Impacts of organization agility on the airline performance outcomes

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Abstract. Organization Agility plays a vital role in the survival and sustainability of organization, particularly in the new normal period. Therefore, the objectives of this research are: 1. To identify level of external forces that influence organizational agility, and 2. To study the impact of leadership, workforces, technology capability, and creativity and innovation agility on airline performance. Data were collected via e-mail and in-person surveys from 250 randomly selected Thai airline employees and 250 passengers, and the response rate was 76.40% (382 responses); then interviewed, 13 experts were to confirm those quantitative results. Data analysis was a descriptive analysis using percentage, standard deviation, and mean. The data were then analyzed with a structural equation model (SEM). We found that external forces influencing organizational agility are economic pressures, competitors’ performance, and air travel health risks at significant impact. Leadership, Workforce, Technology capabilities, and Creativity & Innovation (CRIN) directly impact organizational agility. Innovation is perceived as the least important compared to Leadership, Workforces, and Technology capabilities, respectively. Keywords: Agility, Airline performance, External force, Impact.

1 Introduction

The coronavirus pandemic has had a devastating impact on the aviation industry. Inflation has risen while consumers have less purchasing power. Customers’ flying attitude has been affected. Zoom and other online meetings and conferences influence air transport (IATA, 2022). Effects from the pandemic, technology disruption, and competitors’ performance have changed the business environment. Business intelligence, augmented reality, the internet of things (IoT), and big data have played a crucial role in academics and industry (Kankaew et al., 2022). The market of air transport in Thailand is very competitive and dynamic. Various factors increase the pressure on competition within the industry. Some airlines may inevitably face challenges in running a business. Those challenges come from price wars, risks, and obstacles increasing (Ananta et al., 2022).

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Southeast Asia’s sky liberalization produced fierce competition between low-cost carriers (LCCs) and full-service carriers (FSCs) over the last decade. This rivalry had a revolutionary impact on airline performance (Chutipongdech, 2020).

However, the price war that increased affordability simultaneously reduced margins, with unstable fuel costs further elevating the industry's cost structure. With the pressure of such a business environment, airlines were already struggling to perform. The emergence of a COVID-19 induced recession has now debilitated the industry. (Suwannakul & Vongsaroj, 2019). Thailand’s strategic center has encouraged air transport activities in the nation, leading Thailand as an air transport hub facilitating trips within ASEAN. These factors increase the number of flights and passengers. Airports of Thailand (AOT) forecasted the number of travellers in 2023 about 96 million passengers and will reach 142 million passengers in 2024 the skies above Thailand.

It is bringing fiercer competition to the airline industry (Fronde, 2022). As business ambiguity, airlines have faced a severe cost challenge from rising fuel prices, higher labour wages, and the cost of infrastructure. Therefore, the airline needs to be agile to improve performance outcomes in the face of crisis (Cui & Yu, 2021; Al-Nawasrah & Alafi, 2021).

Hence, the research questions are as follows:

Question 1: What external forces drive agility in airlines' performance outcomes?

Question 2: What is the impact of organization agility on airline performance? And the research objectives are:

1) To identify the level of external forces that influence organizational agility.
2) To study the impact of leadership, workforces, technology capability, and creativity & innovation agility on airline performance.

2 Theoretical background and research hypotheses

2.1 External forces driving the airline adaptation

The impact of external force (Ex.Forc) driven, which comprises economic pressures, competitors’ performance, and air travel health risks on organizational agility (Mg.Agil). Agility refers to the practices undertaken by organizations to respond quickly and cost-effectively to highly unpredictable circumstances (Rameshwar, 2022).

The spread of COVID-19 transmission during air transport makes the airline improve the safety of passengers from infection. The problem is that the onboard space is limited. Airline passengers remain to have seat proximity to each other, and nowadays, they are not necessarily required to remain masked during the entire flight. Although Airlines try to encourage passengers to wear masks, passengers are allowed to remove the masks 1-2 hours during food and beverage consumption (Pombal et al., 2022).

The measure at the airports and on board include temperature testing and asking about symptoms (fever, loss of sense of smell, chills, cough, shortness of breath), enhanced cleaning, and disinfection. Contactless boarding/baggage processing, sanitization in airports, and physical distancing in airports and onboard can prevent infection for air travellers. Airlines have implemented measures to reduce transmission, including symptom screening; temperature screening; added cleaning and disinfection; increased use of technology as a touch less boarding pass, baggage pick-up processing, onboard physical distancing seat, and adjustment of food service patterns to reduce contact. So that the operations costs increase while the number of flights reduces. Airlines are struggling from the fall in passenger numbers due to household incomes coming under pressure from the economic slowdown and high inflation (Georgiadis, 2022).
Also, the competition is more severe. The use of digital technology has played a significant role in assisting airline situations. Hence, adopting technology and the workforce challenges the leaders’ vision to shape the organization's strategy to enhance agility, resilience, and performance (Rameshwar, 2022). Therefore, we propose the following hypothesis.

H1: External force has a positive effect on the organization's agility.

2.2 Workforce management in the airline industry

As the airline service is intangible the workforce management is essential, human touch is concerned with service-intensive nature. The cost of employees is a high ratio of airline costs besides fuel costs. Airline workforce capability is an integral part that affects organizational performance positively and negatively. The performance of employees makes the airline achieve its quality and productivity outcomes.

Moreover, workforce efforts, commitment, and attentive interaction with customers can lead to lower costs (Gittell, 2010; Worasuwannarak & Kankaew, 2022). The critical driver of airline performance is coordinating effectively among various departments, such as flight crew, cabin crew, maintenance personnel, ramp agents, and customer service agents (Belobaba et al., 2016).

The coordination, communication, and relation in the workforce themselves and between HR shape employees' attitudes positively or negatively. The communication-based approach to the workforce from the human resource department has a better effect on the company's performance than the control-based approach (Von Nordenflycht & Kochan, 2003).

Human resource management managers can apply the organizational culture concepts fit to recruit and select the potential candidates for the job position. If their beliefs, values, and behavior align with the organization's core values, there is a high possibility that the recruit will get an efficient workforce (Gonçalves et al., 2020).

The agile culture is a pattern of behaviours, attitudes, beliefs, and values that may achieve something, an agile workforce, such as employees rapidly responding to change, and the organization structure is dynamic. Company rules and regulations are simple to apply to act. These can have a powerful impact on the organization (Gonçalves et al., 2022; Kankaew, 2022; Edgar, 2004).

Therefore, we propose the following hypothesis.

H2: Workforce agility has a positive effect on the airline's performance

2.3 Effects of leadership agility on airline performance

Leadership behaviour is essential. Leaders' leadership is associated with performance outcomes in airlines; Leadership characteristics can help build high-quality relationships between airline leaders, employees, stakeholders, and partnerships. The airline's performance is higher if the employees perceive those leaders are caring and credible (Belobaba et al., 2016; Ushakov et al., 2021a).

A courageous leader can lead the organization through many difficulties, challenges, and uncertainties in ambiguous business environments (Phillips & Phillips, 2020). A leader works closely with HR and talent management departments to fill the leadership gap emerging in the organization to support business growth (Ellehuus, 2011).

It delivers all organizational performance outcomes by providing appropriate financial, staffing, and technology resources and creating a climate of continuous learning in the company (Longenecker & Insch, 2018).
Agile leaders have abilities to determine policy principles, develop strategies and emerging mechanisms that will lead to smooth and efficient operations, and transition to an agile organization that can make a coup in an uncertain business environment (Attar & Abdel-Kareem, 2020).

Transformational leaders boost the followers' aspirations for achievement and promote organizational development (Bass and Avolio, 1990). Hence, we propose the following hypothesis.

H3: Leadership agility has a positive effect on the airline's performance

2.4 Effects of technology capabilities on airline performance

The technology capabilities can capture the potential future markets in many industries. Companies can enhance their customer relationship management by adopting technology to transform their businesses to improve competitiveness levels. The use of technology in mediating business agility advocates the organization's competitive advantage (Qosasi et al., 2019; Ushakov, et al., 2020a).

Many airlines use technology in the operational process so that passengers can do some transactions by themselves mobile such as application checking-in, self-service kiosks, and various airline information obtained from the website. Technology benefits both passengers and airlines with time and costs savings. Moreover, this results in fast and correct customer interaction (Suwannakul, 2021; Chen & Wang, 2016).

Consequently, we propose the following hypothesis.

H4: Technology capabilities have a positive effect on the airline's performance

2.5 Creativity & innovation and service quality in airline industry

A high innovation capability organization that invests resources in innovation activities is likely to get more growth opportunities (Kang et al., 2017). Innovation is related to firm performance outcomes because it increases the outputs and brings greater financial returns. Airline innovation combines operations, working processes, products, services, marketing, and other activities. In high competition, some companies might cut costs by limiting technology development; hence, innovation efficiency is low, and it directly affects organization performance (Chen et al., 2017; Huang, 2022).

Therefore, we propose the following hypothesis.

H5: Creativity & innovation has a positive effect on the airline’s performance
Material and methodology

The researcher used a mixed research methodology combining quantitative and qualitative methods. Theories and notions about airline performance and management agility, i.e., leadership, workforce, technology capabilities, and creativity & innovation theories, were applied. Samples in this research are 382 air travellers and airline employees.

The authors conducted the research in the airline industry in Thailand and collected the data via a mail survey sent to 250 randomly selected airline employees and 250 passengers. We received 382 responses (76.40% response rate). We then conducted 13 interviews to help us answer the research question what is the impact of organization agility on airline performance? Data analysis was a descriptive analysis using percentage, standard deviation, and mean. The data were then analyzed with a structural equation model (SEM).

Data analysis and interpretation

The significance of all paths of the structural model was tested

Table 1. Covariance Matrix.

<table>
<thead>
<tr>
<th></th>
<th>CSFT</th>
<th>ORLN</th>
<th>ECON</th>
<th>PFCP</th>
<th>ATHR</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSFT</td>
<td>0.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORLN</td>
<td>0.12</td>
<td>0.36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCON</td>
<td>0.00</td>
<td>0.00</td>
<td>0.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PFCP</td>
<td>0.05</td>
<td>0.00</td>
<td>0.22</td>
<td>0.36</td>
<td></td>
</tr>
<tr>
<td>ATHR</td>
<td>0.03</td>
<td>0.09</td>
<td>0.20</td>
<td>0.15</td>
<td>0.37</td>
</tr>
</tbody>
</table>
5 Hypotheses testing and results

Table 2. Structural estimates.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Impact of</th>
<th>Impact on</th>
<th>β</th>
<th>p-value</th>
<th>Supported/not supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>Ex.Forc</td>
<td>Mg.Agil</td>
<td>0.35</td>
<td>≥0.05</td>
<td>Supported</td>
</tr>
<tr>
<td>H2</td>
<td>WKFC</td>
<td>Og.Perf</td>
<td>0.78</td>
<td>≥0.05</td>
<td>Supported</td>
</tr>
<tr>
<td>H3</td>
<td>LEAD</td>
<td>Og.Perf</td>
<td>0.97</td>
<td>≥0.05</td>
<td>Supported</td>
</tr>
<tr>
<td>H4</td>
<td>TECH</td>
<td>Og.Perf</td>
<td>0.63</td>
<td>≥0.05</td>
<td>Supported</td>
</tr>
<tr>
<td>H5</td>
<td>CRIN</td>
<td>Og.Perf</td>
<td>0.58</td>
<td>≥0.05</td>
<td>Supported</td>
</tr>
</tbody>
</table>

The authors developed five research hypotheses to examine the interrelationships of organization agility with its four major antecedents, i.e., workforce, leadership, technology, and creativity & innovation, on the airline performance. We tested our research hypotheses using SEM (LISREL 8.72). The path coefficients and p-values for the proposed model are reported in Table 2. According to this analysis, all t-values above 1.96 are significant at the 0.05 level (Hair et al., 2013). The final model is presented in Fig. 2 based on the hypothesis testing. Results showed that support for

H1 (Ex.Forc→Mg.Agil) (β = 0.35, p ≥ 0.05),
H2 (WKFC→Og.Perf) (β = 0.78, p ≥ 0.05),
H3 (LEAD→Og.Perf) (β = 0.97, p ≥ 0.05),
H4 (TECH→Og.Perf) (β = 0.63, p ≥ 0.05),

and H5 (CRIN→Og.Perf) (β = 0.58, p ≥ 0.05).

Fig. 2. Structural model analysis.

All the relationships between the variables are shown in Fig. 2 above.
Based on the diagram, the results can be interpreted as the relation and impacts of organization agility, workforces, leadership, technical capabilities, and creativities & innovation toward the airline performance outcomes are significant. All factors in the proposed model are significant as key statistical criteria are met. The highest statistically meaningful relationship (0.97) was found between leadership and airline performance. Therefore, H3 Leadership agility has a positive effect on the airline’s performance is retained.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer satisfaction (CSFT)</td>
<td>382</td>
<td>4.545</td>
<td>0.473</td>
<td>very significant</td>
</tr>
<tr>
<td>Image of organization (IMGE)</td>
<td>382</td>
<td>4.478</td>
<td>0.670</td>
<td>very significant</td>
</tr>
<tr>
<td>Organization performance outcomes (OG. PERF)</td>
<td>382</td>
<td>4.280</td>
<td>0.506</td>
<td>very significant</td>
</tr>
<tr>
<td>Revenue growth (RNGW)</td>
<td>382</td>
<td>4.258</td>
<td>0.707</td>
<td>very significant</td>
</tr>
<tr>
<td>Organization learning &amp; expertise (ORLN)</td>
<td>382</td>
<td>3.837</td>
<td>0.598</td>
<td>significant</td>
</tr>
</tbody>
</table>

Tab. 3 illustrates that the organization’s performance outcomes (OG.PERF) are significant, with a mean of 4.280 and a standard deviation of 0.506. The key indicators are 1) Customer satisfaction (CSFT) with a mean of 4.545 and a standard deviation of 0.473, 2) Image of the organization (IMGE) with a mean of 4.478 and a standard deviation of 0.670, 3) Revenue growth (RNGW) with mean of 4.258 and the standard deviation of 0.707, and 4) Organization learning & expertise (ORLN) with a mean of 3.837 and a standard deviation of 0.598.

Table 4. Means, standard deviations, and correlations of variable.

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>S.D.</th>
<th>Important level</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEAD</td>
<td>382</td>
<td>4.112</td>
<td>0.605</td>
<td>High</td>
</tr>
<tr>
<td>WKFC</td>
<td>382</td>
<td>4.009</td>
<td>0.471</td>
<td>High</td>
</tr>
<tr>
<td>TECH</td>
<td>382</td>
<td>3.835</td>
<td>0.698</td>
<td>High</td>
</tr>
<tr>
<td>CRIN</td>
<td>382</td>
<td>3.752</td>
<td>0.691</td>
<td>High</td>
</tr>
</tbody>
</table>

The agility in leadership (LEAD), workforce (WKFC), technology (TECH), and creativity & innovation (CRIN) is significant. Leadership agility is the highest important (4.112), following workforce agility (4.009), technology capabilities (3.835), and creativity & innovation (3.752).

6 Discussion and conclusion

This study aims to clarify the level of external forces (Ex.Force) that drive organizational agility. We found that economic pressures, the performance of competitors, and air travel health risks are the significant external forces that drive demand for airlines to agile the organization to ensure resilience in the face of global rivalry. We also examined the impact of organization agility (Mg. AGIL) on airline performance outcomes (Og.PERF). With a global recession and fierce airline competition, it is hard to predict possible future opportunities and threats. Airlines need to embrace and employ agility in the organization to overcome this situation.
Our study demonstrated that organizational agility directly impacts airline performance outcomes. The statistical analysis showed a crucial insight that Leadership agility (LEAD) is of the highest importance. Leaders decide to make organizations agile, and a leadership style promotes holistic agility in the organization (Attar & Abdul-Kareem, 2020).

Workforce agility (WKFC) is rated in second place of four sequences. Agile practices are associated with employees and benefit the organization. Implementation of agile workforce mechanisms, i.e., employee appraisal management, work allocation and rotation, and changes in processes of workflow impacted both individual attitudes and teams (Annosi et al., 2022).

The respondents rated Technology capabilities (TECH) as the third place of four sequences. Companies use IT as an increasingly important source of corporate competitive advantage. The proactive technology stance helps airlines predict external changes and improve services to meet the needs of passengers rapidly (Edward, 2022). Digital tools and technology contribute to organizational agility, especially the more they harmonize with organizational culture, the more they agile capabilities that drive performance (Gonçalves et al., 2022; Ushakov et al., 2021).

The findings also showed that Creativity & Innovation (CRIN) is perceived as the least important compared to leadership, workforces, and technology capabilities. Creativity & innovation is an integrated system that includes work process analysis, production, marketing, service, and other activities. Innovation has different impacts on companies that possess different technological capabilities. Some papers empirically investigate the relationships between innovation efficiency and firm performance and discover that the improvement of innovation efficiency needs appropriate resources. Under neck-and-neck competition circumstances, a price war is adopted, so innovation is unprofitable for the company (Cruz-Cazares et al., 2013; Chen & Guan, 2012; Huang, 2022).

Innovation can help airlines carefully decide on innovation strategies, especially in the current crisis. On the contrary, some scholars encourage innovation as a critical source of competition that helps companies escape destructive competition in price, advertising, and promotion advantage (Mendi & Costamagna, 2017; Ramos-Hidalgo et al., 2022; Ushakov et al., 2020).

Acknowledgments

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