Analysis of CQ Airline under the COVID-19 epidemic Low-cost operation strategy

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Abstract

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In recent years, the cost of the airline industry has been rising due to the impact of the New Crown Pneumonia epidemic. The emergence of lean operation management has effectively improved the operational efficiency and risk prevention capability of airline.

China's low-cost airlines emerged late, and the maturity and perfection of low-cost competitive strategies are somewhat different from those of well-known international low-cost airlines due to the limitation of development time.

CQ Airlines has adopted a series of measures in the areas of low-cost strategy, business strategy, lean operation management and cost control, which have played a positive role in improving the company's competitiveness and financial performance. However, it is also facing the challenges of market competition and some difficulties in the implementation process. Therefore, CQ Airlines needs to continuously optimize and improve its strategies and measures in order to adapt to the changing market environment and improve the company's overall competitiveness.

The purpose of this research paper is to analyze CQ Airlines' low-cost operation strategy and its lean operation management, using CQ Airlines as an example, in an attempt to identify the reasons why CQ Airlines was able to maintain a stable financial balance under the New Crown epidemic and the contribution of CQ Airlines' lean operation management under the New Crown epidemic.

In this paper, literature research, case study and comparative analysis are used to study, and the relevant concepts and theories of airline and low cost management are introduced.

Taking CQ airline which adopts low cost management as an example, this paper analyzes its operation strategy and its operation effectiveness in detail. Analyze the business data and financial data of the company, make comparative analysis of the company's performance during the COVID-19 epidemic, point out the existing problems of the company and put forward suggestions. The article extracts the profound insight from the experience of CQ airline and provides reference for the development of enterprises in the industry.

Keywords

Lean operation management; Low-cost management ; airline

Contents

1. Introduction.....5
1.1 Research Background.....5
1.2 Research question.....5
1.3 Purpose of the study.....5
1.4 Methods.....6
2. Theoretical framework.....7
2.1 Low-cost strategy.....7
2.2 Operational strategy.....8
2.3 Lean operations management.....9
2.4 Cost control.....10
3. Analysis of low-cost strategy of CQ Airline.....12
3.1 CQ Airlines External Environment Analysis.....12
3.2 CQ Airlines Internal Environment Analysis.....14
4. Analysis of CQ Airlines' operation strategy.....17
4.1 CQ Airlines Positioning.....17
4.2 Segment Selection.....17
5. Lean Management Analysis of CQ Airlines.....21
5.1 Introduction to Lean Management Principles.....21
5.2 Application of Lean Management in CQ Airline Operations.....21
5.3 Contributions and challenges of implementing lean management in CQ aviation.....22
6. Cost control strategy of CQ Airlines.....25
6.1 Strictly control aircraft operation cost.....25
6.2 Strict control of human resources costs.....26
6.3 Strict control of selling expenses and administrative expenses.....27
6.4 Results.....28
7.Discussion.....32
8. Reference.....33

1 Introduction

1.1 Research Background

In recent years, the global airline industry has been hit by the New Crown Pneumonia outbreak and airlines are facing serious challenges. CQ Airlines, as a low-cost airline in China, plays an important role in this highly competitive industry. However, despite the global success of low-cost airlines, China's low-cost airline market share is relatively small, and CQ Airlines needs to face problems such as lagging development, capacity and operational strategy gaps. Therefore, it is important to conduct an in-depth study on CQ Airlines' low-cost strategy, operation strategy and its lean operation management.

1.2 Research question

What are the reasons why CQ Airlines has been able to maintain a stable financial balance under the New Crown pandemic?

What is the contribution of CQ Airlines' lean operations management under the COVID-19 pandemic?

1.3 Purpose of the study

The purpose of this study is to analyze CQ Airlines' low-cost strategy, operational strategy, and lean operations management to examine the reasons why the company was able to maintain a stable financial balance under the New Crown pneumonia epidemic and to assess its contribution during the COVID-19 pandemic. Specifically, this study aims to analyze the characteristics and implementation of CQ Airlines' low-cost strategy, explore the effectiveness of its operational strategy in reducing costs and improving efficiency, and analyze CQ Airlines' lean operational management measures in the face of the challenges posed by the New Crown pneumonia epidemic. By examining the case of CQ Airlines in depth, this study aims to provide insights into the development of the low-cost airline market in China and to offer lessons and experiences for other low-cost airlines. Through these analyses and research findings, we can provide substantive recommendations and guidance for the sustainable development and competitiveness of low-cost airlines in China.

1.4 Methods

Literature research method:

The literature research method is a method of obtaining information and understanding research questions by collecting, organizing, and analyzing literature in the relevant field.

By reviewing academic journals, research reports, books, dissertations, and relevant electronic resources, the researcher can access existing theories, concepts, research findings, and expertise.

The purpose of the literature research method is to systematically collect and evaluate existing literature to gain a comprehensive understanding of the research problem and to provide a theoretical foundation and background for the study.

Case study method:

The case study method is a method of obtaining detailed information, identifying problems, and providing solutions by studying a specific case in depth.

In a case study, the researcher selects a specific actual case for study, conducts a detailed investigation of the case, and collects and analyzes relevant data and information.

The purpose of the case study method is to understand the problems, challenges and success factors in the case and extract valuable lessons and experiences from them to provide guidance and recommendations for practice.

2 Theoretical framework

2.1 Low-cost strategy

Low-cost strategy is a management and operational strategy for companies to pursue cost advantages in a competitive market environment. Its core objective is to achieve a competitive advantage in the pricing of products or services by reducing costs, increasing efficiency and optimizing resource allocation.This section will introduce the concept of a low-cost strategy and cite several pieces of literature to support its theory and practice."

According to Yang (2015), the core of low-cost strategy is to provide a competitive price advantage by reducing a firm's production and operating costs. This strategy is particularly important in the current fierce market competition. And in the airline industry, the implementation of low-cost strategy is important to improve the market share and profitability of airlines.

According to Zhang Fei and Wu Hang (2016), CQ Airlines, as a representative of Chinese low-cost airlines, is worth learning from its successful implementation of low-cost strategy.CQ Airlines has taken a series of measures in cost control, including optimizing aircraft selection, reducing fuel costs, and improving the labor productivity of crew members. At the same time, CQ Airlines has effectively controlled all costs through refined operational management and emphasis on efficiency improvement, which has enabled airline fares to be more competitive.

In the implementation of low-cost strategy, the study of Zou Zhihui and Wang Zhihong (2014) pointed out that human resource management is a key aspect. Airlines need to develop a reasonable human resource strategy based on business needs, including measures in recruitment, training and performance management. In addition, reasonable cost allocation and resource allocation are also key to implementing a low-cost strategy to ensure the optimal use of resources.

Low-cost strategy positively affects the market position and competitiveness of airlines. A study by Yanfen Luo (2018) points out that the entry of low-cost airlines has had a large impact on traditional airlines and has driven competition in the airline market. By offering more competitive fares and services, low-cost airlines attract more consumers, which in turn increases their market share. At the same time, the implementation of low-cost strategy can also promote the transformation and upgrading of the whole airline industry, and promote the development and innovation of the industry.

To sum up, low-cost strategy is of great significance to airlines. As a representative of Chinese low-cost airlines, CQ Airlines' successful implementation of low-cost strategy has provided inspiration for other airlines. However, the implementation of low-cost strategy also faces some challenges, such as fierce market competition, cost pressure and operational efficiency, which require airlines to develop scientific strategies and countermeasures.

2.2 Operational strategy

Operational strategy is a company's decision and action plan to achieve long-term competitive advantage and meet organizational goals. It serves as the goal of low-cost strategy to achieve cost minimization through operations management. In this paper, we will further discuss the importance of operational strategy in low-cost airlines in the context of the abstract and cite several pieces of literature to support its theory and practice.

In the abstract, we have mentioned the critical role of operational strategy in low-cost airlines to help companies gain an edge in a competitive market and achieve financial balance. The following section will further expand the understanding of operational strategy by using several literature.

By describing the current situation and analyzing the development environment of low-cost airlines in China, Ji, Guang, et al. (2017) argue that there are both "dangers and opportunities" in the development environment of low-cost airlines, and how to reduce the dangers or turn them into opportunities, they argue that they need to pay attention to the guidance of passengers and strengthen the management of passengers' expectations in the low-cost airline model, and more importantly, they feel that to promote the development of low-cost airlines requires the cooperation of airlines to work together. More importantly, they feel that to promote the development of low-cost airlines, airlines need to work together to "share the cake".

Zhou, Jinfeng, Shi, Meikang et al. (2014)) found the characteristics of the low-cost operation models of two major airlines, CQ Airlines and Western Airlines, and then analyzed the future development prospects of low-cost airlines from the perspectives of the civil aviation power strategy, urbanization strategy, government enthusiasm, and performance in response to the economic crisis. It is believed that low-cost operation has become a unique model for the development of the world aviation industry, and has an important influence on the development direction of the whole industry.

David.G et al. (2013) analyzed the low-cost operation model of Southwest Airlines in the United States and concluded that the main reason for its competitive advantage is operational efficiency, and specifically pointed out that the success of the low-cost operation model is mainly due to the single, short-haul route network.

2.3 Lean operations management

In a low-cost strategy, an airline's operational strategy usually focuses on reducing costs, improving efficiency, and optimizing resource utilization. A refined operations management approach is used to optimize operational processes and resource allocation to achieve more efficient operations are. This paper will discuss lean operations management in the context of the abstract.

The application of lean operations management in low-cost airlines is the key to improving operational efficiency, reducing costs and providing high-quality service. Several Chinese literature provide research and practical experience on this topic, and further discussion of the application of lean operations management in the context of these literature is presented below.

In a study by Zhang Xiaoyong, Chen Junhong, and Lin Yaoguang (2015) in Management Informatization in China, it is noted that in airlines, lean operations management can reduce waste and cost by optimizing processes in various segments. They proposed a lean operations management framework for airlines, which includes key aspects such as value stream analysis, process improvement, and quality management. The implementation of this framework can enable airlines to achieve full optimization from production to delivery, improve operational efficiency and reduce costs.

A study by Li, Zhi, and Zhao, Zhenxing (2017) found that airline implementation of lean operations management can significantly improve operational effectiveness. They evaluated the practices of an airline and found that the airline's operational efficiency was significantly improved through lean operations management improvement measures. They suggest some key lessons for implementing lean operations management, such as ensuring managerial support and involvement, and training employees to master lean tools and methods.

The study by Qi Li, Yi Yang, and Fang Feng (2019) evaluated lean operations management in airlines from the perspective of efficiency. They proposed an efficiency evaluation model based on the concept of lean operations and evaluated the effectiveness of lean operations management by analyzing the airline's operational data. The results of the study showed that the implementation of lean operation management can significantly improve the operational efficiency and overall effectiveness of airlines.

Zhao Juan (2020) conducted a case study on the application of lean operations in airlines in the Modern Economic Situation and Development Study. She summarizes some key lessons for implementing lean operations by analyzing successful airline cases. These include an emphasis on employee engagement and innovation, continuous improvement and learning, refinement of management and supply chain optimization. These lessons have implications for the practices of other low-cost airlines.

Taken together, the findings of this literature suggest that the application of lean operations management in low-cost airlines can help improve operational efficiency, reduce costs, and provide high-quality service. Implementing lean operations management requires the support and involvement of airline executives, training of employees to master lean tools and methods, and continuous improvement and learning. Successful implementation of lean operations management also requires a focus on employee engagement and innovation, refinement of management and supply chain optimization. These experiences and practices are important references for other low-cost airlines in their operational strategies and management decisions.

2.4 Cost control

Cost control is one of the key elements of a low-cost strategy to achieve strategic goals by controlling and reducing costs.

According to the Chinese literature, airlines can implement effective cost control through various means.

In terms of human resource management, airlines can achieve cost control by reducing employee costs. A study states that airlines can reduce employee costs by optimizing the work arrangement of employees, rationalizing work tasks, and improving employee performance (Li, Min, 2018). In addition, training and developing employees' skills to improve their overall quality and efficiency is one of the key factors to reduce human resource costs (Wu, P., 2020).

Another important cost control area is fuel cost. Fuel is a major cost item in airline operations. In order to reduce fuel costs, airlines can take various measures. For example, the Chinese literature mentions the importance of fuel procurement contracts, and airlines can obtain more competitive prices and favorable terms by signing long-term contracts with fuel suppliers (Song, Na, 2017). In addition, airlines can reduce fuel consumption and costs by researching and adopting advanced fuel-saving technologies and equipment, such as energy-efficient engines and lightweight materials (Peng, 2019).

Supply chain management is also one of the important aspects of cost control. Chinese literature states that airlines can reduce procurement costs and logistics costs by optimizing supply chain processes and management practices. Establishing good cooperative relationships with suppliers, rationalizing procurement planning and inventory management, and improving logistics efficiency are all effective ways to reduce costs (Huang, Hai, 2020).

In summary, airlines can reduce operating costs and improve competitiveness through effective cost control measures. Human resource management, fuel cost control and supply chain management are all important areas, which include optimizing employee costs, researching fuel saving techniques and equipment, and establishing stable supply chain partnerships. The above Chinese literature provides in-depth research and practical experience on cost control strategies, which provides useful guidance and reference for airlines to develop and implement cost control strategies.

3 Analysis of low-cost strategy of CQ Airline

3.1 CQ Airlines External Environment Analysis

CQ Aviation PEST Analysis

The survival and development of a company are subject to changes in the external environment; changes in policy, economic increases or decreases, consumer updates, and technological enhancements can all have an impact on the operations of the company. Therefore, while analyzing the internal business activities of CQ Airlines, it is necessary to analyze the industry in which it operates. (Chi-Yu Chang, 2021)

- Political environment

The airline industry is a field that is sensitive to the political environment, and government policies provide the foundation and supporting force for the development of low-cost airlines. The earliest proposal to liberalize the competitive environment in the civil aviation industry was made at the 16th National Congress of China held in 2003, where the report clearly stated the need to break the monopolies in the telecommunications, civil aviation and railroad industries. Since then, the Civil Aviation Administration (CAA) has also relaxed its policy to allow private capital to invest in the establishment of airlines, and it has issued the Civil Aviation Domestic Air Transport Price Reform Program, which allows air transport enterprises to set their own air ticket prices on a conditional and restricted basis. In 2011, the 12th Five-Year Plan for the Development of Civil Aviation in China advocated the implementation of a popular strategy to provide differentiated and multi-level services, and led low-cost companies to enter major trunk markets by providing support in terms of routes and flights, providing opportunities for the development of low-cost airlines.

The CAAC has also introduced a pricing policy that removes the restrictions on the range of downward fluctuations in passenger fares. The relaxation of the fare policy has improved the economic pressure on consumers caused by high fares, and low fares have been widely noticed by the public, which has largely contributed to the development of low-cost airlines. The Civil Aviation Administration of China (CAAC) also issued the "Guidance on Promoting the Development of Low-cost Airlines", which mentions lowering the threshold for setting up low-cost airlines, simplifying the approval procedures, creating a relaxed route access environment, improving the flight time allocation policy, and allowing low-cost airlines to simplify their services as appropriate. The guiding opinions put forward more targeted policy measures, which greatly encouraged low-cost airlines with more resource constraints and guided the operation of domestic low-cost airlines.

- Economic Environment

The economic environment of a country or region is crucial to the development of all industries, and this is also true for the civil aviation industry. The economic situation is closely related to people's lives and largely influences their consumer attitudes and lifestyles, which are closely related to low-cost aviation. China's economy is growing rapidly, with an annual growth rate of 7.5%, and the steady growth of the economy has a positive effect on the development of low-cost aviation. According to data provided by the National Bureau of Statistics, the development of the civil aviation industry is positively correlated with economic conditions. The rapid development of China's economy and the continued high GDP have been accompanied by a consistent trend of growth in civil aviation passenger traffic and civil aviation passenger turnover, which has provided market demand and development opportunities for the development of the civil aviation industry.

- Social environment

In recent years China's social and cultural environment has changed tremendously, social stability people's living standards have improved significantly, the cultural environment, values, education, lifestyle, income level and other cultural factors, people's needs for its products and purchase behavior also occurred differences, will have an impact on the development of the transport industry in the navigation. The improvement of people's living standards has led to a giant change in the concept of consumer values, the acceleration of urbanization in China has led to a large influx of rural population into the cities, and a surge in the number of floating population, which is no longer limited to meeting the basic food and clothing problems, but instead values leisure, tourism, vacation and other lifestyles; Golden Week and CQ Festival holiday tickets are difficult to find as an important reason for the increase in demand for safe, convenient and fast air transport, business The number of business travelers also continues to grow, and these factors are all very important to the general public who are very price-sensitive, bringing a huge potential for the low-cost airline model to the market will be more favored.

- Technology Environment

The civil aviation industry is highly dependent on technology and is technology intensive. Low-cost airlines are not involved in aircraft equipment equipment manufacturing, but aircraft handling and maintenance, cabin interior design, flight departure and aircraft landing, safety assurance.The training of professionals, etc., is closely related to technology. The continuous progress of science and innovation of technology can improve.

The continuous improvement of science and technology can improve the flight speed and safety of aircraft, and also reduce the maintenance rate and fuel consumption.

The cost control is crucial for low-cost airlines to maintain their competitive edge.

Cost control is crucial for low-cost airlines and is the root of their competitive advantage.

The original technology upgrade and transformation as well as the introduction of foreign high-tech, civil aviation systems for flight security capacity greatly improved, such as: new navigation technology RNP, so that the flight safety level of each airport to improve; third-party payment as a representative of e-commerce technology, the traditional ticket sales model has been changed, self-check-in as a representative of the convenience of multi-media three-dimensional service, reduce operating costs It also improves the efficiency of passenger check-in procedures and saves valuable time.

3.2 CQ Airlines Internal Environment Analysis

CQ Airlines SWOT Analysis

- Advantages

CQ Airlines has a clear market positioning. Before the establishment of CQ Airlines, most of the airlines in China had a relatively vague market positioning and lacked a clear competitive strategy, but CQ Airlines was established with the business philosophy of "making airplanes affordable for all" and targeted its market at the low-end customers. As the first low-cost airline in China, CQ Airlines is facing a market environment with great potential for development in a blank industry background.

At this stage, there are ten low-cost airlines in China, but consumers know little about them. In the civil aviation industry, the influence of airlines' reputation and brand recognition on consumer behavior is subtle. The low fares have become a representative symbol of its corporate image, with "$99 tickets" and "$1 tickets" becoming the talk of the town after dinner. The rich experience in operating low-cost airlines has also boosted the goodwill of the company, which is very beneficial for CQ Airlines to maintain and expand its market share.

CQ Airlines has its own travel agency, and the booming tourism industry will drive the development of CQ Airlines, especially in recent years, international travel is very popular and the number of trips has increased year after year, which provides CQ Airlines with a rich and stable source of customers.

CQ Airlines is headquartered in Shanghai, which is well-developed in industry and commerce and is the economic, financial and shipping center of China, and has a unique geographical advantage. The annual passenger throughput of Shanghai Hongqiao Airport and Shanghai Pudong Airport are both at the upper level of the industry, and the favorable airport environment provides CQ Airlines with a favorable business environment.

CQ Airlines has formed a unique low-cost culture. The low-cost strategy is not only a strategic goal of the company, but it has become the working philosophy of every employee, which will influence the consciousness and motivation of the employees, which cannot be replicated by other low-cost airlines.

- Disadvantages

The Civil Aviation Administration has a relatively strict policy on private aviation. Although the country has introduced a series of policy measures to encourage the development of low-cost airlines in recent years, most of the resources are still occupied by full-service airlines led by the three major airlines. For example, most of the popular routes are already occupied, and private airlines have limited rights to fight for the routes; in addition to the difficulties in route development, there is also a large gap between private airline financing and state-owned airlines.

The proportion of uncontrollable costs is too high. Once the international oil price goes up, CQ airlines will face more difficulties and pressure to insist on low fare operation.

- Opportunity

The liberalization of civil aviation policy provides a platform for low-cost airlines to develop and compete. At present, the market share of low-cost airlines in China is only 7%, and most low-cost airlines are in the exploration stage. The huge development space provides greater possibilities for CQ Airlines to stabilize its leading position in the industry. Secondly, the civil aviation market is not fully liberalized at this stage, and although foreign airlines can enter some routes into China's market, there are still certain restrictions in the mechanism.

- Threat

As more and more low-cost carriers enter the market, the price competition situation will become more and more intense. Not only that, some traditional full-service airlines have also developed low-cost routes and participated in the price war. With price orientation, the more choices consumers have, the higher the likelihood that CQ airlines will lose customers.

The civil aviation industry is a very sensitive industry to the political and current affairs environment. Once policy is relatively tight, low-cost airline operations will be affected. With the repeated occurrence of aircraft losses in the past two years, the public is more concerned than ever about aircraft safety. In terms of safety, low-cost airlines such as CQ Airlines give passengers a less favorable impression than state-owned airlines, which also poses a threat to CQ Airlines' growth.

4. Analysis of CQ Airlines' operation strategy

4.1 CQ Airlines Positioning

CQ Airlines has positioned itself as a low-cost business model, attracting a large number of customers in the market segment consisting of price-sensitive self-pay passengers and business traveller seeking high cost-efficiency by virtue of its price advantage. By the end of 2019, the company had operated 183 domestic and international routes to more than 90 domestic and international cities, and its fleet size had exceeded 100 aircraft, making it the largest private airline in China in terms of passengers carried and passenger turnover, and officially entering the development era of a medium-sized carrier.

4.2 Segment Selection

4.2.1 Major airline markets and route networks

- Based in Shanghai

CQ Airlines is headquartered in Shanghai, and most of the company's transport passenger aircraft make overnight stops at two airports in Shanghai, which is strategically located, has a more developed economy and frequent high-end business and trade traffic, laying the foundation for the development of the air transportation industry.

In addition, Shanghai attaches great importance to urban transportation construction, especially the construction of aviation hubs, providing a lot of policy support for local airlines operating in Shanghai. According to Shanghai airport statistics, the combined passenger throughput of Shanghai Pudong Airport and Hongqiao Airport reached 117 million passengers in 2019, surpassing the throughput of Beijing Capital Airport. CQ Airlines has 32 aircraft stationed at the two Shanghai airports, which are the core base of the company's operations.

- Explores the market of second-tier cities

The company is able to occupy a certain market share in Shanghai hub thanks to its incorporation in Shanghai, but it is more difficult to obtain more incremental moments in Shanghai because China Eastern Airlines occupies the dominant market in Shanghai, and the same situation is faced in Beijing, Guangzhou, Shenzhen and other aviation markets, so the company has sunk its development center to second- and third-tier cities.

In 2018, the company launched 11 overnight aircraft at Shijiazhuang International Airport, occupying a large market share, and in the same year established the first local branch of CQ Airlines in China, CQ Airlines Hebei Branch. In the same year, the company established its first domestic branch, CQ Airlines Hebei, which became an important hub for the company's development in northern China. While consolidating and developing the company's foundation in the North China market, CQ Airlines also actively responds to the national "One Belt, One Road" initiative, actively explores the airline market in the second-tier cities in Northeast, Northwest, East and South China, which are more economically developed, actively allocates capacity, establishes operating bases, strives for time, and enriches the company's domestic and short-haul international routes. The company will also actively invest in capacity, set up operation bases, and strive for time to enrich domestic and short-haul international routes.

- Layout of regional airline market

The combination of mainline and regional routes is the main feature of low-cost airlines, and CQ Airlines will also fly to some fourth and fifth tier cities such as Ordos, Xilinhot, Hailar, Chengde, Yancheng and other smaller cities when arranging routes. This has become one of the sources of income for low-cost airlines, and in some regions, the route subsidy income is much higher than the operating costs of airlines, which is very attractive to airlines, including Erdos city government can provide hundreds of millions of yuan of route subsidies for airlines based in the local area.

- Forms route network

The company has formed a hub in East China with Shanghai base as the core to serve the construction of the Yangtze River Delta regional economic integration, supported by Yangzhou and Ningbo, a hub in North China with Shijiazhuang airport as the core to serve the construction of Beijing-Tianjin-Hebei integration and Xiongan New Area, and a hub in Northeast China with Shenyang airport as the core to serve the strategy of "revitalizing Northeast China". In 2019, the company established the Lanzhou base as the main force to develop the northwest market, creating a route network that radiates to all major cities in China. In terms of international routes, CQ Airlines focuses on the Southeast Asian market, with Osaka, Japan, Jeju, Korea, and Bangkok, Thailand as the main overnight terminals outside of China, strengthening and optimizing short-haul international routes to serve the construction of "One Belt, One Road" and other important national strategies.

positioning	Airport	2018 throughput (10,000)	Spring and Autumn period	Air China Department	China Southern Airlines Department	China Eastern Airlines
Core	Pudong, Shanghai	7401	7.1%	7.9%	10.7%	38.6%
	Hongqiao, Shanghai	4363	9.3%	10.4%	12.9%	513%
Zone support	Shenzhen	4935	2.8%	36.2%	29.1%	7.8%
	Shenyang	1903	5.4%	21.2%	33.7%	9.0%
	Shijiazhuang	1149	20.1%	8.2%	6.5%	1.3%
	Ningbo	1172	10.9%	1150%	18.0%	20.6%
Strategic base	Jieyang Chaoshan	649	6.4%	6.40%	36.0%	25.9%
	Yangzhou	238	34.9%	47.40%	7.3%	0

The major market shares are shown in Table 4.1(From CQ Aviation Annual Report 2019)

4.2.2 Selection of customer groups

Based on the company's low-cost and differentiated development strategy and the main markets where the company's capacity is deployed, CQ Airlines classifies its main customer groups into four categories, which are price-sensitive business travelers, young consumers who like to travel, casual travelers, and people who admire convenient travel.

- Price-sensitive business travelers

This category of passengers refers to business travelers who are more concerned about the price of airline tickets. CQ Airlines has placed most of its aircraft in second-tier cities, in addition to the 32 aircraft placed in Shanghai, which are generally less effective than first-tier cities, so most companies usually limit the price of travel by air when formulating travel reimbursement plans, providing a more stable source of passengers for low-cost airlines. This provides a more stable source of customers for low-cost airlines.

- Young consumers who like to travel

This group is mainly students and new graduates, who are open-minded and like to travel, but because of their limited income and financial strength, they are very price sensitive and are attracted to the low airfares of low-cost airlines.

- Travelers

With the continuous growth of per capita disposable income and the demand of consumption upgrade, the proportion of tourism consumption in the consumption of residents is gradually increasing, and air transport, as one of the important modes of transportation, is also changing its role, and under the promotion of "Internet + tourism", airlines have changed from the original role of merely providing travel agencies with With the promotion of "Internet+Tourism", airlines have changed their role from just providing resources to travel agencies to becoming active participants in the tourism industry. CQ Airlines, relying on the strong resources of its parent company CQ Travel, has launched a series of product services such as "air ticket + hotel" and "air ticket + pick-up" to provide one-stop and integrated travel services for the majority of travel consumers.

- People who admire convenient travel

Most domestic routes have a voyage time between 1 and 3 hours, so many people consider more indicators such as travel safety, punctuality and normal execution rate when choosing air travel, and they prefer to arrive at their destinations safely and punctually, without taking high-quality service as their main consideration. The needs of this group of people coincide with CQ Air's development strategy and is one of the company's main service groups.

5. Lean Management Analysis of CQ Airlines

5.1 Introduction to Lean Management Principles

Lean management is a management philosophy and approach that aims to achieve operational lean and continuous improvement by eliminating waste and improving efficiency and quality. Its core principles include value stream analysis, process optimization, continuous improvement, and employee engagement. By analyzing the value stream, unnecessary links and waste are identified to optimize processes and improve the efficiency of value creation. Lean management encourages continuous improvement and the pursuit of higher efficiency and quality through team participation and employee innovation.

5.2 Application of Lean Management in CQ Airline Operations

The application of lean management in CQ Airline operations plays an important role. By applying the principles and methods of lean management, CQ Airlines is able to achieve operational efficiency, cost reduction and customer value increase. The following is a detailed description of the application of Lean in CQ Airlines' operations.

CQ Aviation has applied the principles of Lean Management to its production processes. CQ Aviation has reduced waste and unnecessary links in the production process and improved productivity through refined analysis and optimization of production processes. They used tools such as value stream mapping and process analysis to gain insight into the value creation and waste in each step, which in turn led to increased production efficiency through precise resource allocation and process improvement. For example, they have optimized flight takeoff and landing times, baggage loading and unloading processes, and boarding services to reduce wait times and unnecessary movements, resulting in significantly shorter aircraft dwell times and more efficient operations.

CQ Airlines focuses on employee participation and continuous improvement. CQ Airlines stimulates employee motivation and creativity by establishing a mechanism for employee participation and improvement. They encourage employees to make suggestions for improvement, participate in team discussions and decision-making, and view employees as an important resource for improvement. In addition, CQ Aviation enhances the skills and knowledge of its employees through training and learning opportunities to equip them to address operational challenges and improvements. This culture of employee engagement and continuous improvement has enabled CQ Aviation to respond quickly to market needs, improve operational processes, and continually enhance service quality and customer satisfaction..

CQ Aviation also applies lean management principles in its supply chain management. CQ Aviation has established close partnerships with suppliers to improve supply chain efficiency and reliability by sharing information, resources and technology. They communicate and collaborate regularly with suppliers to jointly develop supply plans, optimize logistics and inventory management to meet the needs of airline operations. CQ Aviation also ensures supplier stability and quality control through supplier evaluation and performance management to reduce procurement costs.

CQ Aviation applies a lean management mindset and data-driven decision making. CQ Aviation places emphasis on data collection and analysis, and makes extensive use of data analysis tools in operational decision making. They collect and analyze a large amount of operational data to understand operational performance, customer needs and market trends, so that they can develop more scientific and effective operational strategies and decisions. This enables CQ Airlines to respond to market changes, optimize resource allocation, and achieve sustained business growth in a timely manner.

CQ Aviation has effectively integrated lean management principles into its operations and achieved significant results. These applications have not only improved operational efficiency and quality and reduced costs, but have also strengthened CQ Aviation's competitiveness and market position, providing a solid foundation for continued growth.

5.3 Contributions and challenges of implementing lean management in CQ aviation

Contributions:

- Operational efficiency improvement

Lean management has improved CQ Aviation's operational efficiency by eliminating waste and optimizing processes. For example, optimizing flight scheduling and resource allocation, reducing downtime and waiting time, and improving aircraft utilization and flight on-time performance. Through a lean management approach, CQ Airlines can achieve more efficient flight operations and provide a better service experience.

- Cost Reduction

One of the goals of lean management is to reduce costs. By reducing waste and increasing efficiency in resource utilization, CQ Aviation has reduced operational costs. For example, by optimizing supply chain management to reduce inventory and logistics costs; improving airport ground service processes to reduce labor costs; and improving fuel efficiency to reduce fuel

consumption costs. The cost reduction has improved CQ Airlines' competitiveness and profitability.

- Customer Satisfaction Improvement

Lean management focuses on providing value and satisfying customer needs. Through refined process management and continuous improvement, CQ Airlines has provided more efficient, reliable and convenient services to enhance customer satisfaction. For example, the boarding and baggage handling processes have been optimized to reduce queuing time; in-flight services have been improved to provide a personalized passenger experience; and customer relationship management has been enhanced to provide better after-sales service. Satisfied customers will increase loyalty and word-of-mouth promotion to CQ Airlines.

- Enhanced competitiveness

Implementing lean management has made CQ Airlines more agile and flexible, and better able to respond to market changes and competitive challenges. Through continuous improvement and innovation, CQ Airlines has provided differentiated products and services that enhance market competitiveness. At the same time, cost reduction and efficiency improvements have enabled CQ Airlines to compete on price and gain more market share

Challenges:

- Culture Shift

Implementing lean management requires a culture of total employee engagement and continuous improvement. CQ Aviation needed to foster lean awareness and continuous improvement habits among employees to drive a shift in organizational culture. However, culture shift is a complex process that requires overcoming employee resistance, building relationships of trust and cooperation, and ensuring employees have a clear understanding of the value and benefits of lean management.

- Management and Coordination Complexity

The airline industry's operations involve multiple segments and various suppliers, requiring complex management and coordination. When implementing lean management, CQ Aviation needs to ensure smooth processes and collaboration across all segments to avoid information breakdowns and wasted resources. Managing and coordinating complexity is a challenge and requires efficient communication and collaboration mechanisms.

- The challenge of continuous improvement

Lean management requires continuous improvement and the constant pursuit of excellence. CQ Aviation needs to establish a good improvement mechanism and monitoring system to continuously track key performance indicators and take appropriate improvement measures. Continuous improvement is a long-term process that requires sustained effort and commitment, challenging both the organization and its employees.

In summary, CQ Aviation's implementation of lean management can lead to improved operational efficiency, cost reductions, customer satisfaction and increased competitiveness. However, there are challenges of cultural shift, complexity management and continuous improvement to overcome to ensure effective implementation and sustainability of lean management.

6 Cost control strategy of CQ Airlines

6.1 Strictly control aircraft operation cost

CQ Airlines attaches great importance to the safe operation quality and operational efficiency of its fleet during the development process, and adheres to the low-cost operation

CQ Airline is closely integrated with the current situation of the domestic civil aviation market and makes the best use of the company's existing assets to achieve efficient production and operation. All aircraft are of a unified type and class, and the unified type means that CQ Airlines adopts all French Airbus A320 series aircraft and is equipped with Safran CFM-56 engines. This will reduce the cost of aircraft overhaul and reduce the difficulty of maintenance management and aircrew training.

Uniform class refers to the fact that as a low-cost airline, the company does not set up first class and business class on its aircraft, but only a single economy class, which saves the training costs of the company's front-line production personnel such as flight, cabin crew, ground service and safety personnel. Uniform class means that the company does not set up high-end class that provides high-end services, but only super economy class and economy class, which reduces the number of cabin crew establishment and saves service costs and in-flight meal and beverage costs.

By shortening the seat pitch and optimizing the cabin layout, the A320 aircraft operated by the Company has 20% more seats than the same model of other airlines. In recent years, the Company has introduced the A320 aircraft with the new cabin layout of Airbus, which has increased the number of cabin seats from 180 to 186 while maintaining the same seat pitch, further increasing the number of passengers carried per unit of flight.

In addition, the daily utilization rate of CQ Airlines' aircraft is maintained at a high level, which effectively shortens the parking time of the company's aircraft at the airport and maximizes the savings in parking and overnight expenses. For airports with high bridge usage fees, CQ Airlines usually chooses to park its aircraft at remote aircraft stands and transport passengers to boarding locations via ferry, effectively saving the company's bridge usage fees.

6.2 Strict control of human resources costs

CQ Airlines also adopts a highly flat human resource management model and strictly controls the man-to-aircraft ratio.

As of 2022, the company's man-to-aircraft ratio was 80:1, which is the lowest among domestic airlines, although there is still a gap compared with international excellent low-cost airlines such as Ryanair.

- Operation Command

The company has established an AOC operation control hall, which is responsible for the release of flights from all bases, including Shanghai.

Each base or branch has only one or two operation coordinators who are responsible for coordinating with the local and headquarters operation control centers, which effectively improves the efficiency of operation command and saves human resources costs.

- Production decision

Today's world has entered a new stage of development, where information technology capability is the productivity, big data is the means of production, Internet technology is a new production tool, and digitalization is a new production tool.

Digital transformation has become the biggest trend for airlines. With the continuous enrichment of route network and expansion of fleet size, it is far from enough to rely solely on human resources to control safety, marketing and operation data, etc. The full use of artificial intelligence and Internet technology can optimize the management of airlines and make the overall operation of the company more effective. With its strong IT R&D team, CQ Airlines has developed its own safety management system, revenue management system, flight deployment system, maintenance management system and ground control system to better monitor the company's safety operation quality, flight revenue status, route network layout and service quality, which not only saves a lot of human resources costs, but also enables more accurate and effective decision-making.

- Encourages some positions to be multi-person and multi-labor

In order to give full play to the value of the company's employees, CQ Airlines has implemented a one-person, multi-post, enhanced treatment policy in some service positions.

CQ Airlines is a low-cost airline with simple in-flight services, so it has established the position of safety officer and cabin crew, which is generally held by men, effectively optimizing the structure of aircrew and reducing the company's manning ratio. Although this makes CQ Airline's staff in the same position work harder than other airlines, the company has adopted the incentive policy of "more work, more pay" and highly correlated the workload with performance, which greatly stimulates the motivation of the company's staff and effectively saves human resources costs.

6.3 Strict control of selling expenses and administrative expenses

In addition to the strict control of main business costs, CQ Airlines also focuses on reducing period costs, unlike traditional airlines.Unlike traditional airlines, CQ Airlines uses direct e-commerce sales as its main sales method. First, it conducts promotional air ticket sales activities in various markets in conjunction with different festivals to guide consumers to order tickets through the company's official website, and second, the company fully utilizes the characteristics of wide and fast dissemination of WeChat, Weibo and other online platforms to push out information about the company's various discount air ticket activities, which has achieved good sales results.

By increasing the proportion of the company's direct sales channels, it significantly reduced the company's agency fees for using third-party platforms. In addition, the emphasis on information technology research and development has enabled CQ Airlines to break Air China's monopoly on civil aviation information systems. The company has developed an information system that integrates sales, revenue statistics and check-in and check-out, which has saved a lot of sales costs.

As of 2022, the company's e-commerce direct sales ratio reached 90.8%, and the unit sales cost was $0.006, much lower than the industry average. In each domestic operating base, the Company is able to make full use of the services provided by the airport to ensure the operation of resident flights and reduce daily management costs. Through the introduction of advanced operating systems, the Company has realized the integration of financial management and aircraft check-in and check-out, which effectively reduces the number of the Company's management personnel while improving the efficiency of the entire Company's flight operation and the ability to deal with unexpected situations.

In addition, the company actively promotes online meetings and training, which effectively reduces the frequency of travel of the company's management staff and saves the company's travel costs and training costs.

6.4 Results

6.4.1 Seat Kilometer Cost

Seat kilometer cost is an important indicator used to measure the cost control ability of airlines. The seat kilometer cost of CQ Airlines in 2022 is RMB 0.3, which is significantly lower than the indicators of major domestic listed airlines, because China's oil industry is a highly monopolized industry by the state, so the price of jet fuel is set by the state, and in addition, the oil price is influenced by the international situation, so it is difficult for airlines to control the impact of jet fuel price on the company. Therefore, when comparing the seat kilometer cost of airlines and judging the cost control ability of an airline company, it is often necessary to deduct the cost of jet fuel, and the table below shows that the unit deduction of fuel cost of CQ Airlines in 2022 is still lower than the major domestic listed airlines. The specific data is shown in Table 6-1:

Airline company	Operating costs	Jet fuel costs	Impoundment cost
Spring Airlines	03	01	0.2
Air China	0.42	014	0.28
Eastern Airlines	0.42	0.14	0.29
Southern Airlines	0.41	014	0.28
Hainan Airlines	0.39	0.12	0.27
Juneyao Airlines	0.38	0.12	026

Table 6-1 Comparison of seat kilometer cost between CQ and major domestic airlines in 2022 (From Airline research reports)

In order to make the data more accurate and objective, and more representative, this paper also collects the average value of cost per seat kilometer of CQ Airlines and major domestic airlines from 2019-2022 for display, as shown in Table 6-2:

Airline company	Operating costs	Jet fuel costs	Impoundment cost
Spring Airlines	0.29	0.09	0.2
Air China	04	0.12	0.28
Eastern Airlines	0.41	O11	0.3
Southern Airlines	0.39	011	0.28
Hainan Airlines	04	0.12	0.28
Juneyao Airlines	0.39	0.12	0.27

Figure 6-2 Average Seat Kilometer Cost Comparison of CQ with Major Domestic Airlines, 2019-2022(From Airline research report)

The data in the table shows that the average cost of fuel deducted per seat kilometer has remained stable at $0.2/km over the past three years.This shows that the cost management advantage of low-cost airlines has been effectively highlighted.This effectively highlights the advantages of low-cost airlines in cost management, indicating the effectiveness of the company's low-cost strategy.

6.4.2 Profit index situation

In the first quarter of 2020, when the epidemic was most serious, the country implemented a strict home quarantine policy to control the spread of the epidemic, and airlines inevitably suffered losses. CQ Airlines has shown a more stable performance in the downturn with the least decrease in net profit compared to the same period last year.

	Spring Airlines	Air China	China Eastern Airlines	Southern Airlines	Hainan Airlines	Juneyao Airlines
Net profit	- 228 million	- 5.616 billion	- 4.91 billion	-6.01 billion	-6.62 billion	- 495 million
Year-over-year decline	147%	276.48%	296.06%	298 64%	638%	223%

Figure 6-3 Profit of each airline company from January to March 2020(From CQ Aviation 1Q 2020 statement)

In 2021, the epidemic in China was generally effectively controlled and the air transportation market gradually recovered, but the domestic epidemic still showed the characteristics of seasonal multi-point distribution, which had a negative impact on the recovery of the domestic air transportation industry. 2021, the Company adopted a more flexible aircraft deployment mechanism and deployed capacity from the outbreak cities to other bases in China in the first instance, effectively avoiding the waste of available capacity The quarterly reports of major airlines are shown in Figure 6-4 (in billions of dollars):

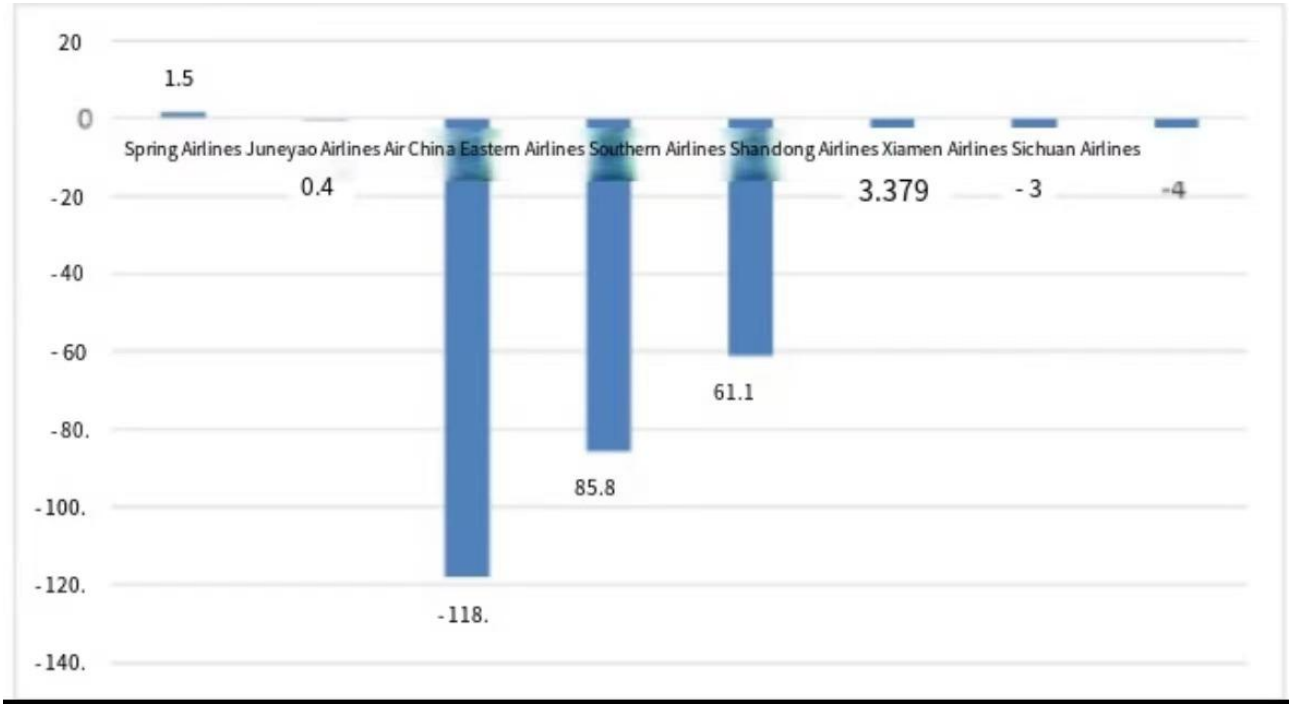

Figure 6-4 Net profit of major domestic airlines, January-September 2019(From Airline's 3Q FY 2021 report)

As shown in Figure 6-4, as of September 2021, CQ Airlines is the only domestic medium and large airline that has achieved profitability in a poor market environment, indicating the effectiveness of the company's low-cost operating model and its leading position in the industry.

7 Discussion

Data from the Civil Aviation Administration of China (CAAC) show that before the outbreak, China's civil aviation cargo traffic grew at a CAGR of 4.76% from 2015-2019. in 2020, China's civil aviation cargo traffic declines due to the outbreak, but from 2022 onwards, the outbreak is largely under control in China. By 2023, China's airline industry will return to pre-epidemic levels. To achieve sustainable and stable growth in the face of fierce competition, we must transform and upgrade our management model.

If we still rely on the old cost management model of the past, it is likely to be outdated. Cost refinement management is a scientific management method that has undergone long experience in many enterprises. Costs are controlled through refined, standardized and regulated management methods to further improve corporate profits.

The paper takes CQ Airlines as the object of study, analyzes the characteristics of its low-cost operation management, and analyzes the reasons why CQ airline has been able to sustain stable development in the face of the New Crown epidemic. In the refined cost operation strategy, various cost control methods, such as fuel cost management, aircraft operation efficiency improvement, and labor cost control, have reduced a large amount of costs for CQ Airlines.

Therefore, this paper concludes with recommendations to expand the scope of management by diversifying cost management strategies, controlling jet fuel costs, developing cost management strategies based on strategic positioning, and improving the utilization of cost information. The research in this paper helps to improve the cost control level of CQ airline and promote the healthy development of the company, and also provides a reference for other airline companies.

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