gap serves as the core diagnostic lens for assessing conversion potential.

Structurally, the literature traced the strategic, organisational, and implementation mechanisms that differentiate FSCs and LCCs (Dunnink, 2013). While LCCs thrive on standardised fleets, direct sales, and flat hierarchies, FSCs operate through segmented pricing, multi-type fleets, and layered management systems. Bridging this gap requires adaptive governance, simplified business models, and transformational leadership that can align people and systems around new performance logics. These structural elements, including fleet harmonisation, pricing redesign, digital integration, and workforce agility, formed the deductive categories later applied in the study's qualitative coding framework.

Resource requirements were explored from both financial and human-capital perspectives (Nandini & Rao, 2019; Kankaew et al., 2021). The review underscored that sustainable conversion depends on a strong capital structure, accurate cost accounting (including IFRS-16 lease recognition), prudent debt management, and leadership competence in financial planning. Moreover, it emphasised the need for well-educated, strategically aligned management teams capable of applying transformational leadership and systems thinking. Such managerial capacity transforms financial and operational data into actionable insight, ensuring that the conversion process is both economically and culturally sustainable.

Empirical evidence revealed mixed findings on convergence between FSCs and LCCs. While several studies reported operational alignment (Huang, 2024; Bozogáň & Hurná, 2018; Fuyane, 2021), others found persistent divergence (Yadav & Dhingra, 2018). The relevance of this study lies in the evidence of incomplete convergence, which reveals ongoing functional, structural, and resource gaps that warrant systematic evaluation. Comparative analyses of cost- and revenue-related ratios confirmed persistent performance asymmetries (Kuz & Miškinis, 2021), validating the need for feasibility modelling before strategic conversion.

The review also revealed a methodological gap, as most prior studies were mono-method and descriptive. Few adopted mixed-methods designs capable of linking quantitative efficiency metrics with qualitative organisational factors. Researchers such as Singh et al. (2021) explicitly called for frameworks integrating resource, market, and outcome dimensions. Responding to this call, the current study adopts a mixed-methods expansion design grounded in requirements analysis, examining functional, structural, and resource dimensions concurrently to develop a comprehensive understanding of conversion feasibility.

Regional literature further exposed contextual distinctions. In Asia and Australasia, LCCs operate longer stage lengths and face earlier-stage market maturity compared to Western peers. Profitability levels remain lower, underscoring the need for region-specific frameworks. Longitudinal studies reinforced that time-sensitive factors such as pandemics, geopolitical shocks, and macroeconomic volatility play a critical role in shaping airline performance and resilience (Baxter & Srisaeng, 2022; Gabor et al., 2022; Wang et al., 2020). This justified the inclusion of multi-year, pre- and post-COVID-19 analyses in the current research design.

Finally, the review differentiated among several low-cost archetypes, including SHLCC, LHLCC, HLCC, and affiliate models such as AWA and ULCC, allowing for a more detailed and customisable supply chain blueprint. Recognising these strategic variants provided the basis for deductive coding during thematic analysis and ensured contextual precision in interpreting conversion feasibility.

In summary, this literature review established that while LCCs have achieved substantial process efficiency and strategic clarity, FSCs continue to operate under high-cost, high-complexity paradigms. The integration of process-theory logic, transformational leadership, and requirements analysis provides the conceptual foundation for diagnosing, implementing, and sustaining effective supply-chain conversions. This synthesis directly informs the empirical and qualitative inquiries in subsequent chapters and helps close the theoretical, methodological, and practical gaps identified in the existing literature.

CHAPTER 3

RESEARCH METHOD AND DATA COLLECTION

3.0 Introduction

A research methodology aims to systematically address the research problem, incorporating a combination of methods, approaches, or processes for gathering and analysing data related to the research questions or hypotheses (Crotty, 1998; Igwenagu, 2016). Therefore, this mixed methods study sought to determine the feasibility of FSCs operating in Asia and Australasia converting to LCCs using the requirements analysis approach to determine gaps between the two supply chains and FSCs' ability to close them. This would help solve the problematic aspect of such conversions, which emanates from the difficulty of managing the design, implementation, and early years (first 1-5 years) of operation of the supply chain of LCCs, due to it being a complex system (Lindemann et al., 2021).

This chapter presents the methodology that was adopted when conducting this study. First, the research philosophy was discussed, followed by the research approach. Third, the research design and method of inquiry were justified, consecutively. The fourth and fifth aspects justified in the methodology were the population and sample of the research, and the materials/instrumentation of the research tools. Next, operational definitions of variables, ethical considerations, data collection and analysis procedures, and data analysis techniques were discussed, in line with the mixed methods approach used for this study. The study's overarching question was: What is the extent of variances between the operating ratios of the two airline models, and can FSCs sufficiently narrow these variances? Determining whether FSCs have the implementation structure to close those gaps leads to a conclusion on the feasibility of FSCs converting their supply chain to that of LCCs.

The main research questions and sub-questions are based on requirements analysis and change management, representing the theoretical and conceptual frameworks. Quantitative questions 1 to 3 determined significant impacts and gaps, while qualitative questions 4 and 5 seek strategy differences between the two models and strategies needed by FSCs to implement the conversion. The mixed methods question (question 6) was used to triangulate for expansion. Luft et al. (2022) state that such research questions lead to further investigation of the dissertation research. Furthermore, according to Grant and Osanloo (2014), by answering the questions, the researcher describes how the theoretical framework relates to the purpose of the study. Luft et al. (2022) further suggested that because the theoretical framework connects the reader to existing knowledge, the research questions reconcile current understanding and the issue the research seeks to address.

3.1 Research Philosophy

The study adopted a pragmatic research philosophy combined with a convergent parallel mixed methods design, as supported by Creswell and Clark (2018). Pragmatism emphasises practical solutions to real-world problems rather than strict adherence to theoretical purity (Maarouf, 2019). It focuses on the research problem itself and allows the integration of quantitative, qualitative, and mixed approaches to gain comprehensive understanding (Dawadi et al., 2021; Brown, 2022). This flexibility enables researchers to select methods and analytical techniques most suited to their objectives (Modu et al., 2022). Pragmatism uses abduction to link theory and data throughout the research process, facilitating actionable insights (Moltudal, 2021). In this study, methods were mixed for expansion, enhancing both breadth and depth of findings. Pragmatism also bridges the gap between context-specific and generalisable results, rejecting the incompatibility of methods and asserting that objectivity and subjectivity can coexist (Christensen, 2022; Morgan, 2007).

Quantitative ratio analysis and qualitative thematic inquiry were combined to explore operational, financial, and managerial dimensions simultaneously. This approach aligns with Hayes's (2022) Process Theory of Change Management by linking measurable efficiency outcomes with interpretive insights on organisational change, ensuring flexibility, contextual depth, and empirical rigour.

3.2 Research Approach and Design

3.2.1 Research Approach

This study adopts a mixed-methods approach because the research questions examine both measurable outcomes of airline performance, such as efficiency, profitability, and market growth, and the organisational processes that produce those outcomes. Guided by Greene et al. (1989), the design applies expansion to integrate quantitative performance evidence with qualitative process explanations.

The quantitative component addressed three research questions:

- RQ1 (Outcome): What are the substantial impacts of cost-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs operating in Asia and Australasia?
- RQ2 (Outcome): What are the substantial impacts of revenue-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs operating in Asia and Australasia?
- RQ3 (Outcome): What are the substantial differences in operational efficiency ratios between publicly traded LCCs and FSCs operating in Asia and Australasia?

The qualitative component addressed the process-based questions:

- RQ4 (Strategies differences): How different are the operational strategies of Asian and Australasian publicly traded FSCs and LCCs?
- RQ5 (FSCs' implementation structure): How do the implementation structures and resources of publicly traded FSCs in Asia and Australasia facilitate a successful supply-chain conversion?

Finally, the mixed-methods question (RQ6) evaluated to what extent the qualitative results confirm or disconfirm the quantitative results, thereby determining the overall feasibility of conversion.

This integrated approach is justified because a single method cannot adequately answer all six research questions. Quantitative analysis measures the magnitude of impact that operational efficiency ratios have on operating margins and identifies statistical differences between LCCs and FSCs. In contrast, qualitative analysis explores how strategic, leadership, and process mechanisms explain those differences and how FSCs can reconfigure their supply chains for improved performance. The combination of both therefore directly fits the research questions: quantitative evidence identifies what differences exist; qualitative evidence explains why they exist; and the mixed-methods synthesis assesses whether and how those differences can be reconciled to achieve feasible conversion.

3.2.2 Research Design

Following Odoh and Chinedum (2014) and Ansari et al. (2022), this study integrates three complementary designs: a comparative case study, a convergent parallel mixed-methods design, and a longitudinal retrospective design (LRD). Each design was deliberately selected because it provides the specific type of evidence required to address corresponding research questions and hypotheses.

Comparative Case Study*:* The comparative case study design was selected to examine systematic differences between FSC and LCC supply chains, including AWA and hybrid models, to answer RQs 1–3 and test Ha1–Ha3. This design enables statistical comparison through regression and variance analysis while maintaining contextual richness (Bryman, 2006; Snedecor & Cochran, 1989). It supports analysis without experimental manipulation and identifies variance drivers critical to model differentiation (Neto, 2024).

Drawing on Tilly's (1984) variation-finding comparison, this approach sought to establish principles of variation across networks, fleets, labour systems, and pricing models. It was adopted because the research questions focus on explaining systematic performance differences between FSCs and LCCs rather than describing isolated phenomena. The design also follows Lotrecchiano et al. (2023), emphasising explanatory "why" questions and comparative logic. This makes the comparative approach methodologically congruent with the thesis aim: to identify which structural levers (fleet simplicity, hub dependence, or labour configuration) systematically drive performance differences and how these can inform feasibility assessments in RQs 4, 5 and 6 (O'Toole et al., 2023).

Convergent Parallel Mixed-Methods Design: The convergent parallel mixed-methods design allows quantitative and qualitative data to be collected and analysed concurrently before being merged during interpretation (Creswell, 2014; Dawadi et al., 2021). Quantitative data from audited financial statements and operational indicators address RQs 1–3, while qualitative data from corporate reports, sustainability documents, and peer-reviewed literature provide evidence for RQs 4–5.

Integration occurs through side-by-side comparison following Haynes-Brown and Fetters (2021), allowing qualitative themes, such as leadership, culture, and project management competence, to be mapped against quantitative findings, such as CASK, LF, and operating margin. This approach demonstrates mechanism–outcome alignment, showing that the same models exhibiting financial differentials also manifest distinct managerial or cultural practices.

The design gives equal priority to both strands because outcomes without mechanisms lack interpretive power, while mechanisms without outcomes lack practical relevance. Divergences (e.g., between the process and outcome results of the fuel-efficiency process) are treated not as errors but as opportunities for theoretical refinement, according to Greene et al. (1989). To ensure validity, the study aligns constructs in advance (mapping leadership, agility, and digitalisation to operational levers), employs document triangulation for depth, and transparently reports divergence rather than forcing convergence.

This design is thus appropriate for addressing RQ6, as it links numeric evidence and qualitative explanation to evaluate whether observed differences can feasibly be closed through organisational adaptation.

Longitudinal Retrospective Design: The longitudinal retrospective design (LRD) complements the comparative and convergent designs by tracing performance and adaptation across the pre-COVID-19 and COVID-19 years (RQ1 – RQ3). This design tracks indicators, such as LF, yield, passenger growth, and margins, to establish temporal order (exposure → outcome) and control for recall bias (Czeisler, Wiley, Czeisler, Rajaratnam, & Howard, 2021; Keenan et al., 2021; Liao et al., 2022; Benkert et al., 2022).

The LRD was selected because airline conversion feasibility is inherently temporal: strategic changes such as leasing policies, fleet renewal, or digital transformation unfold across multiple financial periods. The design therefore supports RQs 1–3 and RQ6 by linking structural interventions, like dry leasing adoption or hybrid brand entry, to resulting changes in profitability.

It also captures how exogenous shocks (e.g., COVID-19, oil-price fluctuations, IFRS changes) influence performance trends, ensuring that conclusions about feasibility are grounded in longitudinal evidence rather than static cross-sectional snapshots.

The quantitative research questions (RQ1–RQ3) and their associated hypotheses (HA1–HA3) were designed to facilitate objective measurement and statistical comparison of operational efficiency indicators, such as RASK, CASK, and LF, across airlines. This quantitative approach achieves conceptual fit by aligning directly with the study's aim to evaluate measurable differences in performance between LCCs and FSCs. It demonstrates practical fit by using archival financial data from 2017–2021, which provides longitudinal insight into patterns of efficiency and profitability over time.

The qualitative research questions (RQ4–RQ5) ensured theoretical fit with Hayes's (2022) Process Theory by exploring the managerial, cultural, and strategic processes underlying the quantitative outcomes. Through thematic analysis of annual reports and literature, these questions captured the interpretive dimension of airline transformation that numerical data alone could not explain. Finally, the mixed-methods research question (RQ6) integrated both strands, achieving methodological coherence by combining outcome-based (quantitative) evidence and process-oriented (qualitative) insights within a convergent parallel mixed-methods framework. This integration provided a comprehensive feasibility analysis of FSC–LCC conversion, satisfying the study's teleological and dialectical theoretical foundations.

In summary, the comparative case study identifies and explains between-model performance differences, the convergent parallel mixed-methods design integrates quantitative and qualitative evidence to interpret those differences, and the longitudinal retrospective design situates them over time to test their sustainability. Each methodological choice is therefore logically aligned with one or more research questions and hypotheses, collectively forming a coherent and rigorous framework for evaluating the feasibility of supply-chain conversion from FSC to LCC models in Asia and Australasia.

3.3 Population and Sample of the Research Study

3.3.1 Quantitative Archival Data

The populations of LCCs and FSCs comprise airline companies listed on stock exchanges in the Asian and Australasian regions and are relatively small, as shown in Table 23. These are airline companies owned within the Asian and Australasian regions, excluding airlines that operate in these regions but have their headquarters located elsewhere. The listed airlines were chosen since they are effectively governed by competent boards of directors and run by a group of proven top executives, such as the CEO, CFO, and COO.

The stock exchange markets of countries worldwide have presented broad frameworks for listed companies, their supporting institutions, and institutional investors (Bassen & Kovács, 2020). These frameworks address the laws and regulations governing listed companies and conditions of entry into the stock markets, besides accounting and disclosure requirements (Hopt, 2024).

Furthermore, listed companies must implement tight internal controls that contribute to their superb financial performance (Gu, 2022), and their financial statements must undergo an annual audit by professional auditors. The scrutiny by external auditors ascertains that the accounting process correctly represents the company’s financial status. Hence, by choosing only listed airlines in this research, any success or failure of participating airlines that made up the populations should be mostly attributed to factors such as the strategy they adopted (LCC or FSC). They should not be attributed to specific differences in the quality of management, governance, and internal controls of the population of airlines in the study. Therefore, by choosing only listed airlines, the researcher eradicated the impact of poor management, weak governance, and limited internal control on the efficiency of participating LCCs and FSCs.

Choosing listed companies also ensured that the data gathered was accurate, which enhanced the reliability of the collected data. Contrarily, regulatory requirements for annual audits, corporate governance and internal control of private limited companies and other unlisted businesses are not as strong as for a public limited company (Mukhopadhyay, 2022). If airlines operating as private limited companies, partnerships, or sole traders were included as participants in this study, these weaknesses in unlisted airlines would act as confounding variables, resulting in incorrect results. The population of LCCs and FSCs are 23 and 22, respectively, as shown in Table 22.

Due to the small population, the researcher used the census method instead of sampling for quantitative archival data. When using the census method, the entire population is used as the sample; that is, data is collected from every element or unit of the population (Nanjundeswaraswamy & Divakar, 2021). Hence, power analysis, such as G*Power, was irrelevant since sampling and minimum sample size were unnecessary. Consequently, there was no need to assess sampling error, and representativeness. Furthermore, sampling has been widely associated with self-selection bias, threatening the external validity of the study (Casteel & Bridier, 2021). Hence, gathering data from the entire population significantly lowered these risks.

A construct is an abstract and unobservable concept specifically chosen or created to explain a phenomenon (Slaney & Garcia, 2015). According to Calder et al. (2021), matching constructs to variables is necessary to validate that a theory corresponds to an effect. Construct validity is “the extent to which we are measuring what we believe we are measuring” (Lambert &

Newman, 2023, p. 23). Threats to construct validity are related to the extent of congruence between the research operations and the utilised construct in explaining a phenomenon (Petursdottir & Carr, 2018). If construct validity is lacking, the results may not generalise from the study to real-world situations. Petursdottir and Carr (2018) identify the inadequacy of operational definitions as a major threat to construct validity. Hence, this research developed operational definitions of variables to identify those affecting supply chain conversion and those associated with the constructs of operational efficiency and profitability.

Two important constructs of this research, from which variables emerged, are operational efficiency and profitability (Rahman, 2023). Profitability is the main manifestation of operational performance (Torre Olmo et al., 2021). Ispriyahadi and Abdulah (2021) define profitability as the net outcome of different policies and business decisions. Borio et al. (2017) regarded profitability as a business capability, whereas Handriani and Robiyanto (2018) argued that profitability is an important objective of financial management and plays a vital role in assessing business performance.

On the other hand, Mugoni et al. (2023) describe operational efficiency as the capability of delivering goods or services cost-effectively without surrendering quality. Abd-Elmageed and Abdel Megeid (2020) described operational efficiency as methods and techniques that organisations use to deliver quality goods or services to clients in the most economical and appropriate manner. Abou-Foul et al. (2021) opine that operational efficiency strongly impacts firms' financial performance. This impact is what the researcher sought to establish and was one of the bedrocks for determining the feasibility of FSC converting their supply chain in the following population. Table 22 depicts the population size of both models in Asia and Australia.

Table 22

Population of Publicly Traded Airlines in Asia and Australasia

Low-Cost Carriers	**Full-Service Carriers**
Scoot &Tiger Airlines	Korean Air Lines Co., Ltd
Air Astana	Air China
Air India	Air New Zealand
AirAsia Indonesia	Thai Airways Intl.
AirAsia X Berhad	ANA Co.
Peach Airlines and Vanilla Airlines	Asiana Airlines
Citilink Indonesia	Silk Airlines
Asia Aviation PCL (AirAsia)	Cathay Pacific
Ava Air	China Southern Airlines
JetStar Group	Qantas Airlines
Capital A (AirAsia)	Japan Airlines Co., Ltd
Cebu Pacific	Virgin Australia Group
China Airlines	El Al Israel Airlines Ltd.
China Eastern	Garuda Indonesia
Bangkok Airways	Jet Airways
Pobedo Airlines	Vietnam Airlines
Indigo Airlines	Turkish Airlines
JEJU Air	Sri Lankan Airlines
Nok Airlines	Singapore Airlines
Pegasus Airlines	Aeroflot Airlines
HK Express	Aurora Airlines
SpiceJet	Rossiva Airlines
Vietjet.com	
Total: 23 Airline companies	Total: 22 Airline companies

Sources: Annual Reports of Airlines (2017 - 2021).

3.3.2 Qualitative Archival Data (Annual Report and Systematic Literature Review)

Fugard and Potts (2015) propose a minimum sample of 10 and a maximum of 50 reports, such as sustainability reports or annual reports, in a thematic content analysis. Hence, from the population of annual reports and sustainability reports of airlines used for gathering qualitative archival data, the researcher purposively selected 37. This was accomplished by the researcher perusing the documents before choosing the more descriptive and informative ones. The sections of the airlines' annual reports that yielded valuable qualitative data included: (1) the CEO's letter to shareholders, (2) general corporate information, (3) operating and financial highlights, (4) narrative texts, graphics, and photographs, and (5) management’s discussion and analysis. These reports were directly from the top management of the airlines and consequently provided valuable information about the airlines' strategies and other processes under investigation.

However, according to Morgan (2022, p. 67), since annual reports and sustainability reports were not compiled for research purposes, their use “as the sole source of data may not provide all the data needed to conduct a study”. In this research, the qualitative data from the annual and sustainability reports could not achieve data saturation. Therefore, in addition to gathering qualitative data from the above airlines’ annual reports and sustainability reports, the researcher sought qualitative data from journal articles associated with the airline industry of Australasian and Asian passengers, through a systematic literature review.

3.3.3 Qualitative Archival Data (Literature Review)

Fugard and Potts (2015) proposed a minimum sample of 10 and a maximum of 100 articles when reviewing secondary data, such as journal articles, in a thematic content analysis. Hence, in addition to the airlines’ reports selected for qualitative archival data, 62 mostly peer-reviewed journal articles from reputable online databases were selected. The sample of 62 journal articles was purposively selected to ensure the achievement of data saturation. To achieve a population of journal articles, the researcher typed phrases such as “supply chain of low-cost carriers in Asia and Australasia”, “supply chain of low-cost carrier/airlines in Australasia”, “supply chain of the full-service airline in Asia and Australasia”, and “Strategic differences between the supply chains of LCCs and FSCs in Asia and Australasia”. These searches generated a population of 73 journal articles that addressed the research objectives. The researcher then employed purposive sampling by reviewing article abstracts and conclusions, as well as scanning the opening and closing sentences of each paragraph, to identify studies most relevant for addressing the qualitative research questions. The articles were predominantly published between 2017 and 2021, in alignment with the study period.

Saturation of qualitative data*:* The researcher collected qualitative data from 2017-2021 to help explain trends in quantitative data and to achieve data saturation, resulting in enhanced trustworthiness. When used in social science, data saturation is a vital part of selecting a sample size in the qualitative approach, which has its foundation in grounded theory (Mwita, 2022). Data saturation occurs when it is impossible to extract new themes or codes from data (Braun & Clarke, 2021). According to Francis et al. (2010), data saturation ensures that the collected data have captured the diversity, depth, and nuances of the issues studied, resulting in enhanced content validity. The perusal of annual reports and articles before their selection led to the researcher selecting articles and annual reports that addressed factors such as cost strategy, aircraft fleet strategy, fuel strategy, marketing, and ticketing strategies, contributing factors towards profitability, transformational leadership, organisational culture, resources and change management among the various airlines.

Purposive Sampling of qualitative data*:* Elo et al. (2014) posit that the sample should be suitable and include only respondents, or, in the case of this study, journal articles, with deep knowledge or information on the research topic. Probabilistic sampling would be inadequate in this case, since it would necessitate the researcher to randomly select a larger number of articles to achieve representativeness and generalisability (Stratton, 2023). Such larger samples may not possess the depth of data sought by the researcher.

Qualitative researchers can choose among many non-probabilistic sampling methods, including “convenience, purposive, theoretical, selective, within-case and snowball sampling” (Elo et al., 2014, p. 4). Among these non-probabilistic sampling methods, purposive sampling stood out in this research. Purposive sampling allowed the researcher to select research journal articles most likely to produce suitable and valuable data.

This, according to Stratton (2021), is not the case with other non-random sampling methods, such as convenience sampling, which goes after the most accessible participants or items who may not even possess the knowledge being pursued by the researcher. Snowball sampling, in which existing participants assist in recruiting additional participants, could have been another practical option. However, the researcher was not working with human participants, but with articles, reports, and documents that could not provide references (Parker, Scott & Geddes, 2019).

Only purposive sampling results in a manageable quantity of data (Ames, Glenton & Lewin, 2019). Furthermore, Thomas (2022) argues that purposive sampling enhances validity and reliability because the sample is more closely aligned with the research purpose. This population and sampling framework directly aligns with the research questions and theoretical foundation of the study.

The purposive selection of qualitative data sources, annual reports and peer-reviewed articles, fits RQ4–RQ6, which explore leadership, culture, and process change, by focusing on documents rich in contextual insight. Together, these methodological choices provide coherence between the research problem, the nature of the questions, and the evidence required to test feasibility and strategic transformation between LCC and FSC models.

Summary: Conceptually, the use of publicly listed LCCs and FSCs ensures that reliable, comparable, and longitudinal data are available to quantitatively address RQ1–RQ3, which examine operational efficiency and profitability differences across airline models. Practically, the census approach eliminates sampling error and bias, allowing the study to capture the entire population of relevant airlines and thus directly answer questions of feasibility and comparative performance over time. Theoretically, this approach supports Hayes's (2022) Process Theory of Change Management, as it enables examination of measurable operational outcomes (quantitative) and the internal managerial processes (qualitative) that underpin strategic adaptation.

3.4 Materials/Instrumentation of Research Tools

This research adopted Creswell's (2014) view that a comprehensive research plan requires an elaborate dialogue on research instruments; i.e., how they are developed, their items and scales, and a determination of the reliability and validity of their scores since they were constructed by this researcher. This study used qualitative archival data as an instrument to gather qualitative data, while quantitative archival data was used to collect quantitative data. The research instruments were selected based on the convergent parallel mixed methods design. That is, quantitative archival data was used to gather data which helped to determine the outcome, while qualitative archival data facilitated the gathering of data which exposed the processes and strategies of the supply chain.

Even though data were not gathered from human participants, the researcher used data-gathering tools (Moore, 2022). This minimised the risk of overlooking relevant research questions related to airline processes, consequently, ensuring the research objectives were achieved. The data were gathered, stored, archived, and analysed manually without using qualitative data software such as NVivo. The researcher made use of mainly peer-reviewed articles, and audited annual financial reports, to achieve trustworthiness (i.e. credibility) and reliability (Johnson, Adkins & Chauvin, 2020; Garcia, 2020; Bahariniya, Ezatiasar & Madadizadeh, 2021). The first source of secondary qualitative data was annual and sustainability reports of 23 and 22 listed LCCs and FSCs, respectively, operating in Asia and Australasia.

Secondary qualitative data was also gathered from business databases such as Statista, Google Scholar, Proquest, IEEE, Springer, and Academic Research. These databases contain vast collections of journals that are readily accessible to the researcher. For example, IEEE Xplore offers over 3.5 million articles, while ProQuest provides unlimited access to articles, journals, dissertations, and eBooks. These databases were chosen for document selection and review due to their large collections of peer-reviewed articles, a hallmark of publication quality. Once an article is reviewed, it becomes part of an esteemed database that can answer future research questions.

The researcher collected qualitative data predominantly from 2017 to 2021 to help explain trends uncovered by the quantitative branch of this research. Finally, the researcher's deliberate decision to use only audited financial statements as quantitative data sources of listed LCCs and FSCs reduced the risk of bias or gathering incorrect data.

3.4.1 Qualitative Archival Data

The choice of qualitative archival sources fits RQ4 and RQ5 because these questions ask how strategies, implementation structures, and resources differ and how FSCs could close process gaps, issues embedded in managerial discourse and change narratives rather than in ledgers. Annual reports and sustainability reports are authored or approved by senior management and therefore contain the most authoritative, public-facing accounts of strategy, risk, governance, and change programmes; these texts are the most efficient way to observe cross-firm variation in the constructs specified in the research questions (e.g., leadership style, cultural readiness, leasing/resource policies).

Inductive–deductive coding aligns with the study's framework. Inductive coding ensures sensitivity to unanticipated practices relevant to Hayes's process model (e.g., emergent learning loops in pandemic responses), while deductive coding, aligned to RQ4–RQ5 and the conceptual framework, secures construct coverage for pre-specified themes (cost strategy, fleet, fuel, marketing/ticketing, labour, project/change capability). This combination is necessary to generate explanations that connect qualitative mechanisms to quantitative outcomes, later merged in RQ6.

The qualitative archival data used in this research aligned with the coding process, which was utilised for data analysis. According to Vanover et al. (2021), the coding process facilitates the classification of data, aligning with research questions and the conceptual framework. It explores the role of inductive methods in discovering new codes in thematic analysis (Naeem et al. 2023). Researchers explore interviews, archival data, or field notes with fresh eyes when conducting inductive coding. With inductive coding, researchers stay open to unexpected patterns and stories (Weston et al., 2022). Inductive coding does not facilitate testing what others have found but discovering something new.

Contrarily, Linneberg and Korsgaard (2019) state that deductive coding creates a predefined list of codes, ensuring that the coding process is guided by pertinent subjects uncovered during the literature review. In this study, fifteen questions were constructed in line with the conceptual and theoretical frameworks, the qualitative research questions Q4 and Q5, and the literature review. Hence, the codes were predicated on the following qualitative research questions:

Q4: How different are the operational strategies of Asian and Australasian publicly traded FSCs and LCCs?

Q5: How do the implementation structure and resources of publicly traded FSCs operating in Asia and Australasia facilitate a successful supply chain conversion?

Questions 1 – 7 of the qualitative archival data were geared at gathering data to determine the characteristics of LCCs and FSCs. This was needed to understand the processes of both airline models. These questions were used when gathering data from articles and annual reports, which facilitated the development of codes that contributed to the formation of themes. However, some questions had minor adjustments to align with the airline model for which data was being collected. Question 1 focused on strategy, specifically leadership approaches aimed at substantially reducing costs, which are then passed on to customers through lower prices, or alternatively on differentiation strategies that justify higher prices. (Kimiti et al., 2020).

Question 2 focused on aircraft fleet strategy, which is concerned with owning the right aircraft type or combination of types based on airlines' needs, the right quantity of aircraft, serving the right route, and disposing of and purchasing aircraft at the most appropriate time (Cook & Billig, 2023). Question 3 focused on fuel, which explores airlines' strategies such as fuel price hedging to counter threats in the micro and macro environment, geared at countering exaggerated hikes in fuel prices (Samunderu, 2023).

Question 4 explored marketing/ticketing strategies, such as a broad marketing plan that creates guidelines for the entire company (Morgan et al., 2019). Question 5 explored how and to what extent the airline models segment their passengers into various classes , and how extensively they adopt a dual strategy of flexibly serving business passengers while offering low prices to economy passengers. Question 6 determined the effectiveness of tactics employed by airlines to maintain ticket sales, and factors impacting airline ticket costs (Lin, 2022 et al., 2021). Question 7 probed into the agility and effectiveness of strategies adopted by those airlines in response to the COVID-19 pandemic (Fan, 2021).

Questions 8 – 11 gathered data on the differences between LHLCCs and SHLCCs' strategies. This information was collected from selected LCCs' annual reports, sustainability reports, and journal articles. More specifically, question 8 explored the differences in marketing strategy between LHLCCs and SHLCCs, while question 9 explored the contributing factors of differences in profitability between LHLCCs and SHLCCs.

Question 10 explored the more profitable option between the independent strategy of LHLCC or SHLCC and a strategy combining LHLCCs and SHLCCs. Question 11 explored the varying degrees of importance of the following factors to LHLCCs and SHLCCs: LF; fleet size and type; and in-flight entertainment and catering.

Questions 12 - 15 determined whether FSCs have the implementation structure to close process gaps between the two models. More specifically, question 12 examined the extent of transformational leadership among FSCs, as postulated by Lai et al. (2020). Question 13 explored the culture of FSCs' staff in terms of their ability to embrace change.

Question 14 determined whether FSCs possess the resources needed for conversion by exploring their ability to purchase or lease a new fleet of aircraft to facilitate a merger, acquisition, or internal expansion. More specifically, it explored FSCs' ability to sustainably raise such capital, in terms of the impact of raising such huge capital on their debt-to-equity, debt-to-asset, and current ratios. An airline with an unfavourable debt ratio is not able to absorb more debt or attract equity investors. Furthermore, Question 14 explored whether FSCs have the financial management and technical expertise to capture and address those impacts. Finally, question 15 explored whether FSCs have successfully undergone any major project in the recent past, such as a merger or acquisition, where change management was an important contributing factor towards such success.

3.4.2 Quantitative Archival Data

Using audited, publicly available financial statements fits RQ1–RQ3 because those questions require objective, replicable measures of operational efficiency and profitability and adequate statistical power for between-group and longitudinal comparisons. Audited statements minimise measurement error and researcher bias and provide the exact variables needed for hypothesis testing (e.g., OM as dependent variable; RASK, CASK, LF, payroll to revenue, fuel/opex, yield as predictors). Limiting the population to listed Asian and Australasian airlines controls for governance and disclosure quality, thereby improving internal validity when attributing performance differences to business model (LCC vs FSC).

The quantitative archival data were employed to determine the outcomes of both airline models, and is important as a data collection tool for the quantitative aspect of this mixed methods exploration (HR & Aithal, 2022). This instrument, which consists of only closed-ended questions, was constructed by the researcher. Section one of the instrument comprises one question intended to determine profitability. Section two consists of questions 2–4, which determine airlines' YOY passenger growth, passenger yield, and RASK. Section three comprises questions 5–8, which determine the CASK, LF, payroll-to-revenue, and fuel-to-operating-cost ratios for airlines. Section four contains questions 9 – 11 and determines the impacts of cost-related and revenue-related variables on the operating margins of both airlines and the variance between the variables of the two airlines. The quantitative archival data were approved by Unicaf UREC, which enhanced the validity and reliability of the research questions (Aithal & Aithal, 2020). UREC approved the quantitative and qualitative instruments before the researcher used those instruments to gather data.

To enhance reliability, the researcher recalculated feasibility and profitability ratios, which were not provided on the annual reports, using information from those reports, and ensured the accuracy of ratios transferred directly from those annual reports to Microsoft Excel. A friend versed in mathematics reviewed all the calculations. To ensure the correct formulae were used, the researcher cross-checked them from various literature, including airlines' annual reports.

Section one includes question 1 and focuses on the operating margin ratio, which captures how efficiently both airline models are delivering their core services, by scrutinising airlines' income statements. Hence, the operating margin comprises operating revenue and regular operating expenses but excludes finance costs and taxes (Jayathilaka, 2020). An assessment of the variances between the operational efficiency ratios and operating margins of the two airline models, and the impact of operational efficiency ratios on each airline model's operating margin, is important for determining feasibility. For this reason, reducing operating costs is crucial when converting from FSCs to LCCs (CAPA, 2018). Operating margin was the sole dependent variable, making it a critical component of the regression analysis used to assess the independent variables' influence on overall performance.

Section two consists of questions 2 - 4 and focuses on determining year-on-year growth in the market share of both airline models, as measured by YOY passenger growth (Kuz & Miškinis, 2021). The researcher extracted the YOY passenger growth ratio from the annual reports of participating airlines. Market share is important to the LCC model since it has a lower unit contribution margin and, hence, needs a larger volume of passengers to contribute toward its high fixed cost (García-Vidal et al., 2023). Without a large market share, LCCs will continue to evade profitability. Hence, attracting and retaining new customers is vital for LCCs to breakeven and achieve profitability.

Airlines' profit margin and YOY passenger growth are classified as interval data; therefore, they can assume both positive or negative values and exceed 100% (Hassan & Salem, 2021). All other variables represent ratio data. The goal of these questions is to collect data needed to determine the size of the gap between the YOY passenger growth rate of the two airline models and the impact of the passenger growth rate on the operating margin. This question provided insight into the impact of passenger growth on both airlines' profitability.

Section three, consisting of questions 5 – 8, assessed the operational ratios of both airline models. These variables are RASK, CASK, LF, payroll-to-revenue, fuel-to-operating-cost, passenger yield, and operating margin, all measures of the operational efficiency of passenger airlines (Alici & Sevil, 2022; Perechuda, 2019). This section collected data needed to determine the size of the variances between the operational ratios of the two airline models and the impact of these operational efficiency ratios on the operating margin of both airline models. These questions provided insight into the efficiency of both airline models, from a cost and revenue perspective.

Section four, consisting of questions 9–11, guided the researcher in determining the exact statistical analysis needed to interpret the outcomes of the two models in this comparative case study, as recommended by Rihoux and Grimm (2006). For instance, question 9 commands a regression analysis to determine the impact of cost-related operational efficiency variables on the operating margin for both airline models, using data collected in sections 1 to 3. Similarly, question 10 commands a regression analysis to determine the impact of revenue-related operational efficiency variables on the operating margin of the airline models, using data collected in sections 1 to 3. Question 11 commands variance analyses between the variables of the two airline industries, collected in sections 1 to 3. The researcher recorded the derived and provided ratios from airlines' annual reports in Microsoft Excel before entering them into SPSS.

3.4.3 Measures of Quality Assurance for the Quantitative Aspects of the Study and Reliability and Validity of Quantitative Data

Vu (2021) postulates that since an objective enquirer is an important component of quantitative research, the researcher must remain mindful of their biases and carefully examine the methods, results, and conclusions for potential biases. Creswell (2014) opined that when scores on research tools are not valid and reliable, it would be impossible to interpret the data in a consequential way or to a significant extent. Reliability and validity in the quantitative strand were ensured through systematic instrument verification, statistical testing, and ethical oversight.

Further, from a mixed-methods perspective, Creswell (2014) states that issues of validity and reliability during data gathering may obstruct the convergence of quantitative and qualitative data during the interpretation stage of the research. Hence, ensuring that data-gathering instruments are reliable and valid is important in quantitative research. These reliability and validity procedures are not generic; they are necessary to produce stable ratio measures for RQ1–RQ3, trustworthy thematic evidence for RQ4–RQ5, and credible mixed-methods convergence for RQ6, thereby aligning data quality controls with the evidentiary standard each research question demands.

Reliability and Validity: According to Creswell (2014), reliability is the degree of internal consistency of the scores of the items on the research tool: that is the degree to which the item responses are stable across constructs and constant over time (test-retest correlations), and the extent to which test administration and scoring were done consistently. Therefore, if the same outcome is consistently attained when the same method is used under similar conditions, then the measurement is reliable. According to Hoe and Hoare (2013), positivism and post-positivism are the standards of rigour, resulting in internal and external reliability. The “one reality” ontology of positivism attests to its reliability.

Internal reliability assesses the extent to which groups of items on an instrument behave similarly (Creswell, 2014). This is crucial in ascertaining that the instrument scale items measure the same fundamental construct, so these items should have appropriate intercorrelations (Izah et al., 2023). Conversely, external reliability focuses on establishing the extent to which the scale is reasonably stable over time with repeated administrations.

The researcher ensured reliability throughout the study using Gibbs' (2007) criteria. First, the results were verified to ensure the absence of blatant errors made during transcription. Second, the researcher ensured that the definition of codes remained unchanged during the coding process. To facilitate this, the researcher continually connected data with codes and kept notes on codes and their definitions, using memos.

As informed by Creswell and Creswell (2018), validity was used in the quantitative aspect of this research to assess the degree to which significant and valuable extrapolations can be derived from scores on the research tools. Therefore, the validity of this research was the extent to which the financial ratios calculated and derived from this study's scrutiny of the selected airlines' annual reports would be replicated among similar individuals outside the study. There are three traditional forms (i.e., content validity, predictive or concurrent validity, and construct validity) to determine the validity of instruments used to gather quantitative data (Creswell & Creswell, 2018).

Content validity assesses the extent to which "the items measure the content they were intended to measure", and can be established by expert judgment (Creswell & Creswell, 2018). Concurrent validity asks the question "Do results correlate with other results?", and can be established through factor analysis (Creswell & Creswell, 2018). Construct validity is a measure of the extent to which "items measure hypothetical constructs or concepts". Construct validity focuses "on whether the scores serve their useful purpose and have positive consequences when they are used in practice" (Creswell & Creswell, 2018).

Internal validity is a measure of the degree to which the observed results epitomise the truth in the population under study, and are therefore not impacted by methodological errors or other factors (Creswell & Creswell, 2018). Lastly, Creswell (2014) posits that face validity assesses the perceived importance of the test to its intended audience, but excludes other vital aspects of the instrument, such as item vagueness or the effortlessness of responding to the items. These validity checks were conducted during the construction of the archival data.

In this research, experts in the airline industry were asked to judge the quantitative archival data to establish face validity. Additionally, face validity was determined by UREC’s approval of the instruments, as recommended by Ruedinger (2020). Furthermore, as postulated by Creswell (2014), the researcher evaluated the degree of convergent validity of the measures using factor analysis; the reliability of the factors was determined using the coefficient alpha.

Validation of the Research Design: The researcher designed a quantitative research instrument with closed-ended questions used to extract information from the annual reports of airline companies. The researcher himself sifted through the annual reports of the selected LCCs and FSCs. The researcher engaged experts in the airline industry to evaluate the soundness of the instrument and to enhance its accuracy and validity. The insight gained on the supply chain of airline carriers during the literature review was applied when designing the quantitative archival data, resulting in the inclusion of RQ1 – RQ3. These research questions were pivotal in designing the quantitative archival data, which augmented validity.

The researcher conducted an in-depth investigation to identify which airlines were publicly listed and to distinguish LCCs from FSCs, after which data were collected from each group separately. The instrument was designed to effectively extract information on both airline models' operational, passenger, and profitability ratios; this facilitated the statistical determination of their impact and variances during data analysis. Finally, the researcher started gathering data using this instrument.

Insights gained from reviewing the content and recognising the limitations of previous studies informed the development of the quantitative data collection instrument. The finalised quantitative archival dataset, comprising validated variables, was utilised to identify the outcome factors of participating airlines. These factors were essential for assessing how independent variables influenced the dependent variable across both airline types and for analysing the variances between the two operational models (Inan, 2019; Mhlanga, 2020; Liu, 2021; Demydyuk, 2011; Miškinis, 2021).

The quantitative archival data facilitated the collection of data to determine operating margin achieved and operational efficiency ratios (Mhlanga, 2020; Panduwinasari et al., 2020; CAPA, 2019). These ratios later facilitated comparative analysis and regression modelling, such as hierarchical regression analysis, two-way ANOVA, Cohen's d and independent samples t-test.

Furthermore, an Exploratory Factor Analysis was conducted to determine the validity of the quantitative archival data by revealing how the variables relate to each other and the constructs. The main objective was to understand the data's dimensionality and determine how well the variables measure the theoretical constructs. The Kaiser-Meyer-Olkin's measure of sampling adequacy of .656 and Bartlett's test of sphericity significance at $p < 001$ indicated validity.

Reliability of the Research Design: to achieve reliability of data collected using archival data, the researcher ensured that the following criteria were met: (a) choosing reliable sources (Stewart, 2012) (b) using digital tools to enhance correctness of collected data (Jaillant & Rees, 2023), (c) following ethical guidelines (Hamer, 2018) (d) checking for errors, and (e) seek feedback (Feng, Ling, Neely & Roberts, 2014). Furthermore, the research tools approval by UREC is a confirmation of (a) the reliability and validity of the Research tools (b) a high level of ethical consideration was given to the data collection procedure, and (c) the methods of data analysis were scientific (Huang & Wang, 2023).

Reliability was further strengthened by using audited secondary financial data from publicly listed airlines, which eliminated response bias common in primary surveys (Das, Jain & Mishra, 2018). All operational ratios were recalculated twice and cross-checked against published figures to verify consistency. Data integrity was preserved through the use of Microsoft Excel and SPSS, which minimised transcription errors and enabled error screening via descriptive statistics.

Internal reliability was established by calculating Guttman's Lambda (λ), where the constructs Cost-Related Operational Efficiency produced $\lambda = 0.81$ and Revenue-Related Operational Efficiency produced $\lambda = 0.87$, both exceeding the 0.70 threshold recommended by Nakanishi and Ito (2019). External reliability was assured through the use of replicable, publicly available data sources that remain accessible for verification by future researchers. Construct reliability was confirmed through confirmatory factor analysis using Principal Component Analysis with Varimax Rotation, which revealed two underlying constructs, Cost Related (35.6%) and Revenue Related (26.6%) Operational Efficiency, together accounting for 62.12 percent of the variance (Shrestha, 2021).

Internal validity was supported by diagnostic tests, including Shapiro–Wilk for normality, Levene's for homogeneity of variance, Durbin–Watson for autocorrelation, and VIF for multicollinearity, all of which produced values within accepted thresholds. Outliers linked to the COVID-19 period were retained to preserve authenticity under the census design. During data entry and analysis, the researcher checked for missing values and implausible figures, verified time-series consistency, and confirmed appropriate coding of temporal variables. Regression diagnostics further supported model fit and the absence of bias. The conceptual framework anchored in Hayes's (2022) Process Theory of Change and the requirements-analysis model provided theoretical alignment between variables and constructs, thereby reinforcing validity (Ghosh et al., 2017).

In short, the researcher enhanced the validity and reliability of the tools which positively impact data analysis, by taking the following steps: (1) designing and developing reliable and validated quantitative archival data (2) seeking expert judgement of the archival data (3) assessing the reliability of the archival data (4) assessing the validity of archival data (5) subsequent validation (Aithal & Aithal, 2020). The next section of this chapter provides a discussion on The trustworthiness of the research instruments.

Trustworthiness of the Research Instrument: In the qualitative component of this research, trustworthiness was ensured by addressing the four established criteria of credibility, dependability, transferability, and confirmability as proposed by Lincoln and Guba (1985) and Creswell and Creswell (2018).

Credibility was strengthened through prolonged engagement with the qualitative data sources and the systematic triangulation of evidence. The researcher devoted substantial time to reviewing annual and sustainability reports to ensure a deep contextual understanding and accuracy of interpretation. Data were drawn exclusively from audited annual reports and academic journals, thereby minimising the risk of misinformation (Beuerle et al., 2016; Garcia, 2020). Codes, categories, and themes were developed iteratively to ensure a strong correspondence between the raw data and the emerging interpretations. An audit trail was maintained for every stage of coding and theme generation, following Nowell et al. (2017), allowing independent verification of analytic decisions. Triangulation across multiple qualitative sources (Stahl & King, 2020) and the use of thick description further enhanced credibility and interpretive accuracy.

Dependability was achieved by ensuring that the research process was clearly defined, transparent, and replicable. The qualitative workflow, from data collection to thematic coding, was documented in detail, allowing other researchers to trace each methodological decision and confirm consistency (Johnson, Adkins & Chauvin, 2020). To minimise bias, the study employed a qualitative archival data guide that standardised document-review procedures and analytic steps. Reflexivity was maintained throughout, with the researcher continually assessing personal assumptions and contextual influences to ensure that findings emerged from the data rather than from prior bias. Thick description, as recommended by Phillips et al. (2014) and Onwuegbuzie et al. (2010), reinforced dependability by providing detailed contextual accounts that can be replicated or tested by future scholars.

Transferability was promoted through comprehensive documentation of data sources, formulae, and analytic procedures. The researcher explicitly described the data-collection environment, including all web sources, search strategies, and ratio computations, which enables future studies in other regions or industries to judge the applicability of the findings (Stahl & King, 2020). The reliance on audited and internationally standardised financial data further supported cross-contextual generalisation to other well-managed airlines beyond Asia and Australasia.

Confirmability was achieved through the maintenance of a detailed audit trail that recorded every step of data analysis and interpretation. Because the qualitative phase relied on document and literature review rather than human participants, the researcher's role remained non-intrusive, preventing contamination of the natural setting. To guard against interpretive bias, all codes and themes were summarised verbatim before abstraction so that the results accurately reflected the source materials. Reflexive journaling and secure record retention of all coded data reinforced transparency and confirmability. Through other combined measures, such as triangulation and prolonged engagement, the qualitative strand of the study achieved high trustworthiness and met the standards of qualitative validity set by Creswell (2014) and Lincoln and Guba (1985).

Reliability and validity were further reinforced through multiple mitigation strategies that addressed potential methodological limitations. The small population size was countered by employing a census approach that captured all publicly listed airlines in the region, thus removing sampling bias. The absence of a pilot test was offset by extensive validity and reliability diagnostics, statistical assumption testing, and expert review of all quantitative instruments. Secondary data not entirely tailored to the research questions were supplemented by drawing from multiple independent sources to achieve data saturation. Finally, any potential influence of researcher ideology on data interpretation was mitigated through thick description and sustained reflexivity, ensuring transparency and objectivity in the analytic process. Collectively, these methodological safeguards ensured that both qualitative and quantitative components satisfied the doctoral standards of reliability, validity, and methodological rigour, providing a sound empirical foundation for subsequent analysis and discussion.

This study's instrumentation was selected to fit the research questions conceptually and practically. Quantitative archival data from audited financial statements directly answer RQ1–RQ3 by providing objective, comparable indicators of operational efficiency and profitability (e.g., RASK, CASK, LF, OM) across 2017–2021, which is necessary for longitudinal tests of differences and effects. Qualitative archival data from annual and sustainability reports, complemented by a systematic literature review, answer RQ4–RQ5 by revealing the organisational processes that numeric ratios cannot capture but that are required to interpret feasibility. The convergent parallel mixed-methods design then supports RQ6 by enabling simultaneous measurement of outcomes (quantitative) and interpretation of mechanisms (qualitative), thereby assessing feasibility as both performance achieved and capabilities in place. The next section of this chapter provides an operational definition of the variables.

3.5 Operational Definition of Variables

3.5.1 Requirements Analysis

The Application of requirements analysis to supply chain conversion is not far-fetched because supply chains are complex systems that must be decomposed to be fully understood. Therefore, this research has subdivided the requirements of a supply chain into three subcategories: functional requirements and two non-functional requirements, namely structural requirements and resource requirements. Since the functional requirements determine the outcome, which is quantitative, the relevant variables/constructs must be defined.

The operationalisation of these variables was driven by the study's intent to quantify functional requirements within a systems-conversion context. Functional variables such as CASK, RASK, and LF were selected because they translate the abstract concept of operational efficiency into measurable indicators. These variables provide the empirical foundation for linking efficiency outcomes to profitability, thereby demonstrating the appropriateness of using quantitative archival data for the first two research questions.

This study's methodological choices were grounded in the principle of methodological coherence, ensuring alignment between the philosophical stance, research questions, and analytical techniques. The mixed-methods approach, combining quantitative archival analysis with qualitative interpretation, was selected to capture the dual logic of supply chain conversion, integrating numerical efficiency with adaptive capability. This ensures that the data collection and analysis processes correspond directly to the teleological and dialectical elements of the conceptual framework, as recommended in applied business research (Creswell, 2018; Saunders et al., 2019).

Operational Definition of Functional Requirements. In software engineering, functional requirements can be defined as comprising three steps: in step one, the current operations are modelled (i.e., the Current Physical Model); in step two, the essential functions are distilled (i.e., the Current Logical Model); in step three, new requirements are added (i.e., the New Logical Model) (US Marine Corp: Department of the Navy, 1987).

Regarding software engineering, the Current Physical Model is a model of the existing system, which is being enhanced. This includes “manual/clerical and automated areas, organisational responsibilities, and site-specific information” (US Marine Corps: Department of the Navy, 1987, p. 1-4). To achieve the current logical model, essential functions are removed from the technologically limited existing environment (i.e., the current physical model). The US Marine Corps: Department of the Navy (1987, p. 1-4) argues that “organisational, technological, and geographic boundaries are eliminated as well as those processes or functions that support and maintain those boundaries”. Finally, the new logical model is derived by adding new features to the Current Logical Model. The New Logical Model depicts the new essential functions the system will perform, which in effect are its functional requirements.

From the perspective of a supply chain conversion, the Current Physical Model depicts the supply chain requirements of FSCs, whereas, during the stages of the Current Logical Model and New Logical Models, features that must be removed from and added to the FSCs are identified to determine the functional requirements of converting to LCCs. It is at this point that gaps are identified. Features that must be added to and subtracted from the supply chain of FSCs, to ensure that all affected functions are included, are determined by supply chain outcome through archival data.

3.5.2 Operational definition of variables

The cost and revenue-related operational efficiency and profitability variables were measured using archival data. Past studies have not thoroughly probed all the supply chain variables leading to success or failure in the supply chain of LCCs (Hassan & Salem, 2022; Punda, Jasiulewicz-Kaczmarek & Dziwulski, 2021). This underscores the significance of the current study. To formulate a conversion strategy, current FSCs need to achieve and maintain an optimal balance between operational efficiency and profitability. Therefore, the research assessed the impact of independent variables on the dependent variable for both airline models, which necessitated defining and understanding these variables.

Andrade (2021) defines variables as features of the sample that is under study. Andrade further states that the word “variable” is derived from the fact that they vary in value from subject to subject in the sample. Apuke (2017) added that variables are concepts at various degrees of abstraction, clearly defined to facilitate their measurement or manipulation within a study.

According to Nyuonguo (2022, p. 169), the following variables, emanating from the dependent and independent variables, are available for use in quantitative research: (a) controlled variables; (b) intervening (moderating; extraneous) variables; (c) moderating variables and (d) extraneous variables. Variables involving numbers can be either quantitative or categorical variables (Dettori & Norvell, 2018). While categorical variables are not measured in numerical units, quantitative variables are. Chikendu (2023) further argues that whereas categorical variables are nominal and ordinal, quantitative data are discrete or continuous.

These variables were pivotal when operationalising concepts during data collection of this research, as stipulated by (Mtotywa & Mohapeloa (2023). Kaliyadan and Kulkarni (2019) further claim that acceptable variables are reliable, valid, unbiased, feasible, low-cost, objective, and straightforward. This researcher, in the context of this study, defined variables as factors measuring levels of efficiency (independent variables) and affecting levels of profitability (dependent variables).

The decision to employ a census rather than a sampling design reflects the small population of publicly traded airlines within the defined region and the study's goal of achieving complete data representation. A census method ensures that all observable variance between FSCs and LCCs is captured, reducing sampling bias and reinforcing the robustness of comparative and regression analyses (Hair et al., 2021). This choice directly supports the study's purpose of identifying population-level patterns in supply-chain performance rather than generalising from samples.

Dependent and independent variables: In the quantitative aspect of this mixed methods research, the researcher utilised several quantitative variables. Hence, particular emphasis is placed on quantitative variables. Quantitative variables are categorised as dependent and independent variables (Andrade, 2021). The dependent variable is profitability, while the independent variables are the operational efficiency factors. While the profitability ratio is measured by operating margin, operational efficiency is decomposed into the following secondary variables CASK, RASK, LF, payroll to revenue, YOY passenger growth, passenger yield, and fuel to operating cost. Also, the following moderating variables are used in this research: Years, airline headquarters, and learning. These variables are used to determine interactions with the focal variables.

The quantitative archival data comprises four sections that outline how various variables are assessed. Section one of the quantitative archival data captures the profitability of the participating airlines. Sections two and three capture the operational efficiencies (cost and revenue-related). Finally, section four captures the impact of independent variables on the dependent variable in both models and the variances between the profitability and operations efficiency variables of the two airline Models. These variables were either derived, or calculated from the annual reports by the researcher.

While RASK, CASK, LF, payroll-to-revenue, passenger yield, and fuel-to-operating-cost are ratio data, operating margin and YOY passenger growth are interval data. To answer questions related to RASK, CASK, and passenger yield, the researcher used US cents, whereas he used percentages to record operating margin, LF, payroll-to-revenue ratio, YOY passenger growth, and fuel-to-operating cost as depicted in Table 26. These data were recorded in Microsoft Excel.

3.5.3 Model specification and Variables of interest:

Data gathered from the entire population. Types I and II errors are relevant only to sampling, but are irrelevant when a census method is used. According to Sullivan and Feinn (2021), a type I error occurs when an investigator rejects a true null hypothesis, while a type II error occurs when an investigator fails to reject a false null hypothesis. Furthermore, the significance level and statistical power become irrelevant when analysing the data set of the entire population. Hence, although significant levels were presented in this research, they were not the main statistics used to analyse and interpret the findings.

The independent samples t-test, Cohen's d, and two-way ANOVA were used to test the hypotheses on the variances between variables of the two airline models. In comparison, hierarchical regression was used to test the hypothesis of the difference in the impact of independent variables on the dependent variable of the two airline models.

When sampling is used, inferential statistics are required to generalise findings to a population. In a census, data already represent the entire population, so statistical generalisation is unnecessary. For example, a five percent variance identified through sampling requires inferential testing to determine whether it reflects real differences or random chance. In contrast, a five percent variance identified through a census reflects an actual population difference. Nevertheless, researcher judgement is still required to interpret the causes and practical significance of that variance. Thus, while descriptive statistics are central to census analysis, regression and variance measures such as means, R squared, Cohen's d, and partial eta squared remain appropriate.

In a census methodology, the model is run on the population rather than on samples. Therefore, the researcher requires the effect size to reveal the magnitude of the impact and variance, and not the p-value, which is associated with a random chance in sampling (Hirschauer et al., 2020). Therefore, during statistical analyses, the p-value was assumed to be non-existent.

Using R^2 and ΔR^2, the researcher employed hierarchical regression to assess the impact of independent variables on the dependent variable across the two populations of LCCs and FSCs. For instance, the extent of the impact of CASK on the operating margin of the two airlines was established. On the other hand, the researcher employed partial eta squared (η^2), β, mean difference, and Cohen's d in the two-way ANOVA and independent samples t-test analyses to determine significant variances between the variables of the two airline models, their respective subcategories, and the interaction effects between focal and moderator variables. Finally, descriptive statistics (mean) were computed to summarise the central tendency of the operational efficiency ratios. These statistics provided an overview of the performance distribution within and across the two groups and subgroups, serving as a foundation for subsequent comparative analyses.

Three core quantitative techniques, namely hierarchical multiple regression, independent samples t tests, and two-way ANOVA, were applied in sequence to address distinct analytical objectives. Hierarchical regression quantified predictive relationships between efficiency indicators and profitability; t-tests evaluated pairwise mean differences between airline models; and two-way ANOVA examined interactive effects of model type and region, year and learning.

This layered design ensured that causal, comparative, and interactional dynamics were captured, thereby aligning statistical choice directly with RQ 1–3 and the study's mixed-methods.

Hierarchical regression: Hierarchical regression models were applied to examine the predictive relationships between cost-related efficiency indicators (CASK, LF, Payroll to revenue, Fuel-to-Operating-Expenditure, Payroll-to-Revenue) and revenue-related indicators (RASK, Passenger Yield, YOY passenger growth) as independent variables, with profitability (Operating Margin) as the dependent variable. Hierarchical regressions were run to include only cost-related ratios, or to incorporate only revenue-related ratios to assess the additional impact explained (ΔR^2) after introducing new variables.

Because the study adopted a census design, all publicly listed airlines within the defined region and period were included, eliminating sampling error. Consequently, regression outputs were interpreted descriptively, emphasising relative effect sizes (standardised beta coefficients) and model fit statistics, rather than inferential probability testing. Standardised betas were used to compare the relative influence of each efficiency indicator across models, providing a robust empirical view of how cost and revenue structures jointly shape profitability in the complete population of airlines under study.

This research investigated cost-related and revenue-related factors influencing the operating margin. From a cost perspective, this research assessed the impact of four blocks of continuous predictor variables: CASK (b_1), LF (b_2), payroll to revenue (b_3), and fuel to operating cost (b_4). This resulted in the hierarchical regression models:

$$Y = [b_0 + b_1X_1 + b_2X_2 + \ldots. + b_kX_4] \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Here, (b_0) is the intercept, and ($b_1, b_2, \ldots., b_4$) are the regression coefficients for each predictor variable ($X_1, X_2, \ldots., X_4$).

Similarly, from a revenue perspective, this research assessed the impact of three blocks of continuous predictor variables: RASK (b_1), Passenger yield (b_2), and YOY Passenger yield (b_3). This resulted in the hierarchical regression model:

$$Y = [b_0 + b_1X_1 + b_2X_2 + b_3X_3] \ldots\ldots (2)$$

Here, (b_0) is the intercept, and (b_1, b_2, b_3) are the regression coefficients for each predictor variable (X_1, X_2, X_3).

Consequently, as additional blocks of predictors are introduced, the equation expands, providing a deeper understanding of how different sets of variables contribute distinctively to the complete model. The hierarchical regression equation, therefore, is a dominant means for dichotomising the layers of influence within the dataset, enabling a more granular interpretation of statistical findings (Zagow et al., 2024). A hierarchical regression was run for both cost-related and revenue-related operational variables, following Austin and Steyerberg's (2015) $n > k + 1$ law.

The following statistical assumptions for hierarchical regression were evaluated: (i) dependent variable should be measured on a continuous scale (ii) two or more independent variables, which can be continuous (iii) independence of observations (iv) a linear relationship between (a) the dependent variable and each independent variables, and (b) the dependent variable and the independent variables collectively (v) homoscedasticity (vi) multicollinearity (vii) no significant outliers and (viii) check that the residuals (errors) are approximately normally distributed (Mohammadi, 2021). Ensuring that these conditions were met enhanced the validity and reliability of the statistical results.

Independent Samples t-test: The independent samples *t*-test was applied to examine whether statistically significant mean differences existed between the operational efficiency ratios of FSCs and LCCs operating in Asia and Australasia. Dependent variables were tested individually. The test was appropriate for comparing two independent groups on continuous variables, enabling the researcher to assess whether observed variations in operational indicators represented genuine model distinctions rather than random fluctuations (Field, 2018; Pallant, 2020). Multiple t-tests were conducted for each dependent variable.

The *t*-statistic was calculated using the following formula:

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)}} \quad \text{..........3}$$

where:
$\bar{x}_1$= mean of group 1 (LCCs),
$\bar{x}_2$= mean of group 2 (FSCs),
s_1, s_2= standard deviations of the respective groups, and
n_1, n_2= number of observations in each group.

Before analysis, all assumptions of the independent samples *t*-test were verified to ensure validity. The dependent variables were continuous, and the two groups (FSCs and LCCs) were independent with no overlapping data. Observations were treated as distinct, and checks confirmed no significant outliers. The Shapiro–Wilk test verified normality within each group, while Levene's test confirmed equal variances. These diagnostic checks ensured the *t*-test results were statistically sound and reliable.

Following the computation, Cohen's *d* was calculated to determine the magnitude of differences between groups, using the formula:

$$d = t \times \sqrt{\frac{1}{n_1} + \frac{1}{n_2}} \quad \text{..........4}$$

The t-value represents the standardised difference between the two group means, expressed in units of the standard error. Here, n_1 denotes the number of participants in group 1 (LCCs), while

n_2 represents the number of participants in group 2 (FSCs). The resulting effect sizes were interpreted according to Cohen's (1988) benchmarks: 0.2 indicating a small effect, 0.5 a medium effect, and 0.8 a large effect.

The independent samples *t*-test complemented the two-way ANOVA used elsewhere in the study. Whereas the *t*-test identified pairwise mean differences between the two airline models for each operational ratio, the ANOVA examined interaction effects between airline model and headquarters, years (COVID-19 vs Pre-COVID-19) and learning, on operational efficiency outcomes. Together, these tests provided a comprehensive understanding of how variables varied both between airline types and across regional contexts.

Two-way ANOVA: The ANOVA assessed how airline model, headquarters location, time period, and organisational learning interacted to influence operational efficiency, offering an integrated view of how variables varied across airline types when moderated by location, years and learning. This method was chosen because it tests both main and interaction effects, enabling the researcher to determine whether differences in operational efficiency arise independently of airline type and geographical region, or from their interaction (Field, 2018; Pallant, 2020).

Given the study's census methodology, all publicly listed LCCs and FSCs in Asia and Australasia between 2017 and 2021 were included in the analysis. Using the entire population eliminated sampling error and improved the robustness of group mean comparisons. The census approach also enhanced external validity, as every data point represented a true population observation rather than a sample estimate.

Multiple two-way ANOVA tests were run; one per variable for FSCs, LCC, and their subgroup, based on the following equation:

$$Y_{ijk} = \mu + A_i + B_j + (AB)_{ij} + \epsilon_{ijk} \quad \ldots\ldots 5$$

Where Y_{ijk}represents the k^{th}observation on the i^{th}level of factor A (airline model) and the j^{th}level of factor B (region), μ is the overall mean, $A_i$and $B_j$are the main effects, $(AB)_{ij}$ is the interaction effect, and $\epsilon_{ijk}$is a random error.

Before conducting the two-way ANOVA, all statistical assumptions were tested and met. Independence of observations was ensured through the census design, where each airline represented a unique case. Normality within each group was confirmed using the Shapiro–Wilk test and visual diagnostics such as Q–Q plots. Homogeneity of variances was verified using Levene's test, while additivity and linearity were supported through residual plot inspections. Finally, no significant outliers were detected, as all standardised residuals fell within ±3 standard deviations, confirming that the dataset met the requirements for valid ANOVA description.

All analyses were conducted using IBM SPSS (v.29) with a significance threshold of $p < .05$. Significant F-ratios indicated that mean differences were unlikely due to chance. In cases of significant interaction effects ($F_{(AB)}$), simple main effect analyses were conducted to interpret the influence of each factor at the other factor's individual levels. When no interaction existed, focus was placed on the main effects. Tukey's HSD post-hoc tests were employed to identify specific group differences, and effect sizes (partial η^2) were reported to interpret the magnitude of the effects.

The two-way ANOVA complemented the independent samples *t*-test and hierarchical multiple regression, collectively providing a multi-level statistical basis for addressing Research Questions 1, 2 and 3. By combining these techniques under a census framework, the research achieved both breadth and analytical precision in identifying regional and model-based performance differentials across the Asian and Australasian airline sectors.

Complementary variance tests (t-tests and two-way ANOVA) were selected for their ability to identify differences in efficiency patterns between models and periods, thereby supporting the first to third research questions. Their inclusion reflects an integrated methodological logic: regression identifies the magnitude and direction of effects, while variance analysis captures interaction and comparative differences. This triangulation enhances interpretive depth, transforming statistical outputs into actionable managerial implications, a hallmark of applied DBA research (Patton, 2015).

If the F-ratios for factors A, B, or the interaction AB are large, it suggests that the respective factor or interaction accounts for a substantial amount of the variation. However, partial η^2, which measures the proportion of total variance explained by a factor, is particularly suitable for census-based studies. It was calculated using the following formula:

$$\text{partial } \eta^2 = \frac{\text{SS}_{\text{effect}}}{\text{SS}_{\text{effect}} + \text{SS}_{\text{error}}} \quad \text{..6}$$

The researchers evaluated the following assumptions for two-way ANOVA: (i) dependent variable should be measured at the continuous level, (ii) two independent variables should each consist of two or more categorical, independent groups, (iii) independence of observations, (iv) no significant outliers, (v) dependent variable should be approximately normally distributed for each combination of the groups of the two independent variables and (vi) homogeneity of variances for each combination of the groups of the two independent variables (Thompson & Kim, 2024).

To determine whether a variable was substantially different, the researcher applied a practical significance framework rooted in benchmarking, contextual triangulation, and theoretical relevance. Specifically, mean differences were evaluated against industry benchmarks (e.g., IATA reports), and percentage change and percentage difference were calculated as practical indicators of magnitude. Contextual triangulation with crisis-based evidence (e.g., COVID-19 vs. pre-COVID-19), along with considerations of theoretical and managerial significance, was employed to assess whether the magnitude of the difference was meaningful in a real-world context (Cohen, 1988; Patton, 2015; Miles et al., 2020). This approach aligns with applied social science research recommendations to emphasise substantive over merely statistical significance, particularly when using census methodology or working with small, high-precision datasets.

Percentage change of COVID-19 over pre-COVID-19 =

$$\left(\frac{COVID-19\ Value-Pre-COVID-19\ Value}{Pre-COVID-19\ Value}\right) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 7$$

Percentage difference between the average mean difference of subcategories and the global mean difference =

$$\left(\frac{Average\ mean\ difference\ of\ subcategories-Global\ mean}{Global\ mean\ difference\ between\ models}\right) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 8$$

The dependent variable in this study is operating margin, representing the profitability outcome influenced by operational efficiency variables. It reflects the extent to which an airline's efficiency translates into improved financial performance, as efficient operations typically reduce production costs and enhance margins (Handoyo et al., 2023). Consistent with Creswell's (2012) definition, the dependent variable represents the outcome affected by independent variables and is measured as a continuous interval variable, making it appropriate for regression and variance analyses (Abiodun-Oyebanji, 2017).

The independent variables are operational efficiency indicators hypothesised to affect profitability. These include cost-related factors such as CASK, Fuel Cost to Operating Cost, and Payroll to Revenue, as well as revenue-related indicators such as RASK, Passenger Yield, LF, and

YOY Passenger Growth. Together, these variables operationalise the functional requirements of the airline supply chain. The quantitative analyses test how these independent variables significantly influence the dependent variable across both FSC and LCC populations, as detailed in Table 14.

To strengthen analytical precision, the study incorporates moderating variables, namely Year, Organisational Learning, and Airline Headquarters, which can alter the direction or strength of the relationship between independent and dependent variables (Koschate-Fischer & Schwille, 2021). The study also conceptually acknowledges intervening (mediating) variables, which may indirectly explain how operational factors influence profitability, even though they are not directly measured (Bartram, 2021).

All variables used in this study are continuous quantitative measures, expressed as ratios or percentages, ensuring comparability across airlines and consistency with archival financial data (Andrade, 2021). As shown in Table 24, these variables collectively form the empirical foundation for evaluating how operational efficiency translates into profitability and for assessing the feasibility of supply-chain conversion from FSC to LCC models in the Asian and Australasian airline markets.

The selection of these variables aligns directly with the study's conceptual framework and methodological orientation. The dependent variable, operating margin, captures the outcome dimension of the process theory of change management by quantifying performance improvements resulting from functional and structural adjustments. The independent variables reflect the functional requirements of supply-chain conversion, translating theoretical constructs such as efficiency, adaptability, and strategic alignment into measurable indicators. Meanwhile, the inclusion of moderating and intervening variables reflects the dialectical nature of change, acknowledging contextual interactions and indirect effects within dynamic environments (Hayes, 2022). This alignment between theory, constructs, and empirical measurement demonstrates strong methodological coherence and ensures that each variable meaningfully contributes to answering the study's research questions. Table 23 provides a definition of key variables.

Table 23
Definition of Operational Variables

Variables	**Definitions**
	Independent Variables
Cost per available seat kilometre (CASK):	The unit cost of flying an aircraft per kilometre, whether the seats are occupied or vacant (Southwest, 2023). $\frac{\text{Operating expenses}}{\text{Available seat kilometre}} \times 100$
Load factor (LF):	The LF measures the percentage of available seating capacity filled with passengers (Jenatabadi & Ismail, 2007).
YOY passenger growth:	$\frac{\text{Total passengers of current year} - \text{Total passengers of previos year}}{\text{Total passenger of previos year}} \times 100$ (ExtendOffice, 2009).
Revenue per available seat kilometre (RASK)	Passenger Revenue per seat (empty or full) flown one kilometre (Southwest, 2023; Virgin Atlantic Ann Rep, 2020). $\frac{\text{Operating Revenue}}{\text{ASK}} \times 100$
Fuel cost as a percentage of total operating cost	$\frac{\text{Fuel cost}}{\text{Operating cost}}$ x 100 (Buxton, 1985).
Payroll to revenue	A measure of the effectiveness of a business at using its staff costs to generate revenue (Buxton, 1985). $\frac{Payroll}{Passenger\ revenue}$
Passenger yield	A measure of the revenue received by an airline for each kilometre a passenger flies (Southwest, 2023). $\frac{Passenger\ Revenues}{RPK}$
Covid-19 pandemic:	A global pandemic of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (WHO, 2022)

Table 23 (Continued)
Definition of Operational Variables

Variables	**Definitions**
Operating margin:	Operating margin measures the profit a company generates on every dollar of sales after payment of its variable production costs (Manglik & Goyal, 1991). $\frac{\text{Operating profit}}{\text{Revenue}} \times 100$

Source: Compiled by the researcher.

While most airlines explicitly stated all their ratios in their annual reports, others did not; hence, the researcher had to calculate those using financial data retrieved from their annual reports and the formulae in Table 24.

3.6 Study Procedures and Ethical Assurances

The study received approval from UNICAF University's Research Ethics Committee (UREC) before the data collection process could begin. Data collection commenced on September 1, 2023, seven days after UREC's approval. The approval to gather data was granted by UREC through decision number O17036G16352.

3.6.1 Study Procedure

Archival data gathering occurred from September 1 to November 8, 2023. During this period, several steps were taken to ensure that the data collected were accurate and that no ethical breach occurred. This study adopted an archival design because it aligns directly with the research questions, which focus on identifying measurable differences in operational efficiency and profitability between two airline models. Quantitative research questions (RQs 1 to 3) and their hypothesis sought to determine whether efficiency ratios such as CASK, RASK, and operating margin differed significantly between FSCs and LCCs and whether these differences explained conversion feasibility. Archival financial reports were the optimal data source since they provide standardised, audited, and verifiable information across time and geography.

Similarly, qualitative research questions (RQs 4–5) required an understanding of leadership, strategy, and adaptability processes, which are best captured through managerial narratives and documented change initiatives within annual and sustainability reports, and peer-reviewed article in reputable journals. Hence, the choice of archival data provided both the quantitative precision and qualitative depth necessary to address all research questions coherently.

The number of Asian and Australasian countries selected for data gathering was determined using the classifications of Visaguide.World (2023). The researcher then identified the airlines and their model in each country by typing phrases such as list of airlines of Country X, Airline X is a low-cost airline, Airline X is a full-service airline, and related terms into the Google search engine. This geographic selection was justified by RQs 1–3, which examine regional variations in performance between Asia and Australasia. By limiting the population to publicly traded airlines within these interconnected yet heterogeneous markets, the study ensured consistency in data availability and comparability while enabling a cross-regional analysis of supply-chain efficiency differences.

To determine whether each airline company was publicly traded, additional search phrases such as “Airline X initial public offering” and “Airline X stock price” were used. Only publicly traded airlines made up the population. This methodological choice was consistent with the study’s quantitative aims since publicly listed airlines are required to publish audited financial statements. These data provide the transparency and reliability essential for objective variance and regression analyses, thereby supporting the study’s positivist approach and ensuring construct validity in testing efficiency and profitability hypotheses (Ali, Akbar, & Ormrod, 2016).

Online annual and sustainability reports of selected airlines from 2017 to 2021 were then retrieved from their official websites or other credible sources. These years were selected to capture both pre-pandemic and pandemic-period performance data, allowing analysis of contextual moderators aligned with RQ 4 (the effect of COVID-19 on efficiency and profitability). Ratios derived or calculated from these reports correspond to the quantitative variables specified in Table 24. For instance, when reports did not list RPK, the researcher transposed the load-factor formula as RPK = (LF × ASK)/100. This quantitative reconstruction ensured data completeness and comparability, necessary for testing RQs 1–3, which examine how cost-efficiency and revenue-efficiency factors influence profitability. By reconstructing missing indicators from audited data rather than excluding them, the researcher minimised bias and enhanced statistical reliability across the dataset.

Quantitative Archival Data: The researcher converted CASK, RASK, and passenger yield from host-country currencies into U.S. cents. Without a common currency base, comparisons of regression and variance analyses would have been misleading since exchange-rate differences can distort relative efficiency. This normalisation operationalised the functional-requirement dimension of the conceptual framework by standardising outputs for comparative feasibility analysis.

In cases where FSCs with LCC subsidiaries presented both consolidated and standalone reports, data were easily obtained. When cost structures were combined, the researcher apportioned fuel and staff costs between the FSC and LCC subsidiaries based on their respective ASKs. This maintained the fidelity of model-specific cost structures, which was critical for isolating functional and structural differences that informed the feasibility analysis central to RQ 4.

Accounting inconsistencies across airlines were standardised to ensure harmonisation. As Ali et al. (2016) note, variations in reporting under IFRS and GAAP can distort profitability comparisons. By harmonising accounting treatments, the researcher ensured that observed profitability variances genuinely reflected operational efficiency rather than methodological artefacts, thereby reinforcing internal validity.

Multiple safeguards protected data integrity, including reliance on audited reports and independent verification of calculated ratios. Audited financial statements undergo scrutiny by independent professionals, enhancing reliability (Kozloski, 2002). This validation process strengthened the credibility of RQs 1–3, where statistical results depend on the precision of derived variables. It also aligns with the teleological principle of systematic validation within the study's process-theory perspective (Hayes, 2022).

Because all data were publicly available, no formal permissions were required (Clark, 2011). The refined dataset was categorised by airline type, with LCCs (IDs 1 to 23) and FSCs (IDs 1 to 22), coded in Microsoft Excel and then imported into SPSS for analysis. The use of SPSS supported the descriptive analyses (hierarchical regression, independent sample t-test, ANOVA) necessary for hypothesis testing in RQs 1–3 while ensuring analytical reproducibility.

Qualitative Archival Data (Annual and Sustainability Reports): Qualitative data were gathered from the Chairman's Letter, CEO's Report, Business Profile, and Management Strategies Analysis sections of the airlines' annual or sustainability reports. This approach directly addressed RQs 4 and 5, which investigate leadership, strategic transformation, and organisational learning. Such narrative data capture managerial cognition and strategic discourse, making them ideal for identifying structural and resource requirements within the change-management process (Alduais, 2022).

Where annual reports lacked sufficient detail, supplementary qualitative data were sourced from peer-reviewed journal articles, consistent with Welch (2000), who noted that internal documents typically provide richer insights than externally framed communications. This triangulation between corporate discourse and scholarly evidence enhanced data saturation and strengthened thematic validity.

Qualitative Archival Data (Systematic Literature Review): A systematic literature review complemented the qualitative archival data to ensure saturation and external validity. This process followed the five-stage model proposed by Tranfield et al. (2003), which includes identification, inclusion, screening, extraction, and synthesis. The systematic review methodology was especially appropriate for RQ 5, which compares the study's findings with established research to identify theoretical and empirical gaps. Its structured process ensured transparency, replicability, and theoretical integration across diverse data sources (Snyder, 2019).

Database searches were conducted through Statista, Google Scholar, ProQuest, IEEE, and Springer. These repositories were selected because their peer-reviewed content guarantees publication quality and scholarly reliability (Carneiro et al., 2020). Following Tripathy (2013), secondary data were critically appraised for methodological soundness, period of collection, and relevance before being integrated into thematic analysis.

3.6.2 Ethical Assurance

Ethical principles guided all stages of the research process. Although archival data do not require participant consent (Granger, Branney, Sullivan, & McDermott, 2021), the researcher upheld transparency, intellectual ownership, and proper citation ethics (Tripathy, 2013). According to Orton-Johnson (2010), once personal or corporate data becomes public, their 'human-data' status ceases, making formal consent unnecessary. Nevertheless, all original sources were acknowledged to maintain academic integrity. The ethical protocol thus supported RQs 4 and 5 by reinforcing the trustworthiness and transferability of qualitative interpretations. Upholding ethical transparency also reflects the integrity principles central to the study's process-theory perspective (Corvol et al., 2013; Olesen et al., 2019).

3.6.2 Integration of Method and Research Questions

Each methodological choice in this study was deliberately aligned with its corresponding research question and conceptual framework. Quantitative archival analysis addressed RQs 1–3 by empirically testing the relationships and variances among efficiency ratios and profitability, and external moderators such as COVID-19. Qualitative archival and systematic-review analyses addressed RQs 4–5 by interpreting leadership strategies, structural adaptation, and resource alignment within airline organisations. This mixed-method integration ensured both numerical precision and contextual interpretation, achieving the method–question–theory fit advocated by Greene et al. (1989). The resulting design demonstrates methodological coherence, empirical rigour, and theoretical alignment with Hayes's (2022) process perspective of change management.

3.7 Data Collection and Analysis Procedure

3.7.1 Secondary Data Collection

Exploring the variables that facilitate and impede the conversion of Asian and Australasian FSCs to LCCs is critical for future conversions. This study's use of secondary data sources to achieve all the research objectives is supported by Allen (2017). More specifically, the secondary data sources are airlines' annual reports, sustainability reports, and peer-reviewed journal articles. Martins (2015) defines secondary data as data that are second-hand or used and are important to an ongoing study. There is currently ample secondary data on the operational efficiency and profitability of both airline models in Asia and the Asia-Pacific since publicly traded companies are forced to publicise their financial statements, and online peer-reviewed journal articles are abundant.

This research adopted the mixed methods approach. Data collected using the secondary quantitative archival data were statistically analysed to determine operational efficiency, variances, and profitability, while data gathered using the secondary qualitative archival data facilitated thematic analysis. While the secondary quantitative approach facilitates numerical data to determine the outcome of the supply chain, it lacks the depth needed to establish supply chain processes such as behaviour, value, beliefs, and assumptions (Queirós et al., 2017). Conversely, qualitative research facilitates the depth required to determine the processes, but cannot establish objectively verifiable results (Queirós et al., 2017).

According to Meydan and Akkaş (2024), qualitative research aims to gain a deeper insight into complex social issues and understand the complexities of multicultural settings. By incorporating multiple qualitative secondary data sources such as annual reports, sustainability reports, and journal articles, this research could cross-check and confirm findings, resulting in more thorough and dependable conclusions. It can also navigate cultural dynamics with greater sensitivity, leading to more nuanced and culturally aware outcomes.

The research approach adopted by this research was triangulation for expansion (using the convergent parallel mixed methods), which facilitates the enlargement of the breadth and range of inquiry by utilising different research methods for different investigation components. Therefore, both qualitative and quantitative methods are used. The rationale for mixing for expansion in this research was to acquire a comprehensive insight into the topic (Greene et al., 1989). Neither the qualitative nor the quantitative approach can exclusively generate such wide-ranging data.

The secondary data fits the research questions in many ways. The research questions require (i) comparable, audit-reliable performance ratios across many firms to quantify cost–revenue dynamics (RQ1–RQ3), and (ii) contextual process evidence to interpret how carriers change strategy and structure during convergence. Publicly available annual and sustainability reports and peer-reviewed articles directly align with these needs: they provide standardised, audited financial and operational disclosures for ratio construction at scale (CASK, RASK, LF, payroll/revenue, fuel/opex, operating margin), and rich textual explanations of strategy, Organisation, and leadership for process interpretation (Allen, 2017; Martins, 2015). Because Asia and Australasia's listed airlines must publish IFRS/GAAP-compliant reports, secondary data offer a feasible, consistent, and ethical way to cover the full regional population over multiple years without access or response bias that would arise with primary firm surveys. This directly supports a comparative, region-wide feasibility assessment of FSC→LCC convergence.

3.7.2 Quantitative data collection

According to Ahmed and Ilyas (2017), several data collection methods exist, including quantitative, qualitative, and triangulation. This convergent parallel mixed methods design requires qualitative and quantitative data collection (i.e., triangulation) (Demir & Pismek, 2018). This study used archival data as an instrument to gather quantitative data. The importance of archival data is derived from its ability to capture trends in large-scale quantitative (especially accounting data) data at both a macro and micro level, which are pivotal requirements for numerical analyses and the presentation of analytical statistical results (Hageman, 2008).

The participating airlines were coded primarily to facilitate the analyses. The coded data were inputted into SPSS to generate quantitative visual results such as graphs, charts, and plots (Borghi, 2022). With a quantitative research approach, the impact of independent variables on dependent variables, and variances between variables of the two airlines, could be investigated (Senthilnathan, 2019; Truong et al., 2020). Once these variables are measured using suitable quantitative tools, they can support statistical methods like regression and variance analysis to examine the numerical data (Senthilnathan, 2019; Truong et al., 2020).

Since this research was conducted on a large scale, covering the vast airline industry (LCCs and FSCs) of the entire Asian and Australasian regions, and covers a period of five years (2017-2021), where trends such as the impact of COVID-19 on the airline industry were analysed, archival data proved to be very useful. External validity remains high in studies utilising archival research since such studies employ data relating to naturally occurring events.

The quantitative archival data aspect of this research was appropriate for this investigation due to several justifiable reasons, such as its ability to capture performance measures like operational efficiency, profitability, and market growth, especially since depth was not sought as in the quantitative aspect of this study (Maine et al., 2022). Quantitative data gathered via archival data were used for regression analysis, which facilitated a measurement of the strength and direction of the influence of independent variables on the dependent variable (Schober et al., 2018).

Such data were also ideal for variance analysis, which was used to determine the extent of differences between LCCs and FSCs in this research (Uttley, 2019). Since data was gathered from the entire population, due to its small size, the results were relevant and applicable (generalisable) to every listed airline in the Asian and Australasian regions. Baffour et al. (2021) recommended using the census method when the population is small.

RQ1 and RQ2 require testing whether cost-related (CASK, LF, fuel/opex, payroll/revenue) and revenue-related (RASK, yield, YOY growth) predict operating margin and differ between models. These constructs are natively produced in airline reporting and can be computed consistently from audited statements, enabling replicable, cross-firm measurement (Hageman, 2008). The five-year horizon (2017–2021) captures pre-COVID and COVID shifts that the questions explicitly target. The census approach (all listed airlines in scope) removed sampling error and strengthened external validity for the population of interest (Baffour et al., 2021). Currency normalisation to US cents eliminated spurious cross-country variance in unit costs/revenues and is necessary to support a valid conclusion.

These statistical techniques fit the questions in many ways. Hierarchical multiple regression maps directly to RQ1 and RQ2 by estimating the incremental contribution of each operational driver to operating margin, while controlling for time (years), headquarters context, and organisational learning as moderators consistent with the theoretical model (Schober, Boer & Schwarte, 2018). Independent-samples t-tests and Cohen’s d quantify between-model differences in each ratio where only two groups are compared (Uttley, 2019).

Two-way ANOVA tests model × moderator interactions (e.g., model × year; model × headquarters), which is necessary to show whether FSC–LCC differences change with crisis period or institutional context, an explicit feature of the research questions. Together, these techniques provide direction, magnitude, and interaction evidence that a single method could not deliver, while aligning with the study’s theory-driven moderators.

Archival data as a data collection tool possesses several advantages and disadvantages. One disadvantage is that archival records may contain incomplete data (Yin, 2003). For instance, in this research, the online database of some airline companies did not include annual reports for some of the years under study. Furthermore, some of the accessible annual reports of AWAs did not sufficiently differentiate between the financial performance of LCCs and FSCs in their consolidated financial statements. These omissions presented great difficulty for the researcher in allocating a portion of operating costs to their LCC and FSC sectors, negatively impacting the accuracy of a small number of ratios. Another drawback of archival data is that sometimes the data does not appropriately address the research questions (Klein, 2024).

Known constraints of archival data, including missing disclosures, consolidation of AWA groups, and accounting presentation differences, were mitigated through standardisation rules, ASK-based apportionment, and currency normalisation. These adjustments preserved the comparability required for RQ1 to RQ3. Potential subjectivity in management narratives was counter-balanced by audited financials and a systematic literature review, supporting the qualitative need for multiple perspectives (Yin, 2003; Ali et al., 2016; Snyder, 2019). The chosen methods, therefore, remain the most congruent with the multi-level, cross-regional, and crisis-sensitive nature of the research questions.

Some of the benefits of archival data, proposed by Yin (2003) and relevant to this study, are now discussed. First, archival data becomes very appropriate when it is used to collect a large number of ratios on performance, which other data sources, such as interviews or surveys, are unable to provide. For instance, the quantitative aspect of this study examined seven ratios (LF, CASK, RASK, passenger yield, payroll-to-revenue, YOY passenger growth, fuel-to-operating cost, and operating margin) over five years. This information could only be obtained through the researcher fishing for it from the airlines' annual reports.

A second benefit is that archival data becomes available when surveys and interviews become infeasible. For instance, in this research, archival data were used to obtain quantitative and qualitative data that were unattainable due to the unanticipated nonresponse from airline management to the engagement letter sent to them, and the vast geographical distance between the researcher and Asian and Australasian airports where the survey would be conducted.

Third, archives are stable and can be reviewed repeatedly, they are unobtrusive since they are not created as a result of the case study, they contain the exact names, references, and details of an event, and they facilitate a broad coverage, a long-time span (2017-2021), and multiple events and settings (Cheong, Lyons Houghton & Majumdar, 2023). Fourth, audited financial data derived from company annual reports are extremely reliable since they are prepared for public reporting (Alsmady, 2022).

Fifth, Wagner and Neshat (2012) ranked their level of objectivity higher than that of self-reported surveys. Finally, secondary data was ideal for this research since it is relatively cheaper than primary data (Cheong et al., 2023).

The quantitative archival data captured numerical data about the airlines, classified as ratio and interval data. The ratio and interval data collected are all considered “continuous data” since they change over time, have decimals, and can be visualised with line graphs or skew (Weissgerber et al., 2015). However, the chances of errors increased when the researcher used financial data on the annual report to calculate ratios, as was done in a few instances in this study (Miller et al., 2021). Since data were gathered from the entire population and a normal distribution was assumed, parametric tests such as regression and variance analyses were conducted using the IBM SPSS, in line with the quantitative research questions, and associated alternative hypotheses.

Ratio data are categorised and ranked, and equal intervals are inferred between neighbouring data points. With ratio data, there is a true zero point. Hence, in this study, the ratio data collected were CASK, RASK, LF, passenger yield, payroll-to-revenue, and fuel-to-operating cost. With such data, it is meaningful to say that one value is twice as much as another, and this would still be true if the units were changed. For example, when measuring the payroll-to-revenue ratio, if a ratio of 10% was found in one currency, the same 10% ratio should be derived if the input figures were converted into another currency.

Interval data are categorised, ranked, and inferred to have equal intervals between neighbouring data points. With interval data, there is no true zero point. Therefore, the interval data gathered in the archival data are the operating margin and the YOY passenger growth. With interval data, it is not meaningful to say that one measurement is twice another since this might not still be true if the units were changed. For example, when measuring profit margin in percentage, a 10% profit margin does not mean that the absolute figure was twice as high as a five percent profit margin. Since data were gathered from the entire population and a normal distribution was assumed, parametric tests were conducted.

Archival data as a quantitative research instrument is ideal for collecting data on the profitability and efficiency of companies (Detchie, 2023). To attain data that is objective for data analysis, the researcher was vigilant and mindful of where sources of bias would emerge during data collection. Eleven quantitative archival questions were posed to answer the quantitative research questions, as shown in Appendix A.

The annual reports used for answering the quantitative data, and their sources, are presented in Table 20. These reports contain the profitability and operational efficiency ratios needed to answer the quantitative research questions, or the information required to calculate them. These ratios were determined by professional accountants and verified by auditors; hence, they were deemed high quality. Pobedo Airlines, Aurora Airlines, Rossiva Airlines, Peach Airlines, Vanilla Airlines, JetStar Group, Scoot Airlines, TigerAir, Silk Airlines, and HK Express are subsidiaries whose financial statements are consolidated with their parent airlines and thus do not appear in

Table 20. In most cases, both the consolidated and individual financial statements of parents and subsidiaries were presented.

3.7.3 Qualitative Data Collection

Unlike the quantitative research method, which contains only closed-ended questions, the qualitative research uses instruments with only open-ended questions. Qualitative research is characterised by a lack of generalisation, lower credibility than quantitative research, and researchers' biases (Johnson & Onwuegbuzie, 2004; Onwuegbuzie & Leech, 2006; Onwuegbuzie et al., 2010). When qualitative research is used, data is generated in words (Riazi et al., 2023). Fifteen open-ended archival data questions were used to answer the qualitative questions, shown in Appendix B. In this research, qualitative data were gathered using archival data.

Qualitative archival sources fit the process questions in many ways. The qualitative strand is designed to answer how carriers operationalise convergence (leadership behaviours, cultural enablers, governance, fuel and fleet practices, AWA boundary design). Annual and sustainability reports are management-authored, contemporaneous accounts of strategic intent, capability investments, and change narratives that cannot be inferred from ratios alone (Alduais, 2022). A systematic literature review supplements firm-produced texts with independent, peer-reviewed analyses, minimising single-source bias and enabling cross-case triangulation (Snyder, 2019; Tranfield et al., 2003). This mix directly serves the research questions that seek explanatory mechanisms behind the quantitative differences.

Thematic analysis and hand coding fit the research questions in several ways. Thematic analysis systematically converts dispersed textual evidence into coded categories aligned with the conceptual framework (teleological/dialectical process and requirements analysis), enabling pattern detection across firms and years (Dawadi, 2021; Andersson et al., 2022). Hand coding was selected to preserve theory-driven, deductive coding (for requirements and process stages), while also permitting the inductive emergence of unanticipated themes, such as pandemic-specific practices. This approach supports methodological transparency and analytic traceability, essential for qualitative rigour in doctoral research (Attride-Stirling, 2001; Haug et al., 2021; Elliott, 2018).

Qualitative Archival Data (Annual Report and Sustainability Report): Qualitative archival data of audited annual reports and sustainability reports were important sources of data to determine LCCs' and FSCs' cost strategy, aircraft fleet strategy, fuel strategy, and FSCs' transformational leadership, staff culture, and resources. The researcher ascertained the reliability of the collected data by selecting predominantly audited reports. The sources for qualitative archival data are exhibited in Table 24.

Table 24

Annual Reports and Sustainability Reports Collected for Literature Review

Reports	**Sources**
Nok Air Report of the Independent Certified Public Accountants (2021)	Nok Air (2021)
Turkish Airlines Annual Report (2022)	Turkish Airlines (2022)
Consolidated Financial Results for the year ended March 31, (2021) [IFRS]	Japan Airlines (2021)
SpiceJet Annual Report (2021/22)	SpiceJet (2022)
Cebu Pacific Annual Report (2021)	Cebu Pacific (2021)
China Airlines (2021) Annual Report	China airlines (2021)
2017 Air China Annual Report (2022)	Air China (2022)
Corporate Social Responsibility Report Air China Ltd 2020	Air China (2020)
Singapore Airlines Annual Report (FY2020/21)	Singapore Airlines (2021)
Singapore Airlines Annual Report FY2022/23	Singapore Airlines (2023)
Singapore Airlines Sustainability report for year 2020-21	Singapore Airlines (2021)
China Southern Airlines Annual Report (2022)	China Southern airlines (2022)
China Southern Airlines Corporate Social Responsibility 2021	China Southern Airlines (2021)
Cathay Pacific Airways Limited Annual Report (2021)	Cathay Pacific Airways Limited (2021)
Sustainable Development Report 2022 Cathay Pacific Airways Limited	Cathay Pacific Airways Limited (2022)
Indigo Annual Report (2020/21)	Indigo (2021)

Table 24 (Continued)

Annual Reports and Sustainability Reports Collected for Literature Review

Reports	Sources
VietJet Air Annual Report (2021)	VietJet Air (2021)
Garuda Indonesia Annual Report (2021)	Garuda Indonesia (2021)
Garuda Indonesia 2021 Sustainability Report.	Garuda Indonesia (2021)
Qantas Annual Report (2021)	Qantas (2021)
Qantas Sustainability Report 2023	Qantas (2023)
Qantas Annual Report 2023	Qantas (2023)
2021 Sustainability Factsheet Reviews	Turkish Airlines (2021)
2021 Korean Air ESG Report Sustaining Excellence	Korean Air (2021)
JAL REPORT 2020	Japan Airlines (2020)
Air New Zealand 2022 Annual Financial Results	Air New Zealand (2022)
Air New Zealand Sustainability Report	Air New Zealand (2021)
Sri Lanka Airlines Annual Report 2020/2021	Sri Lanka Airlines (2021)
Sri Lanka Airlines Annual Report 2022/23	Sri Lanka Airlines (2023)
Aeroflot Annual Report 2021	Aeroflot (2021)
Vietnam Airlines Annual report 2021	Vietnam Airlines (2021)
ANA Annual Report 2021	ANA Co (2021)
ANA Annual Report 2023	ANA Co (2023)
Thai Airways Auditor’s Report 2021	Thai Airways (2021)
Thai Airways Sustainable Development Report 2019.	Thai Airways (2019)
Citilink Indonesia Annual Report 2021	Citilink Indonesia (2021)
Total 37	

Sources: Online Annual Report and Sustainability Report.

Archival data as a qualitative research instrument is also ideal for collecting data on processes, culture, and leadership styles (Miller et al., 2021). First, once the researcher accessed the archives, relevant data sources to answer the research questions were selected (Taherdoost, 2021). The researcher acknowledged the source, intended purpose, context, and trustworthiness of all sources, and their relation to the research questions. The researcher also looked for possible gaps or limitations of sources, and their impact on interpreting the research findings.

Second, the research developed a framework for collecting and organising data ethically, which included respecting copyright (Lungu, 2022). The researcher then used thematic analysis, and his critical thinking and reasoning abilities to assess the evidence, context, and importance of the analysed data. Thematic analysis allows researchers to systematically organise and analyse the complex textual data sets of LCCs and FSCs supply chains in search of themes needed to answer qualitative questions (Dawadi, 2021).

Hence, this research used thematic analysis to analyse textual data from companies' annual reports (Harun, Kavid & Muhsin, 2022). Andersson, Steiner and Svenningsson (2022) highlighted the enhancement of trustworthiness when thematic analysis is used to analyse textual data gathered from annual reports. Stages of thematic analysis include "the selection of keywords and quotations, coding, theming, interpretation, and the development of a conceptual model" (Naeem, Ozuem, Howell & Ranfagni, 2023).

Systematic Literature Review: Peer-reviewed journal articles from international academic and conference papers, relevant to this study, were collected online. The researcher searched specifically for documents about Asia and Australasia listed FSCs and LCCs. These documents represented past research done on those institutions by reputable scholars and researchers. The literature review sought to assess the existence of teleological and dialectical change approaches at FSCs and the degree to which they can manage environmental changes associated with supply chain conversions. The literature review was also used to gather information on the marketing strategies of FSCs and LCCs, and the marketing strategy, profitability, and in-flight amenities of LHLCCs. Titles and citations of the articles reviewed are provided in Table 25. When reviewing articles and other accessible evidence systematically, biases will be reduced, resulting in reliable and credible findings (Shaheen et al., 2023; Snyder, 2019).

Table 25

Journal Articles Collected for Literature Review

No	Titles and Citations
1	"A Modified Weighted Connectivity Ratio for Measuring a Low-cost Carrier's Connectivity at its Major Airports: An AirAsia Group Study on its Informal Hub-and-spoke Network" (Rachmandika & Alamsjah, 2023, p. 336).
2	"Low-Cost Carrier in Airlines: In Terms of Cost Perspective" (Panduwinasari et al., 2020, April, p. 84).

Table 25 (Continued)

Journal Articles Collected for Literature Review

No	Titles and Citations
3	"Evolving competition between low-cost carriers and full-service carriers: The case of South Korea" (Khan et al., 2019, p. 1).
4	"Evaluation of passengers' buying behaviours toward low-cost carriers in Southeast Asia" (Buaphiban & Truong, 2017, p. 124).
5	"Estimations Viability of LCCs Business Model in Korea" (Hong & Domergue, 2018, p. 11).
6	"Segmentation of Airline Market in the GCC Region: Profiling Business Customers Using Low-Cost and Full-Service Carriers" (Desai et al., 2014, p. 1610).
7	"The growing influence of low-cost carriers in Northeast Asia and its implications for a regional single aviation market" (Ma et al., 2021, p. 1).
8	"How are You Building Your Business?" CAPA Daily (2019, June, p. 1)
9	"Review of airline-within-airline strategy: case studies of the Singapore airlines group and Qantas group" (Raynes & Tsui, 2019, p. 150).
10	"The Impact of Long-Haul Low-Cost Flights: Linking Thailand to Japan and South Korea, Law, 2022, p. 211).
11	"Competition between full-service network carriers and low-cost carriers in Turkish airline market" (Acar & Karabulak, 2015, p. 642).
12	"Lions and Tigers: LCCs in Southeast Asia" (Bowen, 2019, p. 161).
13	"Why Long-Haul Low-Cost Airlines Always Go Bankrupt" (Nagdev, 2019, p. 1215).
14	"A data-driven approach for characterising revenues of South-Asian long-haul low-cost carriers per equivalent flight capacity per block hour" (Soliman et al., 2022, p. 1).
15	"Analysing the Strategies of LCCs and FSCs in Southeast Asia" (Chang & Cheng, 2013, p. 1).
16	"Sustainable development strategy of low-cost airlines: Empirical evidence for Indonesia based on analysis of passenger loyalty" (Arief Kusuma et al. (2023, p. 1).
18	"How do full-service carriers and low-cost carriers' passengers perceive service dimensions, passengers' satisfaction, and loyalty differently?" (Chow et al., 2022, p. 587).
19	"Airline brand choice in a duopolistic market: The case of New Zealand" (Henderson et al., 2019, p. 147).
20	"Elevating Value Marketing Strategies in Singapore Airlines Driven by Macro and Micro Environment" (Qin, 2020, September, p. 271).
21	"The effect of airline relationship immersion on brand attachment and relationship persistence intention in Korea — focused on the frequent flyer programmes" (Kim et al., 2023, p. 15).
22	"Impact of core-product and service-encounter quality, attitude, image, trust and love on repurchase: Full-service vs low-cost carriers in South Korea" (Han et al., 2019, p. 1588).
23	"A study of China's major domestic airlines' service quality at Shanghai's Hongqiao and Pudong International Airports" (Jiang et al., p. 143).
24	"Airline-within-Airline business model and strategy: case study of Qantas Group" Heiets et al., 2021, p. 96)
25	"Airline CSR and quality attributes as driving forces of passengers' brand love: Comparing full-service carriers with low-cost carriers" (Kim & Hwang, 2023, p. 1).

Table 25 (Continued)

Journal Articles Collected for Literature Review

No	Titles and Citations
26	“The case of South Korean airlines-within-airlines model: Helping full-service carriers challenge low-cost carriers” (Khan et al., 2022, p. 1).
27	“Factors determining choice of full-service airlines and low-cost carriers: The case of Malaysia” (Boey et al., 2012, p. 179).
28	“Research on passengers’ preferences and impact of high-speed rail on air transport demand” (Asep et al., 2023, p. 1).
29	“Factors influencing mode selections of low-cost carriers and a full-service airline in Thailand” (Thanasupsin et al., 2010, p. 35).
30	“Factors influencing customers airline choice: A unique study of low-cost carriers in Kurdistan” (Koti, 2019, p. 1).
31	“Perception of crisis management, service quality, and loyalty programmes on airline travel intention: What roles do fear of COVID-19 and risk attitude play?” (Imroz et al., 2023, p. 1)
32	“Antecedents influencing the accomplishment of low-cost airline management during Covid-19 pandemic in Thailand” (Paethrangsi et al., 2021, p. 1).
33	“Digital marketing strategies of Air Asia and Cebu Pacific” (Lachica, 2018)
34	Research on passengers’ preferences and impact of high-speed rail on air transport demand (Nurhidayat et al., 2023, p. 1).
35	“Strategic Management Cebu Pacific” (Chan, no date, p. 1)
36	“A combined multi-criteria decision-making approach for improvement of airlines’ ground operations performance: A case study from Türkiye” (Kulakli & Şahin, 2023).
37	“Strategic analysis of Indigo airlines: Challenges and opportunities” (Bansal, 2023, p. a19).
38	“The economic viability of long-haul low-cost operations: Evidence from the transatlantic market" (De Poret et al., 2015, p. 272).
39	“A profitability analysis of low-cost long-haul flight operations” (Daft & Albers, 2012, p. 49).
40	“Analysis of demand structures on intercontinental routes to and from Europe with a view to identifying potential for new low-cost services” (Wilken & Gelhausen, 2016, p. 79).
41	How low-cost carriers are changing the growing East Asian travel market (Slocum, 2018)
42	“Analysis for Cost Leadership Strategy and Core Competitiveness Points of Air Asia” (Aji et al., 2021, p. 969).
43	“A model to analyse the profitability of long-haul network development involving non-hub airports: The case of the Barcelona–Asian market” (Tembleque-Vilalta & Suau-Sanchez, 2016, p. 188).
44	“The comparison of financial performance of airlines with different business model operated in long-haul market” (Renold et al., 2019, p. 178).
45	A short life in long haul for low-cost carriers (Binggeli & Weber, 2013, p. 1).
46	A Study on Network Construction Strategies for Long-Haul Low-Cost Carrier Operations (Choi & Han, 2021, p. 57).
47	“Market developments on Chinese international air passenger markets in light of COVID-19 policy measures” (Graham et al., 2023, p. 1)

Table 25 (Continued)
Journal Articles Collected for Literature Review

No	Titles and Citations
48	“Is low-cost carriers’ revenue management a firm capability?” (Alderighi et al., 2019, p. 15)
49	The long-haul low-cost airline business model: A disruptive innovation perspective (Albers et al., 2020)
50	The Development of the Low-Cost Carriers in the Australia Indonesia Air Travel Market (Baxter & Srisaeng, 2022).
51	Low-cost long-haul carriers: A hypothetical analysis of a ‘Kangaroo route’ (Whyte & Lohmann, 2015, p. 159).
52	List of executive officers (Japan Airlines (2023, June 23).
53	Career summary, position and responsibilities at the Company (Saito Yuji, no date).
54	A product and organisational architecture analysis of the performance of Southeast Asian airlines (Foong et al., 2023, p. 1).
55	“Transactional and transformational leadership: A comparative study of the difference between Tony Fernandes (Airasia) and Idris Jala (Malaysia Airlines) leadership styles from 2005-2009” (Pusiran & King, 2013, p. 107).
56	“The effects of safety attitude and safety climate on flight attendants’ proactive personality with regard to safety behaviours” (Ji et al., 2019, p. 80).
57	“Were Fleet Planning Problems Responsible for the Collapse of Thai Air Carriers? A Preliminary Case Study of One-Two-Go Airlines” (Bunyavejchewin, 2022, p. 143).
58	“The strategic capability of Asian network airlines to compete with low-cost carriers” (Pearson et al., 2015, p. 1).
59	“Service quality and intention to recommend in low-cost and full-service airlines in Turkey” (Sari & Sener, 2022, p. 297).
60	“Key Factors Affecting Thai Passengers’ Selection of Low-Cost Airlines” (Lee & Sriworrarat, 2019, p. 67).
61	“Divergence of Aviation Finance Markets: Lulls Before the Storm or Growth?” (Yu, 2021, p. 9).
62	“Airline Passengers’ Willingness to Reserve Inflight Meals Online and Their Willingness to Pay for Meal Upgrades: The Case Study of US Students” (Hwang et al., 2023, p. 1).

Sources: Compiled by Author (2024).

To achieve rich and deep data, the researcher conducted a thematic analysis of data from annual reports, sustainability reports, and online journal articles, as recommended by Guthrie (2006). Data gathered through the literature review were combined with those collected through qualitative annual and sustainability reports prior to data analysis. Creswell (2016) highlights the positive impact on validity when multiple qualitative data sources are used in a single study. This combination of multiple qualitative sources augured well for the accuracy, consistency, and trustworthiness of the qualitative aspect of this research, according to Marshall and Rossman (2016) and Santos et al. (2020). After merging, the scripts were comprehensively verified for validation. Creswell (2014) suggests the use of triangulation as a validation tactic. Also, the convergence of multiple data sources during qualitative data collection resulted in trustworthiness and rigour (Creswell, 2016).

3.7.4 Mixed Methods

Mixed methods fit the research questions. The study asks both “how much” (magnitude and direction of effects) and “how/why” (mechanisms and organisational processes). A convergent parallel mixed-methods design is fit-for-purpose because it allows (a) contemporaneous estimation of the impact of operational ratios on profitability (quantitative strand) and (b) simultaneous identification of process/structural enablers (qualitative strand), followed by integration to assess convergence feasibility (Greene et al., 1989; Creswell, 2014; Creswell & Creswell, 2018; Demir & Pişmek, 2018). Quantitative results answer RQ1–RQ3 with effect sizes and between-model differences; qualitative results explain how leadership, learning, fuel discipline, fleet policy, and pricing architecture shape those effects. Merging the two strands prevents the “parallel but disconnected” problem by forcing point-by-point corroboration or contradiction at the level of each finding.

This parallel integration aligns with the research questions. The side-by-side comparison approach (Creswell & Creswell, 2018) is applied because research questions produce two complementary outcomes, a statistical result and a process explanation, that require direct comparison. For example, suppose regression shows CASK exerts a stronger negative effect on FSC margins than on LCC margins, the qualitative strand must either confirm (e.g., multi-type fleets, premium service intensity) or challenge that pattern (e.g., recent asset-light moves).

Reporting them sequentially under each finding makes the fit-to-question explicit and avoids parallelism without synthesis.

The quantitative archival data is suitable for gathering numeric data on the business outcomes of the airline models. On the other hand, qualitative archival data is assembled to facilitate an in-depth understanding of the supply chain phenomenon from the perspectives of authors of peer-reviewed articles and airline managers (Vaismoradi et al., 2013; Miller et al., 2021). These two data sources were combined after analysis to determine the extent of convergence, thereby enhancing the feasibility.

The researcher adopted Creswell and Creswell's (2018) method, to achieve the needed convergence. First, qualitative data were analysed by coding data and deriving themes from those codes. Second, quantitative data were analysed using statistical testing. Finally, the two databases were integrated during the mixed-methods data analysis.

When merging the two databases, the researcher employed Creswell and Creswell's (2018) "side-by-side comparison". This comparison appears in the discussion segments of this mixed methods study. The researcher presented a report of the statistical findings, followed by a report of the themes endorsing or contradicting the statistical results. For instance, a large gap between LCCs' and FSCs' operational and profitability ratios, accompanied by low levels of change management and transformational leadership among FSCs, would lead to a preliminary conclusion of the infeasibility of FSCs converting their supply chain to that of LCCs.

Interpretive Hypotheses: HA1–HA3 were developed to test the impact of cost- and revenue-efficiency indicators on the profitability of publicly listed airlines operating in Asia and Australasia. To ensure the hypotheses could be examined objectively and aligned with the study's theoretical framework, operational definitions were established for all key variables.

These operational definitions enabled empirical evaluation of hypotheses HA1–HA3 through statistical modelling, positioning efficiency indicators (e.g., CASK, RASK, LF, Fuel-to-Opex, Payroll-to-Revenue) as independent variables and profitability (Operating Margin) as the dependent variable. Because the study employed a census of publicly listed airlines rather than a sample, hypothesis testing emphasised comparative model interpretation rather than statistical inference. Standardised beta coefficients were compared across FSC and LCC models to assess the relative magnitude and direction of efficiency effects on profitability, enabling an evidence-based interpretation of supply-chain convergence. These hypotheses were tested through multiple regression analysis and two-way ANOVA to quantify the relative effects of efficiency variables on profitability and to compare mean performance between FSCs and LCCs.

This approach aligns the study's quantitative strand with its teleological–dialectical framework, ensuring that statistical outcomes can be meaningfully interpreted in relation to leadership adaptation, structural transformation, and operational convergence across FSC and LCC models.

3.7.5 Quantitative Data Analysis

A convergent parallel mixed methods design facilitates the separate analysis of quantitative and qualitative data before the two types of data are merged (Creswell, 2014). Before starting quantitative data analysis, a scrutiny and review of the gathered data were conducted to detect errors and inconsistencies, followed by coding of the airlines, and entry into IBM SPSS (Vittana.org, 2018). The researcher utilised analytical statistics.

Regression analysis involved manipulating the predictor variables to determine the value of the criterion variables, and variance analysis was used to determine the contributions that different experimental factors make to the overall variability of the data, as expressed by their variance. This study used the IBM SPSS software package, from which results were presented in tables and charts. Finally, the researcher presented the implications, discussions, and recommendations sections. Like Franks (2024), the researcher sought help from Laerd Statistics when analysing the quantitative data.

The researcher conducted statistical tests to reflect on the following quantitative objectives of the study, as recommended by Ali and Barliana (2017): (i) To determine the significant impact of cost-related independent variables on the profitability of publicly traded LCCs and FSCs in Asia and Australasia; (ii) To determine the significant impact of revenue-related independent variables on the profitability of publicly traded LCCs and FSCs in Asia and Australasia; (iii) To establish the substantial differences in operational efficiency ratios between publicly traded LCCs and FSCs operating in Asia and Australasia; (iv) To determine the extent to which the COVID-19 pandemic affects the substantial impact of independent variables on the dependent variable of publicly traded FSCs and LCCs operating in Asia and Australasia. Analysing at such a minute level facilitated the shedding of light on the outcome of both airline models, and the differences between the variables of the two airline models.

The research hypotheses, which are in sync with the research questions 1 to 3, were tested at the yearly and multi-year levels. Furthermore, the research hypotheses demarcate the exact variables operationalised (i.e. operating margin, fuel to operating cost, payroll to revenue, passenger yield, YOY passenger growth, CASK, LF, and RASK), as shown in Table 26. The following clearly stated variables made it possible for the researcher to test (a) the differences in impact of the independent variables (fuel to operating cost, payroll to revenue, passenger yield, YOY passenger growth, CASK, LF, and RASK) on the dependent variable (operating margin) of the same airline model (b) existing variances between similar variables the two airline models. Furthermore, the researcher analysed the impact of COVID-19 as a moderating variable.

While the variables "net profit" and "YOY passenger growth" are interval data, CASK, RASK, LF, passenger yield, fuel to total operating cost, and payroll to revenue are ratio data.

Table 26

Research Questions and Associated Hypotheses, Statistical Test and Software

Research Questions	Alternative hypotheses	Statistical tests and designs	Software used
1. What are the significant impacts of cost-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs operating in Asia and Australasia?	The operating margin of publicly traded LCCs in Asia and Australasia is impacted to a greater extent by the cost-related ratios of CASK, LF, fuel to operating cost, and payroll to revenue, relative to FSCs.	Hierarchical multiple regression was employed: Longitudinal retrospective design	SPSS
2. What are the significant differences between Asian and Australasian publicly traded LCCs and FSCs in operational efficiency, profitability, and market growth?	The cost-related and revenue-related variables of Asian and Australasian publicly traded FSCs are significantly different from those of LCCs.	Two-way ANOVA and Independent samples t-test; Cohen's d; backward Longitudinal retrospective design and Comparative case studies	SPSS

*Source***:** Created by Researcher.

Both ratios and intervals are continuous variables expressed as mean, median, mode, range, and standard deviation for the population (Andrade, 2021).

McCoach et al. (2013) posit that a construct can be operationally defined by specifying the procedures used to measure the construct. Hence, an operational definition expresses how to capture (measure) the value. Table 27 depicts the two constructs (operational efficiency and profitability ratios) used in this research, their associated variables, and how to measure them.

Table 27
Operational Definitions of Constructs

Constructs	Associated variable	Measurements
Operational efficiency	RASK, CASK, and passenger yield	1-100 US cents
Operational efficiency	LF, payroll to revenue, fuel as a % of operating cost	Positive percentages
Profitability	Operating margin	Negative and positive percentages
Operational efficiency	YOY passenger growth	Negative and positive percentages

*Source***:** Created by the Researcher.

The analysis plan fits the research questions in many ways. The analysis plan mirrors the logic of the questions: regression models estimate whether operational drivers move operating margin within each model (RQ1–RQ2), t-tests and Cohen's d assess mean differences in key ratios across models, and two-way ANOVA evaluates whether FSC–LCC differences depend on context (years/COVID; headquarters). Reporting effect sizes alongside model coefficients emphasises practical significance for managerial feasibility, consistent with a DBA focus on decision-useful evidence. At the same time, the convergent mixed-methods integration tests whether the observed quantitative patterns are explained by documented changes in leadership, culture, and operations (Creswell, 2014; Creswell & Creswell, 2018).

3.7.6 Qualitative Data Analysis

This research employed thematic analysis of qualitative data, using coding as a method of analysis. Although hand coding is a difficult and lengthy task (Gurcan & Cagiltay, 2019), this research hand-coded the secondary qualitative data gathered. Some qualitative researchers have avoided hand coding by relying extensively on software such as CAQDAS, QualCoder, and Quirkos (Brailas et al., 2023; Nelson et al., 2021). The primary reason for using hand coding, instead of coding software, was that the researcher would have to invest too much time into getting competent at the computer program before he could proficiently use such coding software (Elliott, 2018). Gibbs (2014) claims that learning difficult software can distract the researcher from the actual analysis, which should be his priority. Hence, hand coding has been recommended for novice and student researchers, like this researcher, who are still developing research competencies.

The qualitative data were coded manually rather than using software such as NVivo or Atlas.ti. This manual approach was selected to maintain interpretive proximity to the data and ensure transparency in aligning codes with the study's theoretical framework. Coding was conducted in Microsoft Word and Excel**,** following the six-phase thematic analysis model outlined by Braun and Clarke (2021). First, all textual data from annual and sustainability reports were read repeatedly for familiarisation. Second, initial codes were generated manually and recorded in a codebook. Third, codes were grouped into categories reflecting the constructs of Hayes's process theory (teleological–dialectical change, requirements analysis).

Fourth, themes were developed through axial coding to link categories across cases and time periods. Fifth, the themes were reviewed and refined to ensure internal coherence and consistency with RQ4–RQ5. Finally, themes were named, defined, and interpreted**,** culminating in narrative findings that directly informed the mixed-methods integration. To ensure reliability, the researcher re-coded 15% of the data after a one-week interval to test intra-coder consistency, achieving agreement of over 85%. Peer debriefing with a qualitative methods specialist was also conducted to verify the stability of code definitions and theme structure.

During the qualitative data analysis, coding decomposes the qualitative data and later recombines them in a more useful and valuable manner (Creswell, 2016). The researcher understood that codes emerge when words, phrases, and meaning units are repeated in the data. Waqas, Hamzah and Mohd Salleh (2021) and Wicks (2017) describe the coding process as first developing coding, then categories, and finally themes. While coding is used for lower levels of analysis at the early stages of the coding cycle, categories and themes are used at a higher level of analysis to explain a group of codes that are in some way associated or unified (Brailas et al., 2023).

Brailas et al. (2023) claim that codes need to be grouped into wider themes or categories for the emergence of the meaning of the data to occur. According to Cuenca (2021), categories emerge when codes are grouped based on comparable and interconnected concepts. Grodal et al., 2021) argue that the creation of categories represents a move in the direction of the abstraction of the data, which accentuates the general, rather than the specific or anecdotal. Finally, themes emerge when categories are cross-examined to provide more insight into answering the research question (Creswell, 2016).

The researcher created a code handbook/framework in Microsoft Word to which codes were pre-assigned based on the qualitative research questions, the theory of change management and conceptual frameworks of requirements analysis (Attride-Stirling, 2001). Hence, during data analysis, the researcher first determined the codes and then found excerpts from the transcript that fit each code. This is in line with Haug et al. (2021) argument that through deductive and theory-based coding, the researcher applies predetermined codes to the datasets derived from the review of documents. "Deductive and theory-based coding means that codes are founded in theories or hypotheses and are defined a priori" (Michael, 2001, p. 84).

The researcher also used inductive (i.e., data-driven) coding. Inductive coding allowed the researcher to develop emergent codes when the data were read and analysed repeatedly. Emergent codes arise from the data itself, independent of any existing expectations (Marshall & Rossman, 2016). Text highlighting was used to the extent that it helps in classifying and identifying the data fragments.

The researcher utilised In-Vivo, descriptive, process, and axial codes during data analysis. By using In-Vivo codes, the researcher extracted exact words from the transcript as a code (Saladana, 2016), while process coding and descriptive coding allowed the researcher to discern structures and processes. Descriptive codes are associated with the qualitative research questions, as recommended by Elliot (2018). Finally, the research used Axial coding to connect two or more codes, organise codes created in the previous stages of the cycle, and finally categorise codes (Vollstedt & Rezat, 2019). Linneberg and Korsgaard (2019) assert that while In-Vivo, descriptive, and process codes exemplify deductive coding, axial coding falls under inductive coding. Hence, based on Linneberg and Korsgaard's (2019) assertion, the researcher used different codes at various stages of the coding cycle to develop themes.

Since the research used the convergence parallel mixed methods design, qualitative and quantitative data were analysed separately before triangulation (Creswell & Clark, 2018), and then combined using the side-by-side comparison convergent approach.

In sum, each methodological choice is instrumental to the questions posed: archival ratios and census coverage quantify what changed and by how much; thematic analysis of firm reports and scholarly literature explains how and why those changes occurred; and convergent integration ensures that outcomes and processes are interpreted together rather than in isolation (Creswell, 2014; Creswell & Creswell, 2018; Greene et al., 1989).

3.8 Assumptions, Limitations, and Delimitations

3.8.1 Assumptions

This study assumes that the secondary financial and operational data extracted from airline annual reports, investor briefings, and regulatory filings are accurate, complete, and prepared in accordance with International Accounting Standard (IAS) 27 and International Financial Reporting Standard (IFRS) 10. It is further assumed that the constructs defining FSCs and LCCs remain conceptually stable across the Asia-Australasian region, thus enabling valid comparative analysis of cost and revenue efficiency.

It is also assumed that the chosen variables, including CASK, RASK, passenger yield, load factor, fuel-to-operating-cost ratio, payroll-to-revenue ratio, and operating margin, sufficiently represent the quantitative dimensions of supply chain conversion and operational efficiency. These constructs are assumed to represent consistent and reliable indicators of airline performance over time.

Additionally, it is presumed that the researcher exercised neutral judgment during interpretation and that prior professional experience enhanced rather than biased analytical depth. The analysis assumes that leadership and operational data cited from secondary sources (such as management commentaries and sustainability reports) genuinely reflect managerial intent and strategic outcomes, and that audited disclosures faithfully represent underlying operational realities.

3.8.2 Limitations and Mitigation Strategies

Although the study’s methodological design was rigorous, several inherent limitations were acknowledged and proactively mitigated to preserve validity, reliability, and analytical depth.

Small population size: The limited number of publicly listed airlines in Asia and Australasia posed a challenge for inferential power. To address this, the researcher employed a census methodology, including the entire population of eligible airlines rather than a sample. This approach eliminated sampling error, enhanced representativeness, and ensured that all available data were incorporated into the analysis, thereby improving external validity within the defined population.

Absence of pilot testing: As the study relied exclusively on secondary archival data, a conventional pilot test could not be conducted. However, the researcher mitigated this by implementing alternative validity and reliability checks, including careful verification of data consistency, cross-referencing ratios across multiple years, and standardising measurement definitions. During tool construction and dataset preparation, the researcher conducted assumption tests (normality, multicollinearity, and variance homogeneity) to confirm analytical soundness.

Secondary data not fully tailored to the research questions: Because archival data were originally collected for financial reporting rather than academic research, not all variables aligned perfectly with the study's research questions. To address this limitation, the researcher collected information from a variety of sources, including annual reports, sustainability disclosures, investor presentations, and peer-reviewed journal articles, to ensure data saturation. This triangulation approach increased conceptual completeness and mitigated contextual gaps inherent in any single data source.

Differences in disclosure standards and accounting practices: Variations in fiscal calendars, financial terminology, and disclosure structures across national jurisdictions introduced potential comparability issues. This limitation was mitigated through data standardisation and currency normalisation, ensuring that all ratios were converted to common units (e.g., U.S. cents) and adjusted for temporal alignment. Where FSCs and their LCC subsidiaries presented consolidated statements, proportional allocations were performed based on ASK (Available Seat Kilometres) to maintain internal consistency.

Pandemic-era distortions: Data from 2020–2021 reflected extraordinary market conditions caused by the COVID-19 pandemic, potentially skewing trend analysis. However, the inclusion of these outliers was deliberate, as they captured authentic structural shocks and resilience patterns central to the research objectives. Analytical robustness was maintained by interpreting pandemic data within its temporal and contextual boundaries.

Researcher ideology and interpretive bias: The qualitative synthesis involved subjective interpretation of managerial narratives, which could have been influenced by researcher assumptions or preconceptions. To minimise this risk, the researcher employed thick description, presenting findings within their organisational and situational contexts. This approach enhanced transparency, allowed readers to assess interpretation validity independently, and ensured that contextual nuance was preserved. Reflexive awareness and the use of direct quotations further reinforced neutrality and credibility.

Scope of quantitative variables: While quantitative findings offered strong evidence of efficiency patterns, they could not fully capture qualitative constructs such as leadership capability, culture, and strategic alignment. This limitation was mitigated through the integration of qualitative archival and literature data, which provided depth, context, and theoretical interpretation consistent with the study's mixed-methods design. Through these deliberate actions, the researcher maintained methodological rigour despite the constraints of secondary data, aligning with doctoral research standards of validity, triangulation, and theoretical consistency (Yin, 2018; Creswell, 2014).

3.8.3 Delimitations

Delimitations were intentionally established to narrow the problem scope and ensure methodological coherence. The study is delimited to publicly listed FSCs, LCCs, and hybrid carriers in the Asia–Australasian region between 2015 and 2023. It excludes privately owned, charter, and cargo-only airlines due to inconsistent reporting and limited data transparency.

Conceptually, the study is framed by Hayes's (2022) Process Theory of Change and the teleological–dialectical synthesis framework, which together provide the theoretical lens for analysing strategic, operational, and leadership transitions during supply chain conversion. The investigation focuses on financial and operational efficiency during transformation processes while deliberately excluding constructs such as customer satisfaction, labour relations, or environmental sustainability to preserve analytical focus.

Geographically and temporally, the research is bounded to the post-deregulation and pre-/post-COVID-19 eras within Asia and Australasia. Methodologically, it is delimited to archival data analysis and mixed-methods integration, excluding surveys, interviews, or other primary research tools. These boundaries ensured analytical feasibility, theoretical precision, and alignment with the research questions.

Such delimitations, consistent with the recommendations of Saunders, Lewis, and Thornhill (2019), made the research manageable, structured, and methodologically coherent, allowing the investigation to remain sharply focused while maintaining academic rigour and practical relevance to the airline industry context.

3.9 Chapter Summary

Given this, according to Osuagwu (2020), research methods constitute the basis for generating knowledge across all disciplines, including business management. They are prejudiced by research issues, paradigms, or philosophy relevant to the research. This current study uses a mixed methods approach to determine variances between the supply chain of LCCs and FSCs and the factors impeding or facilitating FSCs' conversion to the supply chain of LCCs. In this section, issues such as research design, sampling methods, data collection methods, data analysis techniques, measurement scales, reliability and validity tests, etc., were addressed.

Given evidence that FSCs in Asia and Australasia have endured a protracted period of negative profitability and bankruptcy, worsened by the COVID-19 pandemic, the possibility that the AWA model could improve profitability, efficiency, and longevity in these regions has been argued. According to the Asian Development Bank (2023), although the Southeast Asian market increased at a much more rapid rate relative to the global average, the average profit margin of Southeast Asian airlines significantly lagged the global average. For instance, in 2019, the average net profit margin of the top ten leading airlines by revenue was 1.5% for Southeast Asia, while the global average net profit margin was 3.8% (Asian Development Bank, 2023). Furthermore, the failure rate of LCCs has been astronomical in Australasia (Srisaeng & Baxter, 2022; Ho et al., 2021).

Considering the intricate nature of the supply chain, a comprehensive enquiry is required. The multi-methods most suitable for this research facilitated the comprehensive enquiry needed to determine the feasibility of supply chain conversion, as stated by Greene et al. (1989). According to Greene et al. (1989), the quantitative approach helps the researcher delve into the outcomes, while the qualitative approach facilitates an exploration of the processes of both supply chains.

Since the quantitative analysis of both airlines had to be studied to compare and contrast their outcomes, the comparative case design was used as recommended by Pang, Liu and Xu (2022). During data gathering, the researcher targeted the entire populations of 23 LCCs and 22

FSCs through a census approach instead of establishing samples of these small populations. Furthermore, the longitudinal retrospective design resulted in many advantages, including enhancing the validity of the results.

The mixed methods approach and population were presented in detail. The researcher gathered quantitative data using a quantitative archival method, then conducted analytical statistics, such as variance and regression analyses, on those data using BMI SPSS (Abdulghani, 2023). While regression analysis determined the impact of the independent variable(s), such as the impact of LF and CASK on the operating margin of the two populations of LCCs and FSCs, variance analysis determined the difference between the same variables of the two airline models.

The researcher selected quantitative archival data to investigate CASK, RASK, net margin, passenger yield, payroll to revenue, fuel to total cost, passenger LF, and YOY passenger growth for airline models. To ascertain validity and reliability, the researcher recalculated ratios and confirmed the accuracy of the profitability and efficiency formulae used in this study. The researcher defined the variables and terms used in the research and fully explained ethical procedures and assurances (Sapkota, 2020; Olesen et al., 2019) and data analyses (Vittana.org, 2018).

The qualitative aspect of the research methodology aimed at collecting data on the processes of the airline models using open-ended questions in archival data and literature review. Given that qualitative research lends itself to researchers' interpretations and biases, this study adopted Lincoln and Guba's (1985) rigid standards of credibility, dependability, confirmability, and transferability. Finally, post-analysis, a pragmatic philosophy in conjunction with a convergent parallel mixed methods, was used to combine the qualitative and quantitative aspects of the study

(Maarouf, 2019; Henderson, 2022). Chapter 3 sets the foundation for data collection, analysis, and interpretation of the results in Chapter 4.

CHAPTER 4

PRESENTATION, ANALYSES AND DISCUSSION OF FINDINGS

4.0 Introduction

This research is crucial to future conversions of FSCs' supply chains to LCC models in Asia and Australasia because it provides a comprehensive analysis of gaps in functional requirements. It also evaluates the extent to which FSCs possess the structural and resource capabilities needed to close those gaps. The study pursued six research objectives: (i) to determine the significant impact of cost-related variables on the profitability of publicly traded LCCs and FSCs in Asia and Australasia, (ii) to assess the impact of revenue-related variables on profitability, (iii) to identify substantial differences in operational efficiency ratios between both airline models, (iv) to evaluate the extent to which COVID-19 affected the influence of independent variables on profitability, (v) to explore differences in the operational strategies of FSCs and LCCs, and (vi) to examine whether FSCs have the implementation structures required to achieve successful supply chain conversion.

The significance of this study lies in its position as the first requirements analysis-based assessment to explore the feasibility of developing a conversion blueprint for the region (Iqbal, 2022). It contributes by addressing research gaps between Western and Asia–Australasia studies (Law, 2022), offering insights that may reduce regional inflation (Smith & Cox, 2019), and supporting improvements in profitability following supply chain conversion (Kim & Lee, 2011).

Quantitative analyses identifying the effects of independent variables and supporting variance assessments revealed key supply chain issues and their underlying causes. Qualitative thematic insights then informed practical recommendations and enabled the development of a model for guiding future FSC–LCC conversions. These contributions benefit the researcher, airline managers, and investors by clarifying the strategic and operational intricacies of conversion (Ramadhan et al., 2022). Successful implementation has the potential to make air travel more affordable, expand demand, and strengthen regional tourism and investor confidence.

A mixed methods approach was adopted because the necessary independent and dependent variables were available for regression and variance analysis, and relevant qualitative data were accessible for thematic analysis of airline processes. The central quantitative question was: “How feasible is it for FSCs operating in Asia and Australasia to successfully convert their supply chain model to that of their LCC counterparts?”

Supporting quantitative questions addressed the effects of cost-related and revenue-related ratios on operating margin and the differences in efficiency, profitability, and YOY passenger growth between FSCs and LCCs. The central qualitative question explored gaps in the processes of both airline types and whether FSCs possessed the financial and structural capacity to close them. Related qualitative questions focused on differences in culture, cost structure, leadership style, and strategy, as well as how these characteristics enabled or hindered conversion. The mixed methods question assessed the extent to which qualitative findings confirmed or contradicted the quantitative results.

This chapter is organised around the research questions and hypotheses. It begins with an overview of the objectives and structure of the chapter, followed by a discussion of data trustworthiness, including how credibility was ensured, how data were verified, the methods used, and the coding procedures. This is followed by an outline of the reliability and validity considerations for the quantitative analyses. The chapter then presents the quantitative results, highlighting key outcomes, inter-model variances, and the influence of independent variables, before moving to the thematic results that identify process and strategy differences and the extent of FSCs' implementation readiness. These findings are further assessed in the discussion section, and the chapter concludes with a summary leading into Chapter Five.

Before presenting the findings, it is reaffirmed that the data in this chapter met established criteria for methodological rigour. As detailed in Chapter Three, the qualitative strand satisfied credibility, dependability, transferability, and confirmability through triangulation, thick description, and audit trails, while the quantitative strand demonstrated reliability and construct validity through internal consistency testing and factor analysis. These measures ensured both datasets were robust and aligned with the study's methodological foundations, allowing the findings to reflect authentic patterns rather than artefacts of bias or measurement error.

4.1 Quantitative Results

Quantitative methods were used to examine operational efficiency ratios because these metrics are best evaluated through numerical analysis. In this comparative case study of publicly traded LCCs (n = 23) and FSCs (n = 22) in Asia and Australasia, the quantitative approach enabled the identification of differences between the supply chains of both airline models and provided the foundation for determining whether FSCs possess the implementation structure required for supply-chain conversion. Given the small population size, a census methodology was adopted to ensure full population coverage (Singh and Masuku, 2014).

The quantitative strand examined the extent to which cost-related and revenue-related efficiency ratios influenced operating margin (ICAO, 2022; Asian Development Bank, 2023). Archival data validated by the UNICAF Research Ethics Committee were used to obtain objective financial and operational metrics such as profitability, market growth, and efficiency ratios (Alici and Sevil, 2022). This phase was guided by three central research questions:

Q1: What are the substantial impacts of cost-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs in Asia and Australasia?

Q2: What are the substantial impacts of revenue-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs in Asia and Australasia?

Q3: What are the substantial differences in operational efficiency ratios between publicly traded LCCs and FSCs in Asia and Australasia?

These questions were designed both to determine the influence of independent variables on operating margin and to assess the magnitude and direction of differences between FSC and LCC models in the regions. Understanding these variances is essential for identifying performance gaps and determining the feasibility of closing them (Šafář et al., 2023).

Asia and Australasia were selected due to historically low profitability in both FSC and LCC sectors, limited prior research, repeated failures of supply chain conversions, and the region's dependence on air transport for tourism, commerce, and inflation-sensitive goods markets. A longitudinal quantitative archival design was used to capture ratios from 2017 to 2021. Although longitudinal designs require more time (Bengey et al., 2023), they were ideal for this study because they reveal the sequence of events, allow the tracking of performance changes over time, establish exposure timing, and eliminate recall bias. The archival instrument captured demographic characteristics along with profitability, market-related, and cost-related efficiency ratios.

The regional context further justified the study. Many AWA and independent LCC strategies in Australasia have failed within five years (Mueller, 2020), while Asian airlines continue to experience lower profitability than peers in Europe and North America (IATA, 2023a; IATA, 2023b). FSCs globally struggle with high fares, declining market share, and limited adaptability (Yoon & Lee, 2021; Singh et al., 2021). Although many FSCs pursue AWA strategies to compete in both premium and budget markets (Heiets et al., 2021), such conversions have had mixed results in Asia and Australasia. The failures of Virgin Australia and Tigerair, and temporary suspensions by AirAsia Group, highlight vulnerabilities in cost structure, fleet strategy, labour design, and leadership alignment.

These failures often stem from deficiencies in the AWA model, including reliance on second-hand aircraft, restrictive staffing clauses, unionised constraints, incompatible hub-and-spoke networks, branding confusion, and product cannibalisation (Chow et al., 2022; Raynes & Tsui, 2019). Leadership misalignment has also undermined implementation, as shown in the case of Virgin Australia, where transformational leadership accelerated financial decline rather than stabilising performance (Liu, 2021; Kim & Cruz, 2022; Smith, 2015).

The quantitative analysis was therefore essential for identifying the operational variables that most strongly influence profitability within each airline model and for highlighting gaps between FSCs and LCCs. Regression and variance analyses provided a detailed understanding of outcome patterns and efficiency differences, which later informed the integrated mixed-methods interpretation. These results contribute directly to the construction of a blueprint for a feasible supply-chain conversion (Ramadhan et al., 2022).

Ethical issues were minimal since no human participants were involved; all data were publicly available (Granger et al., 2021). Standard ethical principles such as informed consent, anonymity, and debriefing were not applicable.

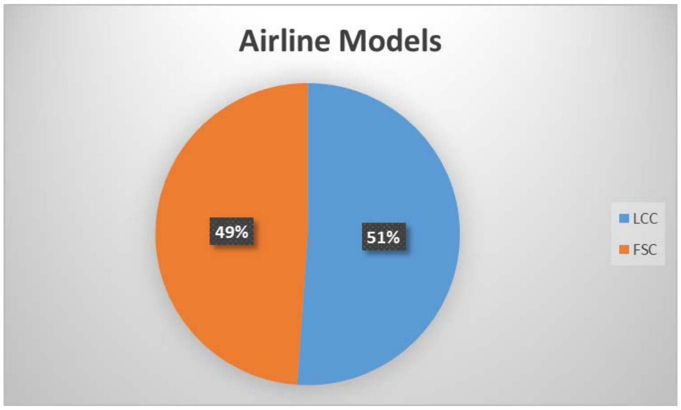
Demographic data included airline location, learning orientation, and year of operation, which were essential for contextualising variation in operational efficiency and for developing tailored strategies in the final blueprint. Descriptive statistics were produced using SPSS, with means used as measures of central tendency due to the parametric nature of the subsequent analyses (Cooksey & Cooksey, 2020; Wilkinson, 2009; Marshall & Jonker, 2010).

The next section presents the demographic profiles and descriptive summary of operational ratios for FSCs and LCCs, offering a detailed overview of the structural, geographical, and organisational characteristics of the airlines included in the study. It also provides a comprehensive breakdown of key efficiency indicators across both models, allowing for more precise comparisons of their performance foundations. This is followed by graphical representations that illustrate performance trends across learning organisations, airline types, and operational categories, highlighting observable patterns and directional shifts over time. These visual summaries capture changes in efficiency and profitability within both the pre-COVID and COVID-19 periods, enabling a deeper understanding of how external shocks and organisational structures shaped outcomes across the two airline models.

4.1.1 Demographics and Descriptive Statistics of Continuous Variables

LCCs account for a marginally larger share of the population (51.1 percent, n = 23) compared with FSCs (48.9 percent, n = 22), as shown in Figure 30. This near-equal distribution reinforces that both models are structurally embedded in the region and that any proposed conversion blueprint must accommodate mature market competition rather than emerging-model adoption.

Figure 30
Airline Models



Source: Research Output 2024.

Figures 31 and 32 show that 45 percent of FSCs and 35 percent of LCCs display strong learning-organisation characteristics, while 28 percent of both models show no meaningful learning capability. This pattern suggests that although FSCs may be slightly more culturally prepared for transformation, the large share of carriers lacking adaptive learning poses a major barrier to successful FSC–LCC conversion and helps explain repeated failures of AWA models in the region.

Figure 31
FSCs' Learning Organisation

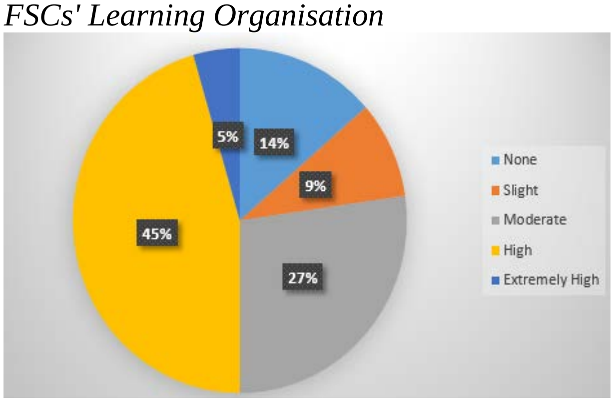
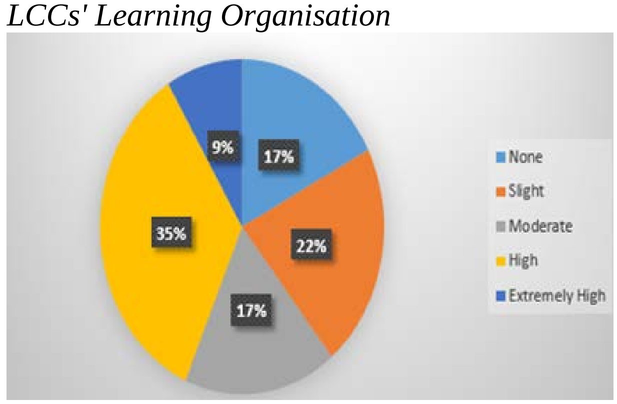


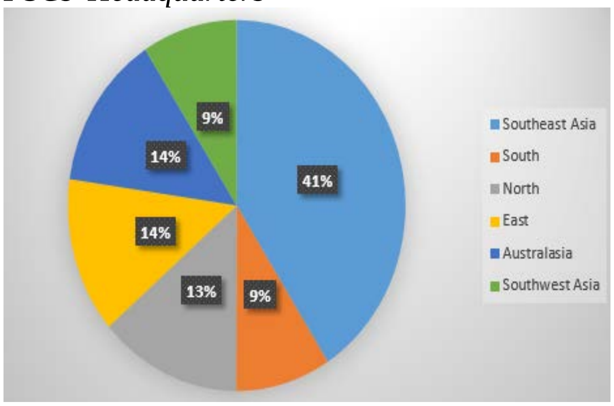
Figure 32
LCCs' Learning Organisation



Source: Research Output 2024.

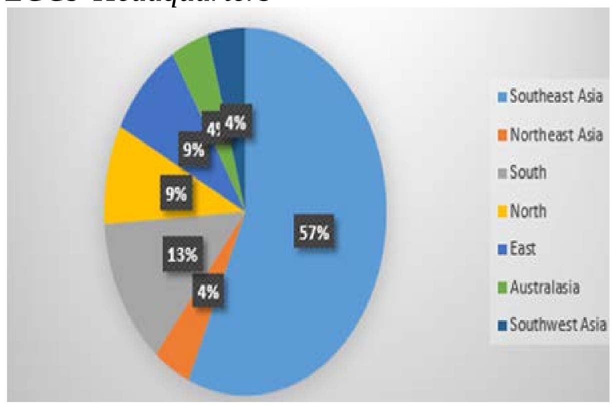
As shown in Figure 33 and Figure 34, Southeast Asia hosts the majority of FSCs and LCCs, reflecting its dense, fast-growing markets, while Australasia's smaller share mirrors higher labour costs, long-haul dependence, and tighter regulation, which later shape the payroll and fuel sensitivities observed in the regression results.

Figure 33
FSCs' Headquarters



Source: Research Output 2024.

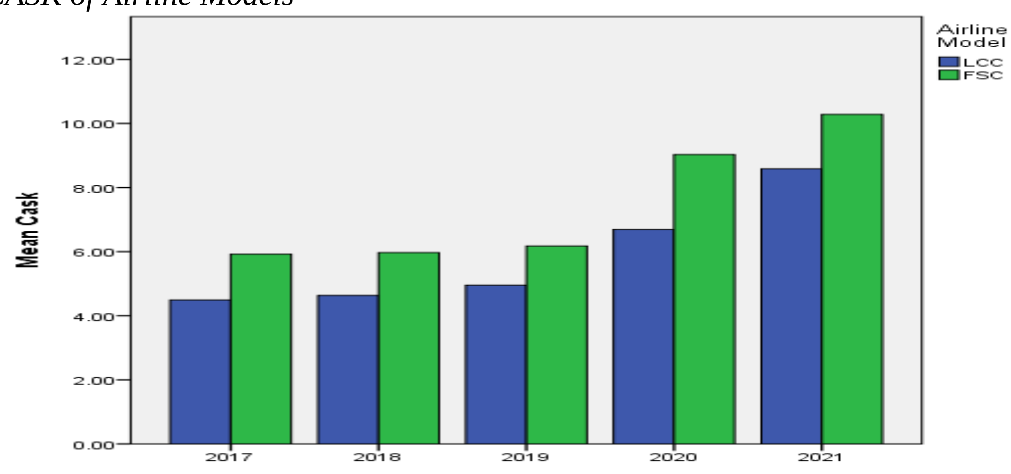
Figure 34
LCCs' Headquarters



Source: Research Output 2024.

As shown in Figure 35, FSCs maintained consistently higher CASK levels across all years, remaining stable pre-COVID before rising sharply in 2020–2021 for both models. This persistent CASK premium reflects deep structural rigidity driven by multi-cabin service, diverse fleets, and unionised labour. The pandemic spikes highlight how both models are vulnerable to fixed-cost exposure, yet FSCs' higher baseline indicates a more limited ability to compress costs during crises, reinforcing that meaningful CASK reduction is essential for any viable conversion.

Figure 35
CASK of Airline Models

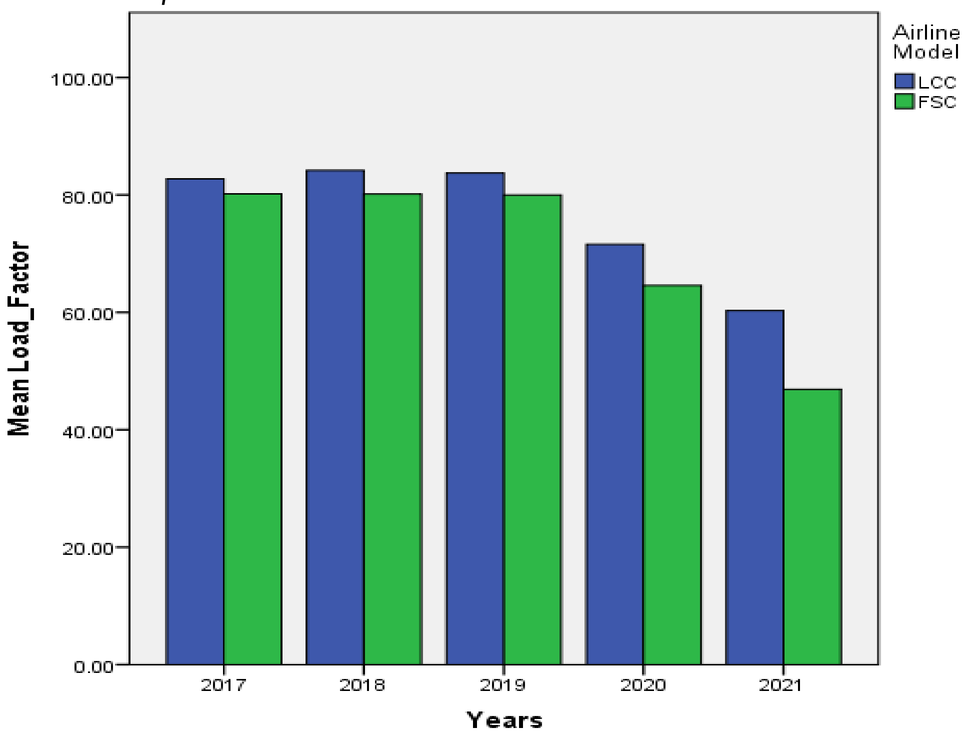


Source: Research Output 2024.

As shown in Figure 36, both models maintained stable load factors pre-pandemic, but COVID-19 led to sharper drops in FSCs' load factor. LCCs' consistently higher LFs reflect throughput productivity central to cost leadership, while FSCs' deeper decline signals weaker demand elasticity. This indicates that FSCs must redesign network and scheduling strategies to stabilise LF under volatility.

Figure 36

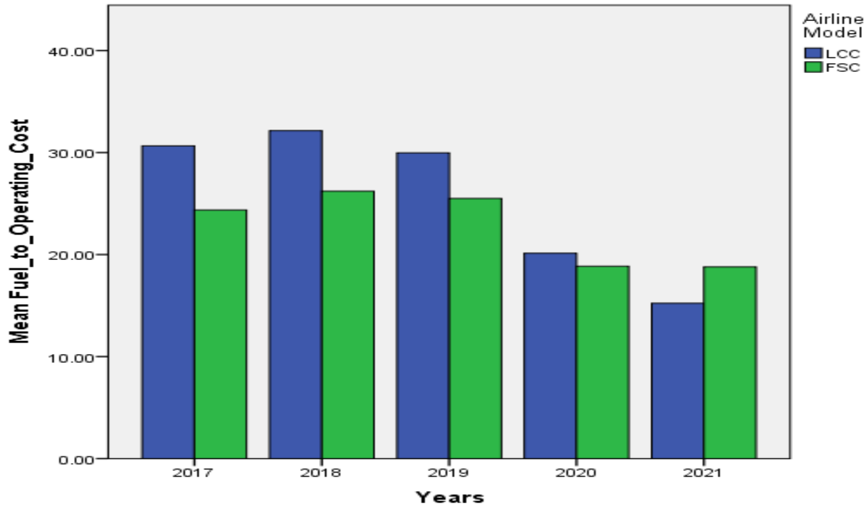
Load Factor of Airline Models



Source: Research Output 2024.

As shown in Figure 37, FSCs maintained lower fuel to operating cost ratios before COVID, yet LCCs achieved a sharper drop in 2021 to 15 percent, overtaking FSCs. This shift reflects LCCs' stronger ability to scale down and optimise fuel use through streamlined fleets and focused routes, while FSCs' wide-body fleets limited flexibility. The pattern confirms that fuel discipline, a core requirement for conversion, remains structurally more achievable for LCCs.

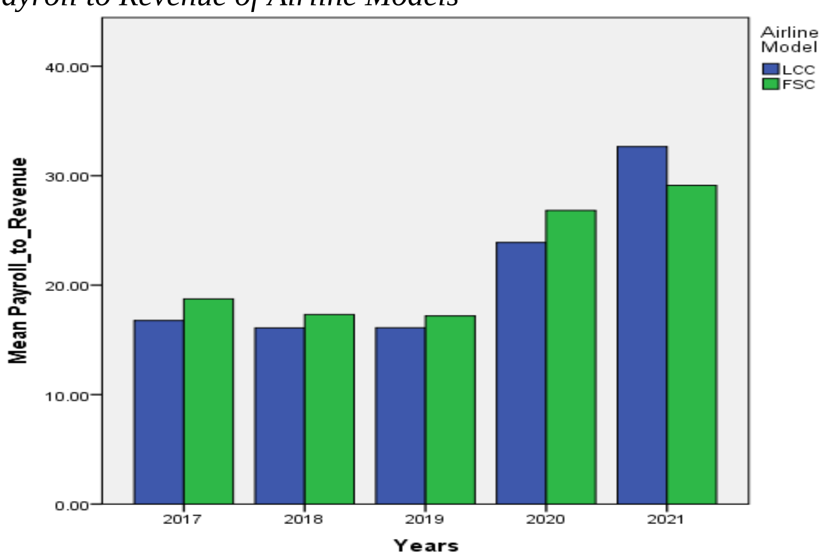
Figure 37
Fuel to Operating Cost of Airline Models



*Source***:** Research Output 2024.

As shown in Figure 38, payroll ratios rose for both models during the pandemic, driven mainly by collapsing revenue rather than rising wages. FSCs' higher pre-COVID ratios reflect structural wage rigidity tied to unionised labour and service-heavy operations, while LCCs' lower baseline shows greater flexibility. For FSC conversion feasibility, meaningful labour redesign is essential, since cost convergence cannot occur without it.

Figure 38
Payroll to Revenue of Airline Models

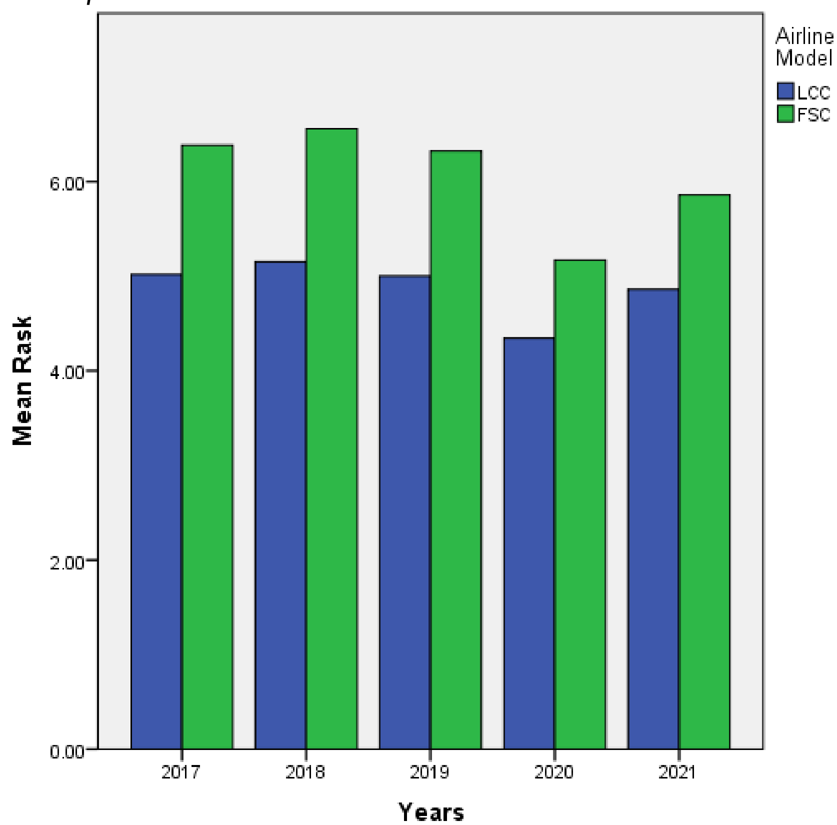


Source: Research output 2024.

As shown in Figure 39, FSCs consistently achieved higher RASK than LCCs across all years, including during the pandemic, reflecting stronger pricing power, brand premium, and diversified revenue. Although both models declined during COVID, FSCs' higher RASK masks weak cost agility, indicating that conversion feasibility relies not on revenue strength but on overcoming deep structural cost disadvantages.

Figure 39

RASK of Airline Models

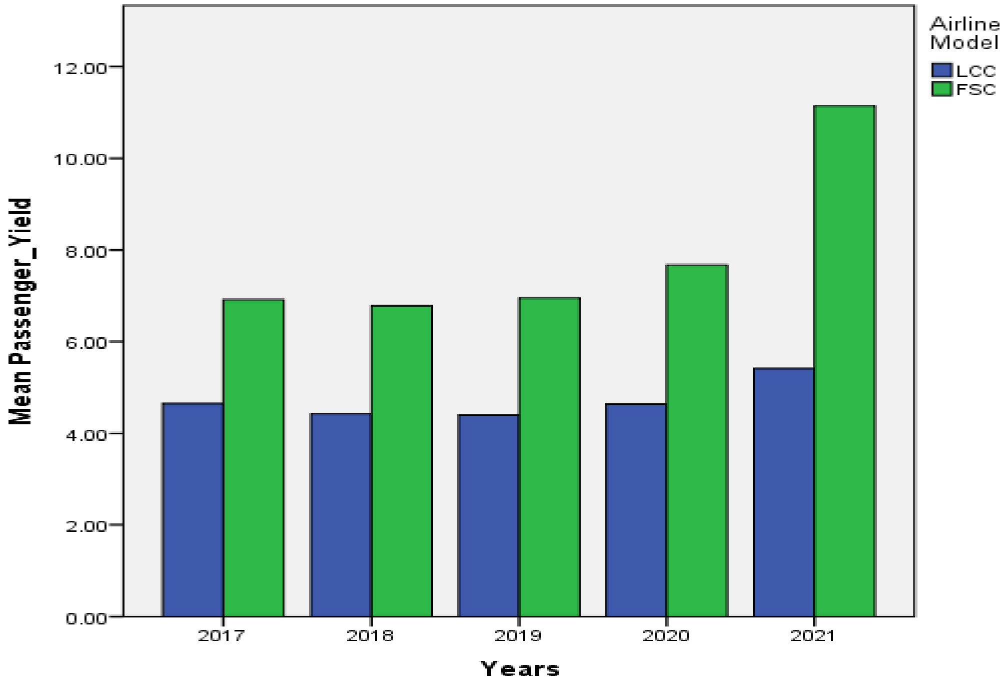


Source: Research Output 2024.

As shown in Figure 40, yields remained stable before COVID-19, with FSCs outperforming LCCs by an average of USD 2.39 and increasing further in the second pandemic year. This pattern shows that FSCs relied on fare segmentation and premium cabins to stabilise revenue during the downturn. However, this dependence also reveals a limit, since yield strength cannot fully counter high structural costs. For conversion to be feasible, FSCs must balance premium offerings with simplified operations that reduce unit costs.

Figure 40

Passenger Yield of Airline Models

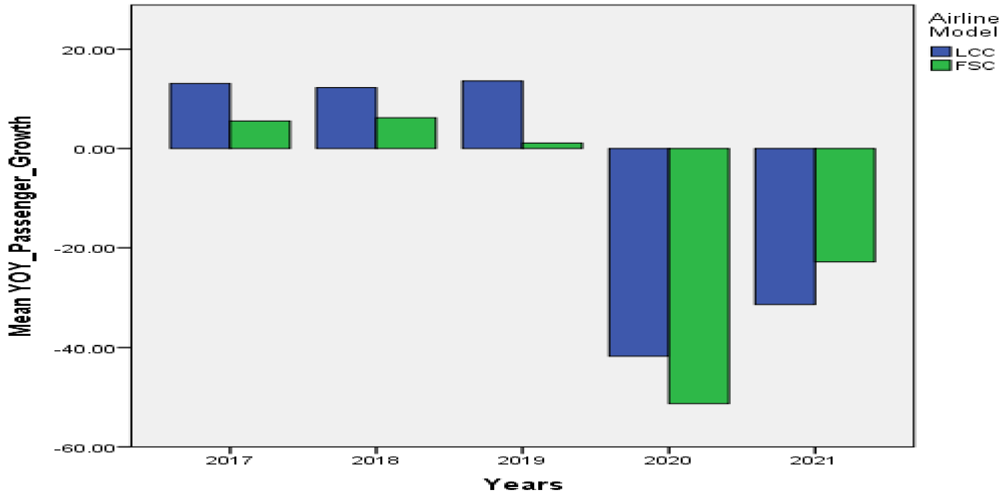


Source: Research Output 2024.

As shown in Figure 41, both models expanded pre-COVID (FSCs: 4.33 percent; LCCs: 13.02 percent), yet FSCs experienced a 48 percent steeper contraction during the pandemic. This sharper decline reflects weaker demand elasticity, heavier long-haul exposure, and slower recovery in premium and business segments. The pattern highlights a structural vulnerability in FSC demand profiles and reinforces that LCC-style market diversification and point-to-point routing are essential if FSCs intend to strengthen resilience and stabilise future growth trajectories.

Figure 41

YOY Passenger Growth of Airline Models

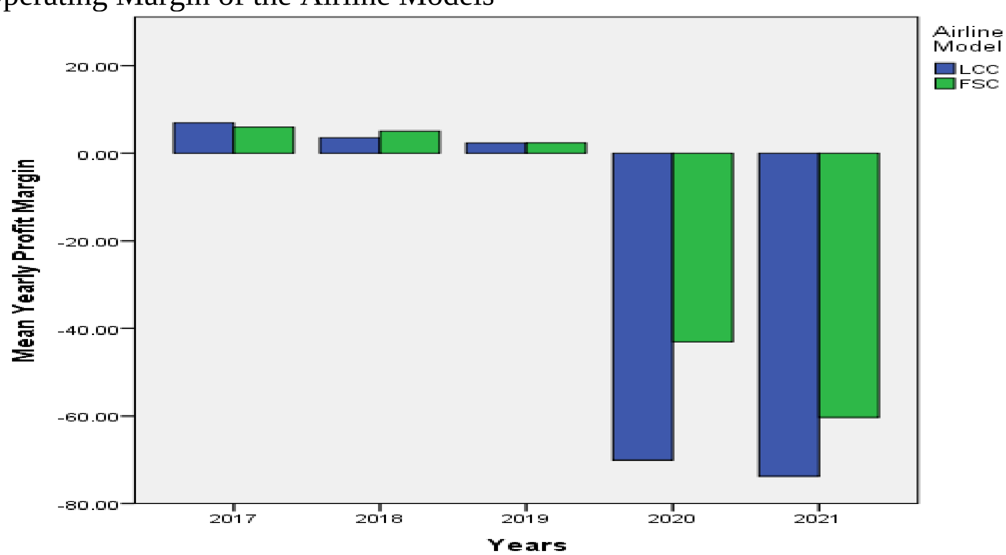


Source: Research Output 2024.

As shown in Figure 42, both FSCs and LCCs were profitable pre-pandemic, yet FSCs suffered losses more than 20 percent greater than LCCs during COVID-19. This disparity exposes a core structural gap: LCCs' flexible cost systems absorb shocks more effectively, while FSCs' rigid cost base magnifies downturn impacts. For conversion feasibility, transformation becomes a resilience requirement rather than merely a growth strategy.

Figure 42

Operating Margin of the Airline Models



Source: Research Output 2024.

LCCs slightly outnumber FSCs, yet both show limited learning capability. Regional patterns reveal Southeast Asia's dominance and Australasia's cost rigidity. Figures 30–42 show FSCs consistently burdened by higher CASKs and payroll, and by weaker LF resilience, with COVID-19 exposing deeper structural vulnerabilities. Next, a comprehensive report of the results of the quantitative data analysis was provided, which directly answered the following research questions:

4.1.2 RQ 1: What are the substantial impacts of cost-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs operating in Asia and Australasia?

The following results directly answered the research question, "What are the substantial impacts of cost-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs operating in Asia and Australasia?" This study focused on determining the strength of the impact of multiple independent variables and one dependent variable. Hence, the main objective that the researcher sought to achieve with the output from the multiple regression was to determine the proportion of variation in the dependent variable explained by the independent variables. Consequently, the researcher took the following three steps during the interpretation and reporting of results from the hierarchical regression.

First, the researcher determined whether the multiple regression model was a good fit for the data (R^2). Second, the researcher understood the coefficients of the regression model. Finally, the researcher made predictions of the dependent variable based on the values of the independent variables. β of 0.00–0.10 was deemed very weak to negligible, 0.10–0.30 was small to moderate, 0.30–0.50 is moderate to strong, and greater than 0.50 is strong to very strong (Cohen, 1988). In line with established effect size conventions (e.g., Cohen, 1988), standardised beta coefficients (β) were interpreted based on their magnitude with only value approximately to or above 0.30 interpreted as practically important.

Additionally, when running hierarchical regression, the researcher includes the change in R^2 to represent the magnitude of change in operating margin (i.e., the dependent variable) as independent variables are added to the model. ΔR^2 of .01–0.09 indicated weak explanatory power, .10–.29 indicated moderate explanatory power, .30–.49 indicated strong explanatory power, and greater than .50 very strong explanatory power (Cohen, 1988). In line with established effect size conventions (e.g., Cohen, 1988), ΔR^2 was interpreted based on its magnitude, with only values greater than 0.10 interpreted as practically important. Adjusted R^2 was deemed unnecessary because the analysis was based on census data rather than a sample; hence, there was no sampling variability to adjust for, and R^2 adequately reflected the explanatory power of the independent variables (Smith & Jones, 2023). Nevertheless, the limitations of R^2 in contexts of unequal population size were acknowledged during interpretation. Although t-value and p-value are included in the tables and reports, they were of little importance since they are concepts used in statistical analysis. Consequently, when the word "significant" is used, it helps assess real-world significance, that is, the magnitude or effect size.

The researcher tested the cumulative impact of adding cost-related predictors of CASK, then LF, then payroll to revenue, and finally fuel to operating cost, on the operating margin of LCCs and FSCs as shown in Tables 28 and 29. Likewise, the researcher sequentially tested the impact of adding revenue-related predictors of RASK, then passenger yield, and finally YOY passenger growth on operating margin as shown in Tables 30 and 31. This reflects the scope of the research questions and objectives, which separate the impact of cost-related and revenue-related operational variables on operating margin.

The researcher mean-centered the predictors to enhance interpretability and reduce multicollinearity. The researcher also ran multicollinearity testing to assess for high multicollinearity among predictors by determining Variance Inflation Factors (VIFs). VIFs measure how much the variance of a coefficient is inflated due to multicollinearity (Keith, 2019). The findings of VIFs below 5.0 indicated that multicollinearity was not a concern in the final models of this research.

Operational Cost as a Predictor of Operating Margin.

Low-Cost Carriers: A hierarchical multiple regression was conducted using census methodology ($N = 107$) to predict operating margin based on CASK, LF, Payroll to Revenue, and Fuel to Operating Cost, as presented in Table 28. In the first model, CASK alone significantly and negatively predicted operating margin, $B = -10.94$, $\beta = -.076$, $t(105) = -5.28$, $p < .001$, explaining 21.0% of the variance ($R^2 = .210$, $F(1, 105) = 27.85$, $p < .001$). In the second model, LF was added, significantly improving the model, $R^2 = .300$, $F(2, 104) = 22.33$, $p < .001$, $\Delta R^2 = .091$. LF was a significant positive predictor, $B = 2.00$, $\beta = .286$, $p < .001$, while CASK became marginally significant. The third model introduced Payroll to Revenue, which did not significantly contribute to the prediction, $\Delta R^2 = .001$, $p = .650$. In the final model, Fuel to Operating Cost was added, further improving the model ($R^2 = .347$, $F(4, 102) = 13.54$, $p < .001$, $\Delta R^2 = .045$). Fuel to Operating Cost was a significant positive predictor, $B = 2.07$, $\beta = .273$, $p = .009$. CASK was no longer a substantial predictor in the final model.

Within the operational efficiency and profitability framework, the regression results indicate that LCC profitability is driven primarily by operational efficiency, particularly high load factors and disciplined fuel management. These patterns reflect optimised fleet utilisation, rapid turnarounds, and tight procedural control, which are hallmarks of productivity rather than simple cost minimisation. The non-significance of CASK and payroll ratios implies that once standardisation is achieved, additional cost compression yields diminishing returns. Overall, the findings show that profitability is sustained through continuous efficiency optimisation, confirming that agile and high-utilisation operations, not static cost reduction, underpin long-term financial performance.

Full-Service Carriers: A hierarchical multiple regression was conducted using census methodology (N = 102) to examine the predictive ability of CASK, LF, Payroll to Revenue, and Fuel to Operating Cost on Operating Margin, as presented in Table 29. In Model 1, CASK significantly and negatively predicted Operating margin, B = -4.51, β = -.493, t(100) = -3.73, p < .001, accounting for 37.1% of the variance (R^2 = .371). Model 2 included LF, a significant positive predictor, B = 0.68, β = .282, t(99) = 2.52, p = .013. This model accounted for 43.2% of the variance, ΔR^2 = .061, F(2, 99) = 22.43, p < .001.

Table 28
LCCs' Multiple Regression Results: Cost-Related Variables as Predictors of Operating Margin

Predictor	B	SE B	β	t	p	R^2	ΔR^2
Model 1						.210	–
Intercept	-27.59	6.54	–	-4.22	< .001		
CASK (centered)	-10.94	2.07	-.076	-5.28	< .001		
Model 2						.300	.091
Intercept	-27.59	6.18	–	-4.46	< .001		
CASK (centered)	-4.88	2.56	-.076	-1.90	.060		
Load Factor (centered)	2.00	0.55	.286	3.67	< .001		
Model 3						.302	.001
Intercept	-27.59	6.21	–	-4.45	< .001		
CASK (centered)	-4.58	2.66	-.076	-1.73	.088		
Load Factor (centered)	1.90	0.59	.286	3.21	.002		
Payroll to Revenue (centered)	-0.18	0.40	-.071	-0.46	.650		
Model 4						.347	.045
Intercept	-27.59	6.03	–	-4.57	< .001		
CASK (centered)	-1.82	2.78	-.076	-0.66	.514		
Load Factor (centered)	1.45	0.60	.286	2.43	.017		
Payroll to Revenue (centered)	-0.27	0.39	-.071	-0.69	.492		
Fuel to Operating Cost (centered)	2.07	0.78	.273	2.65	.009		

Source: Research Output 2024

Note. Model = "Enter" method of SPSS Statistics; b = standardised regression Coefficient; β = standardised coefficient; R^2 = Coefficient of determination; $\triangle R^2$ = change in R^2. N (LCCs) = 23.

In Model 3, Payroll to Revenue was added. It negatively predicted Operating margin, B = -1.00, β = -.185, t(98) = -1.79, p = .077, but did not reach conventional significance levels. The model explained 47.2% of the variance, ΔR^2 = .040, F(3, 98) = 21.45, p < .001. In Model 4, Fuel to Operating Cost was added and was a marginally insignificant positive predictor, B = 1.60, β = .159, t(97) = 1.80, p = .075. The final model explained 53.3% of the variance in Operating margin, ΔR^2 = .061, F(4, 97) = 27.63, p < .001. These findings suggest that CASK and LF are significant predictors of Operating margins, even after accounting for other operational variables.

Table 29

FSCs' Multiple Regression Results: Cost-Related Variables as Predictors of Operating Margin

Predictor	B	SE B	β (Standardized)	t	p	R²	ΔR²
Model 1 (CASK)						.371	–
Intercept	-15.79	3.82	–	-4.13	< .001		
CASK (centered)	-4.51	1.21	-.493	-3.73	< .001		
Model 2 (add Load Factor)						.432	.061
Intercept	-15.79	3.82	–	-4.13	< .001		
CASK (centered)	-4.07	1.22	-.445	-3.34	.001		
Load Factor (centered)	0.68	0.27	.282	2.52	.013		
Model 3 (add Payroll)						.472	.040
Intercept	-15.79	3.82	–	-4.13	< .001		
CASK (centered)	-3.89	1.21	-.421	-3.21	.002		
Load Factor (centered)	0.68	0.27	.285	2.56	.012		
Payroll to Revenue (centered)	-1.00	0.56	-.185	-1.79	.077		
Model 4 (add Fuel)						.533	.061
Intercept	-15.79	3.82	–	-4.13	< .001		
CASK (centered)	-3.89	1.21	-.392	-3.21	.002		
Load Factor (centered)	0.68	0.27	.270	2.56	.012		
Payroll to Revenue (centered)	-1.00	0.56	-.163	-1.79	.077		
Fuel to Operating Cost (centered)	1.60	0.89	.159	1.80	.075		

*Source***:** Research Output 2024.

Note. Model = "Enter" method of SPSS Statistics. b = standardised coefficient; β = standardised coefficient; R2 = Coefficient of determination; △R2 = change in R^2. N (FSCs) = 22.

Within the operational efficiency and profitability framework, the regression shows that CASK negatively and LF positively influence operating margin for FSCs. This means that higher operating costs reduce profitability, while efficient seat utilisation strengthens it. The results emphasise that financial performance depends primarily on an airline's ability to control unit costs and maximise capacity usage, rather than purely on revenue growth. Overall, the findings confirm that cost discipline and utilisation efficiency are the key operational levers driving profitability in FSC before model conversion.

4.1.3 RQ 2: What are the substantial impacts of revenue-related operational efficiency ratios on the operating margin of LCCs and FSCs operating in Asia and Australasia?

Revenue as a Predictor of Operating Margin

Low-Cost Carriers: A hierarchical multiple regression analysis was conducted to examine the effects of Rask, Passenger Yield, and YOY Passenger Growth on Operating margin, as represented in Table 30. In the first model, Rask (centred) was entered as a predictor. The model was not statistically significant, $R^2 = .009$, $F(1, n–2) = 0.96$, $p = .33$. Rask did not significantly predict Operating margin ($B = 3.54$, $SE = 3.62$, $\beta = .093$, $t = 0.98$, $p = .33$). In the second model, Passenger Yield (centred) was added. The model explained 0.9% of the variance, $R^2 = .009$, but the change in R^2 was negligible, $\Delta R^2 = .000$. Neither Rask (centred) ($B = 3.64$, $SE = 3.73$, $\beta = .095$, $t = 0.98$, $p = .33$) nor Passenger Yield (centred) ($B = -0.31$, $SE = 2.65$, $\beta = -.012$, $t = -0.12$, $p = .91$) were significant predictors in this model.

In the final model, YOY Passenger Growth (centred) was included. The overall model was statistically significant, $R^2 = .209$, $F(3, n - 4) = 4.74$, $p < .001$, with a meaningful increase in explained variance, $\Delta R^2 = .200$. YOY Passenger Growth (centred) emerged as a significant positive predictor of Operating margin ($B = 0.71$, $SE = 0.15$, $\beta = .449$, $t = 4.63$, $p < .001$). However, neither Rask (centred) ($B = 3.81$, $SE = 3.35$, $\beta = .100$, $t = 1.14$, $p = .26$) nor Passenger Yield (centred) ($B = 0.56$, $SE = 2.38$, $\beta = .021$, $t = 0.23$, $p = .82$) were significant in the final model. Overall, the results suggest that YOY Passenger Growth is the strongest predictor of Operating margin among the variables considered, with higher growth associated with higher operating margins. Neither Rask nor Passenger Yield demonstrated a significant effect on Operating margin in this analysis.

Within the framework of functional requirements, the main hierarchical regression results indicated that operational efficiency ratios, particularly CASK and LF, exerted the strongest negative influence on profitability, confirming that cost discipline remains the dominant performance driver. Conversely, revenue-side indicators such as RASK and passenger yield significantly enhance operating margins, demonstrating that profitability improves when efficiency gains are complemented by effective revenue management. The results underscore that LCCs' financial success depends on achieving an optimal balance between cost efficiency and revenue optimisation rather than pursuing either in isolation. Overall, the framework validates that operational efficiency is the foundation of sustainable profitability in both FSC and LCC models, albeit through different strategic levers.

Table 30
LCCs' Regression Results: Revenue-Related Variables as Predictors of Operating Margin

Predictor	B	SE B	β	T	p	R^2	ΔR^2
Model 1						0.009	–
Intercept	-26.34	7.02	–	-3.75	< .001		
Rask (centered)	3.54	3.62	0.093	0.98	0.33		
Model 2						0.009	0.0
Rask (centered)	3.64	3.73	0.095	0.98	0.332		
Passenger Yield (centered)	-0.31	2.65	-0.012	-0.12	0.906		
Model 3						0.209	0.200
Rask (centered)	3.81	3.35	0.100	1.14	0.258		
Passenger Yield (centered)	0.56	2.38	0.021	0.23	0.815		
YOY Passenger Growth (centered)	0.71	0.15	0.449	4.63	< .001		

Source: Research Output 2024
Note. Model = "Enter" method of SPSS Statistics; b = unstandardised regression Coefficient; β = standardised coefficient; R^2 = Coefficient of determination; $\triangle R^2$ = change in R^2. N (FSCs) = 22. N (LCCs) = 23.

Full-Service Carriers: A hierarchical multiple regression analysis, using a census methodology, was conducted to investigate the relationships between RASK, YOY Passenger Growth, and Passenger Yield as predictors of operating margin among all airlines in the study population, as represented in Table 31.

In Model 1, RASK (centred) was entered as the sole predictor of operating margin. The model accounted for 3.1% of the variance in operating margin ($R^2 = .031$), with RASK demonstrating a positive but non-significant relationship to operating margin (B = 3.95, SE B = 2.20, β = 1.60, t = 1.79, p = .076). In Model 2, Passenger yield (centred) was added. The addition of this variable resulted in a substantial increase in explained variance ($\Delta R^2 = .189$), with the model now explaining 22.0% of the variance in operating margin ($R^2 = .220$). In this model, passenger yield emerged as a significant positive predictor (B = 0.71, SE B = 0.14, β = 0.02, t = 4.90, p <

.001), while the effect of RASK decreased in magnitude and remained non-significant ($B = 2.60$, $SE\ B = 2.01$, $\beta = 1.05$, $t = 1.30$, $p = .198$). In Model 3, YOY passenger growth (centred) was included, resulting in a modest additional increase in explained variance ($\Delta R^2 = .027$), with the final model explaining 24.7% of the variance in operating margin ($R^2 = .247$). In this final model, RASK became a statistically significant positive predictor ($B = 4.51$, $SE\ B = 2.23$, $\beta = 0.32$, $t = 2.03$, $p = .046$). Passenger yield continued to show a strong and significant positive relationship with operating margin ($B = 0.58$, $SE\ B = 0.16$, $\beta = 0.38$, $t = 3.71$, $p < .001$). YOY passenger growth, however, demonstrated a negative relationship with operating margin, which approached but did not reach conventional significance ($B = -2.38$, $SE\ B = 1.27$, $\beta = -0.21$, $t = -1.88$, $p = .064$).

Within the framework of functional requirements, the preliminary main regression results indicated that FSCs sustain profitability largely through revenue-based mechanisms such as RASK and passenger yield, highlighting dependence on pricing power and market segmentation rather than internal efficiency. This profitability model demonstrates high revenue productivity but weak cost agility, where structural and payroll rigidity suppress operational leverage. The mild negative effect of growth reflects diseconomies of scale, as expansion amplifies existing inefficiencies instead of translating into margin gains. In contrast, LCCs achieve profitability through throughput efficiency, lean asset use, and cost discipline, generating higher returns per unit cost despite lower yields. This divergence underscores that FSCs' revenue-driven model achieves profitability through market control, not process optimisation. Ultimately, sustainable profitability requires strategic convergence, moving away from revenue dependency toward cost-responsive operations that strengthen productivity, utilisation, and margin resilience.

Table 31

FSCs' Regression Results: Revenue-Related Variables as Predictors of Operating Margin

Predictor	B	SE B	β	T	p	R^2	ΔR^2
Model 1						0.031	–
Intercept	-15.79	5.42	–	-2.92	.004		
RASK (centered)	3.95	2.20	1.60	1.79	.076		
Model 2						0.220	.189
Intercept	-15.79	4.89	–	-3.23	.002		
RASK (centered)	2.60	2.01	1.05	1.30	.198		
Passenger Yield (centered)	0.71	0.14	0.02	4.90	< .001		
Model 3						0.247	.027
Intercept	-15.79	4.82	–	-3.27	.001		
RASK (centered)	4.51	2.23	0.32	2.03	.046		
Passenger Yield (centered)	0.58	0.16	0.38	3.71	< .001		
YOY Passenger Growth (centered)	-2.38	1.27	-0.21	-1.88	.064		

Source: Research Output 2024.

Note. Model = "Enter" method of SPSS Statistics; b= unstandardised regression Coefficient; β = standardised coefficient; R^2 = Coefficient of determination; $\triangle R^2$ = Change in R^2. N (FSCs) = 22.

In this census-based research, differences in standardised beta coefficients (Δβ) are assessed for practical relevance. Δβ below 0.10 is negligible, 0.10–0.29 indicates a modest difference, 0.30–0.49 reflects a substantial divergence with strategic implications, and values of 0.50 or more suggest fundamentally different dynamics between the following operational efficiency ratios of FSCs and LCCs, guiding meaningful interpretation within the studied population (Cohen, 1988). Hence, while differences in standardised beta coefficients (i.e., β_{LCCs} - β_{FSCs}) of YOY passenger growth (.659) were fundamentally different, passenger yield (-.359) and CASK (.316) reflect substantial divergence, and RASK (-.22) and fuel to operating cost (.114) were modest differences. The difference in payroll to revenue (.092) and LF (.016) was negligible.

4.1.4 More Refined Regressions of the Airline Models

A total of 14 hierarchical regression tests were carried out: one for each subgroup. More specifically, five for FSC subcategories and nine for subcategories of LCCs. This section evaluated predictor significance by determining the proportion of subgroups within each airline model whose operating margins were significantly affected by the variable. While R^2 and $\triangle R^2$ determined models' goodness of fit and models' improvement, respectively, beta determined the direction and magnitude of individual predictors on operating margin. Hence, Substantial $\triangle R^2$ and R^2 are not treated as measures of inference about a population, but for practicality, as descriptive measures. Several ratios more favourably predicted operating margin for the subcategories of LCCs relative to those of FSCs and are highlighted in the following paragraphs.

Results: From Table 32, the following pattern of substantial impact of the predictor variables on operating margins of LCC and FSC subcategories emerges. First, the CASKs of 100% of the FSC subcategories on average substantially and negatively impacted their operating margin, while only about 44% of the LCC subcategories were on average substantially and negatively impacted by their CASKs. Second, while the LF has, on average, a substantial positive impact on 44% of LCC subcategories, it has a substantial and positive impact on only 20% of the FSCs' subcategories.

Third, the payroll-to-revenue ratio substantially reduced operating margins in 60 percent of FSC subcategories, whereas just under 33 percent of LCC subcategories were negatively affected by the same predictor. Fourth, fuel to operating cost exerted a very significant and positive effect on the operating margin in 80 percent of FSC subgroups, whereas the same predictor had, on average, a significant impact in only 44 percent of LCC subgroups.

On the revenue side, RASK had a substantial positive effect on the operating margin of 22 percent of LCC subgroups compared with 60 percent of FSC subgroups. YOY passenger growth did not meaningfully influence the operating margin of any FSC subgroup, but positively and significantly affected 44 percent of LCC subgroups at substantial levels. Passenger yield substantially improved the operating margin of 33 percent of LCC subgroups and, on average, 40 percent of FSC subgroups.

Among all revenue-related and cost-related variables, it was the only factor with less than a 10 percent difference between FSC and LCC subgroups significantly impacted by it, indicating that its influence on operating margin showed the smallest disparity between the two airline models.

Table 32

Results of Refined Regression Analysis

	Block 4 (Cost related)					Block 3 (Revenue related)				Overall	
Subgroups	**CASK**	**Load Factor**	**Payroll to Reven.**	**Fuel to Oper.**	**ΔR^2**	**YOY Growth**	**Yield**	**RASK**	**ΔR^2**	**Cost related R^2**	**Revenue related $AdjR^2$**
AWA-FSC Covid-19	β=-.546	β=.052	β=-.349	β=.638	.201	β=-.185	β=.401	β=.006	.161	.446	.275
FSC Pre-COVID-19	β=-.418	β = .048	β=-.381	β =.439	.320	β=.182	β=.252	β=.444	.119	.582	.327
FSC COVID-19	β=-.553	β=-.101	β=-.203	β=.602	.331	β=-.193	β=.151	β=.612	.159	.501	.301
AWA-FSC - 5 year	β=-.403	β=.103	β=-.533	β=.593	.194	β=.158	β=.111	β=.119	.114	.375	.316
Lone-FSC - 5 years	β=-.447	β=-.480	β=-.097	β=.208	335	β=-.031	β=.635	β=.518	.132	.519	.319
SHLCC over 5 years	β=-.300	β=.344;	β=-.189	β=.310	.101	β=.331	β=.095	β=.053	.185	.283	.309
LCC Pre-COVID-19	β=-.305	β=.333	β=-.450	β=.314;	.116	β=.495	β=.075	β=.127	.098	.253	.214
LCC COVID-19	β=-.154	β=.157	β=-.116	β=.199	.143	β=.225	β=.104	β=.075	.208	.341	.350
AWALCC - 5 years	β=-.332	β=.091	β=-.118	β=.304	.212	β=.116	β=.029	β=.116	.101	.409	.276
LHLCC - 5 years	β = -.230	β= .436	β=-.243	β=.440	097	β=.159	β=.439	β=.146	.096	.250	.298
LHLCC Pre-COVID-19	β=-.221	β=.424	β=-.056	β=.182	.189	β=.174	β=.402	β=.307	.109	.333	.311
LHLCC COVID-19	β=-.102	β=.089	β=-.164	β=.163	.112	β=.159	β=.114	β=.567	.201	.301	.343
SHLCC Pre-COVID-19	β=-.335	β=.143	β=-.429	β=.372	.283	β=.398	β= .364	β=.064	.088	.405	.282
SHLCC COVID-19	β=-.163	β=-.014	β=-.552	β =.054	.142	β=.370	β=.033	β= .195	.110	.259	.293
Number of FSC subcategories for which addition of variable substantially improved the model (i.e., ≳ .300)	**5/5**	**1/5**	**3/5**	**4/5**		**0/5**	**2/5**	**3/5**			
Number of LCC subcategories for which addition of variable substantially improved the model (i.e., β ≳ 300)	**4/9**	**4/9**	**3/9**	**4/9**		**4/9**	**3/9**	**2/9**			

Source: Research Output 2024.
B: Beta (-/+ = Direction of impact of predictors on operating margin)
R^2 = Coefficient of determination
$\triangle R^2$: Change in the coefficient of determination

Interpretation:

Regression-Based Interpretation of Functional Requirement Variables: This section presents the regression-based interpretation of the operational and revenue variables that shaped profitability across the airline models and their subgroups. Consistent with the functional requirement framework, the analysis highlights how cost structures, labour systems, revenue mechanisms, and operational efficiency affected operating margin under both stable and disrupted market conditions. The subsections below organise the findings around the major predictor categories and show how their effects varied across LCCs, FSCs, and their associated sub-models.

***CASK as a Predictor of Profitability*:** CASK did not significantly affect profitability for LCCs when the entire group was assessed (β =-.08). However, as shown in Table 32, it became highly significant within several subgroups. These included SHLCCs across the five-year period, pre-COVID LCCs, AWA-LCCs over five years, and SHLCCs before COVID-19. These patterns indicate that cost efficiency was a stronger profitability driver for smaller, regionally concentrated, or operationally constrained low-cost models. The role of CASK was especially pronounced prior to the pandemic, when operating environments were more stable.

For FSCs whose CASK was substantial when the entire group was assessed (β = -.392), CASK also emerged as a key cost driver across all subgroups. It was significant for AWA-FSCs during the COVID-19 period, for FSCs prior to the pandemic, and across AWA-FSCs over five years. These results highlight the persistent cost pressures faced by traditional and hybrid carriers and underscore how even marginal increases in unit cost can materially affect profitability during periods of financial strain.

Payroll to Revenue as a Predictor of Profitability: Payroll to Revenue did not significantly influence profitability for LCCs in the combined model (β=-.07), yet it was a substantial predictor for important subgroups. It significantly affected LCC and SHLCC performance both before and during COVID-19. This suggests that labour productivity, staffing flexibility, and wage discipline were particularly influential under volatile or capacity-restricted market conditions.

For FSCs, payroll to revenue was insignificant (β=-.163) at the aggregate level but meaningful within several subgroups. It significantly influenced AWA-FSCs during COVID-19, FSCs prior to the pandemic, and AWA-FSCs across five years. These findings indicate that wage structures and labour rigidity exerted stronger financial impacts within complex FSC and hybrid structures, particularly during periods marked by revenue volatility and operational disruption.

Fuel to Operating Cost as a Predictor of Profitability: Fuel to Operating Cost did not show a significant relationship with profitability for FSCs when evaluated as a whole (β=.159). However, it was significant within several FSC subgroups, including AWA-FSCs during COVID-19, FSCs before the pandemic, FSCs during COVID-19, and AWA-FSCs across the five-year period. These patterns indicate that fuel management practices, such as hedging, procurement efficiency, and flight operations control, generated context-specific financial effects. The influence of fuel cost was most apparent during periods of fluctuating global oil prices.

Fuel to operating cost overall impacted LCCs' operating margin (β=.273), but did not significantly influence profitability for any of the COVID-19-affiliated subgroups of the LCC model. This indicates that during the pandemic period, fluctuations in fuel expenditure did not materially affect operating margins, likely because demand shocks, limited hedging, capacity restrictions, and fixed-cost burdens overshadowed fuel-related cost dynamics. In these conditions, profitability was driven more by structural and revenue disruptions than by variations in fuel efficiency or fuel procurement strategies.

Load Factor as a Predictor of Profitability: Although the main regression results showed no statistically significant difference in the impact of load factor on operating margin between FSCs and LCCs (β=.286 vs β=.27), the refined subgroup analysis revealed a clear divergence between the two models. Load factor substantially and positively influenced operating margin in 44 percent of LCC subgroups but in only 20 percent of FSC subgroups, indicating that utilisation remains a more powerful profitability lever for LCCs. Among FSCs, only the lone FSC subgroup showed a substantial load factor effect, suggesting that most FSC subgroups benefit less from utilisation improvements because of structural constraints such as multi-type fleets and premium service designs.

In contrast, most LCC subgroups that did not show a significant load factor impact were operating under COVID-19 conditions, specifically SHLCC COVID-19, LHLCC COVID-19, and LCC COVID-19, which implies that pandemic-driven demand shocks rather than operational weaknesses temporarily weakened the relationship between load factor and profitability for LCCs. This refined analysis, therefore, highlights that while the main regression masked differences, load factor remains a more reliable profitability driver for LCCs than for FSCs under normal operating conditions.

Revenue Variables: RASK, Passenger Yield, and Year-Over-Year Passenger Growth: RASK did not significantly affect profitability for LCCs in the combined model but became important within specific long-haul low-cost configurations. It was significant for LHLCCs before and during COVID-19, demonstrating the reliance of long-haul LCCs on advanced revenue management capabilities to maintain viability.

Passenger yield followed a similar pattern. It was not significant for all LCCs collectively but exhibited strong effects for LHLCCs over the five-year period and for both LHLCC and SHLCC subgroups before the pandemic. These results indicate that revenue-based profitability levers become more important within long-haul or hybrid low-cost environments, where pricing and fare segmentation play a stronger role.

For FSCs, RASK was the only revenue variable with consistent significance across the subgroups. Year-over-year passenger growth did not significantly predict profitability for any FSC subgroup, suggesting that demand expansion alone did not translate into margin enhancement for full-service carriers within the study’s timeframe.

Synthesis of Predictor Roles Across Airline Models: Viewed through the functional requirements framework, these findings confirm that profitability depends on the alignment between strategy and operational structure. LCCs showed stronger sensitivity to variables related to cost control, labour flexibility, and operational discipline, reflecting a cost leadership orientation built on simplified processes and high utilisation. FSCs showed greater sensitivity to payroll and fuel dynamics, reflecting their differentiation strategy, which prioritises service quality, network breadth, and operational complexity.

These contrasting patterns align with the conceptual tension described in Hayes’s process theory, where LCCs pursue efficiency through simplification while FSCs pursue stability through structural complexity. The absence of universally significant predictors across all models demonstrates that profitability is context dependent, shaped by scale, model maturity, and external shocks such as COVID-19. Chapter Five builds on these insights by identifying how FSCs can recalibrate fleet, labour, fuel, and pricing structures to move toward cost discipline without eroding the core premium attributes that define their competitive identity.

Variables With Non-Significant Main Regression Effects but Significant Subgroup Impacts: Although initial variance analysis suggested that payroll-to-revenue and load factor differences were insignificant, the refined subgroup analysis shows that the percentage of subgroups substantially affected by these predictors differs meaningfully between models. For FSCs, payroll burdens are consistently and structurally constraining, while LCC performance is far more sensitive to LF improvements. This refined view confirms that both variables play materially different roles in profitability across the two airline types, despite appearing similar in the broad variance tests.

4.1.5 RQ3: What are the substantial differences in operational efficiency ratios between publicly traded LCCs and FSCs operating in Asia and Australasia?

The following results directly addressed the research question: "What are the substantial differences in operational efficiency ratios between publicly traded LCCs and FSCs operating in Asia and Australasia?" A two-way ANOVA was used to estimate how the mean of each quantitative variable varied across the levels of two categorical variables, while the independent samples t-test and Cohen's d were applied to determine mean differences between specific variables of the two airline models. Because the analysis used population (census) data, assumptions such as homogeneity and outlier checks were still conducted, but inferential probabilities were not treated as the primary basis for interpretation.

In the two-way ANOVA, airline model (FSC vs LCC) served as the focal variable, with learning organisation, years, and airline headquarters included as moderator variables. Interpretation centred on the F-value and partial η^2, which together indicated the meaningfulness of interactions between independent variables and the dependent variable. Although p-values are reported, they were not used as decision criteria due to the census methodology (Lingqiao et al., 2021; Hirschauer et al., 2020). Higher absolute F-values (less than –2 or greater than +2) signalled meaningful interaction effects. Partial η² values were evaluated using Cohen's (1988) effect size conventions, and only those greater than or equal ≥6 percent were treated as practically important.

Cohen's d provided an estimate of the practical magnitude of mean differences between groups, with 0.00–0.20 indicating a small effect, 0.21–0.50 a medium effect, 0.51–0.79 a large effect, and ≥0.80 a very large effect (Cohen, 1988; McGill & Decker, 2020). The following section presents the two-way ANOVA outputs, independent samples t-test results, and Cohen's d values to identify the meaningful differences between FSC and LCC operational efficiency ratios.

Independent Sample t-test and Cohen's d. Table 33 depicts the results of the independent sample t-test and Cohen's d . While t-statistics are reported for comparative purposes, they are not used for inferential testing.

Table 33
Results of the Independent Sample t-tests and Cohen's d

Variables	LCC Mean	FSC Mean	T-value	P-value	Cohen's d
CASK	.059	.073	-2.812	.005	-0.839
Fuel to operating cost	24.91	22.29	2.254	.024	0.672
Load factor	76.52	71.34	2.285	.023	0.681
Operating margin	-26.34	-15.79	-1.169	.224	-0.348
Passenger yield	.047	.078	-6.044	< .001	-1.802
Payroll to revenue	21.09	21.45	-.169	.856	-0.050
RASK	.049	.061	-4.025	< .001	-1.200
YOY passenger growth	-6.94	-10.78	.704	.482	0.210

Source: Created by researcher (2024).

Although this study uses census data covering the entire airline population, independent samples t-tests were conducted to obtain the t-values and means of the two airline models necessary to calculate Cohen's d effect sizes for the main analysis, and the mean differences for the more refined analysis of subsidiaries of these two models. Since the census methodology was adopted, no sampling error exists, and consequently, the p-values from these tests are not interpreted for statistical significance. Instead, emphasis was placed on Cohen's d to quantify the magnitude of differences between LCC and FSC groups. Although the t-statistics are reported for comparison, they are not used for inferential testing.

Main variance results: The most substantial difference was observed in passenger yield, where FSCs outperformed LCCs (M = 7.78 vs. 4.70), reflected in a very large effect size (d = -1.80). RASK and CASK similarly showed large differences favouring FSCs (d = -1.20 and -0.84, respectively). By contrast, LCCs recorded higher LF (M = 76.52 vs. 71.34) and a higher fuel-to-operating-cost ratio (M = 24.91 vs. 22.29), both with moderate-to-large effect sizes (d = 0.68 and 0.67). Other variables—operating margin (d = -0.35), YOY passenger growth (d = 0.21), and payroll-to-revenue (d = -0.05)—showed small to medium effects, indicating comparatively smaller differences between the models.

Main variance interpretation: Within the framework of functional requirement, the Cohen’s d, in Table 33, the effect-size pattern reveals fundamental functional differences between FSC and LCC supply-chain designs. Passenger yield and RASK, which represent the revenue-generation function of the framework, show the largest gaps, confirming that FSCs structurally rely on premium pricing functions to balance higher cost obligations. These variables perform the function of transferring differentiated service value into revenue, which explains why the effect sizes for yield (d = -1.80) and RASK (d = -1.20) are the highest.

Conversely, LF and fuel-to-operating-cost reflect the utilisation and cost-conversion functions of the framework. The moderate-to-large effect sizes favouring LCCs (d ≈ 0.67–0.68) indicate that LCCs perform these functions more efficiently: high LF converts fixed capacity into lower unit cost, while a higher proportional fuel share reflects a leaner overhead structure. These functions determine how effectively cost inputs are transformed into margin.

Variables such as operating margin, YOY growth, and payroll-to-revenue show negligible or medium differences because they perform balancing functions within the model. Payroll-to-revenue, in particular, exhibits almost no difference (d = -0.05), indicating that both models currently face similar labour pressures, with the functional distinction emerging not from wage levels but from how labour is deployed within the operating system.

Taken together, the results confirm that LCCs outperform in the core efficiency functions of the framework, while FSCs outperform in the revenue extraction functions. This functional asymmetry clarifies why FSC–LCC convergence requires restructuring operational pathways rather than adjusting revenue strategies. True conversion feasibility depends on redesigning cost-related functions (CASK, LF, fuel) to ensure revenue strength finally transmits to operating margin.

Two-Way ANOVA: The two-way ANOVA tests were conducted to examine the effect of airline models and (i) learning organisation, (ii) years, and (iii) headquarters on the independent variables. Whether the interaction effect between the airline model and moderator variables on the independent variables was practically meaningful is depicted in Table 34. Table 34 reveals that the substantial interactions between airline models and learning organisation on passenger yield and RASK; between airline models and headquarters on CASK, fuel to operating cost, passenger yield and RASK; and between airline models and years on fuel (i.e., Partial n^2 <.06).

Interpretation: Within the functional-requirement framework, the two-way ANOVA results indicate that operational efficiency is not solely determined by the airline model but is meaningfully shaped by contextual moderators. The interaction between airline model and headquarters location accounts for 6 percent of the variance in CASK, a moderate effect, demonstrating that cost efficiency is partly geographically conditioned.

Table 34
Results of Two-Way ANOVA

Variables	The interaction effect between the airline model and the moderating variables	F-value	P-value	Partial n^2
CASK	Learning	2.262	.064	.042
	Years	.175	.951	.003
	Headquarter	2.558	.029	.060
Fuel to operating cost	Learning	2.490	.045	.048
	Years	3.810	<.01	.071
	Headquarter	2.595	.027	.062
Load factor	Learning	1.175	.323	.023
	Years	1.257	.288	.024
	Headquarter	.305	.910	.008
Operating margin	Learning	.236	.045	.005
	Years	.452	.771	.009
	Headquarter	.452	.093	.002
Passenger yield	Learning	5.372	<.001	.095
	Years	1.626	.169	.031
	Headquarter	3.001	.012	.069
Payroll to revenue	Learning	1.247	.292	.048
	Years	.273	.895	.005
	Headquarter	1.724	.131	.041
RASK	Learning	5.094	<.001	.091
	Years	.142	.966	.003
	Headquarter	6.351	<.001	.136
YOY passenger growth	Learning	.795	.530	.015
	Years	.628	.643	.012
	Headquarter	.562	.726	.014

Source: Created by researcher.

This suggests that structural disadvantages such as higher labour costs, limited secondary airports, or regulatory rigidity in certain locations may inherently constrain FSCs' ability to match LCC cost performance. Thus, conversion feasibility is uneven across regions, challenging the assumption that LCC efficiency benchmarks are universally transferable.

For fuel-to-operating-cost, learning and years of operation explain 6 percent and 7 percent of the variance, respectively. These findings indicate that fuel efficiency is as much a behavioural outcome as a technical one. Airlines with deeper institutional learning and longer operating history appear better able to internalise cost-saving practices such as hedging discipline, optimised routing, or maintenance planning. This reinforces the teleological argument that operational transformation requires cumulative learning cycles rather than one-off structural adjustments.

Passenger yield shows the strongest moderated effects, with learning explaining 10 percent and headquarter location explaining 7 percent of the variance. This confirms that revenue performance is highly sensitive to capability maturity and market context. FSCs headquartered in premium-yield markets or with advanced data-analytics ecosystems retain structural advantages that cannot be neutralised simply by adopting LCC pricing tactics. This highlights a dialectical tension: FSCs' revenue strengths stem from the same complex structures that impede their cost convergence.

Similarly, RASK displays substantial interaction effects, with 9.1 percent variance explained by learning and 13.6 percent by headquarters location. These moderate-to-large effects demonstrate that revenue efficiency emerges from the interplay of organisational capability and regional market characteristics rather than from the airline model alone. This finding challenges simplistic interpretations of revenue superiority and underscores the importance of location-specific strategic alignment.

By contrast, the lack of significant interaction effects for load factor, operating margin, payroll-to-revenue, and year-over-year passenger growth suggests that these variables are structurally embedded and less sensitive to moderating influences. This stability indicates that some operational levers, particularly LF and payroll intensity, are more reflective of business-model logic than environmental or learning effects.

Overall, these results show that adaptive learning and geographical context are the dominant moderators shaping efficiency outcomes. Critically, they reveal that transformation feasibility is conditional rather than universal: airlines' ability to converge toward LCC-style performance depends on their learning maturity and regional operating environment. This supports the study's broader conclusion that operational efficiency cannot be engineered through structural reform alone but requires capability development and context-specific strategy.

Simple Main Effect: The simple main effect was run only when results showed a substantial interaction effect between focal and moderator variables (i.e., Partial n^2 <.06). All pairwise comparisons were run for each simple main effect with reported 95% confidence intervals and *p*-values Bonferroni-adjusted within each simple main effect. According to Maxwell and Delaney (2004), a main effect should be reported when there is an insubstantial interaction effect. However, due to time limitations, the researcher could not configure SPSS into the various sub-categories needed to run the main effect for the subgroups of FSCs and LCCs. For this reason, only the simple main effect on the FSCs and LCCs was run. Running the main effect alone would have treated the airline model as a dichotomous variable, which limits the ability to perform post hoc comparisons. As a result, analysing only the main effect would not yield the detailed group differences required for this study, rendering it methodologically inappropriate. Consequently, the variance between the moderator values of the two airline models was not determined for results showing an insignificant interaction effect between focal and moderator variables in this research (i.e., a main effect). Therefore, only substantial partial n^2 from the simple main effect practical test was analysed below for learning organisation, years, and airline headquarters.

Since statistical significance was not sought, the p-value was not used when interpreting the data. The effect size (partial η^2) should be interpreted to understand the practical importance of the effect. Table 35 depicts the results of the interactions between the focal variable (airline models) and moderators (learning organisation, years, and headquarters) on the various operational variables. The interpretation of the simple main effect was also guided by mean differences, as presented in Table 35.

According to Table 35, for airlines with a high learning culture, LCCs had a notably higher fuel-to-operating cost ratio than FSCs, with a mean difference of 9.25% (95% CI: 0.29 to 18.21), and a small effect size (partial $\eta^2 = 0.02$). In terms of passenger yield, LCCs with high-learning cultures reported significantly lower yields than FSCs (Mean difference = -\$10.37 per RPK; 95% CI: -14.14 to -6.61), with a large effect size (partial $\eta^2 = 0.126$).

Within the framework of functional requirements, the simple main effect revealed that, even with strong learning cultures, FSCs maintain a premium, differentiation-based strategy that yields high passenger returns but also sustains higher structural costs. Their lower fuel-to-operating-cost ratio reflects reliance on fuel hedging, long-haul efficiency, and mixed fleet operations that smooth volatility rather than reduce cost intensity. In contrast, LCCs' shorter routes and denser schedules inflate per-flight fuel usage.

FSCs' superior yields highlight a pricing and network model centred on premium segmentation, multi-cabin layouts, and loyalty retention. Operating mainly from major hubs with in-house service chains maintains brand control but limits flexibility and scalability. Overall, the evidence portrays FSCs as revenue-maximising carriers that trade lean efficiency for brand strength, service depth, and price stability.

Fuel efficiency differences were more pronounced during pre-COVID-19 (2017–2019), with LCCs showing consistently higher fuel-to-operating cost ratios. For instance, in 2017, the mean difference was 6.3% (95% CI: 2.30 to 10.32; $\eta^2 = 0.046$). No substantial difference was observed in 2020, possibly due to pandemic-related disruptions. Passenger yield differences remained consistent across years, with 2021 showing the most pronounced gap (Mean = -\$5.72

per RPK; $\eta^2 = 0.108$), highlighting that FSCs maintained stronger revenue per passenger despite LCC operational cost models.

Within the framework of functional requirements, the simple main effect results indicate that the pre-COVID period revealed a distinct strategic divide between the two carrier models. FSCs focused on stability and premium service through hedging, long-haul routes, and multi-fleet ownership, which reduced fuel volatility but raised fixed costs and turnaround times. Their reliance on major airports reinforced brand value but increased fuel burn and complexity. LCCs pursued strict cost leadership with single-type fleets, short-haul networks, and rapid turnarounds, achieving greater fuel efficiency but higher exposure to price fluctuations. FSCs maintained superior yields and RASK through segmented pricing, loyalty programmes, and multi-cabin seating, while LCCs relied on dense layouts, online ticketing, and ancillary revenue streams. Overall, FSCs maintained a revenue-driven and brand-focused orientation, whereas LCCs emphasised cost efficiency and operational discipline, representing two distinct yet stable strategic positions within Hayes' (2022) dialectical framework.

Geographic analysis showed regional disparities. In Australasia, LCCs had significantly higher fuel costs (Mean difference = 10.45%; $\eta^2 = 0.03$), while in Southeast Asia and Southwest Asia, FSCs outperformed LCCs in passenger yield and RASK with moderate to strong effect sizes (e.g., RASK in Southwest Asia: Mean difference = -\$5.5 per RPK; $\eta^2 = 0.115$).

Within the framework of functional requirements, the preliminary main regression revealed, regional disparities reveal distinct strategic logics between FSCs and LCCs in Asia and Australasia. LCCs' higher fuel costs in Australasia reflect shorter routes, secondary-airport use, and limited hedging typical of cost-leadership models, while FSCs rely on fuel hedging and long-haul routing to maintain stability. In Southeast and Southwest Asia, FSCs achieve higher yields and RASK through segmented pricing, premium cabins, and primary airports, but incur higher CASK. LCCs' simplified fares, dense seating, and outsourcing enable lower costs and faster turnaround. Overall, FSCs remain revenue-optimised, while LCCs prioritise cost efficiency and scale.

The findings confirm that operational ratios are not merely financial outputs but expressions of deeper strategic architecture, meaning FSC–LCC convergence requires systemic redesign rather than isolated cost initiatives.

Table 35

Simple Main Effects of Airline Models by Learning Organisation, Year, and Headquarters

	Variable	Mean Difference (LCC - FSC)	95% Confidence Interval	F-Statistic	p-Value	Partial η²
Learning Organisation	Fuel to Operating Cost (High Learning Culture)	3.25	(.288, 18.21)	F(1, 199) = 4.14	0.043	0.02
	Fuel to Operating Cost (Slight Learning Culture)	2.69	(2.23, 14.71)	F(1, 199) = 7.71	0.008	0.035
	Passenger Yield (High Learning Culture)	-5.4	(-0.175, -0.033)	F(1, 204) = 29.50	< .001	0.126
	Passenger Yield (Moderate Learning Culture)	-6.034	(-0.048, -0.020)	F(1, 204) = 21.65	< .001	0.094
	Passenger Yield (No Learning Culture)	-.028	(-0.070, -0.014)	F(1, 204) = 5.12	0.025	0.024
Year	Fuel to Operating Cost (2019)	4.48	(.457, 8.49)	F(1, 199) = 4.83	0.029	0.024

Table 35 (Continued)

Simple Main Effects of Airline Models by Learning Organisation, Year, and Headquarters

	Variable	Mean Difference (LCC - FSC)	95% Confidence Interval	F-Statistic	p-Value	Partial η²
	Fuel to Operating Cost (2018)	5.93	(1.91, 9.95)	F(1, 199) = 8.46	0.004	0.041
	Fuel to Operating Cost (2017)	6.3	(2.30, 10.32)	F(1, 199) = 9.55	0.002	0.046
	Fuel to Operating Cost (2020)	NS	(NS)	F(1, 199) = 0.00	NS	NS
	Passenger Yield (2018)	-.024	(-0.066, -0.018)	F(1, 204) = 4.70	0.031	0.023
	Passenger Yield (2019)	-.026	(-0.068, -0.016)	F(1, 204) = 6.80	0.02	0.026
	Passenger Yield (2020)	-.030	(-.082, -.020)	F(1, 204) = 9.20	0.031	0.035
	Passenger Yield (2021)	-4.57	(-0.105, -0.009)	F(1, 204) = 5.50	< .001	0.108
Headquarters	Fuel to Operating Cost (Australasia)	3.45	(2.14, 18.76)	F(1, 196) = 6.14	0.014	0.03
	Passenger Yield (Southeast Asia)	-2.029	(−0.042, -0.016)	F(1, 201) = 19.40	0.001	0.088
	Passenger Yield (East Asia)	-.048	(-0.108, -.012)	F(1, 201) = 10.60	0.001	0.05
	Passenger Yield (Australasia)	-.035	(−0.095, -0.025)	F(1, 201) = 4.00	0.047	0.019
	Passenger Yield (Southwest Asia)	-3.66	(-0.102, -0.030)	F(1, 201) = 13.01	< .001	0.061

Table 35 (Continued)

Simple Main Effects of Airline Models by Learning Organisation, Year, and Headquarters

	Variable	Mean Difference (LCC - FSC)	95% Confidence Interval	F-Statistic	p-Value	Partial η²
	CASK (Southwest Asia)	2.71	(0.011, 0.131)	F(1, 201) = 12.94	0.001	0.114
	CASK (Southeast Asia)	-.019	(-0.061, -0.023)	F(1, 201) = 6.71	0.01	0.032
	RASK (Southeast Asia)	-1.14	(-0.056, -0.008)	F(1, 201) = 13.39	< .001	0.062
	RASK (Australasia)	-.029	(-.077, -0.019)	F(1, 201) = 8.07	0.005	0.039
	RASK (Southwest Asia)	-2.25	(-.115, -.005)	F(1, 201) = 26.21	< .001	0.115

Source: Research output.

*Notes***.**

- **p-values**: $p < .05$ indicates statistical significance.
- Confidence intervals are presented as the range of values.
- F-statistics and partial eta-squared (η^2) represent the effect size of the comparisons.

4.1.6 More refined variance analysis of airline models

More refined variance analysis of airline models. This study employed a census methodology to analyse the mean differences in operational and financial metrics between FSCs and LCCs. In determining substantial variances, the researcher examined variances across subcategories, including a global benchmark comparison, and the differential impact of the COVID-19 pandemic. Positive mean differences indicate that LCCs have a lower mean value, while negative differences suggest that LCCs outperform FSCs in that particular metric, as shown in Table 36.

Results: Over the five-year period, FSCs demonstrated higher CASK (M = 1.48), lower LF (M = -5.18), and slightly higher Payroll-to-Revenue (M = 0.37) compared to LCCs. During that period, higher Fuel cost variances (M = 2.62) and operating margin differences (M = 10.55) were further realised for FSCs.

During the COVID-19 period, the data reveal that FSCs underwent sharp cost and performance volatility relative to LCCs. The drastic fall in CASK (–82.06 %), Operating Margin (–508.87 %), and LF (–128.03 %) illustrates how the FSC cost-leadership gap widened under crisis conditions.

Interpretation: Taken together, the patterns reveal deep structural asymmetries between revenue-driven FSCs and cost-driven LCCs, confirming that operational ratios are expressions of underlying business-model architecture rather than isolated numerical outcomes

Within the framework of functional requirement, their premium, multi-channel, network-dense model was unable to flex when demand collapsed, producing negative leverage effects on operating margin. LCCs, by contrast, preserved efficiency through lean cost structures, single-type fleets, and point-to-point scheduling, demonstrating the resilience of the cost-leadership strategy. The explosive 4 934 % increase in payroll-to-revenue variance among FSCs shows how rigid labour contracts, seniority pay, and unionised workforces amplified cost exposure, whereas LCCs' variable staffing and contractor use absorbed the shock more effectively.

Table 36

Results of Subgroups' Refined Variance Analysis of Mean Differences (MD)

Subcategories	CASK	Load Factor	Payroll to Revenue	Fuel to Operating Cost	YOY Passenger Growth	Passenger Yield	RASK	Operating Margin
Variances of FSC versus LCC over five years	1.48	-5.18	0.37	2.62	-3.48	0.04	1.21	10.55
Variances of FSC during COVID-19 versus LCC during COVID-19	2.02	-1.01	-0.24	1.09	-7.50	4.34	-0.91	20.43
Variances of FSC during Pre-COVID-19 versus LCC during Pre-COVID-19	1.32	-3.44	1.44	-5.55	-8.66	2.39	1.37	0.26
Variances FSC during COVID-19 versus LHLCC during COVID-19	4.16	-7.42	-17.25	2.18	-4.48	2.80	0.46	7.87
Variances FSC during Pre-COVID-19 versus LHLCC during Pre-COVID-19	2.22	-4.60	-9.41	-11.16	-4.00	1.65	2.27	6.46
Variances FSC Lone during COVID-19 versus LCC during COVID-19	2.36	1.95	4.49	2.00	15.17	2.88	0.95	19.89
Variances FSC Lone Pre-COVID-19 versus LCC Pre-COVID-19	0.85	-3.48	3.03	-5.12	-6.09	1.99	0.12	2.77
Variances FSC AWA during COVID-19 versus LCC during COVID-19	2.07	-17.90	-1.77	-0.77	-13.24	5.18	0.91	15.87
Variances AWA-FSC Pre-COVID-19 versus LCC during Pre-COVID-19	1.55	-3.42	0.68	-5.76	-9.88	2.59	1.44	0.93
Variances FSC during Covid-19 versus SHLCC during COVID-19	2.32	-10.62	2.89	-0.88	-0.06	4.62	0.99	22.74
Variances FSC during Pre-COVID-19 versus SHLCC during Pre-COVID-19	1.16	-0.41	4.02	-4.58	-10.40	2.61	1.15	3.83
Average of all Subcategories	1.96	-5.05	-1.07	-2.36	-4.78	2.83	0.91	10.15
Pre-COVID-19 average	1.42	-3.07	-0.05	-6.43	-7.81	2.25	1.27	2.85
COVID-19 Average	2.59	-7.00	-2.38	0.72	-2.02	3.96	0.48	17.36
Global LCCs and FSCs Average mean differences	2.00	-7.00	12.50	5.00	-2.50	4.00	2.50	-1.00
Percentage change of COVID-19 over pre-COVID-19	-82.06	-128.03	-4934.32	111.27	74.09	-76.49	62.23	-508.87
Percentage difference between Average of all subcategories and Global LCCs and FSCs Average Mean Difference	-2.22	-27.88	-108.54	-147.14	91.36	-29.35	-63.78	-1114.60

Source: Research Output (2024).

FSCs’ differentiation strategy amplified risk during COVID-19 due to rigid, high-cost structures, such as multi-type fleets, hub dependence, complex fare systems, and in-house operations, that limited flexibility and raised CASK, fuel, and labour exposure. In contrast, LCCs’ lean, standardised, and outsourced cost-leadership model, which is anchored in single-type fleets, point-to-point routes, and dynamic direct sales, proved more resilient, allowing faster capacity adjustments and cost control when demand collapsed.

Detailed subcategory analysis highlighted several key trends. FSCs and LHLCCs during COVID-19 exhibited higher CASK variances across nearly all subcategories, with the largest differential observed in FSCs and LHLCCs during COVID-19 (+4.16). However, the average CASK of all subcategories relative to the global LCC-FSC benchmark (1.96 vs 2.00) worsened during the pandemic (2.59 vs 2.00). Consistently negative LF variances (e.g., -17.90 for AWA-FSC COVID-19 vs. LCC COVID-19) underscored FSCs’ persistent struggle to optimise capacity utilisation, especially during periods of crisis. A significant concern emerged as LCCs reported higher Payroll-to-Revenue ratios in some cases, notably during COVID-19. For example, FSC during COVID-19 versus LHLCC during COVID-19 revealed a variance of -17.25, indicating increased labour cost of LCC. Unfavourable variances in Fuel-to-Operating Cost were observed in most comparisons, including -11.16 in FSC Pre-COVID-19 versus LHLCC Pre-COVID-19.

During COVID-19, FSCs exhibited higher CASK and cost volatility, reflecting the burden of multi-type fleets, in-house maintenance, and reliance on congested primary airports. Their hub-and-spoke networks and hedging-based fuel strategies stabilised finances but limited flexibility, while bundled fare structures preserved yield at the expense of responsiveness. These patterns confirm that FSCs follow a premium, differentiation-oriented model that prioritises reliability and brand reputation rather than lean cost control. LCCs, in contrast, sustained operational resilience through standardised fleets, short-term leasing, point-to-point networks, and secondary-airport use, maintaining higher utilisation and LF. Their outsourcing, quick turnarounds, and unbundled pricing upheld cost leadership even during the crisis, despite temporary payroll inefficiencies. Overall, the data position FSCs as revenue-driven but structurally rigid, while LCCs retained adaptive efficiency through simplicity and flexibility.

Unfavourable YOY Passenger Growth variances persisted across all periods, confirming LCCs' stronger growth trajectory. The mean difference in YOY passenger growth between Asia and Australasia is deemed substantial, as it exceeds the global mean difference by over 90%. Passenger Yield and RASK variances fluctuated, with FSCs consistently outperforming LCCs (e.g., Passenger Yield variance of 4.34 during COVID-19), but often underperforming in terms of RASK. The greatest disparity was evident in operating margins, particularly during COVID-19, where FSCs underperformed SHLCCs by as much as 22.74%.

When comparing the study's average subcategory variances to global LCC-FSC industry benchmarks, notable discrepancies emerged. The study's average CASK variance (1.96) was slightly below the global average (2.00), while the LF variance (-5.05) was less substantial than the industry benchmark (-7.00). However, the study's Operating Margin variance (10.15) was significantly higher than the global average (-1.00). The percentage difference between the study's subcategory averages and global benchmarks further illustrated these disparities, with pronounced gaps in Operating Margin (-1114.60%), Payroll-to-Revenue (-108.54%), and Fuel-to-Operating Cost (-147.14%).

Globally, FSCs remain anchored in premium service models that trade efficiency for brand differentiation, showing wide CASK and LF gaps relative to LCCs. In contrast, FSCs in the Asia and Australasia region, such as Singapore Airlines, Qantas, and ANA, show narrower efficiency variances due to partial adoption of low-cost carrier practices such as fleet simplification, selective outsourcing, and dual-brand operations. However, their profitability still relies on premium yields and long-haul demand, unlike global peers that increasingly balance yield with cost control. Regionally, LCCs such as AirAsia, IndiGo, and Jetstar have advanced further than many global counterparts, leveraging dense short-haul networks and high utilisation. This positions Asia–Australasia as a more integrated and competitive market, where FSCs are closer to LCC efficiency levels than in Europe or North America, yet still carry higher structural costs driven by labour, airport, and regulatory constraints.

Based on results from the above Cohen's d, independent samples t-test and mean difference analysis, the substantial differences in order of magnitude are (i) passenger yield; (ii) RASK; (iii) CASK; (iv) fuel to operating cost; (v) operating margin and (vi) LF; operating margin (d = .34); and (vii) YOY passenger growth (d = .21). Although the main variance analysis (Cohen's d) revealed payroll to revenue (d = -.05) as negligible, the more refined variance analyses revealed this difference as substantial relative to global mean difference, and due to the importance of payroll to revenue, as one of the two most important costs in the airline industry.

Although Cohen's d for the difference in payroll to revenue between FSCs and LCCs of (-.05) suggests a small effect size in the aggregate model, this masks notable deviations at the subgroup level. On average, the 11 subcategories deviated from the global industry benchmark of 12.50% by -1.07%, resulting in an absolute difference of 13.57%. Since fuel constitutes one of the two largest cost components in airline operations, this divergence is considered substantial in practical terms, with likely implications for strategic decision-making. The same is true for operating margin and YOY passenger growth, with absolute percentage differences between subgroups and global averages of 9.15% and 2.28%, respectively. A 2.28% difference represents millions of passengers, while a 9.15% difference in operating margin is substantial in practical terms; hence, they are both substantial in practical terms.

FSCs pursue premium strategies built on hub-and-spoke networks, primary-airport access, and multi-type owned fleets that enhance brand reach but drive-up costs. Their segmented pricing, in-house operations, and unionised labour preserve service quality yet restrict flexibility and efficiency. In contrast, low-cost carriers operate with leaner structures by using single-type leased fleets, secondary airports, online sales, and outsourced support to minimise costs and maximise utilisation. These opposing models explain why FSCs achieve higher yields but face elevated CASK and slower growth, while LCCs sustain lower costs, higher LF, and faster expansion.

Using a census methodology captures the full population, but varying predictor effects emphasised the need for subgroup-specific analysis to achieve a more profound understanding of the diverse operational dynamics within the airline industry. The observed discrepancies between the main regression models and the main variance analysis, and their subgroups (more refined), do not indicate statistical instability or errors; instead, they reflect heterogeneity within the census population. Averaging across all Airlines flattens meaningful internal differences. The subgroups in this study, comprising full-service carriers and low-cost carriers further distinguished by operational characteristics such as short-haul and long-haul models and by periods such as pre-COVID-19 and during COVID-19, represent fundamentally different airline types operating in distinct market environments. As such, it is theoretically expected that predictors such as Fuel to Operating Cost, Passenger Yield, and CASK would have varying levels of impact across these subgroups.

The discrepancies observed between the primary and subgroup regressions provide valuable insights into how the relationships between cost structures, revenue metrics, and operating margins differ based on airline type, business model, and macroeconomic context. Therefore, these discrepancies are not methodological limitations but important findings that underscore the need for nuanced interpretations within a census framework.

4.2 Qualitative Research Findings

The qualitative research questions aimed to determine process differences between LCCs and FSCs and whether FSCs have the implementation structure required to adapt their processes to those of LCCs. This research answers two additional central research questions: Q4 sought to determine the differences between the processes of the two supply chains, reads, "How different are the operational strategies of Asian and Australasian publicly traded FSCs and LCCs?" Q5 sought to determine whether FSCs possess the implementation structure necessary for a successful conversion and reads, "How do the implementation structure and resources of publicly traded FSCs operating in Asia and Australasia facilitate a successful supply chain conversion?"

Central qualitative questions RQ4 and RQ5 were the foundation on which the qualitative archival data were constructed. This qualitative archival data (Appendix B), used to gather data from annual reports, sustainability reports, and journal articles, comprises 15 open-ended questions. Textual data gathered from these sources were combined during data gathering and analysed simultaneously.

This study adopted a hand-coding procedure for categorising the text to establish a framework of thematic ideas about it. During coding, Level 1 produces an excessively huge number of codes. In level 2, some of level 1's codes were removed, and the remainder were grouped into categories (Figure 44). The forty-two (46) categories derived from the data coding are (a) Automation; (b) Manpower Optimisation; (c) Strengthening efficiencies; (d) Asset Utilisation; (e) Building Brand Image; (f) Fleet composition; (g) Fleet Fuel consumption (h) FSCs'

Segmented Pricing; (i) LCCs' Unsegmented Pricing; (j) Differences in "On ground Strategies"; (k) Differences in "In the Air Strategies"; (l) Continuous Improvement Versus Discontinuous Development strategies; (m) SHLCC AWA sub-brand; (n) LHLCC AWA sub-brand; (o) Further difference between LHLCC BP and FSC BP; (p) Market regulations prohibiting or facilitating LHLCC subsidiary; (q) Cost Differences between SHLCC and FSCs; (r) Revenue Differences between SHLCCs and FSCs; (s) Other Profit Related Advantages and Disadvantages of LHLCCs; (t) Intellectual stimulation; (u) Individualised consideration; (v) Idealised influence; (w) Inspirational motivation; (x) adaptability; (y) Employee centricity; (z) Innovation; (aa) Cost Containment; (bb) Continuous Improvement of quality; (cc) Dialectical Theory; (dd) Teleological Theory; (ee) Superb Management and Leadership; (ff) Unhealthy Gearing Ratio; and (gg) Low Stock Price; (hh) Investment In Airline Activities; (ii) Investment in related Activities; (jj) Backward Linkage Activities; (kk) Forward Linkage Activities; (ll) FSCs adopt process perspective of change management; (mm) COVID-19 Sharpened resilience and skillset of FSC manager; (nn) Both FSCs and LCCs augmented cost cutting strategy during COVID-19; (oo) Both FSCs and LCCs adjusted their revenue strategy during COVID-19; (pp) FSCs adopt process perspective of change management; COVID-19 Sharpened resilience and skillset of FSC manager; (qq) Both FSCs and LCCs augmented cost cutting strategy during COVID-19; (rr) Both FSCs and LCCs adjusted their revenue strategy during COVID-19; and (ss) Differences in market response to COVID-19 among LHLCC and SHLCC,: (tt) Differences in market response to COVID-19 among LHLCC and SHLCC.

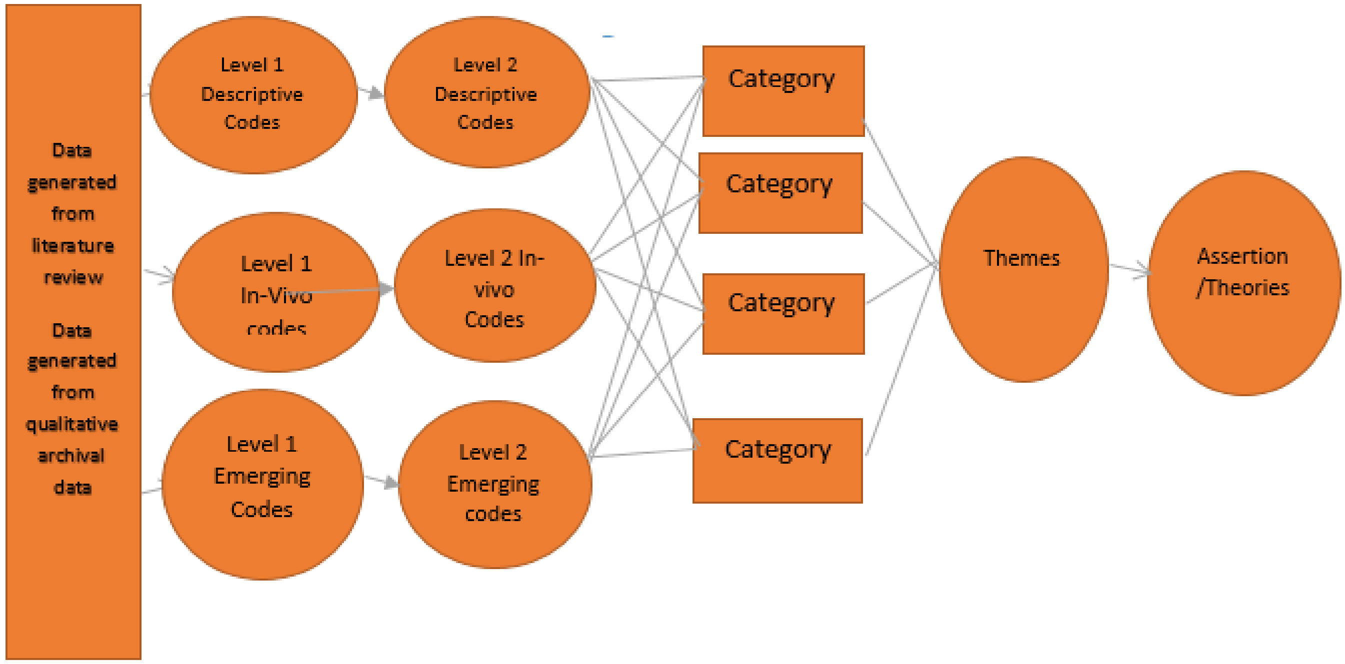
Emerging from the summarisation of these 46 categories were the following twelve themes: (a) Cost Leadership Versus Differentiation; (b) fleet strategy (c) Pricing Strategy; (d) Fuel Efficiency Program; (e) Sub-branding; (f) LHLCC Hybrid Profitability Strategy; (g)

Transformational Leadership; (h) An Enabling Organisational Culture; (i) Process Perspective of Change Management; (j) Available Resources; (k) Major Capital Projects; and (l) Impact of COVID-19 Pandemic.

These themes were indispensable for developing the assertions to answer the qualitative research questions. Hence, according to Naeem et al. (2023), it is correct to postulate that, during thematic analysis, without codes, there can be no category, without categories no theme, without themes no assertion, and without assertions the qualitative research questions remain unanswered. In this case, the following research objectives would not be achieved: (a) To explore the extent of difference in the operational strategies of Asian and Australasian publicly traded FSCs and LCCs; and (b) To explore whether Asian and Australasian publicly traded FSCs have the implementation structure to successfully implement the supply chain conversion. The hand-coding procedure adopted in this study is depicted in Figure 43.

The research coding cycle depicted in Figure 43 is similar to that of Saldaña (2015), who recommends three coding cycle stages, except that the researcher added a fourth stage. In cycle one, first-level codes were generated from the archival data and the literature review scripts. The researcher deemed these codes too many; hence, they were reduced by eliminating repeated codes in cycle 2 to achieve second-level codes. In stage 3, second-level codes were further condensed by combining and categorising codes according to differences between FSCs and LCCs, and the broad implementation structures required by FSCs for a successful supply chain conversion, as recommended by Wertz (2014).

Figure 43
Data Coding Procedure



Source: Inspired by Saldaña (2015).

Level three categories were further contracted, generating themes (Naeem et al.,2023). These themes were instrumental in forming assertions needed to answer the qualitative research questions (Braun & Clarke, 2012; Naeem et al., 2023).

Reporting of the Qualitative Results. Following Creswell (2016), hand coding was applied to the literature review and archival data scripts to identify and name data fragments. Saldaña (2015) argues that a code is a word or short phrase that figuratively ascribes a collective, relevant, and suggestive feature to a portion of graphic or text-based data, while retaining its meaning. The coding process enhances the trustworthiness of the scripts derived from the literature review and qualitative archival data (Rawhani, 2023).

The researcher used open codes (including descriptive and In-Vivo codes) and emerging codes during data analysis. When using in-vivo codes, the researcher extracted exact words from the transcript as a code, while descriptive codes allowed the researcher to discern structures and processes (Saladana, 2016). Finally, the research used emerging coding to connect two or more codes, organise codes created in the previous stages of the cycle, and determine connections among codes and categories (Vollstedt & Rezat, 2019).

Linneberg and Korsgaard (2019) assert that in vivo descriptive and process codes exemplify deductive coding. Based on Linneberg and Korsgaard's (2019) assertion, the researcher used different codes in different stages of the coding cycle, towards theme development. The researcher used colour coding with markers for handwritten scripts, and Microsoft Word colour shading for scripts saved on Microsoft, before labelling them as emerging, in vivo, or descriptive codes (Saldaña, 2015).

The organisation of the first-level and second-level data codes was guided by the archival data and literature review questions, as well as by the researcher's understanding of the supply chain structures of LCCs and FSCs and accurate classification of each airline according to its operational model. The archival data and literature review scripts were merged before coding. Codes generated at the second level were combined at the third level based on similarities and differences in their process and implementation structure characteristics. This facilitated the improvement of level two codes into level three. These level three codes were merged into 12 themes. These themes, exhibited in Tables 37 – 49, presented a foundation for presenting the study's results.

Qualitative research question RQ4 reads: How different are the operational strategies of Asian and Australasian publicly traded FSCs and LCCs? This research question facilitated the exploration of variances between the processes of the two airline models. Qualitative research question RQ5 reads: How do the implementation structure and resources of publicly traded FSCs operating in Asia and Australasia facilitate a successful supply chain conversion? This research question facilitated exploration of whether FSCs have the implementation structure required to convert their supply chains to those of LCCs. The sub-questions associated with these two central qualitative questions are exhibited in the qualitative archival data in Appendix B.

4.2.1 Functional Strategy Differences

Theme 1: Cost Leadership Versus Differentiation: The overall cost leadership strategy of LCCs versus the differentiation strategy of FSCs is one area that will provide valuable insight into the differences in the processes of the two airline models. RQ4 explores the extent to which both parties have adopted automation to further their strategies and the difference in their adoptions, as shown in Table 29. Automation was found to be an important difference between FSCs and LCCs. For instance, LCCs make more extensive use of automation in training employees, and, sales and distribution. Among the scripts from the literature review and archival data, it was discerned that FSCs lack automation and make use of it primarily to build a brand and to a much lesser extent to increase efficiency. Furthermore, the scripts mentioned automation twice concerning FSCs and eight times regarding LCCs. For instance, SpiceJet uses automation to flexibly adjust capacity to demand, by facilitating the continuous increase in fleet size without increasing unit cost disproportionately. On the other hand, FSCs used automation to differentiate their products and create brands.

LCCs acquire more expensive information technology to improve operational efficiency and to a greater degree, relative to FSCs. For instance, Cebu Pacific incurred additional costs for various information technology projects to improve operational efficiency, while Citilink uses the latest technology to train workers to become more efficient and to facilitate accurate decisions to enhance revenue and cost efficiency. On the other hand, IT allows FSC, China Southern Airline, to launch and sustain their CSR, innovate, and augment safety. Japan Airlines has a similar strategy of enhancing innovation through technology. Likewise, Turkish Airlines uses IT to improve the passenger experience. IT and other means of automation allow LCCs to improve on their cost minimisation to a greater extent and service quality to a lesser extent, and FSCs to improve on their cost containment strategy and quality to a greater extent. The term "cost containment" suggests a policy to keep costs within some fixed limits that are considered acceptable but not necessarily to reduce them comprehensively.

FSCs and LCC also retrofitted their manpower strategy to suit their broad competitive strategies. This is evidenced by the following first and second-level codes. First, FSCs train primarily for quality enhancement while LCCs train for heightening efficiency. For example, training costs of LCCs will be reduced when training pilots, maintenance workers, and crew since there are only 1 to 2 aircraft types in their fleet, unlike FSC with a heterogeneous fleet. The following in vivo codes provide evidence that LCCs train for efficiency: (i) AirAsia established a team of sixty-well-trained employees to handle as many as eight thousand calls daily; (ii) Cebu's training encompasses all functions and departments. In minimising the cost of human resources: Citilink trains staff for multiple roles unlike its FSC counterpart; Southeast LCCs operate with fewer crew and administrators than FSCs and have no ticket sales agents. Second, FSCs' training is costlier than LCCs'. For instance, Thailand's LCCs employ a customised approach to training, which has been narrowed to staff needs. Also, LCCs make greater use of technology to train staff and rely more on cross-training than FSCs. The employees of Turkish Airlines can access training, training documents, and digital information notes on LMS "whenever and wherever they want". The word "wherever" suggests a costlier option for training; Turkish Airlines has its own academy.

Extant literature claims that LCCs' employees are more productive than FSCs'. One reason is that a larger proportion of employees in Asia's FSCs are unionised compared to those in LCCs, and the compensation of LCC employees is more heavily based on performance than that of FSC employees. For instance, 60% of China Airline’s compensation is in bonuses and stock options, while 40% is based on job title. Further, LCCs outsource many of their functions relative to FSCs.

FSCs such as Air New Zealand encounter difficulty simultaneously pursuing differentiation and cost containment strategies. For instance, Air New Zealand encountered considerable difficulty reducing costs due to its Boeing 787-9 configuration needed to provide stellar services. Extant literature also found that Asian and Australasian FSCs' main strategy is one of differentiation and at best these FSCs can only “contain” cost. The second level codes contain evidence of such differentiation strategy of FSCs. The second level code “Asian FSCs provide bundle services” is evidenced through the literature review with statements such as FSCs ticket price contains most of the following: “FFP, access to an airport lounge, extra baggage allowance, in-flight Wi-Fi and meals” and “the inclusion of so many services in FSCs’ ticket prices confirms high quality”. In contrast, LCCs cut costs by selling only the flight to passengers and having them pay for ancillary services during the flight. However, the LCCs explored did not sacrifice training and safety for low-cost. Extant literature states that, in the short term, safety is incongruent with LCCs’ cost optimisation strategy but consistent with FSCs’ differentiation strategy.

Additionally, the existing literature indicates that LCCs' offerings are highly price-sensitive, whereas FSCs' success largely depends on their ability to differentiate their products. Hence, FSCs can afford to increase their selling price in response to an increase in differentiation-related costs, whereas an increase in such cost by LCCs will reduce their profitability. However, there is evidence of differentiation strategy among LCCs, especially LHLCCs, which are much less extensive and costly than FSCs’ differentiation. Furthermore, FSCs and LCCs, to a much greater extent, have used modern aircraft such as the A321, which allow LCCs to enhance quality, due to their seat density configuration ability. Table 37 depicts the codes which are associated with cost leadership versus differentiation strategies of the two airline Models

Table 37

Codes Supporting Cost Leadership Versus Differentiation

Categories	Codes Generated at Level 2
Automation	LCCs exceed FSCs in ▪ Automation in sales/distribution; ▪ Expensive information technology; ▪ Automation-related general operational efficiency
Manpower Optimisation	▪ FSCs training geared at quality, LCCs train for efficiency; ▪ FSCs training is costlier than LCCs; ▪ more FSC workers are unionised; ▪ LCCs adopt performance base compensation
strengthening efficiencies	▪ FSCs emphasise quality, LCCs minimise cost; ▪ LCCs have a more modern fleet; ▪ LCCs are better at aircraft acquisition cost-related savings; ▪ LCCs’ processes are more efficient; ▪ LCCs’ comprehensive versus FSCs’ limited cost minimisation; ▪ LCCs' continuous cost-cutting versus FSCs’ piecemeal cost-cutting; ▪ LCCs reduce ownership costs to a greater extent than FSCs ▪ AWA subsidiary LCCs are more efficient than independent LCCs ▪ AWA cost sharing through joint venture;
Efficient Asset Utilisation	▪ LCCs lease craft more extensively than FSCs; ▪ LCCs more efficiently rationalise fleet; ▪ FSCs select aircraft for the brand while LCCs select aircraft to cut cost; ▪ LCCs use correct aircraft for the route to a greater extent than FSCs; ▪ LCCs’ administration is more efficient ▪ LCCs use more modern aircraft;
Brand image	▪ FSCs bundled versus LCCs unbundled services; ▪ FSCs’ quality versus LCCs’ cost optimisation; ▪ LCCs don’t sacrifice training; ▪ CSR congruent with only FSCs’ strategy; ▪ LCCs price price-related demand versus FSCs’ quality-related demand; ▪ Increased costs elevate fares for FSCs but lower profits for LCCs ▪ Modern aircraft allow LCCs to enhance their brand; ▪ AWAs enhance passengers’ growth, choice, and alliance ; ▪ FSCs provide more reliable services.

Source: Research Output 2024.

Theme 2: Fleet Strategy. The major category in Table 38 has been grouped to generate the theme “fleet strategy”. Fleet strategy is an important component of airlines' competitive strategy. This theme addresses RQ4 by demonstrating how the fleet strategies of FSCs and LCCs differ. The categories “Fleet composition” and “Fleet Fuel consumption” were generated by grouping similar codes. As regards “fleet composition”, the following second level coding provides the following evidence: LCCs’ aircraft generally have higher seat density than FSCs’; LCCs operate a higher percentage of narrow body and a lower per cent of wide-body aircraft than FSCs; LCCs’ fleet is less heterogeneous than FSCs’; LCCs’ average aircraft fleet age is lower than FSCs’. Concerning “Fleet Fuel consumption”, the second level coding provides the following evidence: LCCs’ aircraft have higher fuel efficiency than FSC; LCCs’ higher fuel efficiency is derived primarily from using newer, more fuel-efficient aircraft.

Table 38
Codes Supporting Fleet Strategies

Categories	**Codes Generated at Level 2**
Fleet composition	LCCs fleet has: ▪ higher seat density ▪ fewer fleet types, ▪ more optimised fleet configuration and aircraft size;
Fleet Fuel consumption	▪ LCCs Aircrafts’ lower Fuel consumption ▪ LCCs' average fleet age is lower

Source: Research Output 2024.

Theme 3: Pricing Segmentation Strategies. The classification and assortment of the generated codes were under the categories “FSCs segmented Pricing” and “LCCs unsegmented Pricing”. The theme “price segmentation” was formed from a more advanced grouping of these two categories. As shown in Table 39, the central research question (RQ4) was partially addressed by this theme. The category FSC unsegmented pricing is supported by the following second-level code: “FSC’s price segmentation strategy results in less ancillary revenue but more ticket revenue than LCC; The Tariff system results in more passenger yield for FSCs; FSCs’ customers are more loyal than LCCs’; FSCs employ more tactics to improve passenger yield; Airlines' pricing strategies are congruent with their generic strategies; the majority of FSC aircraft fleet cannot facilitate unsegmented pricing.

The second category, LCCs unsegmented pricing, was supported by the second level codes: “The fares structure of LCCs is simpler than FSCs; LCCs fares and revenue Management are less complex in fares; LCCs is a lean strategy; LCCs pursue operational efficiency; LCCs generate more ancillary revenue: LCCs exceed FSCs in dynamic bundling; LCC pricing is congruent with its overall strategy”. The term “overall strategy” does not imply that LCCs exclusively pursue a revenue management strategy of cost minimisation whereas FSCs revenue management strategy hinges exclusively on exorbitant revenue. RQ4 was answered by the in-vivo, descriptive, and emerging codes listed in Table 31 below and classified under the theme “segmentation pricing”.

Table 39

Codes Supporting Pricing Segmentation Strategies

Categories	Codes Generated at Level 2
FSCs’ Segmented Pricing	Relative to LCCs, FSC’s Price segmentation results in: ▪ less ancillary revenue; ▪ more ticket revenue than LCC; ▪ more loyal passengers; ▪ more tactics to improve passenger yield; ▪ congruency with its overall strategy; ▪ aircraft fleet can facilitate segmented pricing
LCCs’ Unsegmented Pricing	Relative to FSCs, LCCs' unsegmented pricing results in: ▪ simpler fare and revenue management; ▪ operational efficiency; ▪ generation of more ancillary revenue: ▪ more dynamic bundling; ▪ congruency with its overall lean strategy

Source: Research Output 2024.

Theme 4: Fuel Efficiency Programme: The key categories in Table 40 have been grouped to generate the theme “Fuel Efficiency Program”. The fuel efficiency program facilitates an exploration of differences between the fuel strategies employed by FSCs and LCCs in Asia and Australasia. By establishing the differences in the fuel strategies of the two airline models, this theme also contributes to answering RQ4. The categories comprising this theme are “On the ground Strategies”, “In the Air Strategies”, and “Continuous Improvement Versus Discontinuous

Development" strategies. It can be deduced from the research scripts that there are important differences in the fuel efficiency programmes of the two airline models which are essential in determining the extent to which the "processes" of Asia and Australasian FSCs need major adjustments to close quantitative variances and enhance feasibility.

Differences in the "on-the-ground strategies" were evident between the FSCs and LCCs explored. First, to safeguard themselves from unexpected increases in fuel prices, due to macroeconomic nuisances such as wars and pandemics, both airline models equally hedge. However, congruent with its low-cost strategy, LCCs have a more comprehensive "on-the-ground strategy" to reduce fuel consumption, relative to FSC. For instance, Indigo uses an Eco-Power Engine Wash process for aircraft engines, and ground equipment instead of aircraft auxiliary power units (which consume more fuel). Indigo also uses a single aircraft engine for taxiing on the ground.

Differences in "In the Air Strategies" are as important as those "on the ground" since they both reap the same results and can similarly impact feasibility. The fleets of Asian and Australian LCCs have a higher percentage of fuel-efficient aircraft than FSCs. For instance, the LCCs predominantly have two types of the following narrow body and fuel-efficient aircraft: Boeing 737, Airbus 320–321, and Airbus 320neo – Airbus 321neo, which are all selected for their size, efficiency, and economy. However, Asian FSCs predominantly use the following fuel-inefficient fleets: A330, A350, B787, B777, B767 and B747. Also, LCCs have a more robust policy to reduce fuel consumption while planes are in the air, such as identifying the most efficient flight paths, encouraging pilots to apply industry-accepted best practices in fuel efficiency, and optimising flight altitudes for fuel efficiency. Furthermore, LCCs make efficient use of their aircraft fleet to cut costs. For instance, while FSCs would quickly allow an A-320 to fly the vast expanse of the Tasman, LCCs would allow this only if their A-320 neo or A-321 neo are unavailable.

The category "Continuous Improvement Versus Discontinuous Development Strategies" is an important difference between the fuel efficiency strategies of the two airline models. This category reflects the overall cost leadership and differentiation strategies of LCCs and FSCs. The following first-level codes represent LCCs' continuous improvement as regards fuel efficiency: (1) Citilink Indonesia continuously improved the operational performance that has an impact on fuel efficiency, such as Fuel Tankering, GPU Use for RON and ex-RON A/C, Single Taxi In, Electronic Flight Bag, Early Departure, Pack Off, APU Delay Bleed, Troley On Board (2) LCCs replace their aircraft with more efficient ones more frequently and extensively than FSCs (3) LCCs place lightweight seats on aircraft. FSCs have a more haphazard and piecemeal approach to cost, which has a limited impact on fuel efficiency. Words and phrases from the literature review which suggest that FSCs' strategy is incongruent with continuous improvement in fuel are "cost containment, differentiation, branding; hub and spoke". Table 32 captures the above discussion.

Table 40

Codes Supporting Fuel Efficiency Program

Categories	**Codes Generated at Level 2**
Differences in "On ground Strategies"	▪ LCCs are more fuel efficient on cost on the ground ▪ LCCs have a more comprehensive on-the-ground strategy
Differences in "In the Air Strategies"	▪ LCC aircraft Fleets are more fuel efficient; ▪ LCCs have superior "in the air" fuel consumption policies; ▪ LCCs use fleet utilisation of aircraft more efficiently;
Continuous Improvement Versus Discontinuous Development Strategies	▪ LCCs' continuous improvement strategy is reflected in their fuel efficiency; ▪ FSCs' haphazard and piecemeal approach is reflected in their fuel efficiency.

Source: Research Output 2024.

Theme 5: Sub-branding: RQ4 also explores the dynamism between a parent FSC and its LCC subsidiary and the dynamism between parent SHLCC and its LHLCC subsidiary. One of the intentions of this component of RQ4 is to establish the market synergy and limitations of FSCs having a SHLCC or LHLCC sub-brand as its subsidiary in the context of Asia and Australasia. This component was important since it probed into similar and different characteristics of FSCs and LCCs, which could thwart or facilitate the success of an FSC sub-brand after acquiring an LCC (short haul or long haul) as its subsidiary.

The theme sub-branding was derived from the formulation of categories, which themselves were derived from combing through codes, as shown in Table 41 and discussed below. The category "SHLCC AWA sub-brand" can be quite simple since SHLCCs serve different haul and market segments from FSCs as expressed by the following second-level codes "they concentrate on different hauls; they target different passengers; they adopt different fleet configurations; they offer different numbers of cabin classes". These gross disparities lower the threat of product cannibalisation. In the category "LHLCC AWA sub-brand", the risk for failure is assessed as medium-to-high, as evidenced by the second-level codes "Asia and Australasian FSCs and LHLCC share long haul: medium threat of cannibalisation; both parents and subsidiary target business travellers; unlike FSCs, LHLCCs require a large market to be profitable". However, FSCs and LHLCCs' business passengers (BPs) are different.

The category "Further Differences between LHLCC BP and FSC BP" added to a determination of the extent of difference between those two groups by analysing the following second-level codes: "LHLCC and FSC business passengers are (i) employed at different seniority levels (ii) use different methods to book flight (iii) possess different degrees of ticket price sensitivity (iv) belong to different social classes (v) belong to different age group (vi) are employed by different sizes of employers. Regarding the category "Market regulations" it appears that the Asian and Australasian markets are slightly very regulated, as evidenced by the following second-level codes: "Lower staff related regulation relative to western LHLCC: same safety regulation relative to more developed economies; the high extent to which regulatory framework permits price competition; extremely stringent regulations related to flying; extreme market-related regulation".

Table 41

Codes Supporting Sub-Branding

Categories	Codes Generated at Level 2
SHLCC AWA sub-brand	FSCs and SHLCCs: ▪ concentrate on different hauls; ▪ target different passengers;
LHLCC AWA sub-brand	▪ FSCs and LHLCCs share long haul: ▪ Threat of cannibalisation; ▪ Models target various business traveller market segments; ▪ LHLCCs require a larger market to be profitable; ▪ LHLCCs underperform on ultra-long routes; ▪ LHLCCs compete directly with FSCs; ▪ Service quality of models positively impacts passenger satisfaction; ▪ FSCs' passengers are more loyal than LHLCC's.
Further differences between LHLCC BP and FSC BP	LHLCC and FSC business passengers are: ▪ employed at different levels; ▪ use different methods to book flights; ▪ possess different degrees of ticket price sensitivity; ▪ belong to different social classes.
Market regulations prohibiting or facilitating LHLCC subsidiary	Relative to Western countries, Asia and Australasia's LHLCCs operational environments have: ▪ lower staff-related regulation: ▪ the same safety regulation; ▪ price competition to a high extent; ▪ extreme regulations related to flying; ▪ market-related regulation.

Source: Research Output 2024.

Theme 6: LHLCCs' Hybrid Profitability Strategy. RQ4 explores LHLCC's hybrid profitability strategy. An analysis of the scripts shows that the profitability of LHLCCs is influenced by a hybrid strategy that integrates the operations of FSCs and SHLCCs, as outlined in Table 42. The category “Cost differences of SHLCC and FSCs” is derived from several codes. The first code, “Importance of using correct aircraft”, is vital to the survival of LHLCCs. For instance, the longer-range B787-8 is good for LHLCCs, as it facilitates direct flights and avoids the diluting effect of connecting flights on revenue experienced by FSCs. Furthermore, the B787 can lower maintenance costs by up to 18%. The second code, “LHLC airlines attract different types of passengers”, is true to a lesser extent as regards SHLCC, since they travel different routes; however, they both require a large market for survival. The third code “LHLCCs are less fuel efficient than SHLCCs but more than FSCs” is supported by statements such as “LHLCC fuel’s share of direct operating costs grows from 30% to 50% relative to SHLCC”.

The next category underpinning the theme “LHLCC Hybrid Profitability Strategy” is “LHLCCs' revenue differences from SHLCCs and FSCs”, which has several second-level codes as evidence. First, LHLCCs need a larger market to become profitable given their significantly lower revenue relative to FSCs. Another second-level code supporting this category is a “Lack of passenger yield relative to FSCs”. This low passenger yield demands the presence of a wide market. A third second-level code is that LHLCCs are more profitable in the medium to long haul; however, profitability becomes negative in the ultra-long route. A fourth second-level code is that “LHLCCs generate different revenue from FSCs and SHLCCs”. Even when Asia’s and Australasia’s LHLCCs offer connecting flights, loyalty programmes, and premium cabins, there are a few differences in configuration from FSCs, which result in FSCs achieving higher yields relative to LHLCCs. Another area where LHLCCs outperform FSCs in the Asian region is ancillary revenue.

Evidence of the final category “Other Profit-Related Advantages and Disadvantages of LHLCCs” is provided by the following second-level code: “Advantage of Asian and Australasian LHLCCs relative to LHLCCs in more developed countries”. The extant literature claims that LHLCCs operating in many parts of Asia achieve lower operating costs than their global counterparts due to Asia’s lower GDP relative to First World countries, lower labour costs, lower airport charges, and fewer interventions by trade unions. With regard to the second-level code “Disadvantage of LHLCCs over SHLCCs and FSCs”, evidence was gathered suggesting that other costs (e.g., for meals and entertainment) incurred by LHLCCs cannot be passed on to customers and instead reduce profitability.

Table 42

Codes Supporting LHLCC Hybrid Profitability Strategy

Categories	**Codes Generated at Level 2**
Cost Difference between LHLCCs, SHLCCs and FSCs	▪ Importance of using the correct aircraft; ▪ LHLCC airlines attract different types of passengers; ▪ LHLCCs are less fuel-efficient than SHLCCs but more than FSCs; ▪ LHLCCs have a cost advantage over FSCs.
Revenue Differences between SHLCCs and FSCs	▪ Need for a larger market; ▪ Lack of passenger yield relative to FSCS; ▪ SHLCCs are more profitable in medium to mildly long haul than FSCS; ▪ LHLCCs generate different revenue from FSCs and SHLCCs
Other Profit-Related Advantages and Disadvantages of LHLCCs	▪ Other limits of LHLCCs over SHLCCs and FSCs; ▪ Other advantages of regions’ LHLCCs relative to those in other parts of the world

Source: Research Output 2024.

4.2.2 Structural and Leadership Factors

Theme 7: Transformational leadership

As shown in Table 43, the central research question, RQ5, was partially answered by the theme “transformational leadership”. This major category has grouped the data codes related to the theme “transformational leadership”. Transformational leadership is an important requirement for FSCs, equipping them to align their modus operandi with the LCCs' supply chain strategy. This theme demonstrates how transformational leadership can help FSCs adjust their implementation structure to help close the functional and structural gaps. The categories of intellectual stimulation, individualised consideration, idealised influence, and inspirational motivation were engendered by grouping similar codes. The second level codes depict the following: (i) Idealised Influence enables transformational leaders in FSCs to cultivate a shared vision and enhance relationships with their employees. (ii) With individualised consideration, FSCs' transformational leaders concentrate on identifying employees' individual needs and empowering followers to build a learning climate and mobilise support toward converting the supply chain of their current airline model to that of the LCCs. (v) Intellectual stimulation propels FSCs' transformational leaders to build an atmosphere where knowledge is shared to generate more innovative ideas and solutions for the challenges of constructing such a complex system as a supply chain. (iv) Inspirational motivation allows FSCs' transformational leaders to inspire employees and set a higher level of desired expectations for them.

Table 43

Codes Supporting Transformational Leadership

Categories	**Codes Generated at Level 2**
Intellectual stimulation	Leaders: ▪ encourage innovation; ▪ encourage creativity; ▪ build strategic behaviour; ▪ set a compelling vision.
Individualised consideration	Leaders: ▪ prioritise staff training; ▪ empathise; ▪ mentor and coach.
Idealised influence	▪ leaders individualised and customised training; ▪ leaders set high professional and ethical standards; ▪ leaders fostering a sense of personal growth; employees feel personally scorned when their leader is criticised by others

Table 43 (Continued)
Codes Supporting Transformational Leadership

Categories	Codes Generated at Level 2
	▪ employees feel personally successful when the FSCs achieve success; ▪ leaders encourage subordinates to express ideas; ▪ FSCs influence the loyalty and commitment of cabin crew.
Inspirational motivation	Leaders: ▪ mobilised staff's enthusiasm; ▪ motivate by (i) rewarding (ii) setting compelling visions; ▪ keep employees informed about the company's goals; ▪ motivate and inspire by;

Source: Research Output 2024.

Theme 8: An Enabling Organisational Culture: As shown in Table 44, the central research question, RQ5, was also partially answered by this theme. An analysis of the categories "adaptive", "employee centricity", and "innovation" suggests that Asian and Australasian FSCs have an organisational culture which can enable the conversion of their supply chain, however, the categories "cost containment" and "continuous improvement of quality" seem to suggest otherwise. Employees at Asia and Australasia FSCs can transform their supply chains as evidenced by the fact that they exist within agile organisation structures and work environments, are innovative, have successfully navigated the disruptive COVID-19 pandemic, are undergoing continuous training, and have superb skillsets that facilitate the adaptation to risk and market volatility. Their ability to adapt helps FSCs adjust quickly to changes brought by the conversion and endows them with the flexibility to manage conversion-related risks spontaneously. Another category supporting the theme of "an enabling organisation culture" is that FSCs are employee-centric. These FSCs value employee development as a core strategy in their quest to build a superior brand, as manifested in their aggressive training. They also enable, engage, motivate, and appreciate their staff. Practices such as an open-door policy, psychological safety, and a high unionisation rate have improved employee satisfaction.

Another important subculture of the broader culture, “An Enabling Organisational Culture,” is innovation. As shown in Table 44, FSCs in Asia and Australasia show strong signs of innovation from multiple angles. Areas of innovation include marketing, staff, and technical. For instance, Turkish Airlines hosted an annual innovation award. Another important area of innovation is in cost containment.

In the context of converting the supply chain of an FSC to that of an LCC, the theme “An Enabling Organisational Culture” is vital. The majority of the airlines in the study naïvely believed that they could pursue strategies of differentiation and cost-leadership simultaneously, as suggested by the following statements in their annual reports: “minimising costs without compromising service quality”, “increasing revenue and…. cost leadership principle” and “reducing operational costs while maintaining quality”. Likewise, the category “continuous improvement of quality” is one of differentiation and may obstruct the supply chain conversion. For instance, the codes “focusing on quality; and exceeding customers’ expectation” increase cost.

Table 44

Codes Supporting an Enabling Organisational Culture

Categories	**Codes Generated at Level 2**	
Adaptability	▪ Ability to respond quickly; ▪ Quick response to COVID-19; ▪ Flexibly to changing conditions; ▪ Adaptability-related training; ▪ Adaptability derived from staff experience; ▪ adaptive marketing, adaptive risk management; ▪ adaptive organisation structure; ▪ innovation derived from flexibility.	
Employee centricity	▪ Employee development plan; ▪ Employee enablement; ▪ Motivation; ▪ Employee appreciation; ▪ Psychological safety;	▪ Open door policy; ▪ Employee satisfaction; ▪ Employee engagement; ▪ High unionisation rate
Innovation	▪ Innovation award; ▪ Innovative service ▪ Supplier-related innovation;	▪ Inventions; ▪ Innovation in designs; ▪ Innovative employees;

Table 44 (Continued)

Codes Supporting an Enabling Organisational Culture

Categories	Codes Generated at Level 2	
	▪ Digital innovation; ▪ Innovative salary allocation; ▪ Innovation program ▪ Technical innovation	▪ Innovations in structuring fares; ▪ Innovative customers' experience;
Cost containment	▪ Inability to reduce cost given the drop in revenue; ▪ Cannot minimise" costs without compromising service quality: ▪ Revenue enhancement as well as redefining cost structure	
Continuous Improvement of quality	▪ Continuous training; ▪ Enhance customer satisfaction; ▪ Continuously improving marketing adaption; ▪ containment strategy;	▪ Very reliable ▪ Value passengers' convenience ▪ Focus on quality; ▪ Exceed customers' expectations ▪ Continuously improve process;

Source: Research Output 2024.

Theme 9: Process Perspective of Change Management. Table 45 portrays the second-level codes and the categories derived from those codes in generating this theme. The transcripts, codes, and emerging categories present ample evidence that FSCs are experts at using the "Process Perspective of Change Management" in their sustainability thrust. The codes contain evidence of the ability of the dialectical theory to address the contrasting goals among various interest groups, the resulting confrontation, and the imbalance of power between the opposing entities. For instance, all stakeholders are consulted during FSCs' sustainability drive as stated by the following statements: "open communication with key stakeholder groups; we value internal and external stakeholders; and investigate stakeholders". Additional abilities of FSCs to diffuse confrontation and the imbalance of power between the opposing entities are evidenced in the following statements: build collaborative relationships and stakeholder analysis matrix. A stakeholder mapping clarifies the relationships, dependencies, interests, and power balances between stakeholder groups. This was important in assessing how much attention and resources to invest in addressing the needs of each stakeholder group, as suggested by the statements: prioritise stakeholders and materiality assessment. Qantas stated that material assessment was conducted "to confirm we were reporting on the issues that matter to our stakeholders and to Qantas".

To determine the importance/materiality of each issue and, consequently, the stakeholders affected by each of the problems, a cycle is needed similar to the teleological theories, which assert that change is seen as a progressive cycle of goal formulation, implementation, evaluation, and learning. A pattern emerged from coding the sustainability report of FSCs, revealing that most FSCs go through the process of identification, prioritisation, validation, and review in assessing which areas and, consequently, determining which stakeholders are material to those FSCs. The identification step is an important stage of materiality assessment in determining sustainability. Packard (2021) and Hayes (2022) agree that goal formation predominantly involves identifying the issues being addressed. FSC's identification step was outlined as follows: identify the boundaries; identify long-term issues; identify materiality; identify specific topics; identify environmental, social, and governance opportunities and risks. With the prioritisation step, FSCs explicitly stated that they prioritised issues and stakeholders. The validation and review steps in FSC's sustainability pursuit are equivalent to the Haynes (2022) goal evaluation, as evidenced by the following statements in the sustainability report of FSCs: "Sustainable Development Goals were evaluated, and International standards and evaluation". Furthermore, the word "review" was mentioned 32 times in the transcripts to suggest either a pre-final or final evaluation. Finally, learning was implied by the following statements: THAI will then use their suggestions and opinions to improve its sustainability report in the following year; reviewing materiality so that it is closely linked to the creation of economic value; and a reassessment of material topics was conducted. These statements are relevant since review and evaluation naturally lead to learning.

Table 45

Codes Supporting Process Perspective of Change Management

Categories	Codes Generated at Level 2	
Dialectical	▪ Updated stakeholder; ▪ prioritised stakeholders; ▪ engaged customers; ▪ provided clarity to stakeholders; ▪ build collaborative relationships:	▪ open communication with key stakeholder groups; ▪ value internal and external stakeholders; ▪ assess the extent of stakeholder concern and expectation; ▪ investigate stakeholders; materiality assessment
Teleological	The following process was identified: 1. Identification 2. Prioritisation 3. Validation 4. Review	

Source: Research output (2024).

Theme 10 - Major Capital Projects: The extent of experience in major capital projects is one of the needed attributes to close gaps between FSCs' and LCCs' supply chains. The theme and categories shown in Table 46 directly contribute to answering RQ 5. As shown in Table 46, FSCs have extensive investments in airline activities such as ground handling and engineering, related activities such as real estate and property management, backward linkage activities such as aircraft leasing, and forward linkage activities such as selling and marketing. Furthermore, many FSCs have major investments in charter airlines, cargo airlines, or LCCs through business ventures such as subsidiaries, joint ventures, and mergers and acquisitions.

Table 46

Codes Supporting Experience in Major Capital Projects

Categories	Codes Generated at Level 2	
Investment In Airline Activities	▪ Aircraft repair and maintenance; ▪ Freight and cargo, ▪ Subsidiary LCC airlines; ▪ FFP;	▪ Ground handling; ▪ Engineering; ▪ Training; ▪ Travel booking and related services
Investment in related Activities	▪ Food catering; ▪ Digital services; ▪ Real estate and property management;	▪ Investment holding; ▪ Tours; ▪ Information technology; ▪ Consultancy

Table 46 (Continued)

Codes Supporting Experience in Major Capital Projects

Categories	Codes Generated at Level 2	
Backward Linkage Activities	▪ Aircraft leasing; ▪ Financial services;	▪ Aircraft cabin manufacturing and overhaul;
Forward Linkage Activities	▪ Insurance; ▪ Airport-related business; ▪ Laundry and dry cleaning;	▪ Advertising; ▪ Selling and marketing; ▪ Tax Refund and Intermediation; ▪ Asset securitisation

Source: Research output (2024).

Theme 11: Impact of COVID-19 Pandemic: The extent of the impact of the COVID-19 pandemic on the two airlines must be considered among the factors impacting the success of supply chain conversions. To the same extent that the pandemic affects the supply chain of the two airline models differently, it will impact the supply chain conversion. The theme and categories shown in Table 47 directly contributed to answering RQ 4. The literature review proved that Asian and Australasian FSCs adopt the process perspective of change management (Dialectical/teleological) to overcome crises such as the impacts of COVID-19 and through the ingenuity, motivation, and autonomy of each employee. Asian and Australasian FSCs re-conceptualised social issues in light of social changes following COVID-19. As regards the “Available resources” category, FSCs have experience successfully navigating COVID-19. Their managers have acquired invaluable experiences navigating COVID-19, which they can leverage to overcome the challenges of converting their supply chain.

Unlike FSCs, LCCs did not have as much space to cut costs during the pandemic since they were already very lean before COVID-19. FSCs had more leverage to reduce costs, enhance efficiency, and effectively organise pandemic prevention and control, relative to LCCS. Both FSCs and LCCs experienced a sharp decline in hiring. LCCs surpassed FSCs in reducing fleet costs because leased aircraft could be returned more easily, unlike FSCs, which owned and purchased fleets. LCCs invested substantially in pandemic technology to increase revenue and reduce costs.

LCCs reviewed market demand trends, adjusted ASK accordingly, and reduced operational costs to minimise losses. The CASK of Air New Zealand increased by 22%, despite a 58% decline in the airline's operating costs. During the pandemic, LCCs flexibly reduced operating costs by taking advantage of network deployment and offering more competitive fares to passengers to increase market share. This posed a threat to FSCs. FSC reduced staff costs due to reduced capacity. LCCs avoided COVID-19-related retrenchment but rationalised and restructured their workforce cost.

During the global pandemic, FSCs and LCCs in this region played a key role in carrying medical supplies and personal protective equipment (PPE), as well as in the air cargo business, which compensated for the shortfall in passenger revenue. Congestion in maritime logistics prompted companies to abandon their cost-efficiency-oriented mindset, and instead, they transferred to air logistics services for supply chain stability.

The degree of stability in the strategy of LHLCC and SHLCC impacted their success during COVID-19. The COVID-19 pandemic outbreak led to the rise of SHLCC relative to FSC. SHLCCs simulate demand with point-to-point routes and cheap fares on leisure routes during this period. LHLCC's recovery started way after that of SHLCC. LHLCC's failure during the pandemic was attributed to its inability to attract sufficient demand through long-haul point-to-point services, a lack of connecting passengers, or the lack of the right business-class products. Other COVID-19 contributors to LHLCC failure included route network adoption, limited potential for demand stimulation, and demand in the dense market. LHLCC's profitability suffered during the pandemic due to a stagnant market. LCCs which avoided ultra-long routes (over 7000km) were profitable. For the SHLCCs, the long-haul market became attractive only after the short-haul market became saturated. This experience of responding to the market threat of other airline models and managing their subsidiary equips them with valuable experience in maintaining profitability and market share during pandemics and taking on difficult challenges such as supply chain conversion.

Table 47

Codes Supporting the Impact of the COVID-19 Pandemic

Categories	Codes Generated at Level 2
FSCs adopt a process perspective of change management	▪ Understanding with stakeholders; ▪ No retrenchment of workforce; ▪ Unite as a group: ▪ Employee motivation and autonomy; ▪ Re-conceptualisation of social issues
COVID-19 sharpened resilience and skillset of the FSC manager	▪ FSCs have COVID-19 experience; ▪ Managers can leverage such experience
Both FSCs and LCCs augmented cost-cutting strategy during COVID-19	▪ Both models introduced new pandemic-related costs ▪ Both models hired less ▪ FSCs' fleet strategy decreased their ability to reduce costs. ▪ LCCs flexibly reduced operating costs
Both FSCs and LCCs adjusted their revenue strategy during COVID-19	▪ Transported pandemic-related PPE. ▪ Congestion in maritime logistics
Differences in market response to COVID-19 among LHLCC and SHLCC	▪ The pandemic led to the rise of SHLCC demand relative to FSC. ▪ SHLCCs stimulate demand. ▪ LHLCC's unprofitability due to its inability to attract sufficient demand and avoid ultra-long routes. ▪ Post-pandemic, LHLCC demand increased after short-haul became saturated.

Source: Research Output (2024).

4.2.3 Resource and Environmental Constraints

Theme 12: Available Resources. Table 48 presents the second-level codes and the categories derived from them to generate the theme “Available resources” and address RQ5. "Availability of resources" is a key theme related to reducing existing differences between the supply chains of FSCs and LCCs. Top management and BOD of Asian and Australasian FSCs are highly educated, with the majority holding undergraduate to PhD qualifications in various fields from engineering to business management. Several executives and BOD members possess professional designations such as CPA and ACCA. These qualifications are supplemented by regular on-the-job training, resulting in the acquisition of vital tacit knowledge in aviation. Top management retention at these FSCs seems to be very high as some of those executives have been at the helm of these carriers since the 1980s and 1990s. Others have broader experiences in unrelated fields such as finance and banking, tourism, auditing and accounting, and telecommunication.

The second category under this theme is “Unhealthy Gearing Ratios”. This category is evidenced by twelve Asian and Australasian FSCs having an average debt ratio of 0.9, as shown in Table 99, which exceeds the healthy industry ratio of 0.70. Similarly, the average debt-to-equity ratio for 12 Asian and Australasian FSCs is 7.4, as shown in Table 49, which greatly exceeds the healthy industry ratio of 2.83.

Table 48

Code Supporting Available Resources

Categories	**Codes Generated at Level 2**
Superb Management and Leadership	▪ Highly educated BOD; ▪ highly educated management teams; ▪ highly experienced BOD; ▪ highly connected BOD;
Unhealthy Gearing Ratio	▪ Unhealthy Debt ratio; ▪ Unhealthy Debt-to-equity ratio
Low Stock Price	The following stock prices are low Relative to the US and UK FSCs: ▪ Southeast Asia FSCs ▪ Australasian FSCs ▪ Japan FSCs

Source: Research Output (2024).

Finally, the “Low Stock Price” category is evidenced by nine Asian and Australasian FSCs with an average stock price of $6.70 US, as shown in Table 49.

Table 49

Accounting Ratios Asian Airlines

Airlines	Cathy	ANZ	China Southern	Qantas	Viet-nam	Turkish Airlines	Singa-pore	ANA	Thai Air	Garuda	Air China	Japan Airlin	Avg
Debt to Equity	1.7	5.1	2.8	33.7	10.0	2.9	1.3	2.2	CD	CD	12.7	1.2	7.4
Debt to Asset	0.6	0.8	0.7	1.0	0.9	0.7	0.6	0.7	1.4	1.9	0.9	0.5	0.9
Stock price	1.07	0.37	0.78	3.57	?	9.61	4.72	20.20	?	?	1.02	19	$6.7US

Source: Research Output (2024).

4.2.4 Critical Interpretation of Qualitative Findings

Viewed through the functional, structural, and resource requirements of the Operational Efficiency and Profitability Framework, the qualitative findings reveal that FSCs and LCCs operate under fundamentally different strategic logics that both enable and constrain the feasibility of supply chain conversion. Rather than simply contrasting process differences, the deeper insight emerging from thematic analysis is the presence of structural contradictions within the FSC model—contradictions that explain the quantitative cost gaps and signal where convergence is possible, and where it is inherently limited.

Across Themes 1–6, a consistent pattern emerges: LCCs possess tight alignment between strategy, process, and operational routines, whereas FSCs exhibit strategic misalignment, balancing high-quality differentiation with partial, fragmented cost initiatives. LCCs' reliance on single-type fleets, cross-trained manpower, automation, continuous improvement cultures, and unbundled revenue structures demonstrates a coherent cost-leadership logic. By contrast, FSCs simultaneously pursue quality-driven differentiation and cost containment, a combination that creates procedural inefficiencies reflected in higher CASK, weaker LF, and volatile fuel-to-operating-cost ratios. This misalignment is not accidental; it is embedded in FSCs' decision architectures, regulatory environments, and brand commitments. As a result, conversion is not simply a matter of adopting isolated LCC practices—it requires reconfiguring underlying routines, governance structures, and resource allocations.

Themes 7–8 reveal that FSCs possess the leadership and cultural potential for change, but not yet the operational orientation required for cost discipline. Transformational leadership is well established across Asian and Australasian FSCs, and organisational cultures show adaptability, innovation, and strong employee centricity. However, the qualitative evidence illustrates that these strengths are overwhelmingly directed toward brand enhancement, service stability, and continuous quality improvement—not toward structural simplification, digitisation, or efficiency. The very cultural traits that make FSCs resilient (e.g., quality orientation, strong unions, extensive training, and high service expectations) also impede the adoption of LCC process discipline. Thus, leadership readiness exists, but its strategic direction requires reorientation toward cost-to-value optimisation rather than service escalation.

Themes 9–10 demonstrate that FSCs are highly sophisticated in change management and capital project experience, yet these capabilities are used to reinforce the existing business model rather than reconfigure it. FSCs apply well-developed teleological cycles—diagnosis, prioritisation, review, and learning—to sustainability and risk management. They also possess extensive capital project expertise across MRO, catering, cargo, digital services, and even LCC subsidiaries. However, these strengths have historically supported diversification and brand expansion, not simplification. This reveals a critical insight: FSCs have the organisational machinery to execute major transformation, but have not previously deployed it toward cost restructuring. Whether they can redirect this machinery toward process standardisation represents a central determinant of conversion feasibility.

Themes 11–12 introduce the strongest source of tension within the FSC model: resource constraints and environmental pressures that limit strategic flexibility. The COVID-19 thematic evidence shows that FSCs demonstrated resilience, creative revenue substitution, and stakeholder-led problem-solving. However, the crisis also exposed structural rigidities, multifleet operations, hub dependence, in-house service chains, and high fixed costs, that amplified losses and constrained capacity to adjust. These operational vulnerabilities are compounded by financial fragility: high debt ratios, weak stock performance, and large capital commitments reduce the ability of FSCs to rapidly reconfigure fleets, outsource operations, or invest in digitalisation. This represents a critical paradox: FSCs possess superior human capital, governance expertise, and transformational leadership capability, but lack the financial flexibility to undertake deep structural change without risking solvency.

Synthesising across all twelve themes, the qualitative results indicate that FSC–LCC convergence is not a linear process of imitation but a complex negotiation between legacy differentiation logic and cost-efficient operational design. LCCs' structural coherence enables consistent cost leadership, while FSCs' structural contradictions generate mixed performance such as high revenue but high cost, strong brand value but weak utilisation, strategic clarity but operational rigidity. Within Hayes's dialectical framework, FSCs sit at the tension point between differentiation (thesis) and cost leadership (antithesis). The emerging hybrid carriers (e.g., LHLCCs) demonstrate partial synthesis but also expose the risks of pursuing both logics without full alignment.

Ultimately, the qualitative evidence shows that FSC conversion feasibility is contingent on reconfiguring four deeper structural levers:

1. Process discipline over service escalation

2. Standardisation over legacy complexity

3. Digital integration over manual control

4. Capital-light fleet and ownership models over asset-heavy structures

These insights move beyond descriptive coding to reveal the underlying capability gaps and strategic tensions that explain the quantitative results. They demonstrate that while FSCs possess the leadership, cultural adaptability, and governance structures necessary for change, the feasibility of true LCC-style efficiency hinges on their willingness and financial capacity to reorient their supply chains toward cost-responsive transformation instead of differentiation-led stability.

4.2.5 Convergence and Divergence of Quantitative and Qualitative Findings

Viewed together, the qualitative themes interpreted through Porter's cost-leadership paradigm and Hayes's process theory show that functional, structural, and resource conditions shaping FSC performance are deeply interconnected. Themes 1 to 6 reveal that LCCs achieve superior operational efficiency because their processes, assets, and routines are tightly aligned with cost-leadership requirements. Their fleet commonality, standardised procedures, unsegmented pricing logic, and continuous fuel-efficiency discipline create internal coherence that directly strengthens key ratios such as CASK, LF, and fuel intensity. In contrast, Themes 7 to 12 show that FSCs possess strong leadership capability, cultural adaptability, and governance maturity, yet remain constrained by legacy differentiation logics, multi-fleet complexity, capital rigidity, and inconsistent process discipline. These internal contradictions explain why the quantitative performance gaps persist across the two models.

Not all FSCs in the dataset exhibit the same degree of rigidity; carriers such as ANA and Singapore Airlines have already adopted elements of lean fleet standardisation, digital integration, and simplified service architectures. This indicates that convergence is uneven and that the region contains early movers whose strategies align more closely with LCC efficiency principles.

This alignment across strands forms the conceptual bridge into the mixed-methods integration. Table 50 synthesises the quantitative variance across core operational efficiency ratios and pairs these statistical differences with qualitative evidence explaining their organisational origins. The table demonstrates how structural complexity, segmented pricing architectures, heterogeneous fleets, and partial cost containment translate into higher CASK, weaker load factors, elevated payroll intensity, and less flexible fuel management for FSCs. The qualitative themes, therefore, provide the mechanism-level explanation for these gaps, revealing the functional and behavioural patterns that underpin performance outcomes.

Table 50

Integrated Quantitative–Qualitative Synthesis of Operational Efficiency Gaps (Findings 1–8)

Quantitative Outcomes	Qualitative Processes	Integrated Interpretation (Teleological + Dialectical Synthesis)
Finding 1 – CASK Gap LCCs had significantly lower CASK than FSCs; gaps widened by 82 percent during COVID.	FSCs exhibit multi-fleet ownership, legacy labour structures, and lower automation; LCCs drive efficiency through fleet commonality, flexibility, and digital discipline.	Teleological diagnosis reveals deep cost rigidity in FSCs. Dialectically, FSC premium-complexity (thesis) confronts LCC efficiency (antithesis). Synthesis requires simplification and digital standardisation.
Finding 2 – Load Factor Gap LF difference narrowed from 3.07 pp to 1 pp during COVID.	LCCs use narrow-body fleets, quick turns, and dynamic pricing; FSCs' complexity limits flexibility despite leadership agility.	Crisis conditions triggered adaptive learning. Teleologically, this reflects early implementation; dialectically, partial convergence occurs when FSCs adopt LCC-style operational discipline.
Finding 3 – Fuel Cost Gap Fuel accounted for 28–33 percent of opex; a 2.62 percent FSC–LCC variance persisted.	FSCs rely on hedging and older fleets; LCCs emphasise younger aircraft and strict procedural fuel discipline.	A thesis–antithesis conflict between hedging and operational rigour. Teleological diagnosis identifies fuel inefficiency; synthesis is dual-track "fuel agility."
Finding 4 – Passenger Yield Gap FSCs' yields exceeded LCCs by USD 2.25–3.96 per RPK.	FSCs leverage loyalty programmes and corporate contracts; LCCs rely on high volume and ancillaries.	Yield premium exposes structural imbalance. Dialectically, hybrid LHLCC models show synthesis: high yield with cost discipline.
Finding 5 – RASK Variance FSCs maintained higher RASK; gaps narrowed during COVID.	FSCs prioritise revenue maximisation; LCCs pursue volume efficiency.	RASK stability marks a productive equilibrium between differentiation and simplification. Represents teleological learning and controlled adaptation.
Finding 6 – YOY Growth LCCs' YOY growth exceeded FSCs by >90 percent.	FSCs rely on complex networks and premium markets; LCCs grow through nonstop, leisure-focused, asset-light models.	Teleological diagnosis: FSC growth remains yield-driven, not efficiency-driven. Dialectically, growth-through-efficiency (LCC) challenges growth-through-service (FSC).

Table 50 (Continued)

Integrated Quantitative–Qualitative Synthesis of Operational Efficiency Gaps (Findings 1–8)

Finding 7 – Payroll-to-Revenue Gap FSCs had consistently higher payroll intensity.	FSCs are constrained by unions and wage scales; LCCs use multi-role staff and performance-linked pay.	Institutional rigidity hampers FSCs. Teleologically, payroll is an early-stage goal-setting constraint; dialectically, partial synthesis occurs through digital HR and automation.
Finding 8 – Operating Margin LCCs outperformed FSCs during crises; FSCs showed higher pre-COVID stability.	LCCs' lean structures support resilience; FSCs rely on diversified networks and brand equity.	Teleological learning shows FSCs adapting but not fully transforming. Dialectical synthesis indicates resilience requires balancing efficiency with brand-driven value.

Source: Research Output (2024).
*Note***.** Findings 1–8 explain the variance in operational efficiency ratios.

Table 51 extends this logic by examining how these operational efficiency ratios influence profitability. The regression models show that CASK, LF, payroll intensity, fuel-to-operating-cost, passenger yield, RASK, and YOY growth exert direct and substantial effects on operating margin. When interpreted alongside the qualitative themes, the causal sequence becomes clear: structural misalignment, resource rigidity, and process fragmentation within FSCs weaken precisely the ratios that the quantitative strand identifies as the strongest profitability predictors. Conversely, the structural coherence and process discipline characterising LCCs strengthen these ratios, enabling consistently superior margins despite lower average fares.

Within Hayes's teleological framework, the qualitative themes illuminate the internal mechanisms – leadership, culture, process capability, strategic intent, and resource configuration – that must be restructured to improve the performance drivers identified in the quantitative findings. The diagnosis–goal formulation–implementation–learning cycle maps directly onto the progression from variance identification (Table 50) to profitability sensitivity (Table 51). Through a dialectical lens, the persistent tension between differentiation (thesis) and cost leadership (antithesis) explains the structural contradictions at the heart of the FSC model. Convergence therefore emerges not through imitation, but through synthesised transformation: retaining premium service value while progressively absorbing LCC-style standardisation, digitalisation, and efficiency routines. Where Table 50 shows where FSCs lag operationally, Table 51 clarifies which of these gaps matter most for profitability, allowing the study to move from descriptive variance to strategic causation.

Table 51

Integration Integrated Quantitative–Qualitative Synthesis of Profitability Drivers (Findings 9–15)

Quantitative Outcomes	**Qualitative Processes**	**Integrated Interpretation (Teleological + Dialectical Synthesis)**
Finding 9 – CASK Profit Sensitivity CASK negatively affected OM of 60 percent of FSCs' subgroups but only 11 percent of LCCs'.	FSCs' high CASK driven by ownership-heavy fleets and rigid labour; LCCs minimise cost through utilisation and short-term leasing.	Teleological diagnosis identifies CASK as the central barrier. Dialectically, FSC differentiation (thesis) opposes LCC cost minimalism (antithesis). Early synthesis forms through digitalisation and alliances.
Finding 10 – LF and Utilisation LF influenced OM of 44 percent of LCCs' subgroups but only 20 percent of FSCs'.	LCCs use automated RM, single-type fleets, and high-density seating; FSCs' network complexity limits utilisation.	LF becomes a teleological performance lever. Dialectically, comfort vs. density conflict forces synthesis around agility and simplified fleets. The jump in LF sensitivity during COVID mapped onto Hayes's implementation stage, where FSCs were forced into adaptive redesign of schedules and fleet usage.
Finding 11 – Payroll Intensity Payroll intensity had a stronger negative impact on OM, among FSCs.	FSCs face strong unionisation; LCCs use flexible, multi-skilled labour. COVID reductions were temporary for FSCs.	Teleological diagnosis reveals labour rigidity as a strategic bottleneck. Dialectically, FSC premium labour (thesis) confronts LCC lean labour (antithesis). Only partial synthesis emerges.
Finding 12 – YOY Growth & Resilience: YOY growth had a much stronger positive effect on LCC OM.	LCCs scale through simple networks; FSCs expand complexity without corresponding profit uplift.	Teleologically, growth must shift from yield-driven to efficiency-driven. Dialectically, efficiency-based scaling forms the synthesis for sustainable growth.
Finding 13 – Yield Dependence Yield strongly influenced FSCs' OM ($\beta = 0.38$) but minimally affected LCCs ($\beta = 0.021$).	FSCs rely on fare segmentation, loyalty, and premium markets; LCCs rely on volume and ancillaries.	Teleological diagnosis exposes over-dependence on yield. Dialectically, revenue hybridisation becomes the synthesis: value density with cost clarity.

Table 51 (Continued)

Integration Integrated Quantitative–Qualitative Synthesis of Profitability Drivers (Findings 9–15)

Quantitative Outcomes	**Qualitative Processes**	**Integrated Interpretation (Teleological + Dialectical Synthesis)**
Finding 14 – Fuel Sensitivity Fuel-to-opex impacted OM of 80 percent of FSCs but only 44 percent of LCCs.	FSCs operate older widebodies; LCCs use younger, standardised fleets.	Teleological diagnosis identifies fuel as dominant the cost driver; dialectical synthesis emerges in dual-track fuel agility combining hedging and operational efficiency.
Finding 15 – RASK Impact: RASK affected OM of 38 percent more FSCs than LCCs.	FSCs show controlled adaptation supported by transformational leadership; LCCs rely on volume-driven RASK.	Teleological learning reveals FSCs maintain revenue strength while gradually improving efficiency. Dialectically, RASK stability reflects transitional equilibrium.

Source: Research Output (2024).

Note. Findings 9–15 explain how operational ratios influence profitability.

The integrated findings from Findings 1–15 show that although FSCs face structural cost disadvantages and entrenched complexity, they also possess the leadership capacity, cultural adaptability, organisational learning systems, and stakeholder governance required to narrow these gaps through targeted simplification, agile workforce redesign, resource reconfiguration, and focused revenue strategies. Taken together, the mixed-methods evidence demonstrates that FSC–LCC convergence is feasible – but only when FSCs shift from differentiation-led stability toward efficiency-oriented transformation grounded in process discipline, digital integration, and smarter capital allocation.

These results serve as the empirical and theoretical foundations for the Supply Chain Conversion Blueprint developed in Chapter 5, which translates the integrated insights into a set of actionable strategic, operational, and organisational interventions tailored to the Asia–Australasia context.

4.2.6 Evaluation of the Findings

Within the Operational Efficiency & Profitability Framework, airline profitability is modelled as the interaction of cost-side efficiency levers (CASK, payroll/revenue, fuel/opex, LF as utilisation) and revenue-side productivity levers (yield, RASK, growth cadence), transmitted to operating margin (OM) through process mechanisms (fleet/commonality, scheduling/turns, digital RM, labour design). The evaluation below applies this lens to (i) quantify effect sizes, (ii) identify binding levers by model (FSC vs LCC), and (iii) infer conversion feasibility where cost and revenue mechanisms can be re-balanced.

This study aimed to explore the feasibility of FSCs operating in Asia and Australasia successfully converting their supply chain model to that of LCCs, by determining the variances of their processes and outcomes, and FSCs' ability to close or reduce those variances. The evaluation of the quantitative findings section did not discuss FSCs' ability to reduce variances, as this was assessed during the qualitative analysis.

The quantitative objectives were to: (i) determine the significant impact of cost-related independent variables on the profitability of publicly traded LCCs and FSCs in Asia and Australasia; (ii) determine the significant impact of revenue-related independent variables on the profitability of publicly traded LCCs and FSCs in Asia and Australasia; (iii) establish the substantial differences in operational efficiency ratios between publicly traded LCCs and FSCs operating in Asia and Australasia; (iv) determine the extent to which the COVID-19 pandemic affects the substantial impact of independent variables on the dependent variable of publicly traded FSCs and LCCs operating in Asia and Australasia.

The following quantitative research questions emanated from these objectives: (a) What are the substantial impacts of cost-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs operating in Asia and Australasia? (b) What are the substantial impacts of revenue-related operational efficiency ratios on the operating margin of publicly traded LCCs and FSCs operating in Asia and Australasia? (c) What are the substantial differences in operational efficiency ratios between publicly traded LCCs and FSCs operating in Asia and Australasia? These questions provide valuable direction for data collection, analyses, and presentations. The independent and dependent variables were adequately represented in the research questions, which facilitated a determination of the impact of the independent variables on the dependent variables of both airline models and the significance of the variances existing between the two airline models. Furthermore, the research objectives stated above directed the evaluation of the research findings.

Hierarchical Regression Analysis: Guided by the Operational Efficiency and Profitability framework, we first assess cost-side efficiency levers (CASK, payroll/revenue, fuel/opex, LF) before evaluating revenue-side levers (yield, RASK, YOY growth), then interpret net effects on OM. Furthermore, guided by the Operational Efficiency and Profitability Framework, the following table synthesises the relationship between the framework's core levers of cost, revenue, and scale and their observed empirical effects in this study. Each lever is mapped to its corresponding operational mechanism, model applicability, and strategic implication for FSC-to-LCC conversion in Asia and Australasia. This structured summary clarifies how the framework functioned as an interpretive model linking quantitative results to practical transformation pathways.

Table 52
Mapping of Operational Efficiency and Profitability Framework Levers to Empirical Findings and Conversion Implications

Lever (Framework)	Empirical effect	Transmission mechanism	Binding for	Conversion move
CASK (cost gate)	Large negative for FSCs	Fleet/commonality, process simplification	FSC	Subsidiary carve-out + standardisation
Payroll/Revenue (labour friction)	Stronger negative for FSCs	Rostering, automation, incentives	FSC	Digitised HR + performance pay
Fuel/Opex (volatility)	Higher exposure LCCs	Hedging + stage length + telemetry	Both	Fuel-agility playbook
LF (utilisation bridge)	OM-positive	Slots, turns, narrow-body mix	Both	Asset-light capacity, schedule discipline
Yield/RASK (revenue multipliers)	Stronger for FSCs	RM/FFP/segmentation	FSC	Protect premium; LCC: ancillaries/bundles
YOY Growth (scale lever)	Pays for LCCs; neutral FSCs	Cost base must be ready	LCC>FSC	Growth only after cost gates open

Source: Created by the researcher (2024), based on empirical findings and the Operational Efficiency and Profitability Framework.
Note. CASK = HR = Human Resources; Opex = Operating Expenditure; LF = Load Factor; RM = Revenue Management; FFP = Frequent Flyer Programme.

As summarised in Table 52, each framework lever demonstrates a clear transmission pathway between efficiency mechanisms and profitability outcomes. This mapping validates the framework's operational logic and provides a practical roadmap for aligning cost efficiency with revenue resilience in FSC-to-LCC conversions.

Given the research objective of ultimately determining the impact of independent variables on the dependent variable in the two airline models, the research questions have been analysed in the order in which they were presented under the research objectives. Four main regression tests (two for each airline model) were conducted to determine the significant prediction of operating margin by operational efficiency ratios of LCCs and FSCs in Asia and Australasia.

Despite the overall factors suggested by descriptive statistics, the regression analyses depicted the different observed factors predicting operating margin from the strongest to the weakest. From an operating cost perspective, the regression indicates the variables significantly impacting airlines are classified in three categories (i) those identified with β approximating 0.10 (i.e., small effect); (ii) those identified with β approximating 030 (i.e., moderate effect) and (iii) those with β greater than 0.50 (i.e., large effect). Further, contextual importance, practical or managerial significance, industry alignment, and triangulation with subgroup insights were considered when the researcher determined meaningfulness.

The regression analyses presented in Tables 28 to 31 evaluated the impact of cost and revenue-related efficiency ratios on the operating margin of LCCs and FSCs in Asia and Australasia. All predictors were found to substantially influence profitability, though their magnitude, direction, and relevance varied across models. The refined regression highlighted that

CASK and payroll-to-revenue ratios exerted stronger negative impacts on FSC margins, while passenger yield and RASK exerted stronger positive effects. Conversely, fuel-to-operating cost, LF, and YOY passenger growth were found to exert more substantial impacts on LCCs. To situate these results in a broader perspective, the findings are compared with international evidence from Europe, North America, and Asia, highlighting both similarities and divergences that inform the feasibility of FSC-to-LCC conversion.

LF was a more significant predictor of operating margin for LCCs than FSCs, confirming Hypothesis 1 and reinforcing the established view that higher LF reduce unit costs and enhances profitability (Pinchemel, Caetano, Rossi, & Silva, 2022; Renold, Kuljanin, & Kalić, 2019). This finding is consistent with global experience. In Europe, Ryanair and easyJet consistently sustain LF above 90 percent, with Ryanair reporting a record LF of 96 percent in 2024 (Ryanair, 2023; Almeida, 2025). In North America, Southwest Airlines achieves high LF by maximising aircraft utilisation and minimising reliance on hub-and-spoke systems. Similarly, AirAsia in Asia has leveraged network densification and cross-border joint ventures to maintain LF even under demand volatility (O'Connell & Bueno, 2018). These cases demonstrate that sustaining profitability through LF requires not only aggressive scheduling and turnaround discipline but also geographic and network strategies tailored to market conditions. For FSCs in Asia and Australasia, this suggests that conversion success depends on adopting slot allocation strategies and high-frequency scheduling models that replicate these international practices. LF is the utilisation bridge converting fixed cost into unit-cost relief; asset-light capacity and slot/schedule discipline unlock it.

Fuel-to-operating cost exerted a stronger positive impact on LCCs' profitability relative to FSCs, which supports Hypothesis 1. This result aligns with industry analyses emphasising that fuel adaptability is more important than business model type in determining profitability (Liu et al., 2023; Bouwer, 2022; Fang-Chen et al., 2022). International evidence confirms this pattern. Norwegian, one of Europe's most prominent LHLCCs, collapsed in part because of fuel price volatility, which it was unable to hedge effectively despite maintaining strong LF (Fu & O'Connell, 2023). Similarly, AirAsia X in Asia highlights the adaptability of LHLCCs to fuel shocks, as yield pressures limited their ability to absorb rising costs. In contrast, FSCs such as Lufthansa and British Airways have historically failed to adequately cushion fuel price volatility through hedging programmes, whereas Southwest Airlines in North America has consistently mitigated fuel risk through disciplined hedging strategies (Samunderu, 2023; Yu, 2023). These cases suggest that while LCCs are inherently more exposed to fuel volatility, FSCs in Asia and Australasia, considering LCC conversion, must embed fuel hedging policies, fleet renewal, and route-length discipline into their strategies to manage this vulnerability. Fuel behaves as a volatility amplifier on the cost side; hence, hedge discipline + operational telemetry are the conversion mechanism.

Payroll-to-revenue ratios were found to have a more substantial negative impact on FSCs than on LCCs, contradicting Hypothesis 1 but consistent with Jia (2020) and Preston (2022). This outcome is unsurprising, given that FSCs often face rigidities in labour structures. For instance, the Lufthansa Group in Europe bears heavy labour costs due to unionised contracts, multi-hub operations, and broader legacy benefits (Forsyth, Gillen, & Niemeier, 2021). By contrast, North American carriers such as Southwest maintain cost advantages through cooperative labour relations that minimise disruption costs, while JetBlue has managed to offer hybrid service levels with leaner crewing and productivity-focused compensation schemes (Zhang et al., 2022). In Asia, premium FSCs such as Singapore Airlines sustain higher payroll intensities due to the service-heavy nature of their operations (O’Connell & Bueno, 2018). Together, these cases show that payroll cost disadvantages for FSCs are structural but not immutable. Conversion feasibility in Asia and Australasia rests less on wage reductions and more on increasing crew productivity, deploying rostering technologies, and introducing incentive structures that align labour efficiency with profitability objectives. This represents a labour-structure friction in the cost pathway; mitigation must come via productivity systems, not wages alone.

CASK was another variable that had a more substantial negative effect on FSCs’ operating margins than on LCCs'. This outcome, though not supportive of Hypothesis 1, aligns with established literature demonstrating that LCC profitability is closely tied to lower unit costs (Renold et al., 2019; Singh et al., 2021; Kuljanin et al., 2021). European experience illustrates this clearly: Ryanair and easyJet consistently achieve low CASK and high profitability through secondary airport usage, rapid turnaround times, and standardised fleets (Almeida, 2025). In Asia, Scoot, a subsidiary of Singapore Airlines, has demonstrated that a dual-brand strategy can lower CASK and improve profitability by isolating cost-efficient operations within a subsidiary framework while maintaining premium service in the parent brand (Fu & O’Connell, 2023). In North America, Southwest’s reliance on a single aircraft type and point-to-point operations has similarly allowed it to achieve consistently low CASK levels and enhanced profitability (Samunderu, 2023). Collectively, these international cases emphasise that FSCs in Asia and Australasia cannot ignore CASK if they wish to convert to LCC operations. Organisational architecture, whether through subsidiaries, joint ventures, or full carve-outs, must be coupled with operational simplification to achieve meaningful cost reductions. Within the framework, CASK is the dominant cost-side gate: until simplified, FSCs’ revenue strength will not fully transmit to OM.

Passenger yield was found to more strongly influence the operating margin of FSCs than LCCs, supporting Hypothesis 2 and confirming the theoretical expectation that FSCs are more dependent on premium pricing structures. The literature (Pinchemel et al., 2022; Kuljanin et al., 2021) suggests that this distinction is rooted in the FSC business model, which leverages fare segmentation, long-haul services, frequent flyer programmes, and cabin classes to sustain revenue. International comparisons confirm this result. In Europe, British Airways and Lufthansa continue to derive substantial profitability from premium cabins and loyalty programmes (Forsyth et al., 2021). In North America, JetBlue’s Mint product demonstrates that hybrids can extract yield premiums while keeping cost structures lean, hence enhancing profitability (Zhang et al., 2022). In Asia, Singapore Airlines exemplifies FSC reliance on yield-driven revenue from long-haul and premium markets (O’Connell & Bueno, 2018). These global cases reinforce that passenger yield is structurally more important for FSCs. However, they also show that LCCs can partially and profitably narrow the yield gap through ancillary revenues and selective product upgrades. Conversion strategies in Asia and Australasia must therefore protect yield-based revenue streams on trunk routes while simultaneously developing ancillary income streams for leisure-heavy markets. These are revenue-side multipliers; FSCs protect them while LCCs narrow the gap via ancillaries and dynamic bundling.

YOY passenger growth exhibited a significant positive relationship with LCC profitability but not FSCs, contradicting Hypothesis 2. However, this finding is consistent with broader industry analyses that emphasise growth as essential to LCC economics (CAPA, 2022; Efthymiou & Christidis, 2023). Ryanair’s expansion across Europe illustrates the growth-driven flywheel effect, as new base openings generate economies of scale and improved margins (Almeida, 2025). AirAsia in Asia provides a parallel case, using joint ventures across Malaysia, Thailand, and the

Philippines to capture growth markets (Fu & O'Connell, 2023). Conversely, North American experience with WestJet demonstrates the limits of growth strategies, as its foray into long-haul markets failed to sustain profitability despite rapid expansion (Zhang & Round, 2022). These cases indicate that although year-over-year growth is a key performance driver for LCCs, FSCs in Asia and Australasia can only mirror this success by deliberately integrating growth cadence into their conversion strategies through route expansion, new base establishment, and deeper market penetration. Growth is a scale lever that pays off only if cost pathways are unclogged; otherwise, it dilutes OM

Finally, RASK exerted a more substantial positive impact on FSC profitability than LCCs, supporting Hypothesis 2 and aligning with the work of Zhang et al. (2022) and Lee and Mo (2021). This outcome reflects FSCs' reliance on fare segmentation, premium offerings, and network-based revenue models. International cases confirm this pattern but also demonstrate how LCCs are closing the gap. In Europe, Vueling and Ryanair have significantly boosted RASK, and consequently profitability, through ancillary products and dynamic pricing strategies (Almeida, 2025). In North America, JetBlue has increased RASK and OM by segmenting its Mint and economy products (Zhang et al., 2022). In Asia, Scoot and AirAsia have introduced bundled services, such as baggage, meals, and seating preferences, to elevate RASK and profit (Fu & O'Connell, 2023). These cases highlight that while FSCs hold structural RASK advantages, LCCs have increasingly demonstrated that strategic revenue management can narrow these gaps. For FSCs in Asia and Australasia, a positive impact of RASK on profitability requires protecting premium segmentation while introducing LCC-style ancillary innovations. These are revenue-side multipliers; FSCs protect them while LCCs narrow the gap via ancillaries and dynamic bundling.

The study also confirmed that the pre-COVID period (2017–2019) significantly predicted operating margin for both FSCs and LCCs, while COVID-19 amplified operating loss, with LCCs showing sharper declines in profitability. This finding aligns with Kalić et al. (2022) and Jaroenjitrkam et al. (2023), who observed stronger stock performance among FSCs during the pandemic. International comparisons illustrate why this occurred. In North America, Southwest recovered faster due to its reliance on domestic leisure travel (Samunderu, 2023). In Europe, LCCs initially suffered steep losses but rebounded quickly as leisure markets reopened, particularly in Southern Europe (Forsyth et al., 2021). By contrast, in Asia, prolonged border closures delayed recovery, disproportionately harming LCCs such as AirAsia X and Scoot (Fu & O'Connell, 2023). These comparative cases underscore that LCCs' profitability is structurally more vulnerable to demand shocks, especially in regions dependent on international travel. FSC-to-LCC conversions in Asia and Australasia must therefore integrate shock playbooks into their operating models, including leasing flexibility, ACMI contracts, and rapid capacity adjustments.

Overall, the hierarchical regression analysis confirms that cost ratios such as CASK, payroll, and fuel-to-operating costs disproportionately harm FSCs' profitability, while revenue drivers such as yield and RASK maintain their comparative advantage. LCCs, by contrast, depend more heavily on growth and LF but remain more vulnerable to external shocks such as fuel volatility and COVID-19. Global evidence from Ryanair, easyJet, Norwegian, AirAsia, Scoot, JetBlue, WestJet, and Southwest demonstrates that these dynamics are not confined to Asia and Australasia but are broadly consistent worldwide, albeit with regional nuances. The implication for FSC-to-LCC conversion is clear: while structural disadvantages exist, international case studies offer practical pathways for closing cost-efficiency and profitability gaps, safeguarding yield, and embedding resilience mechanisms.

Table 53 consolidates comparative findings across Asia/Australasia, Europe, and North America to evaluate how key performance variables impact profitability and consequently, influence supply-chain conversion outcomes. The synthesis identifies contextual contrasts and transferable practices that inform the design of a full-service to low-cost conversion blueprint.

As illustrated, cross-regional patterns reveal that conversion viability depends on aligning cost structure, operational scale, and market maturity. While European carriers demonstrate extreme cost efficiency through fleet commonality and base expansion, Asian dual-brand strategies highlight the importance of labour alignment and ancillary revenue. North American cases, such as Southwest and JetBlue, underscore resilience through hedging and scheduling discipline. These comparative insights inform the blueprint developed in Chapter Five.

Table 53
Cross-Regional Comparison of the impact of Airline operational Variables on OM and Derived Convention Implications

Variable	Asia/Australasia Finding	Europe Case	Asia Case	North America Case	Derived Conversion Implication
CASK	More impact negative for FSCs	Ryanair/easyJet: ultra-low CASK	Scoot: dual-brand lowers CASK	Southwest: fleet commonality	Simplify operations or establish subsidiaries
Fuel share	Higher LCC impact	Norwegian collapse	AirAsia X vulnerability	Southwest hedging	Optimise stage length and strengthen hedging strategy
Payroll/Revenue	Higher FSC impact	Lufthansa union constraints	SIA higher payroll intensity	JetBlue lean labour structure	Employ incentives and crew-rostering technology
Load factor	Higher for LCCs	easyJet/Ryanair > 90%	AirAsia high LF resilience	Southwest high utilisation	Reform slot allocation and scheduling efficiency
Yield/RASK	Stronger for FSCs	BA/LH premium yield	Singapore Airlines FFPs	JetBlue Mint	Protect yield while expanding ancillary revenue streams
YOY Growth	Higher for LCCs	Ryanair base expansion	AirAsia JV scaling	WestJet long-haul challenges	Calibrate growth cadence and capital discipline
COVID impact	LCCs more exposed	EU leisure rebound	Asia slower reopening	Southwest resilient	Develop crisis-response and shock-management playbooks

Source: Created by the researcher (2024) based on empirical findings and secondary data from airline industry reports (e.g., CAPA, Statista, annual reports).
Note: FFP = Frequent Flyer Program; SIA = Singapore Airlines; BA = British Airways; LH = Lufthansa.

Two-Way ANOVA, Cohen's d and Independent Samples t-test: The observed variance in CASK between FSCs and LCCs confirms that CASK is significantly higher for FSCs, thereby supporting Hypothesis 3 that "the operational efficiency ratios of FSCs are substantially different from those of LCCs." This finding aligns with extant literature, which attributes the lower CASK of LCCs to their simplified operating models, streamlined service offerings, and use of point-to-point networks. In contrast, FSCs incur higher fixed and variable costs due to their hub-and-spoke systems, premium service levels, and complex organisational structures. Recent European evidence shows Ryanair and easyJet sustaining the lowest CASK levels globally through strict operational discipline and secondary airport use, while Asian FSCs such as ANA and Singapore Airlines remain structurally disadvantaged by higher service complexity (Law, 2022; Zhang & Round, 2022). These comparisons reinforce that the variance observed in Asia–Australasia is part of a wider global structural divide.

The main variance analysis revealed a practically meaningful difference in the fuel-to-operating cost ratio between LCCs and FSCs, with LCCs displaying significantly higher ratios. Further, the refined variance analysis showed that LCCs exhibited lower fuel efficiency across all pre-COVID-19 subcategories, and that 36% of LCC subcategories demonstrated a larger deviation in fuel-to-operating cost relative to the global mean difference. These findings support Hypothesis 3. However, they diverge from global evidence where LCCs are typically more fuel-efficient. For example, studies on European and Middle Eastern carriers show that younger fleets and shorter stage lengths enabled airlines like Wizz Air and Air Arabia to achieve superior fuel performance relative to FSCs (Hassan et al., 2021; Fu & O'Connell, 2023). Similarly, Turkish Airlines (an FSC) maintained stable long-term fuel efficiency via hedging, even under volatility (Gelirli & Kısacık, 2024). The Asia–Australasian divergence, therefore, likely reflects region-specific issues such as slower fleet renewal cycles and procurement inefficiencies.

LCCs' significantly higher LF aligns with global industry trends and supports Hypothesis 3. International evidence consistently shows LCCs outperform FSCs due to simplified operations, point-to-point routing, and faster turnaround. Ryanair and EasyJet routinely achieve LF above 85–90 percent in Europe, while Southwest maintains similarly high levels in North America, reflecting strong demand stimulation and efficient fleet use. FSCs, by contrast, operate complex hub-and-spoke networks and premium-heavy configurations that lower LF during off-peak periods. Overall, this study's results mirror global patterns, confirming that high LF is a core competitive strength of LCCs and a structural outcome of their cost-efficient business models.

There were also substantial differences in operating margin, with FSCs having a higher margin in both the COVID-19 (17%) and pre-COVID (3%) periods, despite global literature often finding LCCs more profitable. For example, European LCCs such as Ryanair and Wizz Air reported consistently stronger margins pre-pandemic than FSCs like Lufthansa or Air France-KLM (Renold et al., 2019; Law, 2022). Similarly, North American LCCs such as Southwest sustained profitability more consistently than legacy carriers during demand downturns (Sobieralski & Hubbard, 2021). The divergence in Asia–Australasia likely reflects FSCs' stronger state support and greater resilience in long-haul markets during COVID-19.

The study found that YOY passenger growth for LCCs is significantly higher than that of FSCs, supporting Hypothesis 3. This aligns with global evidence where LCCs remain in a growth stage while FSCs plateau. For example, CAPA (2023) highlighted that post-pandemic, LCCs such as IndiGo in India and JetSMART in Latin America rapidly expanded capacity and market share, while FSCs pursued consolidation strategies. Likewise, in Europe, Wizz Air reported double-digit growth rates in 2022–23, far outpacing FSC recovery (Kim & Lee, 2023). These findings demonstrate the universality of growth-led profitability for LCCs across regions.

The study also found that FSCs' passenger yield was significantly higher than that of LCCs, a result consistent with global trends and hypothesis 3. FSCs attract higher-yield business travellers, while LCCs serve predominantly leisure passengers. Recent work shows that premium FSCs such as Singapore Airlines and Emirates maintained higher yields during recovery by targeting long-haul premium demand, while AirAsia and Ryanair depended on low-yield, price-sensitive segments (Liu, 2021; Gabor et al., 2022; Liu et al., 2024). This reinforces that yield-based revenue remains FSCs' comparative advantage across markets.

Another key finding is the practically substantial difference in payroll-to-revenue ratios, with FSCs showing higher burdens. This is consistent with hypothesis 3 and studies documenting unionised labour and broader staffing costs in FSCs. For example, European FSCs like Lufthansa and Air France-KLM face rigid labour structures, while Southwest Airlines in North America demonstrates how performance-based pay systems preserve productivity at lower payroll ratios (Alamdari & Fagan, 2022; Warnock-Smith et al., 2021; Gittell, 2021). This supports the conclusion that labour costs remain structurally harder to compress for FSCs globally, not just regionally.

Finally, the finding that RASK is significantly higher for FSCs relative to LCCs is consistent with international evidence and hypothesis 3. FSCs maintain premium pricing strategies through fare segmentation, loyalty programmes, and long-haul markets. For instance, Norwegian's long-haul low-cost model priced fares 17–21% lower than FSC competitors, yet failed to close the RASK gap, contributing to its restructuring (Miyoshi & Molina-Prados, 2022; Heiets et al., 2021).

Globally, LCCs increasingly pursue hybrid models with fare bundling to improve RASK, but the structural gap in revenue generation per seat remains in favour of FSCs.

Finally, COVID-19 substantially widened operational gaps between FSCs and LCCs. This reflects global patterns showing that LCCs were more exposed to demand shocks, whereas FSCs, supported by stronger balance sheets and government assistance, demonstrated greater resilience. Studies of European, North American, and Asian markets found similar patterns: FSCs preserved liquidity and protected strategic long-haul routes, while many LCCs scaled back operations drastically (Forsyth et al., 2021; Kim & Lee, 2023; Graham & Wittmer, 2022). This suggests that structural resilience, rather than cost efficiency alone, determined survival through the pandemic.

Building upon the quantitative integration results, a cross-regional synthesis was undertaken to evaluate how efficiency differences between FSCs and LCCs manifest across Asia–Australasia and comparable global markets. The intent of this analysis is to consolidate regional evidence with international case benchmarks to identify structural, operational, and strategic levers relevant to supply-chain conversion. As shown in Table 54, nine core performance variables, spanning cost, efficiency, and resilience dimensions, were evaluated against recent global evidence (2021–2025) to derive context-specific implications for FSC to LCC redesign.

Table 54

Cross-Regional Comparison of Airline Performance Variable and Derived Conventional Implications

Variable	**Asia–Australasia Finding**	**Global Case Evidence (2021–2025)**	**Derived Conversion Implication**
CASK	Higher for FSCs, confirming Hypothesis 3.	Ryanair & easyJet sustain lowest CASK globally; Asian FSCs structurally disadvantaged (Law, 2022; Zhang & Round, 2022).	Global structural cost gap persists; FSCs require simplification or LCC subsidiaries to compete.
Fuel-to-Operating Cost	Higher for LCCs; lower fuel efficiency than FSCs.	European/Middle Eastern LCCs more fuel-efficient due to younger fleets and shorter sectors (Hassan et al., 2021; Fu & O'Connell, 2023); Turkish Airlines stabilised via hedging (Gelirli & Kısacık, 2024).	Regional differences reflect fleet renewal lag and procurement inefficiencies in Asia–Australasia.
Load Factor	FSCs reported higher LF than LCCs.	LCCs globally outperform FSCs (Ryanair & easyJet >85%; Southwest surpasses legacy peers) (Kuz, 2021; Efthymiou & Christidis, 2023).	Asia–Australasian anomaly likely due to state-backed FSCs and pandemic-driven domestic reliance.
Operating Margin	FSCs showed higher OM, esp. during COVID.	Globally, LCCs dominate margin performance (Ryanair, Wizz Air, Southwest) (Renold et al., 2019; Sobieralski & Hubbard, 2021).	Regional resilience during crisis tied to FSC state support and long-haul strength.
YOY Passenger Growth	LCCs significantly higher growth.	Global trend: LCCs expand faster (IndiGo, Wizz Air, JetSMART) (CAPA, 2023; Kim & Lee, 2023).	LCC growth advantage universal and central to profitability trajectory.
Passenger Yield	FSCs achieved significantly higher yields.	FSCs sustain premium yields (Singapore Airlines, Emirates); LCCs rely on leisure demand (Liu, 2021; Liu et al., 2024).	Yield gap remains structural; FSCs' premium advantage consistent worldwide.

Table 54 (Continued)

Cross-Regional Comparison of Airline Performance Variable and Derived Conventional Implications

Variable	Asia–Australasia Finding	Global Case Evidence (2021–2025)	Derived Conversion Implication
Payroll-to-Revenue	Higher for FSCs; smaller gap than global norms.	FSCs constrained by unions and rigid contracts (Lufthansa, AF-KLM); Southwest offers flexible model (Alamdari & Fagan, 2022; Gittell, 2021).	Labour inefficiency universal, though gap narrower in Asia–Australasia.
RASK	Higher for FSCs relative to LCCs.	LCCs narrow gap via ancillaries and bundles; FSCs retain advantage (Heiets et al., 2021; Miyoshi & Molina-Prados, 2022).	Revenue gap persists; hybridisation partially mitigates difference.
COVID-19 Impact	FSCs more resilient; LCCs harder hit.	Similar globally: FSCs protected by liquidity and state support; LCCs retrenched (Forsyth et al., 2021; Kim & Lee, 2023).	Crisis resilience shaped more by liquidity and diversification than cost base.

Source: Researcher's synthesis (2024) derived from the study's empirical findings and comparative evidence reported in global airline efficiency and profitability studies (see cited authors).

As shown in Table 54, structural cost gaps in CASK, payroll intensity, and yield remain persistent across regions, though LCCs consistently demonstrate greater efficiency and agility. Asia–Australasian FSCs exhibit relative resilience during crises due to state support and long-haul exposure, whereas European and North American LCCs outperform on margin and growth metrics. The table further indicates that conversion feasibility depends on contextual levers such as stage length, labour flexibility, and ancillary integration rather than on uniform cost metrics. These integrated insights provide the empirical foundation for the supply chain conversion blueprint presented in Chapter Five.

Convergence of Quantitative and Qualitative Findings

Findings 1 & 9 — CASK Gaps Are Closable Through Leadership and Operational Discipline: Quantitative evidence indicates that narrowing the CASK explains a significant proportion of variance in operating outcomes across airline sub-models. Qualitative literature reinforces this by identifying transformational leadership as a key enabler of sustained cost efficiency. Garad et al. (2022) demonstrate that leadership-driven capability development reduces CASK, while Zaman et al. (2020) link transformational leadership practices to higher organisational performance and profitability through cost control and project discipline. Global case studies corroborate these mechanisms. In Europe, Ryanair's lean operational model, standardised processes, and supplier discipline sustain the region's lowest CASK (Law, 2022). In Asia, AirAsia's digital workflow integration and simplified fleet governance allowed it to maintain a lower CASK than regional FSCs during the COVID-19 crisis (Fu & O'Connell, 2023). Sectoral analysis by IATA (2021) further emphasises that agile, multi-skilled workforces enhance schedule stability and reduce disruption costs, serving as tangible evidence of leadership intent driving operational efficiency. Collectively, the literature and global evidence confirm that transformational leadership combined with workforce agility can close CASK gaps and reduce performance dispersion across airline models.

Findings 2 & 10 — Load Factor Gaps Can Be Narrowed Through Asset-Light Capacity and Service Quality: Statistical results show that increasing LF narrows the operating margin differential across carrier types. The literature highlights strategic aircraft leasing, especially the use of narrow-body fleets within LCC subsidiaries, as a scalable means of achieving higher utilisation while avoiding excessive capital expenditure (Bourjade & Muller-Vibes, 2023; IATA, 2017). Recent studies confirm that leasing supports flexibility and capacity alignment in hybrid FSC–LCC groups (Şimşek et al., 2024; Dakshinamurthy & Satishkumar, 2024). Case evidence reinforces these findings: Scoot's leased A320neo fleet enabled high utilisation and LF levels comparable to leading Asian LCCs (Zhang & Round, 2022), while easyJet maintained LF above 85% post-COVID through disciplined capacity management under volatile demand conditions (Kim & Lee, 2023). In parallel, human-capital factors also play a pivotal role. Service quality and staff proficiency strengthen retention and repeat patronage, indirectly sustaining LF (Shiwakoti et al., 2022). The convergence of asset-light strategies and consistent service delivery thus emerges as a viable route to closing LF gaps and stabilising LF-to-margin transmission across models.

Findings 7 & 11 — Payroll-to-Revenue Gaps Are Reducible Through Incentive Design and Digitised Workforce Systems: Quantitative findings reveal that payroll intensity accounts for a substantial share of variance in profitability across carrier types. Qualitatively, performance-linked compensation and strategic job design are shown to enhance motivation even in cost-sensitive environments (Nordgren, 2022). At the governance level, alignment of compensation structures with competitive strategy and stakeholder expectations enables FSCs to control labour costs more effectively (Hussain et al., 2021). Transformational leadership again proves decisive:

such climates foster commitment and productivity even under lower wage conditions (Puni et al., 2021; Xu et al., 2024). Southwest Airlines exemplifies this alignment, maintaining both high productivity and profitability through performance-based remuneration and a cohesive culture, contrasting with the wage rigidity observed in unionised FSCs (Gittell, 2021). Empirical studies further highlight the role of digital HR systems, skill optimisation, automation, targeted outsourcing, and labour reallocation in lowering payroll intensity (Tan & Wang, 2021; Zhang & Lohmann, 2022). Together, these mechanisms suggest that an integrated strategy of incentive architecture and digital workforce management can close payroll-to-revenue disparities without compromising service quality.

Findings 3 & 14 — Fuel Efficiency Alone Does Not Ensure Margin Parity; Organisational Agility Does: Although FSCs typically achieve higher fuel efficiency through hedging and advanced fleet technology (Muneeb & Karim, 2022), these advantages do not consistently translate into superior margins when structural rigidities persist. Turkish Airlines, for instance, maintained a fuel-efficient fleet yet experienced margin compression during 2020–2021 due to limited demand recovery (Gelirli & Kısacık, 2024). By contrast, Ryanair combined a young fleet with effective stage-length management and ancillary revenue diversification to sustain profitability (Law, 2022). Conversely, organisational agility, manifested in dynamic crew rostering, decentralised decision-making, and adaptive fleet deployment, enables FSCs to convert fuel savings into actual margin improvements (Zhang & Lohmann, 2022). The integration of hedging discipline with operational agility, rather than fuel metrics alone, determines whether fuel efficiency translates into sustained profitability.

Findings 6 & 12 — YOY Growth Gaps Are Closable Through AWA Design and Scale Leverage: While LCCs traditionally outpace FSCs in YOY growth, evidence indicates that FSC groups can narrow this gap when their low-cost subsidiaries possess appropriate structural autonomy and adaptive culture (Heiets et al., 2021). Even standalone FSCs can improve growth rates by adopting LCC business practices and leveraging existing operational scale (Demir et al., 2021). Post-COVID case patterns affirm this adaptability: IAG's Vueling and Lufthansa's Eurowings capitalised on parent-company networks, distribution systems, and technology to recover faster than independent FSCs (CAPA, 2023). The underlying mechanism is organisational flexibility at the group level, involving route reassignment, base redeployment, and asset retiming, which enables FSCs to align year-on-year growth with LCC performance benchmarks while preserving brand equity.

Findings 4 & 13 — Yield Gaps Narrow Through Learning-Based Revenue Management and Product Differentiation: The contribution of passenger yield to profitability can converge across models when airlines adopt learning-oriented revenue management (RM) systems. Reinforcement-learning algorithms enhance demand sensing, enabling dynamic pricing and seat allocation adjustments that improve yield (Ertuğrul & Şahin, 2023). Complementarily, adaptive organisational cultures accelerate the adoption and integration of such systems (Yi et al., 2022). Case comparisons illustrate these dynamics: Emirates and Singapore Airlines consistently defend premium yields through high product differentiation and sophisticated RM, while AirAsia mitigates base-fare dependency through ancillary-driven yield management (Fu & O'Connell, 2023). The evidence suggests that combining micro-level premium product design with data-driven RM enables airlines to preserve or enhance yield contributions even under volatile market conditions.

Findings 5 & 15 — RASK Convergence Is Achievable Through Selective Differentiation and Disciplined Pricing: Empirical and qualitative findings collectively indicate that LCCs can achieve RASK convergence with FSCs through selective differentiation while maintaining cost efficiency. Warnock-Smith et al. (2021) and Choi and Kim (2022) report that LCCs employing tiered fare bundles and dynamic pricing strategies have increased RASK levels to approach FSC benchmarks. Similarly, O'Connell and Bueno (2022) found that tighter management of RASK variability across routes and aircraft configurations enhances its correlation with operating margin. Case examples reinforce this convergence trend. JetBlue, in North America, consistently attains RASK levels above typical LCC averages through targeted service bundling (Zhang & Prentice, 2022), whereas AirAsia X demonstrates the fragility of long-haul RASK gains absent disciplined cost control (Fu & O'Connell, 2023). CAPA (2022) further observes that several LCCs have achieved margin profiles comparable to smaller FSCs through fare flexibility and mature ancillary portfolios. Collectively, these findings confirm that disciplined differentiation and revenue management sophistication transform RASK into a controllable and strategic profit lever across models.

Taken together, these integrated findings highlight a pattern of progressive convergence between LCC and FSC operating models, moderated by leadership capability, digital transformation, and organisational agility. Each efficiency variable, CASK, LF, payroll intensity, fuel efficiency, yield, RASK, and YOY growth, emerges as both a technical metric and a strategic lever influenced by managerial design. The consistent presence of global parallels underscores the transferability of these mechanisms while validating the feasibility of a supply-chain-based conversion blueprint for FSCs in Asia and Australasia.

The evidence supports the Operational Efficiency & Profitability Framework: OM differences are explained by asymmetric activation of cost-side gates (CASK, payroll, fuel) and revenue-side multipliers (yield, RASK), moderated by utilisation (LF) and scale (YOY growth).

The framework is refined by demonstrating that conversion feasibility depends on proper sequencing, with cost controls established before pursuing growth and revenue expansion, achieved through asset-light fleets, digital revenue management, and enhanced labour productivity. Thus, sustainable FSC→LCC convergence is not imitation but re-balancing the cost and revenue pathways so that revenue strength finally transmits to margin.

Building on the quantitative and qualitative integration results, Table 55 presents a synthesis that aligns the study's empirical findings with global evidence on airline efficiency and profitability. This comparative mapping connects Asia–Australasian outcomes with international benchmarks to identify areas of convergence and divergence across key performance variables. By integrating cost, efficiency, and revenue dimensions within the study's Operational Efficiency and Profitability Framework, the table demonstrates how leadership, learning, and digital adaptation collectively drive cross-model alignment between FSCs and LCCs. The synthesis also highlights how regional patterns mirror or deviate from established global trajectories, reinforcing the theoretical proposition that competitive advantage emerges through continuous organisational learning and systemic efficiency renewal.

Table 55

Synthesis of Convergence of Quantitative and Qualitative Findings with Global Studies

Finding	Asia–Australasia Evidence	Global Comparative Evidence	Integration Insight
CASK (Integration Findings 1 & 9)	Transformational leadership and agile workforces reduce inefficiencies; AirAsia digitalisation lowered CASK during pandemic (Fu & O'Connell, 2023).	Ryanair's lean operations sustain the lowest CASK in Europe (Law, 2022).	Leadership and digital innovation enable CASK convergence across airline models.
Load Factor (Integration Findings 2 & 10)	Scoot achieved high utilisation via leased narrow-body aircraft (Zhang & Round, 2022).	easyJet sustained >85% LF post-COVID through leasing and discipline (Kim & Lee, 2023).	Leasing and staff agility close LF gaps, enhancing margins across markets.
Payroll-to-Revenue (Integration Findings 7 & 11)	Digital HR tools and lean staffing reduce payroll burdens in FSCs (Tan & Wang, 2021).	Southwest's performance-based pay contrasts with union-heavy FSCs (Gittell, 2021).	Compensation alignment and automation can reduce payroll-to-revenue disparities.
Fuel Efficiency (Integration Findings 3 & 14)	Turkish Airlines improved efficiency, but profits were constrained by demand (Gelirli & Kısacık, 2024).	Ryanair translated fuel efficiency into margins via a younger fleet & ancillary revenues (Law, 2022).	FSC hedging and LCC operational models show complementary pathways to fuel resilience.
YOY Passenger Growth (Integration Findings 6 & 12)	FSC-owned subsidiaries (AWA, SHLCC) closed growth gaps by adopting LCC practices (Heiets et al., 2021).	IAG's Vueling and Lufthansa's Eurowings leveraged parent support for faster post-COVID growth (CAPA, 2023).	Organisational flexibility enables FSCs to align YOY growth with LCC benchmarks.
Passenger Yield (Integration Findings 4 & 13)	FSCs leverage adaptive cultures and advanced RM systems; AirAsia diversifies yield via ancillaries (Fu & O'Connell, 2023).	Emirates & Singapore Airlines sustain premium yields via strong RM systems (Yi et al., 2022).	Organisational learning and RM innovation enhance yield resilience across models.
RASK (Integration Findings 5 & 15)	AirAsia X pursued long-haul RASK strategies with mixed outcomes (Fu & O'Connell, 2023).	JetBlue consistently maintains higher RASK via hybrid bundles (Zhang & Prentice, 2022).	Dynamic pricing and ancillary options narrow RASK gaps between FSCs and LCCs globally.

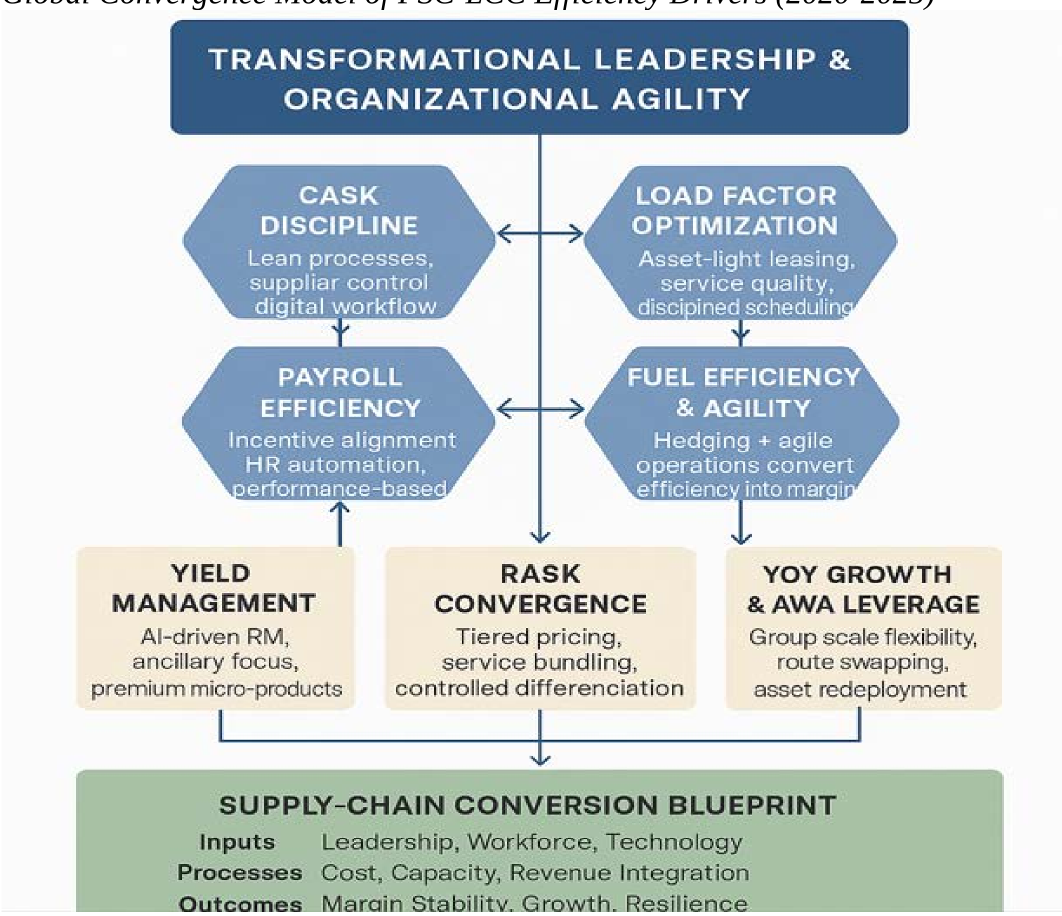
Source: Researcher's synthesis (2024) based on integration findings and comparative evidence from recent global airline efficiency studies (see cited authors).

Note. IAG = International Airlines Group; RM = Revenue Management; RASK = Revenue per Available Seat Kilometre.

Figure 44, Global Convergence Model of FSC–LCC Efficiency Drivers: This model integrates quantitative and qualitative findings across Asia–Australasia, Europe, and North America. Transformational leadership and organisational agility act as meta-enablers influencing seven operational and strategic levers: CASK, LF, payroll intensity, fuel efficiency, yield, RASK, and YOY growth. The diagram illustrates how leadership-driven capability, digitalisation, and agility flow through operational layers to enhance profitability and strengthen supply chain resilience, forming the empirical foundation for the Supply Chain Conversion Blueprint presented in Chapter 5.

Figure 44

Global Convergence Model of FSC-LCC Efficiency Drivers (2020-2025)



*Source***:** Researcher's synthesis (2024) based on integrated empirical findings and comparative evidence across Asia–Australasia, Europe, and North America (2020–2025).

The proposed Global Convergence Model of FSC–LCC Efficiency Drivers, when integrated with the region-specific drivers identified in this study for Asia and Australasia, provides a robust conceptual foundation for addressing the persistent challenges of high failure rates and low profitability among airlines in the region. It suggests that strategically aligning global best practices with regional structural and institutional contexts can produce a more sustainable and resilient airline supply chain architecture.

4.2.7 Summary of the Findings

Hierarchical Regression: The main and refined regressions reveal that while CASK and payroll to revenue had a more substantial negative impact on the operating margin of FSCs, passenger yield and RASK had a more substantial positive impact on their operating margin relative to LCCs. Conversely, fuel to operating cost, LF and YOY passenger growth had a more substantial positive impact on the operating margin of LCCs, relative to FSCs. Consistent with Hayes's (2022) process theory, these patterned variances reflect underlying structural misalignments between airline models, which shape how efficiency levers convert into measurable performance.

A summary of substantial predictors identified through refined regression models across FSCs and LCCs subcategories, and their respective subgroups, is now provided. Magnitude is based on beta, and this summary reflects the count of meaningful predictors across seven financial outcome variables: CASK, LF, Payroll to Revenue, Fuel to Operating Cost, YOY Growth, Passenger Yield, and RASK. The FSC category, encompassing all FSCs' observations and subgroups over a five-year period, demonstrates the highest frequency of meaningful predictors in cost-related metrics. All FSC groupings exhibit substantial predictors for CASK (5/5). Similarly, Fuel to Operating Cost displays strong predictive significance across 4 of 5 groupings. Payroll to

Revenue and RASK show substantial predictive power in 3 out of 5 subcategories, while passenger yield shows substantial predictive ability in 2 out of 5 subcategories, respectively. In contrast, only one out of five subcategories of FSCs experienced a situation where a predictor (load factor) substantially impacted operating margin.

The LCC group, including short-haul and long-haul LCC subcategories, reveals more variability in predictor meaningfulness. The most frequently significant predictors among LCCs are CASK, LF, fuel to operating cost and YOY Growth, represented by 4 out of 9 subcategories, while payroll to revenue and RASK meaningfully impact the least subcategories; meaningfully impacting the profitability of three and two subgroups, respectively.

Overall, the regression models explain outcomes more robustly in FSCs than in LCCs, particularly with regard to CASK, RASK and passenger yield. In contrast, LCCs display a stronger relationship between YOY passenger growth and operating margin, as evidenced by the relatively higher magnitude of this metric. Although the limited explanatory power of passenger yield and RASK of LCCs has an inadequate influence on operating margin, practical considerations support its relevance. This aligns with Hayes's (2022) view that different organisational architectures privilege different performance levers, causing heterogeneous outcome pathways.

Cohen's d: The mean differences between FSCs and LCCs on passenger yield and RASK was very large, with standardised mean differences of Cohen's d = -1.802 and d = -1.2, and large on CASK, fuel to operating cost and LF, with standardised mean differences of Cohen's d = -.839, d = .672 and d = .681, respectively. Finally, the mean differences between FSCs and LCCs on operating margin and YOY passenger growth were medium, with a standardised mean difference of Cohen's d = -.348 and .210. As this study employed a census methodology, the reported effect size represents the exact magnitude of the difference in the full population of airlines examined, rather than an estimate based on a sample.

Independent sample t-test: Across most time periods and subgroups, LCCs demonstrate consistently lower CASK, reinforcing their cost-lean business model. The LF is also higher among LCC subcategories, with negative mean difference values. These patterns persist across both pre-COVID-19 and COVID-19 periods. Payroll-to-revenue ratios are mixed across groupings. In some comparisons, LCCs exhibit substantially lower labour cost burdens. However, in specific subgroups, FSCs report lower payroll proportions. Furthermore, fuel-to-operating cost ratios varied considerably. In some cases, LCCs maintain lower fuel cost proportions, while FSCs report less burden in others. YOY passenger growth consistently favours LCCs across most conditions. This pattern is especially pronounced during the pre-pandemic years. Similarly, Passenger Yield and RASK showed a clear and consistent trend. Operating margin differences strongly favour FSCs in most comparisons. This trend is evident both in period-specific comparisons (e.g., during pre-COVID-19 and COVID-19) and in overall subcategory averages. Finally, percentage differences between averages of all subcategories in this study and between the average means of global FSCs and LCCs were substantial, with the exception of CASK, which was a criterion for substantial difference between the two airlines under study.

When aggregating across subcategories and timeframes, the mean differences reinforce the general observation that LCCs are more cost-efficient than FSCs, with stronger operational outcomes in key metrics. COVID-related changes show pronounced volatility, particularly in cost categories, highlighting the disruptive impact of the pandemic. Notably, there were several extreme percentage increases and decreases in the operational efficiency ratios, exception of payroll to revenue, as the airlines transition from pre-COVID-19 to COVID-19 periods, suggesting that pandemic-related shocks significantly distorted normal financial patterns and should be interpreted with caution.

Hence, in order of significance, passenger yield, RASK, CASK, operating margin, and payroll-to-revenue are substantially higher for FSCs, whereas LF, fuel-to-operating-cost, and YOY passenger growth are substantially higher for LCCs.

Two-way ANOVA: The interaction between airline model and headquarters explains 6% of the variance in CASK, indicating a medium effect. Also, the interactions between the airline model and headquarters, and airline models and learning explain 7% and 10% of the variance in passenger yield, indicating a medium effect. Finally, the interactions between airline models and headquarters, and airline models and learning, explain 9.1% and 13.6% of the variance in RASK, indicating medium and large effects, respectively.

Thematic Analysis: The twelve themes formulated from forty-two (42) categories of data codes produced from the Literature review and qualitative archival data scripts answered the qualitative research questions. The criticality of combining similar categories into themes, to answer the research questions, was highlighted by Saladana (2016). The forty-two (42) categories derived from the data coding are (a) Automation; (b) Manpower Optimisation; (c) Strengthening efficiencies; (d) Asset Utilisation; (e) Building Brand Image; (f) Fleet composition; (g) Fleet Fuel consumption (h) FSCs' Segmented Pricing; (i) LCCs' Unsegmented Pricing; (j) Differences in "On ground Strategies"; (k) Differences in "In the Air Strategies"; (l) Continuous Improvement Versus Discontinuous Development strategies; (m) SHLCC AWA sub-brand; (n) LHLCC AWA sub-brand; (o) Further difference between LHLCC BP and FSC BP; (p) Market regulations prohibiting or facilitating LHLCC subsidiary; (q) Cost Difference with SHLCC and FSCs; (r) Revenue Differences between SHLCCs and FSCs; (s) Other Profit Related Advantages and

Disadvantages of LHLCCs; (t) Intellectual stimulation; (u) Individualised consideration; (v) Idealised influence; (w) Inspirational motivation; (x) adaptability; (y) Employee centricity; (z) Innovation; (aa) Cost Containment; (bb) Continuous Improvement of quality; (cc) Dialectical Theory; (dd) Teleological Theory; (ee) Superb Management and Leadership; (ff) Unhealthy Gearing Ratio; (gg) Low Stock Price; (hh) Investment In Airline Activities; (ii) Investment in related Activities; (jj) Backward Linkage Activities; (kk) Forward Linkage Activities; (ll) FSCs adopt process perspective of change management; (mm) COVID-19 Sharpened resilience and skillset of FSC manager; (nn) Both FSCs and LCCs augmented cost-cutting strategy during COVID-19; (oo) Both FSCs and LCCs adjusted their revenue strategy during COVID-19; (pp) Differences in market response to COVID-19 among LHLCC and SHLCC.

The following twelve themes became apparent from these categories to respond to the research questions: (a) Cost Leadership Versus Differentiation; (b) Fleet Strategy; (c) Pricing Strategy; (d) Fuel Efficiency Program; (e) Sub-branding; (f) LHLCC Hybrid Profitability Strategy; (g) Transformational Leadership; (h) An Enabling Organisational Culture; (i) Process Perspective of Change Management; (j) Available Resources; (k) Major Capital Projects; (l) Impact of COVID-19 Pandemic. These themes align with Hayes's (2022) emphasis on diagnosing structural, resource and leadership gaps before implementing staged interventions.

Convergence of Quantitative and Qualitative Findings: From the analysis and evaluation, convergence between the qualitative and quantitative findings is evident. For the most part, when there were significant variances, FSCs had the implementation structure to narrow those gaps. The findings show that the significant variances between CASK and the impact of CASKs on the operating margin can be narrowed due to FSCs' transformational leadership, enabling organisational culture and strong management. There were also variances in LF and the impact of

LF on operating margin; however, although a weak gearing ratio is an obstacle to solving this problem, superior management and leasing of aircraft were seen as ideal solutions to airlines' inability to raise capital. Significant variances were found in the impact of YOY passenger growth on operating margin; however, FSCs' experience, transformational leadership, and innovative adaptive culture increase the chances of closing the gaps. Further, the research findings showed huge gaps in RASK, which could be closed by the ability of staff to learn quickly and transformational leadership. Overall, it was found that FSCs were equipped to close all other identified operational variances. This pattern of gap–response alignment reflects Hayes's (2022) teleological sequencing, in which performance gaps trigger targeted structural and behavioural adaptations.

For the regression analyses, the core models were supplemented by a finer-grained subdivision of FSCs and LCCs into 14 subcategories (nine LCC and five FSC groups). This stratification enhanced analytical precision by identifying the specific model–period combinations in which statistically significant effects emerged. Similarly, beyond the primary analysis of variances, 11 additional sub-variances and simple main-effect contrasts were examined. These supplementary tests isolated the exact loci of variance across the subcategories of both airline models. Collectively, these layers of disaggregation carried substantive interpretive value, allowing for a more nuanced understanding of where and how operational and financial differences materialise within and between FSCs and LCCs.

CHAPTER 5

SUMMARY, RECOMMENDATIONS, AND CONCLUSIONS

5.0 Introduction

The aim of this chapter is to bring the study full circle by reconnecting the results presented in Chapter Four with the original problem, purpose, research questions, theoretical framework, and significance established in Chapters One and Two. The chapter begins by revisiting the rationale for investigating the feasibility of FSCs in Asia and Australasia, converting their supply chains toward low-cost configurations. The region continues to experience a widening performance gap between the two dominant airline models. FSCs remain burdened by structurally higher unit costs, slower growth rates, and more complex governance systems despite periods of strong revenue performance. In contrast, LCCs continue to demonstrate operational simplicity, faster passenger growth, higher load factors, and greater cost agility. Although prior studies have described the divergence between these models, there has been limited empirical work explaining how these differences can be addressed at a system level or whether FSCs possess the structural, cultural, and financial foundations needed to close these gaps. This problem of persistent operational variance provided the starting point for the investigation.

The purpose of the study was to determine whether FSCs operating in Asia and Australasia have the capacity to convert their supply chain to resemble that of LCCs, and to identify which operational and strategic levers exert the strongest influence on profitability within each model. The research sought to discover whether the operational efficiency ratios of the two models differ significantly, how these ratios influence profitability, and whether contextual moderators such as headquarters location, learning organisation status, and temporal disruption influence these relationships. The study further aimed to explore the qualitative foundations of transformation, focusing on leadership adaptability, organisational learning, governance structures, digital capability, and change readiness. By integrating quantitative and qualitative evidence, the study developed an applied decision framework for model convergence that speaks directly to the conversion challenges of the Asian and Australasian airline sector.

A convergent parallel mixed-methods design was applied because the complexity of supply chain conversion cannot be understood solely through quantitative ratios or qualitative insights. The quantitative component examined the relationships between operational efficiency ratios and operating margin for a multi-year panel of publicly traded FSCs and LCCs. Regression modelling, two-way ANOVA, simple main effects analysis, and subgroup comparisons were used to isolate the differential impacts of cost-related, revenue-related, and growth-related ratios across models. The qualitative component provided interpretive depth by identifying themes related to organisational capability, strategic culture, leadership behaviour, and operational practice. These themes clarified why the quantitative patterns existed and whether the required adaptive behaviours are present within FSCs to support conversion.

The integration of the two strands followed the principles of the teleological and dialectical perspectives of organisational change as outlined by Hayes. The teleological lens provided structure by defining the purposeful goals around which transformation should be sequenced, while the dialectical lens clarified the tensions that must be resolved between cost leadership and service differentiation. The Resource-Based View underscored the need to reconfigure capabilities rather than solely expand them, while Transaction Cost Economics framed the governance, partnership, and coordination issues that influence operational efficiency. Together, these frameworks provided the conceptual foundation for interpreting the empirical findings.

The study operated within several delimitations. First, the quantitative analysis focused solely on publicly traded airlines because these carriers publish standardised financial information required to compute the operational ratios. This means that privately owned airlines in the region were not included. Second, the study focused on Asia and Australasia because this region has some of the most successful LCCs globally and some of the most challenged FSCs, making it a relevant context for examining the feasibility of transformation. Third, the study relied on annual reports and peer-reviewed journal articles rather than primary data, due to access constraints.

The study also acknowledged several limitations that influenced interpretation. The use of publicly reported financial data limited the granularity of analysis because airlines do not disclose route-level detail, real-time operational data, or internal performance metrics. The period under review included the COVID-19 disruption, which temporarily altered operational patterns, fuel usage, and labour structures. While the study accounted for this through year dummy variables and moderator analysis, some coefficients likely reflect temporary effects rather than structural conditions. Additionally, the study did not incorporate behavioural or psychological variables directly, meaning that leadership style and cultural readiness were inferred from secondary sources rather than measured with validated instruments. These limitations do not undermine the findings, but they do indicate that conclusions must be interpreted with appropriate caution and contextual awareness.

Ethical considerations guided the research design. The study used exclusively secondary data, thereby eliminating risks associated with participant welfare, confidentiality breaches, and undue influence. All financial data was taken from publicly available annual reports, regulatory filings, and audited financial statements. Qualitative evidence was derived from publicly available documents, professional analyses, and scholarly literature. No personal or sensitive information was collected or generated. Proper attribution and citation were applied throughout the study to maintain academic integrity.

This chapter proceeds in four sections. The first section presents the implications of the findings, organised around each of the research questions and supported directly by the quantitative and qualitative evidence. This section explains how the results respond to the study problem, how they fit within the theoretical framework, how they align or diverge from prior research, and what they contribute to both scholarship and practice. The second section presents the recommendations for application. These recommendations translate empirical findings into a stepwise, actionable framework that policymakers, regulators, and airline executives can apply when pursuing supply chain transformation and strategic convergence. The third section outlines recommendations for future research, drawing on gaps, limitations, and emerging insights identified in the study. The final section presents the conclusions, which synthesise the take-home message of the dissertation. This concluding section explains what the results ultimately reveal about airline transformation feasibility in Asia and Australasia, how the findings advance theory, how they contribute to prior research, and how they strengthen professional practice.

Together, these sections complete the link between the study's original purpose and its ultimate contribution. They position the findings within the broader literature on airline strategy, operational efficiency, and organisational change, and they offer a grounded, evidence-based path for transforming FSCs in a region where competitive pressure continues to intensify.

5.1 Implications

This chapter reconnects the results presented in Chapter Four with the original research problem, purpose, research questions, and theoretical framing established in Chapters One and Two. The implications are organised around the study's research questions and integrate quantitative results, qualitative findings, and theoretical interpretation. Each implication is grounded in empirical evidence and positioned within the broader literature on airline strategy, organisational behaviour, and operational efficiency. Methodological limitations are acknowledged where they influence interpretation.

5.1.1 *Implications for Research Question One*

Cost-related operational efficiency ratios and operating margin: The findings confirm that cost structure remains the most powerful determinant of profitability for both airline models, although its effects differ materially. CASK and payroll-to-revenue exerted a substantially stronger negative impact on FSC profitability, reflecting legacy cost burdens associated with multi-fleet operations, long-haul networks, unionised labour, and complex service architectures (Doganis, 2019; Zhang & Round, 2022). Qualitative evidence shows that these constraints are reinforced by governance complexity and slower decision-making, generating structural inertia that limits cost responsiveness.

Transaction Cost Economics helps explain this outcome by highlighting how coordination, monitoring, and contracting costs increase with organisational complexity (Williamson, 1981). In FSCs, layered governance, diverse labour groups, and multiple service configurations elevate coordination costs, reducing responsiveness during periods of volatility. The implication is that isolated cost-cutting initiatives are insufficient. Without organisational redesign addressing governance, labour flexibility, and process ownership, cost reductions are unlikely to be durable.

For LCCs, fuel-to-operating-cost and labour intensity were also significant predictors of profitability, confirming the model’s sensitivity to fuel price volatility and growth cycles. Given thinner margins, predictable cost structures are critical. The findings reinforce that sustained LCC profitability depends on fleet efficiency, disciplined fuel management, and supply chain optimisation. These principles, well established in European and North American LCCs, remain equally relevant in Asia and Australasia.

Overall, the results validate the theoretical assumption underpinning RQ1: cost performance reflects organisational capability rather than purely financial control. The findings support the combined use of the Resource-Based View and Transaction Cost Economics in explaining airline cost dynamics and imply that managers should prioritise capability reconfiguration over short-term cost suppression.

5.1.2 Implications for Research Question Two

Revenue-related operational efficiency ratios and operating margin: Passenger yield and RASK exerted a stronger positive influence on FSC profitability than on LCCs, consistent with FSC reliance on premium services, loyalty programmes, and corporate travel contracts (Hanlon, 2006; Liu et al., 2024). Qualitative evidence indicates that FSCs reinforce revenue quality through investment in premium experiences, advanced revenue management systems, and long-term corporate partnerships. These behaviours reflect capability-based advantages that are difficult for competitors to replicate (Barney, 1991).

However, the findings also confirm that revenue advantages alone do not offset structural cost disadvantages. FSCs cannot substitute premium revenue for cost transformation. Elevated cost intensity continues to erode margins, limiting the sustainability of revenue-led strategies.

For LCCs, profitability was more strongly associated with load factor and year-on-year passenger growth than with revenue per seat. This confirms that the low-cost model converts scale and utilisation into financial performance rather than relying on yield enhancement. While LCCs can offset lower revenue per seat through volume growth, they cannot compensate for cost inefficiency, explaining the weaker role of revenue variables in predicting margins.

These results highlight a central tension in convergence feasibility. Revenue optimisation alone is insufficient. Sustainable transformation requires simultaneous restructuring of both cost and revenue systems. This finding aligns with Hayes's teleological perspective, which emphasises purposeful, sequenced change across organisational systems rather than isolated optimisation.

5.1.3 Implications for Research Question Three

Differences in operational efficiency between FSCs and LCCs: Significant differences were observed across seven operational efficiency ratios. FSCs exhibited higher CASK, payroll intensity, RASK, and passenger yield, while LCCs demonstrated superior load factors, passenger growth, and fuel-to-operating-cost ratios. These differences reflect distinct strategic paradigms: FSCs pursue complexity-driven differentiation, whereas LCCs prioritise simplicity, throughput, and asset productivity (Hanlon, 2006).

Qualitative themes show that these differences arise from deeper structural and behavioural factors, including fleet architecture, labour design, governance systems, digital maturity, leadership orientation, and organisational culture. The findings confirm a bidirectional relationship between organisational capability and operational efficiency, supporting the Resource-Based View's assertion that resource configuration shapes sustained performance.

Practically, the results demonstrate that FSCs cannot close efficiency gaps through incremental adjustments. Effective convergence requires coordinated interventions across fleet strategy, process design, labour models, governance, and digital systems. This reinforces dynamic capabilities theory, which emphasises integrated, system-wide transformation rather than fragmented change.

Unexpected findings further underline contextual sensitivity. The narrowing of payroll gaps during COVID and the regional variation in fuel sensitivity highlight that efficiency dynamics are shaped by institutional and crisis conditions. These results caution against assuming uniform efficiency relationships across time and geography.

Organisational learning emerged as a key enabling capability, with airlines demonstrating cross-functional collaboration, digital integration, and structured learning routines exhibiting stronger interaction-based responsiveness in operational outcomes. This pattern reinforces the dynamic capabilities perspective by showing that learning enhances revenue (passenger yield) adaptability across airline models, though it does not eliminate structural differences. Practically, the findings imply that sustained transformation requires deliberate investment in organisational learning systems.

Temporal interaction effects from the two-way ANOVA indicate that external shocks significantly alter operational efficiency relationships. During the COVID period, disparities in five out of the eight operational efficiency ratios widened, demonstrating that efficiency drivers behave differently under disrupted conditions. This suggests that transformation strategies must be resilient across economic cycles rather than optimised solely for stable environments.

Subregional location also significantly influenced efficiency outcomes. Variations in CASK, fuel costs, passenger yield, and RASK reflect differences in regulatory regimes, infrastructure, labour frameworks, and market maturity across Asia and Australasia. These results imply that convergence feasibility is geographically bounded and must be evaluated within specific regional and policy contexts rather than assumed to be uniform..

5.1.4 Implications for Qualitative Themes and Integration

The qualitative analysis identified twelve themes related to strategy, fleet management, pricing, governance, workforce dynamics, and learning. These themes reveal that conversion feasibility depends as much on behavioural and cultural readiness as on operational metrics.

FSCs possess latent capabilities, including experience with complex projects and crisis-driven digital adaptation, that can support convergence. However, resistance to cost discipline, hierarchical decision-making, and risk aversion remain significant barriers. These findings reinforce the dialectical perspective, which frames convergence as an ongoing negotiation between competing strategic logics.

The mixed-methods integration revealed partial and context-specific convergence among some FSC subgroups, particularly during crisis periods. However, reliance on documentary qualitative data limits insight into internal decision processes, and short-term adaptations should not be overstated as structural change.

5.1.5 Overall Implications

The study confirms that operational efficiency gaps between FSCs and LCCs are material and persistent, yet not immutable. FSCs possess adaptive capacity, but successful convergence requires coordinated, sequenced transformation across cost structures, revenue systems, governance, and organisational capabilities.

Theoretically, the findings demonstrate that no single framework sufficiently explains airline transformation. Integrating the Resource-Based View, Transaction Cost Economics, dynamic capabilities, and Hayes's teleological and dialectical perspectives provides a more comprehensive explanation of convergence feasibility. Practically, transformation demands coordinated action from airline executives, regulators, and policymakers to create conditions under which cost-responsive, resilient operating models can emerge.

5.2 Recommendations for Application

The purpose of this section is to translate the empirical and qualitative findings into a coherent set of actionable strategies for airline managers, policymakers, regulators, and industry partners operating in Asia and Australasia. Every recommendation is grounded in the quantitative models' results and the thematic patterns that emerged from the qualitative analysis. Each recommendation is also framed within the conceptual foundations of the study, particularly the Resource-Based View, Transaction Cost Economics, and the teleological and dialectical perspectives on organisational change.

5.2.1 Recommendation for Practice

These recommendations are precise, clearly sequenced, and assume a unified stepwise logic. Instead of listing actions in isolation, this chapter presents supply chain conversion as a structured process unfolding through interdependent steps. These steps are organised to recognise the constraints and opportunities revealed in the data. The recommendations, therefore, illustrate how FSCs in Asia and Australasia can move from problem diagnosis to strategic design, operational execution, and sustained performance monitoring. Although the findings show that convergence with the low-cost model is feasible, the results also highlight that sustainable conversion can occur only when change is orchestrated through a system-wide approach. For that reason, the recommendations emphasise a coordinated response across airline management, regulatory authorities, and governmental stakeholders.

The study's results reveal three primary barriers to profitable convergence. First, FSCs experience structurally higher unit costs, driven by legacy fleet structures, labour rigidity, and process complexity. Second, revenue advantages are insufficient to counteract the magnitude of cost disadvantages. Third, the impact of the key operational variables is moderated by contextual factors, such as sub-regional location and crisis periods, meaning that interventions must be adapted to institutional conditions. This section builds on these insights by presenting a detailed, stepwise framework that corresponds to the quantitative conclusions and the qualitative interpretations. The model is intended to guide airline managers and policymakers in making evidence-based choices during the conversion process.

Step One: Establish Structural and Financial Foundations for Transformation: The first step in the conversion process is to stabilise the financial and structural base of the carrier. The findings demonstrate that high unit costs, heavy fixed asset commitments, and rigid labour structures undermine the profitability of FSCs. Without addressing these foundational elements, subsequent interventions will produce only temporary gains and may even exacerbate performance volatility.

Airline executives should begin by strengthening balance sheet flexibility. The quantitative results show that CASK has the strongest negative influence on the operating margin of FSCs. To counteract this, airline managers must prioritise actions that reduce fixed cost burdens and improve liquidity. Debt reprofiling, selective asset disposals, and lease restructuring represent the most immediate levers available to leadership teams. These actions create space for strategic reinvestment in digital operations, fleet modernisation, and revenue capabilities. Regulators and policymakers play an important role at this stage, particularly by introducing transparent fee structures at airports, ensuring competitive slot allocation mechanisms, and supporting access to low interest credit for fleet renewal.

From a conceptual standpoint, this step aligns with the teleological perspective, which requires that transformation begin with a clear definition of the problem and the establishment of necessary preconditions for change. It also reflects Transaction Cost Economics, as reducing coordination burdens and financial constraints improves the carrier's ability to implement more flexible governance structures.

Step Two: Reconfigure Organisational Capabilities for Cost Discipline: Once structural stability has been restored, the next step is to redesign internal capabilities so that the organisation can sustain cost discipline. The results show that payroll intensity is a major driver of profitability differences between the airline models. The qualitative themes confirm that labour rigidity, traditional work rules, and hierarchical organisational cultures slow decision-making and increase costs in FSCs.

Airlines should therefore implement workforce reform strategies that emphasise flexibility and productivity rather than wage suppression. This includes expanding cross-skilling initiatives, adopting digital rostering systems, and streamlining administrative functions through automation. Such interventions reduce idle labour hours and align staffing levels with real-time operational demand. Governments can support this transition by funding reskilling programmes and updating labour regulations to permit multi-role employment. Regulators can further improve labour productivity by publishing industry benchmarking data that encourages more transparent negotiations.

This step directly reflects the Resource-Based View, as it focuses on redeploying and enhancing existing capabilities rather than simply reducing headcount. It also supports the dynamic capabilities perspective, since cost discipline requires continuous learning, adaptation, and managerial agility.

Step Three: Align Fleet and Operational Design with Low-Cost Efficiency Principles: The findings confirm that fuel to operating cost, load factor, and year-on-year growth ratios exert substantial influence on the profitability of LCCs. The qualitative analysis revealed that fleet commonality, simplified maintenance requirements, and high utilisation rates enable LCCs to operate at a structural advantage.

To replicate these advantages, FSCs must move toward streamlined fleet architectures. This includes reducing the number of aircraft types, prioritising leasing flexibility, investing in fuel-efficient narrowbody aircraft, and revising maintenance schedules through predictive analytics. Governments can incentivise fleet renewal through green finance instruments and grant programmes that encourage the adoption of sustainable aviation fuel. Regulators contribute by enforcing transparent reporting on fuel efficiency and promoting the use of modern air traffic management systems that reduce taxi time and delays.

Operational processes must also be redesigned to support faster decision cycles. Airlines should embed turnaround optimisation practices, implement advanced flight path planning tools, and adopt cross-functional decision platforms that enhance responsiveness. These approaches strengthen the link between aircraft utilisation and profitability and are consistent with the teleological perspective, which emphasises iterative improvement and feedback-driven learning.

Step Four: Optimise Revenue Architecture Without Sacrificing Brand Equity: The study's results demonstrate that FSCs maintain substantial revenue advantages through premium yield and RASK. However, the findings also show that these advantages do not offset the impact of high unit costs. The implication is that FSCs must strengthen revenue systems while simultaneously reducing complexity. Airlines should expand the integration of dynamic pricing algorithms, loyalty programme optimisation, and corporate travel bundles. These tools increase revenue per seat while maintaining product differentiation. At the same time, FSCs must adopt elements of low-cost pricing that simplify fare structures and improve customer transparency. The qualitative themes show that carriers with strong digital maturity are best positioned to achieve this balance, since digital platforms provide real time visibility into demand and permit rapid pricing adjustments.

This step reflects the dialectical perspective of the theoretical framework. FSCs must negotiate the tension between service differentiation and efficiency. The goal is not to imitate the low-cost model but to blend the most productive elements of both strategies without undermining brand loyalty.

Step Five: Rebalance Network and Capacity Management to Strengthen Load Factor: The results indicate that load factor exerts a meaningful positive influence on the profitability of LCCs and a smaller but still important influence on FSCs. The qualitative findings reveal that network planning in FSCs remains influenced by legacy routing assumptions, historical network commitments, and strategic considerations rather than real time demand patterns.

To strengthen load factor, airlines must adopt data driven capacity planning. This includes refining frequency decisions, reducing deployment on underperforming routes, and reallocating aircraft to markets with high elasticity. Regulators contribute by applying performance-based slot allocation rather than protective grandfathering policies. Policymakers aid this process by expanding airport capacity in growing markets and simplifying traffic rights in intra-regional corridors.

This recommendation aligns with the Resource Based View, which suggests that assets such as slots, aircraft, and route rights must be configured in ways that maximise economic value. It also reflects the teleological process model in which organisations adjust their goals and processes as they learn from market feedback.

Step Six: Strengthen Crisis Resilience and Institutional Flexibility: The study's contextual analysis revealed that external shocks, especially the pandemic, amplify the influence of specific operational variables. Load factor sensitivity intensified, labour rigidity became more costly, and cash preservation emerged as a determinant of survival. The implication is that transformation cannot be designed only for stable conditions. It must also incorporate resilience-based capabilities.

Airlines should therefore design liquidity buffers, establish cross brand coordination mechanisms between full-service and low-cost subsidiaries, and create internal task forces responsible for crisis response. Regulators and policymakers should develop sector wide contingency plans that facilitate coordinated responses across carriers. These may include integrated digital dashboards for real time monitoring, temporary adjustments to slot rules, and short-term liquidity facilities tied to efficiency improvements.

This step reflects dynamic capabilities theory. Organisations that institutionalised crisis learning during the pandemic demonstrated faster recovery and stronger convergence potential. This confirms that resilience is not simply a risk management function but a core enabler of long-term strategic advantage.

Step Seven: Ensure Governance Alignment and Performance Monitoring: The findings emphasise that transformation requires not only operational and financial interventions but also governance redesign. Many FSCs suffer from fragmented decision authority, multi layered approvals, and slow execution cultures. These governance patterns increase Transaction Costs and reduce the organisation’s ability to adapt.

Airlines should therefore adopt governance structures that support decentralised decision making while maintaining strategic oversight. This includes establishing project management offices for fleet transformation, digital integration, and labour reform. It also includes adopting board level dashboards that track key ratios such as CASK, load factor, free cash flow, and yield. Regulators can further strengthen accountability by introducing mandatory disclosure standards that align with international best practice.

This recommendation aligns directly with Transaction Cost Economics and the teleological perspective, as it emphasises the importance of efficient monitoring mechanisms and purposeful sequencing of change.

Step Eight: Coordinate Policy, Regulatory, and Industry Actions for System Wide Efficiency: The results show that FSCs cannot achieve sustainable convergence without complementary action from policymakers and regulatory institutions. Many of the factors affecting cost structure and revenue potential are shaped by national policies, airport governance, and regional regulatory arrangements.

Governments should expand open skies frameworks, invest in airport infrastructure, and create tax incentives for fleet renewal and sustainable fuel adoption. Regulators should improve transparency in slot allocation, enforce competition safeguards that protect consumers while permitting operational experimentation, and strengthen reporting standards for efficiency metrics. Industry associations should facilitate knowledge exchange, publish best practice guidelines, and coordinate regional resource pooling for sustainable aviation fuel procurement.

This step reflects a multi actor perspective that aligns with both the Resource Based View and Transaction Cost Economics. Efficient industry structures reduce coordination burdens and create a more favourable environment for airline level transformation.

Step Nine: Integrate Full-Service and Low-Cost Operations Through Cross Model Learning: The study revealed that some FSCs in the region have already developed low-cost subsidiaries. The findings show, however, that operational alignment between the parent and the subsidiary is uneven. The qualitative analysis revealed that learning is often asymmetrical, with limited transfer of best practices between models. Airlines should therefore formalise cross model learning channels. This includes rotating leadership personnel, sharing digital platforms, centralising procurement for fleet and fuel, and harmonising standard operating procedures where feasible. Doing so reduces duplication, increases consistency, and strengthens system wide efficiency. This step aligns with the dynamic capabilities and dialectical frameworks. Convergence is not a single transformation. It is a continuous process in which the organisation must reconcile competing logics and combine them into new strategic architectures.

Step Ten: Implement a Two-Horizon Capital and Resource Allocation Model: The findings confirm that conversion requires sustained investment, yet FSCs often face high leverage, heavy ownership ratios, and constrained liquidity. The implication is that a long-term capital plan is essential.

Airlines should adopt a two-horizon capital strategy. The first horizon focuses on stabilisation, cost reduction, and liquidity preservation. The second horizon focuses on stock valuation uplift and strategic equity issuance once profitability becomes more consistent. Governments can support this model by providing predictable policy environments and targeted incentives. Regulators can ensure that financing arrangements maintain competitiveness and transparency. This step reflects the teleological process model, as it emphasises purposeful sequencing, and it aligns with the Resource Based View by recognising finance as a strategic capability.

5.2.2 Recommendations for Future Research

The findings of this study open several pathways for continued exploration, both within the field of airline supply chain transformation and within the broader domain of organisational adaptation in complex service industries. This section presents detailed recommendations for future research that build directly on the results of this thesis. These recommendations respond explicitly to the limitations acknowledged in Chapter Four and clearly articulate how the study’s contributions can guide future scholarship. The recommendations also reflect the theoretical commitments underpinning this research, particularly the teleological and dialectical perspectives of organisational change, the Resource-Based View, Transaction Cost Economics, and the contextual significance of sub-regional and crisis-based moderators.

The recommendations are presented through a structured narrative. The purpose of this chapter is to highlight how researchers can deepen the evidence base, refine the theoretical models, and produce richer insights into the feasibility and process of supply chain conversion between FSCs and LCCs in Asia and Australasia. The following recommendations aim to support doctoral scholars, industry researchers, policy analysts, and cross-disciplinary teams who wish to extend or test the theoretical and empirical contributions of this thesis:

Expand Empirical Models Using High Frequency and Route Level Data: One of the main limitations of the present study was the reliance on annual financial reports and consolidated operational metrics. While these sources offer strong comparability across publicly listed carriers, they obscure route specific and aircraft specific variations that are highly relevant for understanding profitability dynamics. Future research should therefore incorporate high frequency datasets that capture actual turnaround times, sector level load factor variation, seat kilometre revenue, and individual aircraft utilisation rates. Access to such granular data would allow scholars to test whether the elasticity patterns documented in this study persist across different network segments. It would also enable more precise modelling of how fleet choices, crew scheduling, and airport infrastructure influence CASK, RASK, fuel exposure, and load factor. This recommendation connects directly to the empirical findings of the current study, which revealed that marginal effects differ significantly between regions and pandemic versus non pandemic periods. A more granular dataset would allow researchers to isolate these moderating influences with greater precision.

Test the Robustness of Elasticity Relationships Over Longer Time Horizons: The study covered a five-year period that included both pre pandemic years and the height of COVID 19 disruptions. Although this produced valuable insights into how crisis contexts moderate profitability drivers, it also created the possibility that some effects were temporary rather than structural. Future research should extend the time horizon through 2030 to assess whether the relationships between CASK, payroll intensity, RASK, load factor, fuel costs, and passenger growth remain stable once recovery is complete. A longer panel dataset would also allow researchers to distinguish between cyclical recovery patterns and true structural change, thus providing a more accurate judgment of how feasible long-term convergence between full-service and low-cost models might be. This work would also test the applicability of the teleological perspective in stable environments, since the current study found that purposeful efficiency efforts are regularly disrupted by external shocks.

Examine the Influence of Sub-Regional Moderators More Deeply: This thesis demonstrated that headquarters location significantly moderates key efficiency relationships. FSCs in Southeast and Southeast Asia displayed higher passenger yield, relative to their LCC counterpart. These findings suggest that future research should disaggregate analysis further by examining institutional environments, regulatory configurations, fuel supply structures, and labour market conditions within each sub-region. For example, researchers could investigate how differences in airport governance, market liberalisation, and union density influence carriers' profitability trajectories. Such work would help scholars understand whether the conversion blueprint proposed in this thesis is universally applicable or whether each region requires customised strategies grounded in contextual contingencies. This approach aligns with the dialectical component of the conceptual framework, which emphasises the need to address internal structural tensions within the constraints imposed by external environments.

Integrate Managerial Ethnography and Executive Decision-Making Insights: While this study incorporated qualitative data through document analysis, future research would benefit from direct engagement with airline executives, frontline managers, regulators, and industry strategists. Ethnographic approaches, semi structured interviews, Delphi panels, and executive surveys could uncover the behavioural, psychological, and political dimensions of transformation that cannot be fully captured in publicly available documents. Such insights would enrich the understanding of why some carriers successfully implement efficiency reforms while others struggle, despite facing similar financial pressures. These methods would also make it possible to explore leadership cognition, organisational resistance, risk aversion, and internal politics, all of which were indirectly identified in this study's qualitative themes. By examining behavioural barriers in more depth, researchers can refine the dynamic capabilities perspective by showing how leadership style moderates the link between capabilities and performance.

Develop Multi Level Models Linking National Policy, Airline Governance, and Operational Outcomes: The findings demonstrate that transformation feasibility cannot be examined solely at the firm level. National policy frameworks, regulatory institutions, and airport governance have significant influence on the cost structure and operational freedom of carriers. Future studies should examine these interactions systematically through multi-level modelling approaches that link macro level policies to organisational strategies and operational outcomes. These models would allow scholars to quantify how tax structures, bilateral agreements, infrastructure investment, and labour policies shape CASK, yield, and load factor trajectories.

Researchers could also investigate how coordinated policy approaches across Asia and Australasia influence convergence. This aligns with Transaction Cost Economics, which highlights the influence of institutional design on coordination costs and governance efficiency.

Model the Governance and Performance of Hybrid Subsidiary Structures: The evidence from this study suggested that some hybrid subsidiaries in the region suffered from unclear role definitions, weak governance alignment, and inconsistent performance. Future research should therefore examine the design and governance of long haul and short haul low-cost subsidiaries in greater detail. Scholars could analyse cross brand coordination arrangements, board oversight structures, shared service agreements, and joint procurement mechanisms. Such studies would determine how governance design influences cost efficiency, brand coherence, and organisational learning. They would also clarify how parent FSCs can transfer capabilities to their subsidiaries without creating bureaucratic bottlenecks. This research direction extends the dialectical lens by showing how organisations negotiate competing pressures between central control and local autonomy.

Conduct Comparative Studies Across Global Regions: Although this thesis integrated selected global evidence, its empirical scope was limited to Asia and Australasia. Future research should compare the region with Europe, North America, and Latin America to assess whether the elasticity profiles documented in the study represent universal patterns or region-specific effects. Such comparative work would enable researchers to evaluate the generalisability of the proposed conversion blueprint and determine how institutional and market structures shape the feasibility of supply chain transformation. It would also help airlines and regulators in Asia and Australasia benchmark themselves against global best practices.

Explore Digital Transformation and Automation as Predictors of Efficiency Gains: The qualitative findings emphasised that digital maturity and automation played a crucial role in enabling carriers to adapt quickly during the pandemic. Future researchers should therefore examine digital transformation as an independent driver of performance. This may include modelling the impact of artificial intelligence-based revenue management systems, predictive maintenance tools, automated ground operations, and digital workforce scheduling systems. By quantifying the influence of digital transformation on CASK, fuel efficiency, and load factor, scholars can extend the Resource-Based View by demonstrating how digital capabilities become strategic assets that influence long term competitiveness.

Analyse Sustainable Aviation Fuel and Green Finance Adoption: The study identified sustainable aviation fuel adoption and green finance incentives as important tools for managing fuel volatility and supporting cost efficient fleet renewal. Future research should therefore examine how different policy, pricing, and procurement models influence the uptake of sustainable aviation fuel in Asia and Australasia. Scholars could evaluate whether pooled regional procurement, cross border tax incentives, or blended finance structures accelerate adoption. Such studies would contribute to policy literature, environmental economics, and strategic management by showing how sustainability goals align with efficiency objectives.

Explore Pricing Behaviour, Demand Elasticity, and Revenue Optimisation in Greater Detail: The quantitative findings showed that RASK and passenger yield have strong positive impacts on the profitability of FSCs. Future studies should therefore explore pricing behaviour in much greater depth. This may include analysing how different fare classes respond to changes in market conditions, how ancillary revenues evolve across regions, or how consumer behaviour shifts as airlines adopt hybrid pricing strategies. These models would allow scholars to assess whether revenue hybridisation produces long term convergence between FSCs and LCCs.

Examine Crisis Preparedness and Resilience Design as Independent Research Streams: The pandemic created unique constraints that amplified operational vulnerabilities. The findings show that carriers with stronger liquidity buffers, decentralised decision structures, and digital platforms adapted more effectively. Researchers should therefore study resilience design as a stand-alone predictor of long-term transformation success. This may include examining how carriers incorporate scenario planning, real time decision dashboards, and cross brand coordination into organisational design. Such work could integrate behavioural economics, crisis management theory, and strategic renewal literature.

Study Leadership Influence Using Validated Measurement Instruments: While this thesis inferred leadership influence from qualitative documents, future research should incorporate validated leadership measurement tools such as the Multifactor Leadership Questionnaire. Doing so would allow researchers to test whether transformational leadership moderates the relationship between cost structure, efficiency metrics, and profitability. It would also clarify how leadership behaviour influences organisational learning, culture, and process alignment. This is particularly important because leadership emerged as a central explanatory variable in the qualitative themes.

Develop Predictive Models and Simulation Tools for Airline Transformation: Given the complexity of airline operations, simulation tools would be valuable for predicting how changes in cost structure, fleet composition, labour policy, and digital maturity affect profitability. Future research should develop system dynamics models, agent-based models, or predictive algorithms that incorporate the elasticity relationships identified in this study. These tools could be used by airline managers and policymakers to test alternative strategies under different market and regulatory scenarios.

Examine the Role of Organisational Culture in Transformation Outcomes: The qualitative findings revealed that organisational culture represents a major barrier to process simplification and cost discipline in FSCs. Future research should therefore investigate cultural traits, such as hierarchy, risk aversion, and departmental siloing, using validated culture assessment instruments. Researchers could examine how cultural change programmes influence the adoption of LCC style practices and whether cultural alignment predicts transformation success.

Investigate Passenger Perceptions of Hybridisation: Since supply chain conversion ultimately affects customer experience, future research should study how passengers perceive hybridisation strategies. Scholars could examine how changes in service design, fare structures, cabin configuration, and product bundling influence customer satisfaction, loyalty, and willingness to pay. This work could guide airlines in balancing efficiency with brand equity and would add a valuable consumer behaviour dimension to the literature.

Assess the Strategic Value and Risk of Joint Ventures in Transformation: Several carriers in the region rely on joint ventures to expand capacity and reduce cost burdens. Future research should examine how governance arrangements within these ventures influence performance. Researchers could study how equity structure, decision authority, and conflict resolution mechanisms affect operational efficiency and cost convergence. This work would extend the Transaction Cost Economics framework by clarifying how optimal governance design varies under different market conditions.

Synthesis of Future Research Directions: Taken together, these research directions illustrate a comprehensive agenda for advancing the study of airline supply chain transformation. Future scholars should deepen empirical precision through granular data, extend theoretical insight through behavioural and institutional analysis, and broaden the scope through international comparison. These recommendations reflect a clear integration between findings, theory, and future scholarship. They also reinforce the central argument of this thesis: airline conversion is a multi-dimensional process shaped by operational efficiency, strategic capability, institutional context, and organisational behaviour.

5.3 CONCLUSIONS

The purpose of this mixed-methods study was to determine whether FSCs in Asia and Australasia can feasibly convert their supply chain structures to align with the low-cost model. This problem emerged from persistent structural, operational, and financial differences between the two models, particularly in the areas of cost efficiency, revenue design, and process discipline. These differences have been documented repeatedly in the regional and international airline literature and continue to influence competitive outcomes in dynamic markets (Fu & O'Connell, 2023; Gelirli & Kısacık, 2024; Law, 2022). The study was important because past attempts at hybridisation or LHLCC restructuring often failed to deliver sustained cost convergence or profitability improvements. Many FSCs in the region continue to face pressure from expanding low-cost networks, intensified price competition, and post-pandemic shifts in demand behaviour (Forsyth et al., 2021). Addressing this problem required an approach capable of examining both statistical performance relationships and the organisational forces behind them. The mixed methods design, therefore, enabled a holistic evaluation.

Ethical standards were upheld throughout the study. Secondary financial data were used responsibly, qualitative interpretations were grounded in published evidence, and analytic transparency was maintained. Limitations included reliance on consolidated airline-level reporting rather than route-level microdata, and the absence of primary managerial interviews. Even with these constraints, the study produced strong cross-validated findings across two analytical strands.

This conclusion integrates all results, answers the research questions, positions the findings within the conceptual framework, and clarifies the contribution to theory and practice. It also outlines the overall feasibility of converting supply chains for FSCs in Asia and Australasia.

5.3.1 Response to the Research Questions

The first research question examined the profitability effect of cost-related variables. The results showed that CASK and payroll-to-revenue had a substantially stronger adverse effect on FSCs than on LCCs. This aligns with global findings that FSCs carry heavier cost legacies due to multi fleet structures, long haul networks, unionised labour, and complex service models (Doganis, 2019; Zhang and Round, 2022). At the same time, LCCs demonstrated stronger positive profitability responses to load factor, and fuel flexibility. These findings confirm that the low-cost model is designed to convert efficiency gains directly into margin improvements through high utilisation, simplified scheduling, and operational standardisation (Efthymiou & Christidis, 2023). These differences directly address the study problem by isolating the cost levers that constrain convergence.

Although many of the findings aligned with prior research, several results diverged from expectations. For example, although FSCs displayed higher fuel efficiency ratios, LCCs' fuel strategy exerted a more favourable impact on operating margins than that of FSCs. This outcome suggests that structural constraints, particularly legacy labour and cost commitments, mute the financial benefits of technical efficiency. Fuel elasticity also varied less across sub-regions than expected, with Southeast Asian LCCs showing unexpectedly low responsiveness. This appears to stem from inconsistent hedging practices and infrastructural limitations rather than genuine operational efficiency. Another surprising pattern was the narrowing of operating-margin differences between FSC and LCC subgroups during the COVID period, driven by extensive government support, the redirection of long-haul capacity, and short-term gains in supply-chain coordination. Taken together, these deviations highlight the strong influence of contextual and institutional forces on airline performance and caution against assuming that efficiency dynamics operate uniformly across regions.

The second research question focused on revenue-related drivers. The study found that FSCs maintain revenue advantages through higher RASK and passenger yield, supported by loyalty programmes, premium cabins, and corporate contracts (Liu et al., 2024). However, these advantages were frequently offset by elevated cost intensity. This confirms the view within the resource-based literature that revenue-generating capabilities alone do not ensure sustainable performance when cost structures are rigid (Barney, 1991). At the same time, the results showed that LCCs sustain their competitive position through strong year-on-year passenger growth, which amplifies scale effects, stabilises cash flow, and reinforces the low-cost model's dependence on volume-driven profitability. Together, these findings reinforce the need for balanced transformation that preserves yield strength while reducing structural cost burdens and adopts growth-oriented strategies that can replicate the scale-based advantages underpinning LCC performance.

The third research question examined differences in operational efficiency across the two models. The quantitative analysis confirmed significant differences across all eight ratios tested, with FSCs consistently exhibiting higher unit costs, RASK, passenger yield, OM, and payroll intensity and LCCs exhibiting superior load factors and growth rates, but weaker fuel cost discipline. These differences persisted before, during, and after COVID, indicating that convergence cannot be achieved solely through incremental improvements. Instead, deeper restructuring of processes, governance, and organisational routines is required, consistent with the findings of Kuljanin et al. (2021) and Rodríguez-Sanz and Andrada (2022).

Research question three also assessed interaction effect between the airline model and moderator variables on the independent variables. The results demonstrated significant moderation based on subregional location, time period, and organisational learning status. Airlines models headquartered in Southeast Asia showed higher fuel variances, a pattern consistent with irregular hedging practices, concentrated exposure to spot-market pricing, and infrastructure constraints that elevate fuel burn on congested routes (CAPA, 2023). Carriers in Australasia displayed more substantial payroll variances, reflecting more flexible labour markets, more relaxed regulatory frameworks, and wage structures that foster workforce flexibility. These findings align with regional studies showing that institutional settings shape performance variances between airline models (Kim & Lee, 2023), implying that convergence feasibility varies by geographic and regulatory environment rather than being uniform across the region.

Temporal moderation also produced significant shifts. During the pandemic years, the variance of load factor increased sharply, confirming that the capacity utilisations of the two models were impacted disproportionately under disrupted demand conditions. The payroll-to-revenue gap also widened during the COVID-19 period, indicating that fixed labour commitments became more burdensome for FSCs than for LCCs when revenues collapsed, given LCCs' greater ability to adjust and shed labour costs rapidly. These temporal fluctuations demonstrate that cost and revenue drivers behave differently under crisis conditions, and therefore, convergence strategies must be resilient across economic cycles rather than being designed only for stable periods.

Finally, organisational learning status acted as an enabling moderator. Airlines exhibiting characteristics of learning organisations, such as cross-functional collaboration, rapid digital adoption, and structured post-crisis review processes, demonstrated more favourable variables. FSCs achieved higher passenger yields by offering premium services and by systematically leveraging customer feedback and competitive benchmarking, which enhanced customer satisfaction and increased passengers' willingness to pay. This confirms theoretical expectations from dynamic capabilities literature that learning routines and absorptive capacity enhance organisational responsiveness. It also implies that the feasibility of supply chain conversion is partly determined by internal behavioural systems rather than solely by structural factors.

5.3.2 Integration with the Conceptual Framework

The findings align strongly with Hayes's (2022) teleological and dialectical perspectives. The teleological model conceptualises change as an iterative cycle of diagnosis, goal formulation, implementation, evaluation, and learning. The evidence shows that FSCs achieving efficiency gains were those that actively progressed through these stages, particularly during the COVID period when rapid adjustments to capacity, fleet utilisation, scheduling, and digital processes were required.

The dialectical perspective explains transformation as the resolution of competing organisational forces. This was evident in the persistent tension between service differentiation and cost leadership, complex network structures and simplified operations, and control-oriented governance and flexible workforce models. The findings demonstrate that convergence does not occur through wholesale imitation of the LCC model, but through synthesis, whereby FSCs selectively internalise low-cost efficiency routines while preserving revenue-generating capabilities. This confirms the analytical relevance of the dialectical perspective for modelling airline transformation.

Several results diverged from prior expectations and required contextual interpretation. Aggregate payroll variance was lower than anticipated, suggesting that institutional labour constraints limited the extent to which LCCs could adjust labour costs more rapidly than FSCs, contrary to earlier cross-regional evidence. Additionally, the temporary convergence of operating margins during the COVID period challenges conventional efficiency logic but aligns with crisis governance research highlighting the distorting effects of state support and network diversification. Fuel efficiency divergence among Southeast Asian LCCs further reflects region-specific exposure to volatile supply conditions and limited hedging capacity.

Subcategory analysis confirms that profitability drivers are structurally contingent rather than universal. LCC subcategories exhibit utilisation-elastic profitability, with load factor and demand throughput acting as the primary mechanisms through which efficiency translates into margin. In contrast, FSC subcategories remain constrained by cost-structure rigidity, with CASK, payroll intensity, and fuel exposure exerting persistent downward pressure on operating margin, particularly under disrupted conditions. Revenue expansion does not offset these inefficiencies. Consistent with Hayes's (2022) process theory, these findings indicate that convergence requires dialectical reconfiguration of entrenched cost structures, operationalised through the requirements analysis framework by identifying the functional, structural, and resource conditions necessary for cost-responsive performance transformation.

The resource-based view further supports the findings. FSCs' strengths in yield and RASK derive from valuable strategic resources such as brand equity, loyalty systems, and network depth. However, the absence of cost convergence indicates that these resources are not sufficiently supported by organisational routines that enable efficient deployment, reinforcing Barney's (1991) assertion that advantage requires both valuable resources and effective capability structures.

Transaction cost economics provides complementary insight, demonstrating that governance arrangements, outsourcing decisions, alliance structures, and coordination mechanisms materially shape cost outcomes. Carriers with leaner governance and more flexible inter-organisational arrangements achieved superior cost performance, consistent with Williamson's (1981) argument that coordination and contracting costs are central determinants of efficiency.

5.3.3 Contribution to Literature

The study contributes new knowledge to the field of airline management scholarship. It provides one of the most detailed mixed-methods analyses applied to Asia and Australasia, integrating quantitative elasticity modelling with qualitative analyses of leadership, culture, and organisational behaviour. It demonstrates that business model convergence is theoretically possible but organisationally complex. It also extends the application of teleological and dialectical theory to airline transformation, showing how purposeful change and tension management shape restructuring outcomes. The identification of regional moderators adds new empirical insight into how institutional and geographic context influence cost responsiveness. The study also contributes to crisis management literature by showing that digital readiness, cultural adaptability, and transformational leadership influenced performance resilience during the COVID-19 pandemic (Garad et al., 2022).

Beyond its academic insights, this thesis makes a clear contribution to the applied focus of DBA research. By translating statistically derived elasticities into concrete managerial levers, governance mechanisms, and policy interventions, the study provides an evidence-based transformation model that practitioners can deploy directly within airline organisations. This alignment between empirical findings and actionable strategy reflects the DBA's core mission: to generate rigorous, practice-oriented knowledge that informs decision-making in complex, real-world environments. The stepwise transformation pathway developed in this study therefore strengthens the bridge between doctoral research and executive application.

5.3.4 Contribution to Practice

For managers, the study offers a practical diagnostic model linking each ratio to a specific organisational lever. Cost reduction requires structural simplification, redesign of fleet strategies, maintenance optimisation, digitalisation of ground operations, and tighter labour frameworks. Revenue improvement requires enhanced segmentation, dynamic pricing, loyalty optimisation, and superior product design. Growth acceleration depends on coordinated policy support, improved slot management, and market diversification. The qualitative findings emphasise leadership behaviours, communication strategies, learning systems, and cultural alignment as critical enablers of successful implementation. These insights give managers a clear roadmap for transformation.

For policymakers, the study provides evidence-based recommendations including open skies expansion, airport fee regulation, slot allocation reform, SAF incentives, workforce modernisation, and enhanced data transparency. Regulators gain guidance on designing balanced oversight frameworks that support transformation without distorting competition. Industry associations gain a foundation for benchmarking performance and facilitating cross-carrier collaboration.

5.3.5 Overall Feasibility Judgment

The overarching conclusion emerging from this study is that supply chain conversion is feasible, but only when structural simplification, organisational capability, leadership behaviour, policy alignment, and regional context operate in concert. The evidence shows that convergence cannot be achieved solely through imitation of the low-cost model. Instead, it requires synthesis in which FSCs retain the elements that support revenue quality and premium yield while progressively adopting the efficiency routines that narrow cost gaps. LCCs, in turn, sustain their advantage through continued simplification, digital integration, disciplined fleet strategy, and growth-oriented agility. The results demonstrate that sustainable transformation is not an abstract possibility but an achievable outcome when pursued through disciplined, staged, and context-sensitive reform. By validating these relationships empirically and theoretically, the study provides a viable and evidence-based transformation pathway for airlines seeking competitive resilience and long-term performance improvement in Asia and Australasia.

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APPENDICES

APPENDIX A: QUANTITATIVE ARCHIVAL DATA

This research used predominantly audited annual reports of LCCs and FSCs. Since the audit process is rigorous and vouches that the annual reports and financial statements were prepared following the relevant “generally accepted account principles,” a yearly audited-annual report commands great credibility.

Efficiency, Market Growth, and Profitability

Section 1: Profitability Ratio

1. What is the “operating margin” of Asia’s publicly traded LCCs and FSCs from 2017 – 2021?

Section 2: Revenue-related operational efficiency

2. What is the “year-on-year growth rate in passengers” of Asia’s publicly traded LCCs and FSCs from 2017 - 2021?
3. What is the “passenger yield” of Asia’s publicly traded LCCs and FSCs from 2017 - 2021?
4. What is the “revenue per available seat factor” of Asia’s publicly traded LCCs and FSCs from 2017 - 2021?

Section 3: Cost-related operational efficiency

5. What is the “costs of available seat kilometre” of Asia’s publicly traded LCCs and FSCs from 2017 - 2021?
6. What is the “passenger load factor” of Asia’s publicly traded LCCs and FSCs from 2017 – 2021?

7. What is the “payroll to revenue” ratio of Asia’s publicly traded LCCs and FSCs from 2017 - 2021?
8. What is the “fuel expense to total operating cost” ratio of Asia’s publicly traded LCCs and FSCs from 2017 - 2021?

<u>Section 4: Impact and variances</u>

9. What are the significant impacts of cost-related operational efficiency ratios on the operating margin of LCCs and FSCs operating in Asia and Australasia from 2017 - 2021?
10. What are the significant impacts of revenue-related operational efficiency ratios on the operating margin of LCCs and FSCs operating in Asia and Australasia from 2017 - 2021?
11. What are the significant differences in operational efficiency, profitability, and year-on-year growth in passengers carried ratios, between LCCs and their FSCs counterparts operating in Asia and Australasia from 2017 - 2021?

APPENDIX B: QUALITATIVE ARCHIVAL DATA

This study used audited annual reports, journal articles, and sustainability reports of LCCs and FSCs. Since the audit process is a rigorous one which concludes that the financial statements were prepared in accordance with the relevant "generally accepted account principles", the audited annual report commands a great amount of credibility. Also, the use of peer-reviewed articles enhances credibility.

Section 1

Questions 1 to 7 aim to identify the characteristics of LCCs (Low-Cost Carriers) and FSCs (Full-Service Carriers). This information is essential for understanding the operations of both types of airlines. The researcher also reviewed literature on both LCCs and FSCs to answer these questions.

Section 1: Cost Strategy

Question 1: Describe Asian and Australasian LCCs' and FSCs' cost strategy in terms of Porter's generic strategies in relation to staff competency and general operation (i.e., discuss whether your staff has competently adopted a cost leadership, differentiation, or focus strategy).

Section 2: Aircraft Fleet

Question 2: Describe the composition of Asian and Australasian LCCs' and FSCs' aircraft fleet in terms of types and usage. How does this contribute to your strategy?

Section 3: Fuel Strategy

Question 3: Describe Asian and Australasian LCCs' and FSCs' fuel procurement and management strategies.

Section 4: Market/Ticketing Strategies

Question 4: Describe the marketing strategies of Asian and Australasian LCCs and FSCs.

Question 5: Describe the type of passengers targeted by Asian and Australasian LCCs and the group(s) that makes up the majority of LCCs and FSCs total passengers, in terms of business or leisure travellers, economic circumstances, short distance-long distance, and willingness to spend for quality services?

Question 6: Describe Asian and Australasian LCCs revenue management strategy, and associated pricing strategy.

Question 7: Describe the agility and responsiveness of FSCs and LCCs' strategy to the COVID-19 pandemic.

<u>Questions (8 –11) Literature on LCCs were reviewed to gain a better understanding of the difference between the LHLCCs and SHLCCs strategies</u>

Question 8: Describe the marketing strategy of LHLCCs.

Question 9: Is the LHLCC strategy profitable? Describe the factors contributing to their level of profitability.

Question 10: Describe the strategies of operating only long-haul flights, short-haul flights, and airline within airline.

Question 11: How important are load factor, fleet size and type, in-flight entertainment, and catering to LHLCCs?

<u>The purpose of questions (12 – 15) is to determine whether FSCs have the implementation structure to close existing gaps between the two models</u>

<u>Transformational leadership</u>

Question 12: What degree of transformational leadership exists in Asian and Australasian FSCs? (The researcher will explore only the "individual consideration" concept of transformational leadership)

<u>Staff culture</u>

Question 13: What **is** the culture of Asian and Australasian FSCs' staff in terms of its ability to embrace change?

<u>Resources</u>

Question 14: In case that airline has to purchase or lease a new fleet of aircraft post a merger and acquisition can Asian and Australasian FSCs sustainably raise such capital, in terms of the impact raising such capital on your debt to equity, debt to asset and current ratios and having the financial management and technical expertise?

Change Management Experience

Question 15: Have Asian and Australasian FSCs undergone any major projects in the past such as investing in a major business? If yes, how successful was it, and are the managers directly involved in this project still employed with your airline company?

APPENDIX C: UREC COMMITTEE PROVISIONAL DECISION

UNICAF UNIVERSITY

UREC Decision, Version 2.0

Unicaf University Research Ethics Committee Decision

Student's Name: Hudus Malcolm

Student's ID #: R2002D10329139

Supervisor's Name: Dr Vusumuzi Sibanda

Program of Study: UUZ: DBA Doctoral of Business Administration

Offer ID /Group ID: O38422G40231

Dissertation Stage: 1

Research Project Title: Modelling a low cost supply chain for full service carriers operating in Australasia: a requirements analysis approach

Comments: No comments

Decision*: A. Provisionally approved without revision or comments

Date: 06-Oct-2022

*Provisional approval provided at the Dissertation Stage 1, whereas the final approval is provided at the Dissertation stage 3. The student is allowed to proceed to data collection following the final approval.

APPENDIX D: UREC COMMITTEE FINAL DECISION

UNICAF UNIVERSITY

UREC Decision, Version 2.0

Unicaf University Research Ethics Committee Decision

Student's Name: Hudus Malcolm

Student's ID #: R2002D10329139

Supervisor's Name: Dr Vusumuzi Sibanda

Program of Study: UUZ: DBA Doctoral of Business Administration

Offer ID /Group ID: O59811G61283

Dissertation Stage: 3

Research Project Title: Modelling a Low Cost Supply Chain for Full Service Carriers Operating in Australasia: A Requirements Analysis Approach

Comments: No comments.

Decision*: A. Approved without revision or comments

Date: 25-Aug-2023

*Provisional approval provided at the Dissertation Stage 1, whereas the final approval is provided at the Dissertation stage 3. The student is allowed to proceed to data collection following the final approval.

APPENDIX E: REAF DS

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REAF_DS - Version 3.3 AP

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RESEARCH ETHICS APPLICATION FORM
DOCTORAL STUDIES

UREC USE ONLY:
Application No:
Date Received:

Student's Name: Hudus Malcolm

Student's E-mail Address: hudusmmm@gmail.com

Student's ID #: R2002D10329139

Supervisor's Name: Dr Vusumuzi Sibanda

University Campus/Program: Unicaf University Zambia: DBA Doctorate of Business Administration

Research Project Title: Modelling a Low Cost Supply Chain for Full Service Carriers Operating in Asia and Australasia: A Requirements Analysis Approach

1. **Please state the timelines involved in the proposed research project:**

Estimated Start Date: 05-May-2023 Estimated End Date: 5-Dec-2023

2. **External Research Funding (if applicable):**

2.a. **Do you have any external funding for your research?**

☐ YES ☑ NO

If YES, please answer questions 2b and 2c.

2.b. List any external (third party) sources of funding you plan to utilise for your project. You need to include full details on the source of funds (e.g. state, private or individual sponsor), any prior / existing or future relationships between the funding body / sponsor and any of the principal investigator(s) or co-investigator(s) or student researcher(s), status and timeline of the application and any conditions attached.

2.c. If there are any perceived ethical issues or potential conflicts of interest arising from applying for and/or receiving external funding for the proposed research then these need to be fully disclosed below and also further elaborated on, in the relevant sections on ethical considerations later on in this form.

1

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3. The research project

3.a. Project Summary:

In this section fully describe the purpose and underlying rationale for the proposed research project. Ensure that you pose the research questions to be examined, state the hypotheses, and discuss the expected results of your research and their potential.

It is important in your description to use plain language so it can be understood by all members of the UREC, especially those who are not necessarily experts in the particular discipline. To that effect ensure that you fully explain/define any technical terms or discipline-specific terminology (use the space provided in the box).

Quantitative Questions (1) What are the significant impacts of cost related operational efficiency ratios on operating margin of LCCs and FSCs operating in Asia and Australasia? (2) What are the significant impacts of revenue related operational efficiency ratios on operating margin of LCCs and FSCs operating in Asia and Australasia? (3) What are the significant differences in operational efficiency, profitability, and year on year growth in passengers carried ratios, between LCCs and their FSCs counterpart operating in Asia and Australasia? Qualitative Questions (1) How different are FSCs' culture, cost structure, leadership style and operational strategy from what is needed to successfully implement the conversion? (2) How do the following attributes of FSCs' culture, leadership style, past experience, financial resources, and operational strategy, impede or facilitate a successful supply chain conversion? Mixed Methods Question (1) To what extent do the qualitative results confirm/disconfirm the quantitative results. Hypotheses (Ha) Asia's publicly traded FSCs can successfully develop the supply-chain model of LCCs (Ho) Asia's publicly traded FSCs cannot successfully develop the supply-chain model of LCCs. The research is expected to conclude that the financial ratio (i.e., operating profit margin), and operational ratios (i.e., CASK, RASK, loadfactor, passenger yield, payroll to revenue, fuel expense to total operating cost, and passengers growth rate percentage) of LCCs are healthier than those of FSCs. It is expected that healthy operational ratio will have a positive effect on operating profit margin in the LCC sector. Furthermore, movements in market ratios (i.e. passengers' growth rates) will impact load factor, which will impact profitability. It is expected that LCCs perform better at increasing passengers' volume, year on year, due to their marketing "A la carte pricing" strategies. Hence, operation efficiency variances are expected between the two airline models in favor of LCCs. It is expected that the conversion will be successful to the extent that FSCs have the resources, and transformational leadership, flexible culture, change management experience, etc., needed to facilitate changes in their strategy. Only those whose leadership and culture facilitate change will successfully convert. This research has the potential of being the blue print for future conversions, by breaking down this complex phenomenon in minute parts, identifying possible variance between the two cases, and making recommendations on how to close those gaps.

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3.b. Significance of the Proposed Research Study and Potential Benefits:

Outline the potential significance and/or benefits of the research (use the space provided in the box).

1. Currently, much of the research on supply chain conversion has used a mono method (i.e., either qualitative or quantitative). Furthermore, no research has used quantitative method to determine outcome of a supply chain while simultaneously using the qualitative method to determine its process. Hence, current literature has not dealt with the supply chain conversion in a comprehensive way. Therefore, this research will increase the level of comprehensiveness in the study of supply-chain by mixing both methods for the purpose of expansion, with qualitative and quantitative methods exploring supply-chain processes and outcomes, respectively. Furthermore, the use of requirements analysis as a conceptual framework will facilitate unprecedented breath and depth in the research inquiry, by concurrently exploring functional, structural and resource analyses.
2. Since LCCs emerged in the USA and Europe decades before Australia and New Zealand, there is a lack of research literature from the perspective of Australia and New Zealand. This has resulted in the specific supply-chain problems of Australia and New Zealand not being adequately highlighted and addressed by existing research. This research will contribute towards closing this research gap and making available research relevant to the aviation problems of these two countries.

4. **Project execution:**

4.a. The following study is an:

- [ ] experimental study (primary research)
- [x] desktop study (secondary research)
- [ ] desktop study using existing databases involving information of human/animal subjects
- [ ] Other

If you have chosen 'Other' please Explain:

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4.b. Methods. The following study will involve:

☐ a Quantitative methodology
☐ a Qualitative methodology
☑ a mixed methods approach

If you have chosen mixed methods please state below whether you are going to proceed with triangulation or not.

☑ YES ☐ NO

4.c. Please state below which tools you are going to use:

A	B	C
Select the tools to be used in your study	Select how the tools selected in column A will be administered (select one or more)	Select what types of questions will be included in the tools previously selected in column A (select one or more)
Interviews ☐	☐ Face-to-face ☐ Online with camera (synchronous live discussion with camera) ☐ Audio only (synchronous live discussion without camera, i.e., via phone)	☐ Open-ended questions ☐ Close-ended questions ☐ Includes section related to demographics
Focus Groups ☐	☐ Face-to-face ☐ Online with camera (synchronous live discussion with camera) ☐ Audio only (synchronous live discussion without camera, i.e., via phone)	☐ Open-ended questions ☐ Close-ended questions ☐ Includes section related to demographics
Questionnaire ☐	☐ Face-to-face self – administered questionnaire ☐ Online, i.e., via phone or any other platform. The researcher reads the questions to the participants ☐ Online asynchronous self-administered questionnaire (i.e., via email)	☐ Open-ended questions ☐ Close-ended questions ☐ Includes section related to demographics

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A Select the tools to be used in your study	B Select how the tools selected in column A will be administered (select one or more)	C Select what types of questions will be included in the tools previously selected in column A (select one or more)
Experiments ☐	☐ Face-to-face ☐ Online with camera (synchronous live discussion with camera) ☐ Audio only (synchronous live discussion without camera, i.e., via phone) ☐ Asynchronously via any online platform	☐ Open-ended questions ☐ Close-ended questions ☐ Includes section related to demographics
Tests ☐	☐ Face-to-face ☐ Online with camera (synchronous live discussion with camera) ☐ Audio only (synchronous live discussion without camera, i.e., via phone) ☐ Asynchronously via any online platform	Provide a brief description of the test in the box 'Other' below.
Other	Archival data (Online): Annual reports, sustainability report, and journal articles	

5. **Participants:**

5 a. Does the Project involve the recruitment and participation of additional persons other than the researcher(s) themselves?

☐ YES **If YES, please complete all following sections.**

☑ NO **If NO, please directly proceed to Question 7.**

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5 b. Relevant Details of the Participants of the Proposed Research

State the number of participants you plan to recruit, and explain in the box below how the total number was calculated.

Number of participants

Describe important characteristics such as: demographics (e.g. age, gender, location, affiliation, level of fitness, intellectual ability etc). It is also important that you specify any inclusion and exclusion criteria that will be applied (e.g. eligibility criteria for participants).

Age range From To

Gender
- Female
- Male

Eligibility Criteria:

- Inclusion criteria
- Exclusion criteria

Disabilities/Disorders: You should only include the participants who can provide informed consent for themselves. Individuals who have a mental disability and are not in a position to provide their own consent should not participate in the study. Please provide information for any other disabilities/disorders the participants may have:

Other relevant information (use the space provided in the box):

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5 c. Participation & Research setting:

Clearly describe which group of participants (described in 5b) is completing/participating in the material(s)/tool(s) described in 4c above (use the space provided in the box)

5 d. Recruitment Process for Human Research Participants:

Clearly describe how the potential participants will be identified, approached and recruited (use the space provided in the box).

5 e. Research Participants Informed Consent.

Select below which categories of participants will participate in the study. Complete the relevant Informed Consent form and submit it along with the REAF form.

Yes	No	Categories of participants	Form to be completed
☐	☐	Typically Developing population(s) above the maturity age *	Informed Consent Form
☐	☐	Typically Developing population(s) under the maturity age *	Guardian Informed Consent Form

* Maturity age is defined by national regulations in laws of the country in which the research is being conducted.

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5 f. Relationship between the principal investigator and participants.

Is there any relationship between the principal investigator (student), co-investigators(s), (supervisor) and participant(s)? For example, if you are conducting research in a school environment on students in your classroom (e.g. instructor-student).

☐ YES ☐ NO

If YES, specify (use the space provided in the box).

6. <u>Potential Risks of the Proposed Research Study.</u>

6 a. i. Are there any potential risks, psychological harm and/or ethical issues associated with the proposed research study, other than risks pertaining to everyday life events?

☐ YES ☐ NO

If YES, specify below and answer the question 6 a.ii.

6 a.ii Provide information on what measures will be taken in order to exclude or minimise risks described in 6.a.i.

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6 b. Choose the appropriate option

		Yes	No
i.	Will you obtain a written informed consent form from all participants?	☐	☐
ii.	Does the research involve, as participants, people whose ability to give free and informed consent is in question?	☐	☐
iii.	Does this research involve participants who are children under maturity age? **If you answered YES to question iii, complete all following questions. If you answered NO to question iii, do not answer Questions iv, v, vi and proceed to Questions vii, viii, ix and x.**	☐	☐
iv.	Will the research tools be implemented in a professional educational setting in the presence of other adults (i.e. classroom in the presence of a teacher)?	☐	☐
v.	Will informed consent be obtained from the legal guardians (i.e. parents) of children?	☐	☐
vi.	Will verbal assent be obtained from children?	☐	☐
vii.	Will all data be treated as confidential? If NO, explain why confidentiality of the collected data is not appropriate for this proposed research project, providing details of how all participants will be informed of the fact that any data which they will provide will not be confidential.	☐	☐
viii.	Will all participants/data collected be anonymous? If NO, explain why and describe the procedures to be used to ensure the anonymity of participants and/or confidentiality of the collected data both during the conduct of the research and in the subsequent release of its findings.	☐	☐

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		Yes	No
ix.	Have you ensured that personal data and research data collected from participants will be securely stored for five years?	☐	☐
x.	Does this research involve the deception of participants? If YES, describe the nature and extent of the deception involved. Explain how and when the deception will be revealed, and who will administer this debrief to the participants:	☐	☐

6 c. I. Are there any other ethical issues associated with the proposed research study that are not already adequately covered in the preceding sections?

☐ Yes ☐ No

If YES, specify (maximum 150 words).

6.c.II Provide information on what measures will be taken in order to exclude or minimise ethical issues described in 6.c.I.

6 d. Indicate the Risk Rating.

☐ High ☐ Low

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7. **Further Approvals**

All researchers are advised to check the regulations pertaining to research and General Data Protection Regulation (GDPR) of the country in which the research will take place as each country may have different restrictions on conducting research. **Are there any other approvals required (i.e., from a ministry or public agency in the country, in addition to ethics clearance from UREC) in order to carry out the proposed research study?**

☐ YES ✓ NO If YES, specify.

8. **Application Checklist**

Mark √ if the study involves any of the following:

☐ Children and young people under 18 years of age, vulnerable populations such as children with special educational needs (SEN), racial or ethnic minorities, socioeconomically disadvantaged persons, pregnant women, elderly, malnourished people, and ill people.

☐ Research that foresees risks and disadvantages that would affect any participant of the study such as anxiety, stress, pain or physical discomfort, harm risk (which is more than is expected from everyday life) or any other act that participants might believe is detrimental to their wellbeing and/or has the potential to / will infringe on their human rights / fundamental rights.

☐ Risk to the well-being and personal safety of the researcher.

☐ Administration of any substance (food / drink / chemicals / pharmaceuticals / supplements / chemical agent or vaccines or other substances (including vitamins or food substances) to human participants.

☐ Results that may have an adverse impact on the natural or built environment.

9. **Further documents**

Check that the following documents are attached to your application:

		ATTACHED	NOT APPLICABLE
1	Recruitment advertisement (if any)	☐	✓
2	Informed Consent Form / Guardian Informed Consent Form	☐	✓
3	Research Tool(s)	✓	☐
4	Gatekeeper Letter	☐	✓
5	Any other approvals required in order to carry out the proposed research study, e.g., institutional permission (e.g. school principal or company director) or approval from a local ethics or professional regulatory body.	☐	✓

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REAF_DS - Version 3.3

10. Final Declaration by Applicants:

(a) I declare that this application is submitted on the basis that the information it contains is confidential and will only be used by Unicaf University for the explicit purpose of ethical review and monitoring of the conduct of the research proposed project as described in the preceding pages.

(b) I understand that this information will not be used for any other purpose without my prior consent, excluding use intended to satisfy reporting requirements to relevant regulatory bodies.

(c) The information in this form, together with any accompanying information, is complete and correct to the best of my knowledge and belief and I take full responsibility for it.

(d) I undertake to abide by the highest possible international ethical standards governing the Code of Practice for Research Involving Human Participants, as published by the UN WHO Research Ethics Review Committee (ERC) on http://www.who.int/ethics/research/en/ and to which Unicaf University aspires to adhere.

(e) In addition to respect any and all relevant professional bodies' codes of conduct and/or ethical guidelines, where applicable, while in pursuit of this research project.

☑ **I agree with all points listed under Question 10**

Student's Name: Hudus Malcolm

Supervisor's Name: Dr Vusumuzi Sibanda

Date of Application: 17-Oct-2024

Important Note:
Save your completed form (we suggest you also print a copy for your records) and then submit it to your UU Dissertation/project supervisor (tutor). **In the case of student projects, the responsibility lies with the Faculty Dissertation/Project Supervisor.** If this is a student application, then it should be submitted via the relevant link in the VLE. Please submit only electronically filled in copies; do not hand fill and submit scanned paper copies of this application.

APPENDIX F: GATEKEEPER LETTER

UNICAF UNIVERSITY

UU_GL - Version 2.0

Gatekeeper letter

Address:

Date:

Subject:

Yours Sincerely,

Student's Name:

Student's E-mail:

Student's Address and Telephone:

Supervisor's Title and Name:

Supervisor's Position:

Supervisor's E-mail:

APPENDIX G: INFORMED CONSENT

UNICAF UNIVERSITY

UU_IC - Version 2.1

Informed Consent Form

Part 1: Debriefing of Participants

Student's Name:

Student's E-mail Address:

Student ID #:

Supervisor's Name:

University Campus: Choose from the list

Program of Study:

Research Project Title:

Date:

Provide a short description (purpose, aim and significance) of the research project, and explain why and how you have chosen this person to participate in this research (maximum 150 words).

The above named student is committed to ensuring participant's voluntarily participation in the research project and guaranteeing there are no potential risks and/or harms to the participants.

Participants have the right to withdraw at any stage (prior or post the completion) of the research without any consequences and without providing any explanation. In these cases, data collected will be deleted.

All data and information collected will be coded and will not be accessible to anyone outside this research. Data described and included in dissemination activities will only refer to coded information ensuring beyond the bounds of possibility participant identification.

I, __________, ensure that all information stated above is true and that all conditions have been met.

Student's Signature:

1

UNICAF UNIVERSITY

UU_IC - Version 2.1

Informed Consent Form

Part 2: Certificate of Consent

This section is mandatory and should to be signed by the participant(s)

Student's Name:

Student's E-mail Address:

Student ID #:

Supervisor's Name:

University Campus: Choose from the list

Program of Study:

Research Project Title:

I have read the foregoing information about this study, or it has been read to me. I have had the opportunity to ask questions and discuss about it. I have received satisfactory answers to all my questions and I have received enough information about this study. I understand that I am free to withdraw from this study at any time without giving a reason for withdrawing and without negative consequences. I consent to the use of multimedia (e.g. audio recordings, video recordings) for the purposes of my participation in this study. I understand that my data will remain anonymous and confidential, unless stated otherwise. I consent voluntarily to be a participant in this study.

Participant's Print name:

Participant's Signature:

Date:

If the Participant is illiterate:

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had an opportunity to ask questions. I confirm that the aforementioned individual has given consent freely.

Witness's Print name:

Witness's Signature:

Date: