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Resistance to Change, Self-Efficacy, and Organizational Agility in Civil Aviation

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Abstract

In the aviation industry, organizational agility is vital due to the sector's dynamic structure and strict safety requirements. This study investigates the effect of resistance to change on organizational agility, with self-efficacy examined as a mediating variable. The research sample comprises 435 civil aviation employees from various positions (operational staff, management, technical crew, etc.). Data were collected through validated measurement tools, including the "Resistance to Change Scale," "Organizational Agility Scale," and "Self-Efficacy Scale." Statistical analyses were conducted using SPSS 30.0 and AMOS 24.0. Confirmatory factor analyses confirmed the reliability and validity of the scales. Structural equation modeling (SEM) was applied to test the hypothesized relationships. The results revealed that resistance to change has a significant direct and indirect impact on organizational agility. Specifically, self-efficacy partially mediates the relationship between the cognitive, emotional, and behavioral dimensions of resistance to change and organizational agility. Bootstrap analysis confirmed the significance of four out of nine mediation pathways. The findings highlight that enhancing employees' self-efficacy can mitigate the negative effects of resistance to change and improve organizational agility. This has practical implications for HR professionals and aviation leaders aiming to foster agile, resilient organizations in high-risk environments.

1. Introduction

The civil aviation sector is a strategic industry shaped by dynamic factors such as high safety standards, strict regulations, and ever-evolving customer expectations. It requires constant innovation and adaptability to rapidly changing global conditions. In this context, organizational agility has emerged as a critical capability for companies aiming to respond quickly to change and gain a competitive advantage (ICAO, 2023).

Organizational agility is defined as an organization's ability to respond to internal and external environmental changes in a rapid, flexible, and effective manner (Doz & Kosonen, 2010). This capability is not only determined by corporate-level strategies but is also deeply influenced by individual and team-level behavioral factors. Among these, employees' resistance to change and their self-efficacy perceptions play crucial roles in either facilitating or hindering agile practices (Vakola, 2014; Bandura, 1997).

Employees' attitudes toward organizational change are significant in determining how well the change is accepted and internalized across the organization. Resistance to change can stem from employees' desire to maintain the status quo, fear of uncertainty, lack of information, or negative past experiences with organizational change (Oreg, 2006). In high-stress and highly regulated sectors such as civil aviation, disruptions to routines or the introduction of new systems can provoke anxiety and uncertainty among employees, thereby weakening organizational agility. Research indicates that employees with high resistance to change are less likely to embrace organizational reforms and adapt to new procedures (Erwin & Garman, 2010).

According to Bandura's (1986) Social Cognitive Theory, self-efficacy refers to an individual's belief in their ability to successfully perform a specific task. This belief strongly influences motivation, levels of resistance, and performance. Individuals with high self-efficacy tend to be more solution-oriented, resilient, and open to change. They are also more likely to exhibit agile behavior in the workplace (Luthans & Youssef, 2007). In high-risk sectors like civil aviation, employees' confidence in their own abilities plays a key role in ensuring effective responses in critical situations and contributing positively to organizational goals.

Organizational agility consists of three core elements: sensitivity, speed, and flexibility (Tallon & Pinsonneault, 2011). Sensitivity refers to the ability to detect environmental signals, speed is about responding quickly to these signals, and flexibility involves the ability to apply diverse solutions effectively. For these elements to function optimally, employees must be cognitively, emotionally, and behaviorally prepared for change. Therefore, the level of employees' self-efficacy and their resistance to change directly impact an organization's capacity to act agilely.

In the context of the civil aviation sector, organizational agility not only enhances operational efficiency but also has strategic implications for areas such as flight safety, passenger satisfaction, and compliance with international standards. The sudden crises that emerged during the COVID-19 pandemic, for example, clearly demonstrated the importance of agile organizational structures (IATA, 2022). As such, agility must be supported not only through top-down strategic initiatives but also through employees' individual attitudes and beliefs.

Purpose of the Study

The primary purpose of this study is to examine the relationships between resistance to change, self-efficacy, and organizational agility among employees working in the civil aviation sector. Specifically, this research aims to understand how these psychological and behavioral factors interact with one another and contribute to organizational adaptability and performance. The central research problem of this study lies in determining the extent to which employees' reactions to change and their confidence in their abilities influence the development of an agile organizational structure.

Within this framework, the study seeks to answer the following research questions:

What is the level of resistance to change among employees in the civil aviation sector?

How is self-efficacy related to organizational agility?

In what ways does resistance to change affect organizational agility?

How do these three variables interact and reflect on organizational performance?

This study aims to contribute not only to the theoretical understanding of the subject but also to provide practical, actionable insights for managers, HR professionals, and policy-makers in the aviation industry. It is widely recognized that organizations composed of change-ready, self-confident, and agile employees are more capable of managing crises and achieving sustainable success. Therefore, the findings of this research are expected to offer strategic guidance for enhancing workforce readiness and agility in the aviation sector.

2. Materials and Methods

2.1. Theoretical Background and Research Hypotheses

In this section, the conceptual framework of the study will be addressed. The variables will be explained with a focus on the aviation industry context.

2.1.1. Resistance to Change

The change process is an inevitable reality that individuals and organizations constantly face. However, employees' attitudes towards change are an important factor that directly affects the success of change. Resistance is defined as employees' desire to maintain the current situation and their opposition behaviors stemming from uncertainty or concerns related to change (Oreg, 2006). In sectors that require high risk and security, such as civil aviation, changes in routines and procedures can cause anxiety and uneasiness among employees, which can negatively affect organizational agility (Erwin & Garman, 2010).

The source of resistance can be based on uncertainty, perception of loss of control, lack of information, and past experiences (Vakola, 2014). Therefore, understanding the attitudes of employees who resist change is critical for the effectiveness of change management processes. Resistance can be shaped not only at the individual level, but also by group dynamics and organizational culture (Ford, Ford & D'Amelio, 2008).

2.1.2. Self-Efficacy

The concept of self-efficacy, introduced by Bandura (1977), is defined as an individual's belief in their ability to accomplish a specific task. Individuals with a high sense of self-efficacy are more resilient in the face of challenges, remain motivated, and adapt to new situations more quickly (Bandura, 1997). The confidence of employees working in the civil aviation sector in their own skills and competencies both increases individual performance and plays a positive role in the adaptation process to change (Luthans & Youssef, 2007). Self-efficacy directly contributes to organizational agility by increasing employees' capacity to cope with stress, solve problems, and exhibit innovative behaviors (Stajkovic & Luthans, 1998). In addition, it is stated that individual beliefs trigger the development of agile behaviors at the group and organizational level (Snyder & Lopez, 2007).

2.1.3. Organizational Agility

Organizational agility is defined as the ability of organizations to quickly adapt to changing internal and external conditions (Doz & Kosonen, 2010). This ability is not only about structural flexibility, but is also closely related to the speed of decision-making processes, employee motivation, information flow and innovation capacity (Tallon & Pinsonneault, 2011). In the civil aviation sector, organizational agility is of vital importance to increase operational efficiency, flight safety and customer satisfaction. High agility enables rapid and effective intervention in crisis situations; thus minimizing the impact of disruptions that may occur in the sector (IATA, 2022). Environmental sensitivity, speed and flexibility are generally accepted as the basic components of organizational agility (Overby, Bharadwaj & Sambamurthy, 2006).

2.1.4. Relationship between Resilience, Self-Efficacy and Organizational Agility

Employee resistance to change is one of the biggest obstacles to organizational agility. High resistance restricts knowledge sharing, prevents innovation, and slows down adaptation processes (Kotter & Schlesinger, 2008). In contrast, employees with high self-efficacy have a more positive approach to change processes and accelerate the adoption of agile practices (Bandura, 1997). Self-efficacy can help reduce resistance by reducing anxiety about change. This interaction plays a critical role in increasing organizational agility (Luthans & Youssef, 2007). In the civil aviation sector, employees' self-confidence, both technically and psychologically, increases their capacity to act agile and enables them to respond more flexibly to crises (Vakola, 2014).

2.1.5. Importance of Conceptual Model in Civil Aviation

The civil aviation sector, as an area where high risks and complex processes are managed, makes the need for organizational agility even more evident. The presence of employees who resist change or have low self-efficacy directly affects not only individual but also operational and institutional performance. Therefore, a good understanding of the psychological and behavioral characteristics of employees is necessary for the effectiveness of management strategies (IATA, 2022; ICAO, 2023). In line with this conceptual

framework, employees' resistance levels, self-efficacy perceptions and the effects of these two variables on organizational agility can be examined in the civil aviation sector and strategic recommendations can be developed for sustainable competition and security.

2.2. Research Method

The purpose of this research is to examine the effect of the resistance levels to change and self-efficacy perceptions of employees in the civil aviation sector on organizational agility. In the research, resistance to change and self-efficacy were determined as independent variables, and organizational agility was determined as the dependent variable. In addition, how self-efficacy perception affects the relationship between resistance to change and organizational agility was examined.

The research model covers the relationships and interactions between these three basic variables.

The variables included in the research model are as follows:

Independent Variables:

Resistance to Change

Self-Efficacy

Dependent Variable:

Organizational Agility

Ethics committee approval for the research was obtained from the Istanbul Esenyurt University Ethics Committee. The meeting date of the committee is 2025 and the decision number is 2025/20-02.

The study group of the research consists of aviation sector personnel working in private and public aviation organizations (such as airline companies, ground handling service providers and airport operators) operating at Istanbul New Airport. The universe of the research consists of approximately 65,000 employees working in the civil aviation sector throughout Turkey. These employees include pilots, cabin crew, air traffic controllers, maintenance technicians, ground handling personnel and operational support units.

The sample of the study consists of a total of 435 aviation employees working in civil aviation organizations in Istanbul, provided that they are 18 years of age or older. The participants were reached through both face-to-face and online surveys using the convenience sampling method between November 2023 and March 2024.

The research model designed within this framework is shown below:

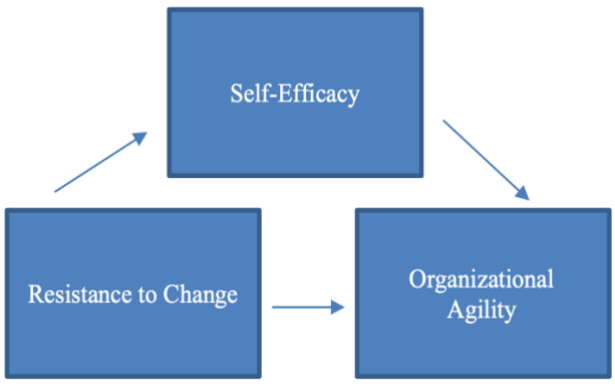

Figure 1. Research Model

Research Hypotheses

H1: Cognitive response variable has a negative and significant effect on the Start variable. (Supported: $\beta = -0.456$, $p < 0.05$)
H2: Behavioral response variable has a positive and significant effect on the Fatigue variable. (Supported: $\beta = 0.217$, $p < 0.05$)
H3: Emotional response variable has a negative and significant effect on the Fatigue variable. (Supported: $\beta = -0.192$, $p < 0.05$)
H4: Cognitive response variable has a negative and significant effect on the Fatigue variable. Supported: $\beta = -0.320$, $p < 0.05$)
H5: Emotional response variable has a positive and significant effect on the Start variable. (Supported: $\beta = 0.264$, $p < 0.05$)*
H6: Behavioral response variable has a negative and significant effect on Initiation variable. (Supported: $\beta = -0.570$, $p < 0.05$)
H7: Initiation variable has a negative and significant effect on Organizational Agility. (Supported: $\beta = -0.462$, $p < 0.05$)
H8: Sustainment effort persistence variable has a positive and significant effect on Organizational Agility. (Supported: $\beta = 0.142$, $p < 0.05$)
H9: Fatigue variable has a positive and significant effect on Organizational Agility. (Supported: $\beta = 0.406$, $p < 0.05$)
H10: Emotional response variable has a positive and significant effect on Organizational agility. (Supported: $\beta = 0.495$, $p < 0.05$)
H11: Behavioral response variable has a negative and significant effect on Organizational agility. (Supported: $\beta = -0.495$, $p < 0.05$)
H12: Behavioral response variable has no significant effect on Maintenance effort persistence variable. (Rejected)
H13: Emotional response variable has no significant effect on Maintenance effort persistence variable. (Rejected)
H14: Cognitive response variable has no significant indirect effect on Organizational agility variable via Maintenance effort persistence. (Rejected)

Mediator Hypotheses

H15: The initiation variable plays a full mediating role in the effect of cognitive response on organizational agility. (Supported: $\beta = 0.202$, $p < 0.05$)
H16:The fatigue variable plays a full mediating role in the effect of cognitive response on organizational agility. (Supported: $\beta = -0.125$, $p < 0.05$)
H17: The initiation variable plays a partial mediating role in the effect of emotional response on organizational agility. (Supported: $\beta = -0.101$, $p < 0.05$)
H18: The initiation variable plays a partial mediating role in the effect of behavioral response on organizational agility. (Supported: $\beta = 0.215$, $p < 0.05$)

2.3. Sample, measures and procedures

Measurement Tools

Personal Information Form:

It was prepared to collect demographic information such as gender, age, education level, job title and working period of the participants.

Resistance to Change Scale:

The "Resistance to Change Scale" developed by Oreg (2003) was used to measure the attitudes of the employees towards the change processes. The scale measures the resistance levels of the individuals towards the change with 5-

point Likert type items (1: Strongly Disagree – 5: Strongly Agree). This scale, which has been adapted into Turkish and whose validity/reliability studies have been conducted before, was verified during the pilot application of the research.

Self-Efficacy Scale:

The "General Self-Efficacy Scale" based on Bandura's self-efficacy theory and developed by Schwarzer and Jerusalem (1995) was used. This scale, consisting of 10 items, evaluates the belief of the individuals in their own abilities. The scale is designed as a 5-point Likert type.

Organizational Agility Scale: In the study, an adapted version of the "Organizational Agility Scale" developed by Gibson and Tether (2005) was used to measure the capacity of organizations to adapt to change quickly and effectively. The scale consists of 5-point Likert-type items and evaluates agility in three dimensions (strategic, structural and process agility)

2.4. Data Analysis Process

The analyses regarding the demographic data obtained in the study were conducted using descriptive statistical methods; frequency and percentage distributions were calculated.

Cronbach Alpha Reliability Analysis was applied for the internal consistency levels of the perceived organizational support and employee performance scales.

In order to test the validity of the scales and verify the factor structure of the model:

Confirmatory Factor Analysis (CFA)

Structural Regression Analysis (SRA) was performed within the scope of Structural Equation Modeling (SEM).

These analyses were conducted using statistical data analysis programs (SPSS, AMOS, LISREL, etc.). While factor loadings were tested with CFA, the effect of the independent variable, perceived organizational support, on the dependent variable, employee performance, was modeled with YRA.

3. Result and Discussion

In the study, the survey responses of 435 participants were analyzed using SPSS for Windows 30.0 and AMOS 24.0 programs. In the detailed frequency analysis of the sample, demographic characteristics and descriptive information about work life were presented with percentage rates. Confirmatory factor analyses of the Resistance to Change (RDC) Scale, Organizational Agility (ORC) Scale and Self-Efficacy (SEE) scales included in the survey form were conducted and their validity and reliability in the sample were measured by calculating Cronbach's alpha, Composite reliability and Average Variance Explained (AVE) values. Discriminant validity analysis was applied between the variables and it was investigated whether the separation between the variables was sufficient for structural equation modeling. The mediating role of Self-efficacy in the effect of the Resistance to Change variable on the Organizational Agility variable was investigated in the model. Bootstrap (n=5000) method was preferred in the mediation research.

3.1. Descriptive Statistics of Demographic Characteristics

Demographic characteristics of the sample

The responses of the participants regarding their demographic characteristics and work experience in the sample group of 435 people are presented in detail in Table 1.

Table 1. Descriptive Statistics of Aviation Workers

		n	%
Gender	Female	310	71.3%
	Male	125	28.7%
Education	Lise	30	6.9%
	Associate's degree	95	21.8%
	Undergraduate	190	43.7%
	Postgraduate	120	27.6%
Age	<25	15	3.4%
	25-30	120	27.6%
	31-35	110	25.3%
	>35	190	43.7%
Position	Officer	340	78.2%
	Manager	95	21.8%
Seniority at work	1-5 years	90	20.7%
	6-10 years	130	29.9%
	11-15 years	55	12.6%
	>15 years or more	160	36.8%

71.3% of the participants were female and 28.7% were male. 6.9% of the participants had a high school degree, 21.8% had an associate degree, 43.7% had a bachelor's degree, and 27.6% had a postgraduate degree. In the sample, age groups were under 25 years old 3.4%, 25-30 years old 27.6%, 31-35 years old 25.3%, and over 35 years 43.7%. 78.2% of the participants were employed, and 21.8% were in managerial positions. The work experience groups were 1-5 years 20.7%, 6-10 years 29.9%, 11-15 years 12.6%, and more than 15 years 36.8

3.2. Confirmatory Factor Analyses of Scales Included in the Model

In the confirmatory factor analysis, as the sample size increases, especially in samples larger than 200, the Chi-Square (x2) value also becomes higher and the statistical significance level of the Chi-Square (x2) test becomes low. In the confirmatory factor analysis evaluation of the scales used for the research and the suitability of the generally tested models, the Chi-Square (x2) value corrected with the degree of freedom (Chi-Square value/Degree of freedom), other goodness of fit indices and the values in the standardized residual covariance matrix were decided as a result of the examination.

Table 2. Goodness of Fit Indexes and Fit Values Used in Confirmatory Factor Analysis

Indexes Good Fit Acceptable Fit	Indexes Good Fit Acceptable Fit	Indexes Good Fit Acceptable Fit
x^2 / df	$0 \leq \chi 2/df \leq 2$	$2 < \chi 2/df \leq 3$
GFI	≥ 0.85	0.85-0.89
CFI	≥ 0.97	$. \geq 0.95$
SRMR	≤ 0.05	$.06 \leq SRMR \leq .08$
RMSEA	≤ 0.05	$.06 \leq RMSEA \leq .08$

3.3. Resistance to Change (RC) Scale Confirmatory Factor Analysis

In the literature, the confirmatory factor analysis applied to the scale consisting of 15 items and 3 dimensions, the standard factor loadings are between (.85; .93) values for the Cognitive

Response (CSR) dimension, between (.76; .89) values for the Emotional Response (ESR) dimension and between (.76; .89) values for the Behavioral Response (BRT) dimension. In the model, the items "I believe that the change will benefit the organization" and "I personally believe that I will benefit from the change" from the Cognitive Response (CSR) dimension, the item "I am really excited about the change" from the Emotional Response (ECS) dimension, and the item "I praise others about the change made" from the Behavioral Response (CSR) dimension were eliminated from the analysis due to their low factor loadings (FY<0.5). In the confirmatory factor analysis, since the model index values (P>0.05) were found to be x2 (59.673), x2/df (.1.523), it is understood that the Confirmatory Factor Analysis is significant. Since the fit index values of the model GFI (.901) and CFI (.954), SRMR (.0542), RMSEA (.079) remained within the acceptable fit limits, it was understood that the construct validity was achieved.

3.4. Organizational Agility (ORC) Scale Confirmatory Factor Analysis

In the literature, the standard factor loadings in the confirmatory factor analysis applied to the scale consisting of 8 items and a single dimension are between (.85; .93) values. In the model, the item "Product/service variety suitable for our business can be easily and quickly changed" was eliminated from the analysis because its factor loading was low (FY<0.5). In the confirmatory factor analysis, since the model index values (P>0.05) were found to be x2 (13.946), x2/df (1.992), it is understood that the Confirmatory Factor Analysis is significant. Since the fit index values of the model are within the good fit limits of GFI (.991) and CFI (.995), SRMR (.048), RMSEA (.023), it is understood that the construct validity is ensured.

3.5. Confirmatory Factor Analysis for Self-Efficacy (SEF) Scale

In the confirmatory factor analysis applied to the scale consisting of 17 items and 3 dimensions in the literature, the standard factor loadings are between (.85; .93) values for the Initiation (BSL) dimension, between (.76; .89) values for the Resilience (YLM) dimension and between (.76; .89) values for the Stimulation Effort, Persistence (SCI) dimension. In the model, the items "One of my problems is not being able to start a job on time" from the Starting (BSL) dimension, "Failure increases my determination", "I give up easily", "I do not always have much confidence in my abilities" from the Not Giving Up (YLM) dimension, "When I have to do something I do not like, I push myself until I finish it" from the Persistence (SCI) dimension were eliminated from the analysis due to their low factor loadings (FY<0.5). Since the model fit values (P>0.05) were found as x2 (126.324), x2/df (2.477), it is understood that the Confirmatory Factor Analysis is significant. Since the fit index values of the model are within the acceptable fit limits of GFI (.878) and CFI (.934), SRMR (.076), RMSEA (.079), it is seen that the structural validity of the scale is provided for the research sample.

3.6. Convergence and Discriminant Validity applied to the scale sub-dimensions

Composite reliability (CR) values are calculated from the factor loadings calculated from the confirmatory factor analysis of the measurement model. When the composite reliability value is (CR≥0.70), it can be said that the composite reliability condition is met.

The indicator of convergence validity is the average variance explained (AVE) value. In order to confirm convergence validity, it is sufficient for the average variance explained (AVE≥0.50). If the entire composite reliability value (CR≥0.70) is found, it is also sufficient for it to be (AVE≥0.40). In order to ensure discriminant validity, the square root result (√AVE) of the average variance explained (AVE) value must be higher than the correlation values in the same row and column.

Table 3. Convergent and discriminant validity values calculated from standard factor loadings

Dimention	$\bar{x}$	SD	BLT	DYT	DVT	ORC	BSL	YLM	SCI
BLT	2.29	1.07	(.766)						
DYT	2.21	1.00	.683**	(.740)					
DVT	2.25	1.01	.448**	.615**	(.719)				
ORC	3.15	.90	.076	.169**	.132**	(.714)			
BSL	3.88	.94	-.478**	-.423**	-.542**	-.209**	(.740)		
YLM	4.19	.90	-.150**	-.182**	-.002	.291**	.257**	(.733)	
SCI	3.94	.84	-.116*	-.097*	-.027	.308**	.119*	.667**	(,717)
Cronbach's Alpha			.815	.828	.801	.871	.906	.707	.700
Composite reliability (CR)			.809	.829	.805	.892	.905	.719	.704
Announced Average Varyans (AVE)			.587	.549	.517	.510	.548	.538	.515

***p<0.001 **p<0.01 *p<0.05

The reliability values of the scales in the study in the sample; Since it was found as (.912) for all items of Resistance to Change (RDC) Scale, (.855) for all items of Organizational Agility (ORC) Scale and (.924) for all items of Self-Efficacy (OSE) Scale, "high reliability degree" was obtained for all scales. In the sub-dimensions, values were obtained as (.906), Indomitability dimension (.707), Sustainment Effort, Persistence dimension (.700), Cognitive Response dimension (.815), Emotional Response dimension (.828), Behavioral Response dimension (.801). While "high reliability" level was obtained for Indomitability and Maintenance Effort, Persistence dimensions. Since the coefficient calculated for all scales in combined reliability values is (CR≥0.70), it can be stated that the combined reliability condition is met. The average explained variance values for all variables (AVE≥0.50), the conditions for convergent validity are also

met. The square root results of the average explained variance (AVE) values calculated for discriminant validity are given in parentheses. Since these values are higher than the correlation value in the same row and column, it is seen that discriminant-discriminant validity is provided.

3.7. Structural equation modeling path analysis applied to observed values of the research model

Models that test the existence of mediator or moderator variables in many ways form the basis of structural equation modeling. In fact, models that test the existence of mediator or moderator variables can be considered as simple structural equation models (Kline 2005). Since the indirect effects in the model are statistically significant and do not meet the normal distribution assumption in most cases, simulation (using at least 2000 resamples for a 95% Confidence Interval (CI)) has been tested instead of the Sobel test in recent years (Preacher and Hayes 2004, 2008).

The normal distribution of the variables in the research model was investigated by calculating the skewness and kurtosis coefficients. It is seen in Table 4 that the skewness and kurtosis coefficients of all variables are in the range (-1.5; +1.5), which is the desired range for normal distribution. Therefore, the maximum likelihood method was used for parameter estimation in the model.

Table 4. Skewness and kurtosis coefficients for variables in the model

	Skewness	Kurtosis
Change Resistance Scale		
Cognitive Response	.384	-.742
Emotional Response	.758	-.068
Behavioral Response	.718	.239
Organizational Agility Scale		
Organizational Agility	-.101	.173
Self-Efficacy Scale		
Initiation	-.963	.555
Persistence	-1.309	1.394
Sustainment Effort, Persistence	-1.064	1.337

In the research model, the mediating effect of the Self-efficacy variable on the effect of the Resistance to Change variable on the Organizational Agility variable was examined. Since the Resistance to Change scale has 3 sub-dimensions and the Self-efficacy scale has 3 sub-dimensions, a total of 9 mediation hypotheses were tested.

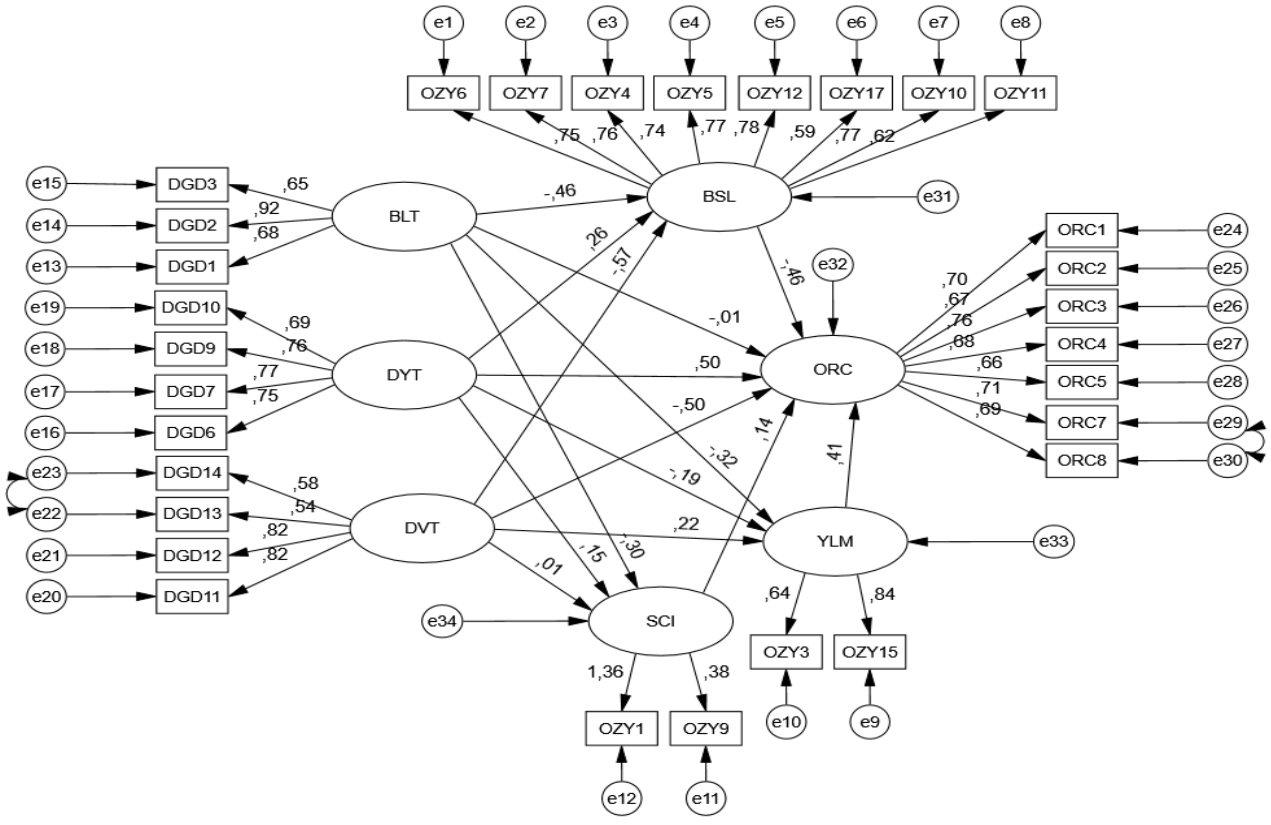

Figure 1. Mediator model path analysis with latent variables (bootstrap n=5000)

In the model where latent variables are used, it is understood that the model is significant since the model test values ($p<0.05$) are x2 (956.975), x2/df (2.521). Since the model's fit index values GFI (.906), CFI (.943), SRMR (.0788), RMSEA (.07910) are within the acceptable fit limits, it is understood that the model is valid. Model regression parameters are given in Table 5, and detailed values related to mediator hypotheses are given in Table 6.

Table 5. Significance test of direct regression coefficients in the model

Exogen Endogen Coefficient Std. coefficient	Exogen Endogen Coefficient Std. coefficient	Exogen Endogen Coefficient Std. coefficient	Exogen Endogen Coefficient Std. coefficient	Exogen Endogen Coefficient Std. coefficient	Z	P	Hypothesis
BLT	→	BSL	-.523	-.456	-8.227	***	Accept
DVT	→	SCI	.002	.005	.094	.925	Reject
DVT	→	YLM	.198	.217	2.147	.032*	Accept
DYT	→	YLM	-.178	-.192	-1.922	.045*	Accept
BLT	→	YLM	-.344	-.320	-5.040	***	Accept
DYT	→	BSL	.262	.264	3.308	***	Accept
DVT	→	BSL	-.557	-.570	-6.617	***	Accept
BLT	→	SCI	-.138	-.296	-2.642	.008**	Accept
DYT	→	SCI	.059	.147	1.900	.057	Reject
BSL	→	ORC	-.387	-.462	-5.727	***	Accept
SCI	→	ORC	.292	.142	3.883	***	Accept
YLM	→	ORC	.362	.406	5.325	***	Accept
DYT	→	ORC	.411	.495	4.842	***	Accept
BLT	→	ORC	-.013	-.013	-.192	.848	Reject
DVT	→	ORC	-.405	-.495	-4.368	***	Accept

****p<0,001 **p<0,01 *p<0,05 BSL: Starting YLM: Persistence SCI: Sustaining effort, persistence ORC: Organizational agility BLT: Cognitive response DYT: Emotional response DVT: Behavioral response*

In the path analysis model with observed variables, the effects of direct regression were examined in Table 9. The effect of behavioral response on the persistence variable of maintenance effort, the effect of emotional response on the persistence variable of maintenance effort and the effect of cognitive response variable on organizational agility variables were not found to be significant. All other direct effects were determined to be significant (p<0.05). Accordingly;

- The effect of cognitive response variable on the Initiation variable (β=-.456; p<0.05) was found to be negative and significant. Accordingly, the increase in the cognitive response variable directly affects the Initiation variable in a decreasing direction
- The effect of behavioral response variable on the Fatigue variable (β=.217; p<0.05) was found to be positive and significant. Accordingly, the increase in the behavioral response variable directly increases the Fatigue variable
- The effect of emotional response variable on the Fatigue variable (β=-.192; p<0.05) was found to be negative and significant. Accordingly, an increase in the emotional response variable directly affects the fatigue variable in a decreasing direction
- The effect of the cognitive response variable on the fatigue variable (β=-.320; p<0.05) was found negative and significant. Accordingly, an increase in the cognitive response variable directly reduces the fatigue variable
- The effect of the emotional response variable on the initiation variable (β=.264; p<0.05) was found positive and significant. Accordingly, an increase in the emotional response variable directly affects the fatigue variable in an increasing direction
- The effect of the behavioral response variable on the initiation variable (β=-.570; p<0.05) was found negative and significant. Accordingly, an increase in the behavioral response variable directly reduces the fatigue variable
- The effect of the initiation variable on the organizational agility variable (β=-.462; p<0.05) was found negative and significant. Accordingly, the increase in the Cognitive response variable directly affects the Maintenance effort persistence variable in a decreasing direction
- The effect of the Maintenance effort persistence variable on the Organizational agility variable (β=,142; p<0.05) was found to be positive and significant. Accordingly, the increase in the Maintenance effort persistence variable directly increases the Organizational agility variable
- The effect of the Fatigue variable on the Organizational agility variable (β=,406 p<0.05) was found to be positive and significant. Accordingly, the increase in the Fatigue variable directly affects the Organizational agility variable in an increasing direction
- The effect of the Emotional response variable on the Organizational agility variable (β=,495 p<0.05) was found to be positive and significant. Accordingly, the increase in the Emotional response variable directly increases the Organizational agility variable.
- The effect of the Behavioral response variable on the Organizational agility variable (β=-,495; p<0.05) was found to be negative and significant. Accordingly, the increase in the Behavioral response variable directly affects the Organizational Agility variable in a decreasing direction.

Table 6. Significance test of indirect effects (mediation) in the model

Pattern	Indirect Effect	Lower bound	Upper Bound	p	Hypothesis
BLT→BSL→ORC	**.202**	**.133**	**.378**	**.001****	**Accept**
BLT→SCI→ORC	-.040	-.088	.120	.205	Reject
BLT→YLM→ORC	**-.125**	**-.287**	**-.030**	**.006****	**Accept**
DYT→BSL→ORC	**-.101**	**-.303**	**-.029**	**.026***	**Accept**
DYT →SCI→ORC	.017	-.040	.092	.243	Reject
DYT →YLM→ORC	-.065	-.162	.056	.321	Reject
DVT→BSL→ORC	**.215**	**.131**	**.434**	**.001****	**Accept**
DVT →SCI→ORC	.001	-.072	.067	.914	Reject
DVT →YLM→ORC	.072	-.029	.195	.256	Reject

****p<0,001 **p<0,01 *p<0,05 BSL: Initiation YLM: Persistence SCI: Sustainment effort, persistence ORC: Organizational agility BLT: Cognitive response DYT: Emotional response DVT: Behavioral response*

In the model, the indirect effect of the Cognitive response variable on the Organizational agility variable via the Start variable, the indirect effect of the Cognitive response variable on the Organizational agility variable via the Fatigue variable, the indirect effect of the Emotional response variable on the Organizational agility variable via the Start variable, and the indirect effect of the Behavioral response variable on the Organizational agility variable via the Start variable were found to be significant. ($p<0.05$). The bootstrap method ($n=5000$) was used to test the mediation hypotheses in the model. 4 of the 9 mediation hypotheses tested in the model were accepted.

The indirect effect of the Cognitive response variable on the Organizational agility variable via the Start variable ($\beta=$,202;$p<0.05$) was found to be positive and significant. Accordingly, the Start variable is a full mediator in the effect of the Cognitive response variable on the Organizational agility variable. The indirect effect of the cognitive response variable on the Organizational agility variable via the Initiation variable ($\beta=$ -.125; $p<0.05$) was found to be negative and significant. Accordingly, the Initiation variable is a full mediator in the effect of the Cognitive response variable on the Organizational agility variable.

The indirect effect of the emotional response variable on the Organizational agility variable via the Initiation variable ($\beta=$ -.101; $p<0.05$) was found to be negative and significant. Accordingly, the Initiation variable is a partial mediator in the effect of the Cognitive response variable on the Organizational agility variable.

The indirect effect of the behavioral response variable on the Organizational agility variable via the Initiation variable ($\beta=$ .215; $p<0.05$) was found to be positive and significant. Accordingly, the Initiation variable is a partial mediator in the effect of the Behavioral response variable on the Organizational agility variable.

4. Conclusion

This study examined the effects of resistance to change (cognitive, emotional, and behavioral responses) and self-efficacy on organizational agility among employees in the civil aviation sector. The findings revealed that cognitive and behavioral resistance generally had a negative influence on proactive behaviors such as initiation, while emotional responses demonstrated a dual effect—positive emotions strengthening agility and negative emotions weakening it. Importantly, self-efficacy was identified as a critical factor that enhanced employees' adaptability and supported agile responses in the face of organizational change.

Sector-specific contribution; considering the scarcity of empirical studies focusing on organizational agility and change dynamics in aviation, this research provides a unique contribution to the literature. The aviation industry, with its highly regulated, technology-driven, and risk-sensitive environment, represents a context where agility is not optional but indispensable. By focusing on civil aviation employees, the study sheds light on how psychological factors such as resistance to change and self-efficacy interact with organizational agility in this critical sector.

Practical implications, the findings suggest that aviation organizations can strengthen agility by:

- Promoting positive emotional readiness for change, for instance through supportive communication and participatory change processes.
- Addressing behavioral resistance early on, since avoidance or disengagement behaviors directly hinder adaptive organizational responses.
- Enhancing self-efficacy through continuous training, simulation-based learning, and empowerment practices, which equip employees to confidently navigate technological and procedural changes.
- Encouraging proactive behaviors (Başlama) as mediators, since these buffer the adverse effects of resistance and transform potential barriers into adaptive responses.

Relation to prior literatüre: The results are consistent with social cognitive theory (Bandura, 1986) and change management research, which emphasize the roles of beliefs and emotions in shaping change-related behaviors. Similar to findings by Armenakis and Bedeian (1999), emotional readiness emerged as a key determinant of successful

adaptation (Öztırak, 2025). However, unlike some studies in manufacturing and healthcare sectors, where behavioral resistance was found to be less critical, in aviation behavioral opposition had a stronger negative effect on agility, highlighting the sector's unique operational risks.

Limitations and future research: Despite its contributions, this study has certain limitations. First, the dataset was limited to a single airline, which restricts the generalizability of the findings across the broader aviation industry. Future research could incorporate multiple airlines, airports, and different roles within aviation to provide comparative insights. Second, the cross-sectional design captures associations but does not fully explain causal mechanisms; longitudinal studies would provide deeper understanding of how resistance and self-efficacy evolve over time. Finally, integrating organizational-level variables such as leadership style or digital transformation strategies may enrich the model and offer a more holistic view of agility in aviation.

In conclusion, this research emphasizes that in a high-stakes industry like aviation, fostering employees' self-efficacy, addressing resistance to change, and cultivating positive emotional responses are crucial for achieving organizational agility.

Recommendations

Based on the findings of this study, several recommendations can be made for practitioners and researchers in the civil aviation industry. First, organizations should strengthen employees' emotional readiness for change by developing training and communication programs that enhance resilience and reduce negative emotional responses such as fear and uncertainty. In this regard, transparent communication and proactive psychological support are key to fostering a positive emotional climate during organizational transformation. Second, self-efficacy should be promoted through continuous learning opportunities. Structured training programs that not only enhance technical expertise but also build employees' confidence in their ability to cope with change can serve as a psychological shield against resistance. A further recommendation is to identify and address behavioral resistance at an early stage. Since passive withdrawal or avoidance behaviors can undermine agility, managers should employ tools such as 360-degree feedback, behavioral observation, and anonymous surveys to detect resistance patterns and design interventions accordingly. Another finding of this study highlights the mediating role of initiation, which implies that employees should be encouraged to take initiative and ownership in the change process. Involving staff in problem-solving workshops, innovation committees, or collaborative projects may strengthen proactive behaviors and reduce resistance (Öztırak & Güney, 2022).

In addition, the results suggest that technological solutions can play a critical role in supporting agility. The adoption of AI-based scheduling systems, real-time communication platforms, and predictive analytics tools can help organizations reduce workload, increase responsiveness, and enhance employees' sense of control in complex operational environments. Beyond technology, organizations must also cultivate a change-ready culture that embraces continuous improvement and innovation. Leaders should reinforce adaptive values, celebrate change agents, and provide psychological safety to encourage experimentation and learning from mistakes. From a human resources perspective, policies should be aligned with agility-enhancing practices, such as flexible job roles, cross-training programs, clear feedback systems, and incentives for innovation. Given that ground operations and cargo staff are often the most exposed to operational volatility, targeted interventions in these areas are particularly important.

From a strategic and policy standpoint, the study highlights several broader implications. Leadership approaches that emphasize participation and transformation are especially effective in reducing resistance and fostering organizational trust. Talent management practices should integrate agility-related competencies into recruitment, training, and promotion systems, thereby institutionalizing agility as a core organizational capability. Regulatory and operational policies in aviation should also strike a balance between strict compliance and the flexibility required for rapid adaptation. Furthermore, digital transformation strategies must be implemented in parallel with employee training programs to ensure that new technologies are adopted effectively without increasing resistance. Finally, aviation organizations should consider employee well-being as an integral component of agility by introducing structured resilience and mental health programs to mitigate the emotional strain associated with constant change in high-risk environments.

For future research, several avenues can be suggested. Cross-cultural studies could investigate whether cultural dimensions such as power distance or uncertainty avoidance shape employees' responses to change and perceptions of agility. Longitudinal research designs would also be valuable to examine how resistance—particularly emotional and behavioral dimensions—evolves over time and impacts long-term agility. Furthermore, leadership styles such as transformational and participative leadership could be tested as potential moderators in the relationship between resistance to change and organizational agility. Finally, incorporating digital transformation variables, including digital literacy and AI adoption, may enrich the explanatory framework of agility. Since this study was limited to a single airline, future research should involve multiple airlines, airports, and occupational groups to enhance generalizability and provide a more comprehensive understanding of the dynamics of agility in the aviation sector.

Ethical approval

The ethical approval for this research was granted by the Istanbul Esenyurt University Scientific Research and Publication Ethics Committee with the decision number 2025/02, dated 20.02.2025. The committee confirmed that the research was deemed ethically appropriate.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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