

The Effects Of Motivation And Innovation In Civil Aviation Sector On Operating Performance

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Abstract – The extent to which employee motivation affects the innovation performance of the employee has become one of the issues that business managers have been wondering about recently. Innovation and the motivation levels of the employees who will reveal the innovation, which are two important factors in the success of the business and making it sustainable, have necessitated various researches on this subject. While innovation affects the economic growth rate, it also greatly affects the profitability of the business and increasing the market share. In this context, it is aimed to reveal the effects of increasing employee motivation through innovation studies on the performance of the civil aviation sector, which was determined at the beginning of the study. By integrating innovation and employee motivation into the practices, businesses in the civil aviation sector can drive performance improvements, fuel growth, and maintain a competitive edge in the industry. This study planned to conduct on the civil aviation sector in order to determine the effects of the independent variables innovation and employee motivation on the dependent variable business performance, and in this direction, the effects of innovation and employee motivation on the civil aviation sector were examined. As a result of the study, it is aimed to obtain and present information that will benefit the interested parties.

Keywords – Motivation, Innovation, Civil Aviation Sector, Operating Performance.

I. INTRODUCTION

In our age, businesses, which are aware of the requirements of the increasingly intense competitive environment with the globalization process, become open to innovation and change by using their human resources, which are very important for them. The importance of knowledge and sharing, the ability to respond quickly to the need for change and innovation, and the effectiveness of the human factor enable the enterprise to reach its final goals (Hirani et al., 2010).

The global competitive environment, innovation based on stored information and technology as a result of the need for change plays a key role in the long-term survival of businesses. Being able to keep up with the changing conditions depends on the innovations to be made both inside and outside the business (Paulussen, 2016). Accordingly, innovations in the production process that will take place in the enterprise with the help of technology reduce the costs and prevent the loss of money, time and human resources by enabling the development of new ways of doing business (Edquist, 2010). Likewise, innovations to be realized in internal organizational practices increase the motivation and commitment of employees, which are called internal customers (Serdyukov, 2017). On the other hand, product and service innovations and presentational innovations to be realized in order to influence the external customers of the business include new and creative products and services developed for the needs of customers and advertisements and promotions that will make them attractive (Blind, 2016). Where information and technology are used extremely effectively and competition has reached the highest level, it is inevitable for businesses that see innovation and change movements as a necessity and act in this direction to be profitable in the competitive environment (Kline & Rosenberg, 2010).

In addition to the fact that our age is managed with resources such as information, technology and money, it has been accepted by all businesses that human resources are accepted as the number one production factor (Herzberg, 2017). Since it is known that human resource is the only factor that will evaluate material resources and make them useful, emphasis is placed on practices that will attract human resources to the business, keep them satisfied, and increase their productivity. Human resources practices, which have an increasing weight in businesses, are the main indicators of the value, understanding and tolerance given to people (Lichtenberg, 2013). It has been understood that businesses cannot operate without human beings and that human beings are a psychological and social entity rather than an economic entity. In this context, the traditional management approach has been abandoned, and a modern management approach based on flexibility and autonomy practices, away from hierarchy, has been adopted (Reeve, 2018). Employees' commitment to the business, their desire, enthusiasm, desire and satisfaction, in short, their motivations that enable them to take action for business success, enable businesses to be successful in gaining profit, achieving sustainable competitive advantage and having a reputation. For this reason, practices aimed at increasing employee motivation and job satisfaction are emphasized (Dörnyei & Ushioda, 2013).

In this period, the development of knowledge and technology and making them useful, in short, transforming them into innovations necessary for the survival of the enterprise, will basically be realized through human resources. It should not be forgotten that the innovation process starts with the idea of catching and evaluating opportunities (Joly et al., 2010). It is the duty of individuals to see the opportunities and generate ideas for the problem or need. For this reason, it is ensured that the creativity potential of each individual is revealed, and the business and the individual gain as a result of creative thinking and behavior. In this context, all kinds of practices that will motivate the employees in innovation and reveal the existing creative potential are included in the enterprises (Edquist, 2013). An innovative and changeable business culture to be created in the enterprise will lead the employees to be creative and innovate, thus the necessary change and innovation movements for the health of the enterprise will begin (Röling, 2012).

Innovation and employee motivation are the data that exist in businesses in order to gain competitive advantage in the global competitive environment. Businesses that can effectively lead these two important data together both reach sustainable development criteria and make a name for themselves in competition. Because the task undertaken by the individual in the innovation process is much more important than the source of finance and technology (Eitam et al., 2013). In short, highly motivated individuals who are curious, researcher, willing to learn and innovate, who realize the market need in advance, and who have the ability to put forward creative and original ideas by utilizing their knowledge, are resources that should not be missed and retained for businesses (Weiner, 2013). In this context, keeping the motivation of the employees at a high level, avoiding the factors that will hinder their creativity, providing flexible applications that will provide them with freedom and autonomy, and providing transparency with applications for information sharing are among the basic duties of the enterprises. In addition, the innovative business culture created in the enterprise will increase the motivation of the employee who contributes to the innovation process internally. As can be seen, the concepts of innovation and motivation are in interaction with each other (Peters, 2015).

II. LITERATURE REVIEW

A. Motivation and Innovation

According to Gupta (2020), the study examines the connections between leadership, work motivation (internal motivation, integrated external motivation, and external motivation), and employee-level innovation (innovative work behavior and innovation outcomes) in an organizational context by integrating the behavioral theory of leadership, the componential theory of creativity, and the self-determination theory (SDT). Information was gathered from 493 researchers at India's largest civilian R&D organization through an online poll. Hypothesized associations between the study variables were verified using structural equation modeling (SEM). Leadership, employee autonomy (internal and integrated external motivation), and staff innovation were all found to have favorable correlations in the study. It is only when the value of incentives is internalized into one's sense of self that the relationship between external motivation and creativity strengthens, as shown in the study (integrated external motivation). Without anything internal to drive you, external motivation has nothing to do with creativity.

The research conducted by Fidan and Oztürk (2015) seeks to understand how teachers' levels of creativity are connected to factors like internal motivation and educational environments that foster innovation. Information was gathered from educators in Ankara Province's public and private elementary, secondary, and higher education institutions during the 2014-2015 academic year. The survey found that private school educators rated themselves as more creative and motivated from within than their public

school counterparts. It was hypothesized that teachers' internal motivation would positively correlate with their inventiveness, but two aspects of the environment for invention would not.

In order to keep up with the exponential growth and evolution of information, Zhang and Chen (2021) argue that education and work are inextricably intertwined, with the former requiring the latter. 500 copies of a standard questionnaire were issued to employees in the high-tech sector in Shanxi Province; 384 legitimate copies were retrieved, for a retrieval rate of 77%. The findings show that (1) innovation capability is positively impacted by (3) learning motivation, and (2) learning effectiveness is positively impacted by (1) learning motivation. The findings suggest that this information might be used to better organize and develop educational programs for the high-tech sector.

In this article, Dulaimi et al. (2003) investigate the factors that encourage and discourage firms from adopting innovation during construction projects, as well as the relationships between different organizations that play a role in the innovation process. Seven hypotheses are outlined, all based on the notion of organizational motivation and inter-organizational linkages. These hypotheses are investigated by means of a structured questionnaire, and information was gathered through a mail-in survey. Based on the findings, it appears that new proposals have a good chance of being included into the project provided sufficient effort is made to see them through, and if ambitious targets, positive outcomes, and widespread support are in place. The firms must be encouraged to adopt the invention, to have faith in its success, and to put up extra effort. For the interested stakeholders to get behind the idea, strong incentives are required. The innovation should also be crafted in a way that benefits both the upstream and the downstream participants.

B. Motivation and Operating Performance

Rajhans's (2012) research aims to do just that, by investigating the ways in which improved communication and inspiration might boost productivity in the workplace. This paper explores the different ways in which workplace communication can influence and sustain morale. Workers are more likely to be committed to their jobs, loyal to their companies, and confident in their leaders if they believe management is effectively communicating with them. The research was carried out by reviewing and critically analyzing the relevant research and literature in light of the paper's aims.

Based on semi-structured interviews and follow-up surveys with 47 quality managers, Cai and Jun (2018) identified four key stages in the internalization of ISO 9001: Documentation, process improvement, education, and auditing. Based on the results of our FsQCA research, we can conclude that the implementation of ISO 9000 is most likely to result in a significant improvement in the operational performance of businesses who do not already have a QMS in place but are under pressure from outside sources to do so. Findings further suggest that the suggested link between "internal motivations," "ISO 9000 internalization processes," and "performance" may not always hold true, even when controlling for other factors. In particular, our results imply that an organization's better operations performance is not always ascribed to the ISO 9000 implementation alone when the organization already has a QMS in place prior to adoption and/or implements ISO 9000 along with other quality improvement initiatives.

The study by Gillet et al. (2013) aimed to verify a unified theory concerning the function of happy and negative emotions in mediating the connection between situational motivation and performance. In particular, the proposed model suggests that autonomous motivation is predictive of favorable affect, while controlled motivation and amotivation both contribute to unfavorable emotions. Additionally, a lack of drive is associated with an increase in negative emotions. When it comes to predicting success, happy and negative emotions have opposite effects. In three research, both correlational and experimental designs were used to confirm the concept while utilizing a mental exercise. Furthermore, individual characteristics and contextual factors were found to play a role in setting off the "Motivation-Affect-Performance" cascade. Implications for theory and future research are presented.

The purpose of the study conducted by Sokro (2012) was to learn more about the connection between company culture, morale, and productivity. Employee motivation and productivity were studied, along with their connections to organizational culture (including organizational ideals, individual beliefs, the working environment, and employee relationships). The connection between culture and motivation has been investigated using a multi-pronged, data-driven strategy. A positive correlation was discovered between the two variables utilizing Pearson's and Spearman's Correlation tests. Our research shows that an organization's culture affects employee motivation and, by extension, its performance. Worker morale rises in direct proportion to the quality of the company's culture. Companies with a strong culture of recognizing and appreciating employees' effort were found to have much higher levels of motivation and performance.

C. Innovation and Operating Performance

In order to determine whether and, more importantly, under what conditions smaller, resource-constrained enterprises gain from innovation, Rosenbusch et al. (2011) conducted a meta-analysis to integrate empirical findings. The setting plays a role in the relationship between creativity and performance. The impact of innovation on business performance is heavily influenced by factors such as the age of the firm, the nature of the invention, and the cultural setting. Innovation's effects on SME success have received a lot of attention from researchers and business owners alike. There are mixed findings from empirical studies examining the link between innovation and performance in small and medium-sized enterprises.

The research study by Anning-Dorson (2017) aims to analyze the impact of market demand on the innovation-performance link in service businesses. In addition, the article investigates how a certain cultural orientation central to strategic management might be used to mitigate the impact of product innovation on a company's bottom line. An rising economy with a dynamic services sector was the source of the data we gathered. The impact of the environment as a mediator and moderator of the link between innovation and the performance of service firms is investigated using causal modeling techniques based on a series of model comparisons. Despite the favorable impact of product innovation on a company's bottom line, the research shows that a saturated market has the opposite effect. However, even in the face of external coercion, the positive association between product innovation and firm performance can be restored if a service firm is able to cultivate an inventive culture that promotes strategy implementation.

The sensitivity of the anticipated connection between innovation and company success is investigated by Lööf and Heshmati (2006). We use a knowledge production function technique and various types of comparisons to achieve this. The sensitivity analysis compares the results obtained from running the same basic econometric model with different error structures, running the same model with different data sources, running the same model with different firm performance and innovation classifications, and running the same model with different subpopulations of the business sector. Both a level and a growth rate dimension are used in the studies. New information is reported, and existing data are confirmed. The analysis provides clues as to the origins of, and trends in, the estimated effects of interest.

The purpose of the research presented in Li et al(2006) 's paper was to examine the impact that HRM's primary characteristics have on technical innovation and organizational performance through empirical study. A total of 194 high-tech businesses throughout eight regions in China were questioned for this study. According to the findings of this study, technological innovation benefits from staff training, immaterial incentive, and process control, while it suffers from the effects of material motivation and result control. Additionally, it is discovered that technical advancement is linked favorably to accomplishment.

III. METHODOLOGY

A. Sampling Process

In this study, the population of the research are employees of the Libyan Airlines in Mitiga International Airport and Misrata International Airport that continue their activities in the civil aviation sector.

Simple random sampling method was used in the selection of the sample in this study. The reason for this is that there are a higher number of employees than the sample in the Libyan Airlines in the civil aviation sector where the research was conducted. Questionnaire forms will be given to 150 people face to face in order to ensure that there are forms that can be answered correctly. A total of 150 responses were collected. For this reason, the study was analyzed over 150 employees in total.

B. Data Collection Method

In this study, the questionnaire technique, which is one of the primary data collection tools and the most important one, was used. The survey questions prepared in accordance with the model and hypotheses of the research were transferred to the personnel working in Libyan Airlines in Mitiga International Airport and Misrata International Airport and they were asked to answer them. There are 65 statements in total in the questionnaire form. 6 of these statements consist of questions describing the demographic characteristics of the participants. The remaining 59 statements constitute innovation, employee motivation and business performance scales. Participants were expected to respond to the statements in the questionnaire using a 5-point Likert scale.

C. Data Analysis and Findings

In accordance with the purpose of the research, the increase in innovation performance and employee motivation in the Libyan Airlines, which continues its activities in the civil aviation sector in accordance with the purpose of the research, will positively affect the business performance and the relations of the scales with each other are discussed within the scope of this section.

Questionnaire technique was used in the research and the data obtained from the participants were analyzed with the SPSS package program. In the evaluation of the data obtained from the participants working in the civil aviation sector, it is aimed to express the distribution of the participants according to the demographic characteristics by first performing frequency analysis. It was decided to perform Explanatory Factor Analysis in order to evaluate whether the innovation, employee motivation and business performance scales are valid or not, and to determine the relationship between the items and the factors.

IV. RESULT

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A. Demographic features

When the answers to the questions directed to the participants working in Libyan Airlines in the Mitiga International Airport and Misrata International Airport operating in the civil aviation sector were evaluated within the scope of the research, it was determined that 37.33% of the total participants were female and the remaining 62.67% were male. Of the total participants, 18.67% were between the ages of 19-25, 32.67% were between the ages of 26-35, 37.33% were between the ages of 36-45 and the remaining 11.33% were 46 years old and over. 6% of the total participants graduated from primary education, 24.67% graduated from high school, 15.33% graduated from undergraduate level, 37.33% graduated from master's level, and the remaining 16.67% graduated from the doctorate level. It was determined that 68.67% of the total participants were married and the remaining 31.33% were single.

Of the total participants, 19.33% were managers, 25.33% were assistant managers, 16.67% were office clerks, 18.00% were advisors, and lastly, the remaining 20.67% were identified as a security worker. Of the total participants, 33.33% worked in the airline business for 0-5 years, 17.4% worked in the airline business between 5-10 years, 16.67% worked in the airline business between 10-15 years, 12.67% have been working in the airline business for 15-20 years and the remaining 29.33% have been working in the airline business for 20 years or more.

Table 1. Demographic features

		Frequency	%
Gender	Female	56	37.33
	Male	94	62.67
Marital status	Married	103	68.67
	Single	47	31.33
Age	Ages 19-25	28	18.67
	Ages 26-35	49	32.67
	Ages 36-45	56	37.33

	Age 46 and above	17	11.33
Job	Manager	29	19.33
	assistant director	38	25.33
	Office Clerk	25	16.67
	Advisory Officer	27	18.00
	Security	31	20.67
Educational Status	Primary education	9	6.00
	High school	37	24.67
	Licence	23	15.33
	Master's Degree	56	37.33
	Doctorate	25	16.67
Year of Employment	0-5 Years	50	33.33
	Between 5-10 Years	25	16.67
	Between 10-15 Years	12	8.00
	Between 15-20 Years	19	12.67
	20 Years and Over	44	29.33
TOTAL		150	100

B. Explanatory Factor Analysis

Explanatory factor analysis was performed to determine whether the scales adapted in accordance with the model of the study were suitable for the analysis. The main purpose of explanatory factor analysis is to determine the validity of the statements addressed to the participants and to determine whether they are suitable for the analysis.

Before performing the exploratory factor analysis, KMO and Barlett tests should be performed in order to determine whether the scales are suitable for factor analysis. From the analysis, it is expected that the KMO value will give a result higher than 0.60. In addition, the Barlett value is expected to be lower than the $p=0.05$ value determined at the beginning of the study.

As a result of the analyzed KMO and Barlett test, it was determined that the KMO value of the innovation scale was 0.87 and the Barlett's probability value was $p=0.000$. As a result of the KMO and Barlett tests, it was determined that the KMO value of the employee motivation scale was 0.84 and the probability value of the Barlett value was $p=0.000$. As a result of the KMO and Barlett test, it was determined that the KMO value of the enterprise performance scale was 0.81 and the probability value of the Barlett value was $p=0.000$. Based on the values reached as a result of the analysis, it was concluded that the assumptions were met and the data were suitable for factor analysis.

In factor analysis, it was decided to apply the varimax technique, which is widely used in this study, in order to determine the relationship of the items with the factors and to provide convenience in terms of interpretation. When various literatures are examined, it is expected that the load values of the expressions in the factor analysis will be higher than 0.50.

After the factor analysis examined in the research, when the factor distributions of the expressions were examined, it was determined that the innovation scale was gathered under four dimensions, the employee motivation scale was collected under two dimensions and the business performance scale was collected under a single dimension.

When the factor distributions of the scales examined within the scope of the research were examined, it was seen that each statement was gathered under the scale related to it. Since there was no expression below the determined value in any scale, factor analysis did not need to be removed and repeated.

Based on the values reached as a result of the analysis, it was concluded that the assumptions were met and the data were suitable for factor analysis. Details regarding the load values of the expressions collected in the factors obtained from the analysis are given in table 2 below.

When the table 2, which contains the results of the explanatory factor analysis stated below, is examined, it is seen that 59 items are gathered under 7 factors. It is observed that the factor load values of each of the statements are above the acceptance level determined at the beginning of the research. Clustering the items in a way that they have a load value above the acceptance level in the factor they belong to is an indication that the statements in the cluster together measure the existing structure well. These seven factors together explain 88.56% of the total assumption.

Table 2. Factor Analysis Result

Item No.	Process Innovation	Product Innovation	Market Innovation	Organizational Innovation	Internal Motivation	External Motivation	Business Performance
8	0.937						
10	0.937						
19	0.696						
20	0.634						
7		0.784					
11		0.753					
13		0.684					
14		0.602					
9			0.897				
12			0.862				
15				0.864			
16				0.743			
17				0.718			
18				0.681			
25					0.927		
26					0.889		
27					0.847		
28					0.781		
29					0.73		
30					0.685		

32					0.669		
33					0.635		
34					0.479		
35					0.476		
21						0.913	
22						0.881	
23						0.827	
24						0.752	
31						0.748	
36						0.658	
37						0.518	
38						0.477	
39							0.955
41							0.945
42							0.925
50							0.895
51							0.884
52							0.868
60							0.855
61							0.817
59							0.786
40							0.77
53							0.754
62							0.713
65							0.672
54							0.668
55							0.659
48							0.643
63							0.621
56							0.595
64							0.588
43							0.57
47							0.559

57							0.558
44							0.544
45							0.537
49							0.525
58							0.503
46							0.488

C. Reliability Analysis

It is necessary to test the reliability of each scale after the explanatory factor analysis carried out in order to determine the factor loads of the statements in the scales and to investigate whether there is a problem that should be removed from the research. Reliability; It shows whether the relationship between the items in the scale is consistent and how well the items reflect the subject to be examined. In the study, the Cronbach alpha coefficient was used to measure the reliability of the scales. In order for the scales to be considered reliable, the Cronbach alpha coefficient is expected to be greater than 0.70.

The results of the reliability analysis of the scales determined in order to explain the model determined within the scope of the study are given in the table 3 below. As a result of the reliability analysis, the reliability coefficient of the innovation scale was determined as (0.946), the reliability coefficient of the employee motivation scale (0.91), and the reliability coefficient of the business performance scale (0.902). From this point of view, it can be said that the reliability coefficients of all 7 factors examined within the scope of the research are quite high.

Table 3. Reliability Analysis Result

Factors	Number of Items	Cronbach's Alpha Coefficient
Innovation	14	0.946
Process Innovation	4	0.956
Product Innovation	4	0.935
Market Innovation	2	0.931
Organizational Innovation	4	0.939
Employee Motivation	18	0.91
Internal Motivation	10	0.918
External Motivation	8	0.901
Business Performance	27	0.902

D. Regression-Correlation Analysis

Regression and correlation analyze should be done in order to test the predetermined hypotheses within the scope of the research. It has been concluded that the factor and reliability analyze that should be applied before the regression and correlation analyzes are suitable for testing the relations of the scales in the study with each other. In this section, regression and correlation analyzes were used in order to investigate the effect of innovation and employee motivation of Libyan Airlines serving in the civil aviation sector on business performance. Regression analysis is one of the most fundamental areas of interest in statistics.

It means predicting the behavior of a random variable using a model. It is used to measure the size of the relationship between variables. Regression analysis can be performed using a single variable or using multiple variables. In multivariate cases, other variables affecting the dependent variable are considered constant and the calculation is made. How these variables affect the dependent variable is determined by a coefficient. This coefficient is called the regression coefficient of the variable and shows the degree of commitment. The important thing is that there is a cause and effect relationship between the influencer and the affected. To summarize, the task of finding the most suitable function for the data table is called regression analysis.

Correlation analysis is an analysis technique to determine the severity of the relationship or dependence between two variables measured at the range and ratio level. The relationship that is tried to be measured in the correlation analysis is related to the linear part of the relationship between the variables. The correlation coefficient r is between -1 and $+1$. The correlation coefficient gets stronger from 0 (zero) to $+1$ (in the same direction) and -1 (in the opposite direction). The closer the coefficient is to zero, the weaker it is. The following table is used in the interpretation of the correlation coefficient.

Table 4. Correlation

Correlation (r)	Comment
Between $0.90 - 1$	Very High
Between $0.70 - 0.89$	High
Between $0.50 - 0.69$	Middle
Between $0.26 - 0.49$	Weak
Between $0.0 - 0.25$	Too weak

In order to perform the regression and correlation analysis, first of all, the average of the answers given by the participants to the statements in the scales should be calculated. The regression and correlation analysis to be made between the scales was carried out over the determined scale averages. The correlation analysis table, which was conducted on the averages of 59 questions consisting of 7 factors in total, directed to the participants within the scope of the research, is shown in table 5 below. specified in the scope.

Table 5. Correlation Analysis Result

	Innovation	Process	Product	Market	organizational	Motivation	Internal	External	Performance
Innovation	1								
Process	0.807	1							
Product	0.782	0.789	1						
Market	0.814	0.812	0.795	1					
Organizational	0.789	0.798	0.785	0.806	1				
Motivation	0.89	0.849	0.817	0.855	0.809	1			
Internal	0.869	0.83	0.842	0.847	0.828	0.842	1		
External	0.894	0.868	0.872	0.869	0.817	0.833	0.861	1	
Performance	0.932	0.884	0.886	0.905	0.895	0.865	0.887	0.916	1

* Significance level was taken as 0.05.

Correlation analysis was carried out in order to determine the level of the effect of innovation and employee motivation on business performance of Libyan Airlines operating in the civil aviation sector specified in the research model.

According to the result of the correlation analysis, it is possible to talk about the existence of a high level of positive relationship between the two factors, according to the value (0.89) between innovation and employee motivation.

According to the value (0.932) reached between innovation and business performance, it is possible to talk about the existence of a high level of positive relationship between the two factors.

According to the value (0.865) reached between employee motivation and business performance, it is possible to talk about the existence of a high level of positive relationship between the two factors.

Correlation analysis is performed to determine the size and direction of the relationship between the variables. When the results obtained from the correlation analysis were examined, it was concluded that all the hypotheses determined at the beginning of the research were accepted. From this point of view, it has been concluded that Libyan Airlines operating in the civil aviation sector can increase its operating performance equally by increasing its innovation activities and increasing employee motivation.

E. Research Results on Demographic Variables

In this part of the study, the findings obtained as a result of the survey study were evaluated and evaluated. Civil aviation sector employees participating in the research expressed “process innovation” as moderate ($2.736 \pm .894$); moderate ($2.829 \pm .862$) for “product innovation”; moderate ($2.889 \pm .901$) for “market innovation”; moderate ($3.148 \pm .757$) for “organizational innovation”; “internal motivation” expressions were moderate ($3.2 \pm .887$); “external motivation” expressions were moderate ($2.847 \pm .866$); It is seen that they agree with the expressions "business performance" at a moderate level ($2.907 \pm .889$).

Table 6. Averages of Scales

		Process Innovation	Product Innovation	Market Innovation	Organizational Innovation	Internal Motivation	External Motivation	Business Performance
N	Valid	150	150	150	150	150	150	150
	Empty	0	0	0	0	0	0	0
Average		2.736	2.829	2.889	3.148	3.2	2.847	2.907
Median		2.973	2.889	2.973	3.173	3.473	2.973	2.973
Standard deviation		894	862	901	757	887	866	889
Variance		816	778	856	579	778	819	791

When examining the differences between demographic groups for research variables, independent groups t-test was used because there were two groups (male-female and married-single) in gender and marital status. One-way ANOVA analysis was used because it was a group. Average values of innovation, motivation and business performance scales are given in Table 6.

F. Independent Groups T-test

Within the scope of the study, process innovation, product innovation, market innovation, organizational innovation, internal motivation, external motivation and business performance scale averages were compared in terms of gender groups. T-test results of gender-neutral groups are given in Table 7 below.

Table 7. Gender Independent Groups T-test Results

		N	Average	Standard deviation	t value	p value
Process Innovation	Female	56	3.1689	0.7534	-0.549	0.566
	Male	94	3.213	0.79714		
Product Innovation	Female	56	3.1874	0.86593	-1.549	0.081
	Male	94	3.343	0.91751		
Market Innovation	Female	56	2.9195	0.89076	-0.781	0.422
	Male	94	2.9922	0.89103		
Organizational Innovation	Female	56	2.8859	0.88561	0.163	0.835
	Male	94	2.868	0.94746		
Internal Motivation	Female	56	2.922	0.96366	-1.636	0.099
	Male	94	3.0788	0.88373		
External Motivation	Female	56	3.1604	0.66725	-0.55	0.563
	Male	94	3.1917	0.78621		
Business Performance	Female	56	3.2277	0.83621	-1.549	0.083
	Male	94	3.3822	0.88954		

No significant difference was found for any of the variables after the t-test performed to compare female and male employees with regard to the variables in the study. From this point of view, it can be said that people working in the civil aviation sector participate in innovation, motivation and business performance scales regardless of gender. T-test results of independent groups in terms of marital status are given in Table 8 below.

Table 8. Groups T-test Results Independent of Marital Status

		N	Average	Standard deviation	t value	p value
Process Innovation	Married	103	3.1857	0.81848	-0.245	0.804
	Single	47	3.2045	0.73398		
Product Innovation	Married	103	3.4137	0.7732	3.034	0.048
	Single	47	3.1372	0.96277		
Market Innovation	Married	103	2.819	0.92941	-2.588	0.044
	Single	47	3.0597	0.85389		
Organizational Innovation	Married	103	2.7944	0.96068	-1.516	0.121
	Single	47	2.939	0.87576		
Internal Motivation	Married	103	2.8613	0.95278	-2.552	0.0792

	Single	47	3.1084	0.90248		
External Motivation	Married	103	3.2164	0.80557	-0.24	0.816
	Single	47	3.3602	0.74998		
Business Performance	Married	103	3.3835	0.76848	2.574	0.076
	Single	47	3.2312	0.92868		

No significant difference was found for any variable after the t-test performed to compare married and single employees for the variables in the study. From this point of view, it can be said that people working in the civil aviation sector participate in innovation, motivation and business performance scales regardless of marital status.

G. ANOVA Test

CHAPTER 1 One-way ANOVA test was performed to compare the means of research variables in terms of age, education level, occupation and years of service. First of all, the homogeneity of group variances, which is one of the assumptions of ANOVA, was tested for each variable. The means of the variables whose variance homogeneity of the groups were provided were compared with one-way analysis of variance. The differences in pairwise comparisons were reached using the Scheffe test.

1) Differences by Age Groups

As a result of the Levene test, the equality of the variances of the groups was not accepted in any of the variables. In this case, the prerequisite for ANOVA test for these variables was not met. ANOVA analysis was not performed to compare the age groups because it would not be correct to interpret the results. The results of the Variance Homogeneity test of the groups can be seen in the table 9 below.

Table 9. Levene Test Result for Age Groups

Variables	Levene Statistics	Df 1	Df 2	Sig.
Process Innovation	13.819	3	150	0.000
Product Innovation	9.354	3	150	0.000
Market Innovation	3.758	3	150	0.005
Internal Motivation	6.501	3	150	0.000
External Motivation	6.489	3	150	0.000
Business Performance	6.181	3	150	0.000

These values are expected to be greater than 0.50. If this is not the case, it is said that the variances of the groups are not homogeneous, that is, not comparable. In this case, it is not appropriate to compare the means of groups. Therefore, ANOVA could not be performed.

2) Differences in Educational Status Groups

As a result of Levene's test, equality of variances of the groups was accepted only for the external motivation variable. In this case, the necessary prerequisite for ANOVA test with process innovation, product innovation, market innovation, organizational innovation, internal motivation and business performance variables could not be met. Only external motivation was analyzed. However, there was no significant difference between educational status in terms of external motivation ($F=1.701$, $p>.05$).

The results of the Homogeneity of Variance test of the groups are given in table 10 below, and the results of the ANOVA analysis for external motivation are given in table 11.

Table 10. Levene Test Result for Educational Status Groups

Variables	Levene Statistics	Df 1	Df 2	Sig.
Process Innovation	6.804	4	150	0.000
Product Innovation	2.878	4	150	0.032
Market Innovation	4.308	4	150	0.005
Internal Motivation	4.848	4	150	0.003
External Motivation	1.701	4	150	0.156
Business Performance	4.231	4	150	0.014

Table 11. External motivation Test Result for Educational Status Groups

		N	Average	Standard deviation	t value	p value
External Motivation	Primary education	9	28.492	80.775	1.768	0.152
	High school	37	29.108	89.92		
	Licence	23	29.016	97.122		
	Master's Degree	56	31.588	92.969		
	Doctorate	25	31.588	92.969		

3) Differences by Occupational Groups

As a result of the Levene test, the equality of the variances of the groups was not accepted in any of the variables. In this case, the prerequisite for ANOVA test for these variables was not met. ANOVA analysis was not performed to compare the occupational groups because it would not be correct to interpret the results. The results of the Variance Homogeneity test of the groups are given in the table 12 below.

Table 12. Levene Test Result for Occupational Groups

Variables	Levene Statistics	Df 1	Df 2	Sig.
Process Innovation	6.259	4	150	.000
Product Innovation	5.858	4	150	.000
Market Innovation	6.932	4	150	.000
Internal Motivation	4.633	4	150	.000
External Motivation	9.113	4	150	.000
Business Performance	7.22	4	150	.000

4) Differences in Service Years

As a result of the Levene test, the equality of the variances of the groups was accepted for all variables except the internal motivation variable. In this case, it was decided to perform ANOVA test with the variables of process innovation, product innovation, market innovation, organizational innovation, external motivation and business performance. No analysis was made with only internal motivation. A significant difference was found between product innovation ($F=3.539$), ($.05>.012$) and external

motivation ($F=1.957$), ($.05>.045$) and years of service. It can be said that people with low seniority years are more effective in terms of product innovation and external motivation factors and they look at differences more warmly than people with high seniority.

No significant difference was found between process innovation, market innovation and business performance and years of service.

The results of the Homogeneity of Variance test of the groups are given in the table 13 below, and the results of the ANOVA analysis for the variables other than internal motivation are given in the table 14.

Table 13. Levene Test Result for Years of Service

Variables	Levene Statistics	Df 1	Df 2	Sig.
Process Innovation	7.709	4	150	0.057
Product Innovation	1.257	4	150	0.273
Market Innovation	2.151	4	150	0.088
Internal Motivation	1.981	4	150	0.024
External Motivation	3.021	4	150	0.093
Business Performance	4.22	4	150	0.392

Table 14. Internal Motivation Test Result for Service Year Groups

		N	Average	Standard deviation	t value	p value
Process Innovation	0-5 Years	50	2.637	0.80857	2.582	0.282
	5-10 Years	25	2.722	0.87764		
	10-15 Years	12	2.812	0.83978		
	15-20 Years	19	2.6	0.83525		
	20 Years and Over	44	2.738	0.89325		
Product Innovation	0-5 Years	50	2.91	0.84045	3.539	0.012
	5-10 Years	25	2.834	0.89254		
	10-15 Years	12	2.887	0.80543		
	15-20 Years	19	2.711	0.7931		
	20 Years and Over	44	2.753	0.93857		
Market Innovation	0-5 Years	50	2.964	0.84943	1.148	0.544
	5-10 Years	25	2.911	0.87164		
	10-15 Years	12	2.842	0.81947		
	15-20 Years	19	2.851	0.84221		
	20 Years and Over	44	2.709	0.79499		
External Motivation	0-5 Years	50	2.833	0.83947	1.957	0.045

	5-10 Years	25	2.917	0.82436		
	10-15 Years	12	2.954	0.9385		
	15-20 Years	19	2.709	0.89503		
	20 Years and Over	44	2.697	0.87243		
Business Performance	0-5 Years	50	2.978	0.8564	3.236	0.679
	5-10 Years	25	2.96	0.79536		
	10-15 Years	12	2.854	0.88943		
	15-20 Years	19	2.846	0.87183		
	20 Years and Over	44	2.706	0.84921		

H. Hypotheses Summary

As a result of the analyzes applied within the scope of the research, the evaluation results regarding the acceptance or rejection of the hypotheses determined at the beginning of the study are given below.

Table 15. Hypotheses After Evaluation

Hypotheses	Status
Hypothesis 1: Increasing employee motivation has a positive and significant effect on the innovation activities of Libyan Airlines serving in the civil aviation sector.	Supported
Hypothesis 2: Increasing innovation performance has a positive and significant effect on the performance of businesses serving in the civil aviation sector.	Supported
Hypothesis 3: Increasing employee motivation has a positive and significant effect on the performance of businesses serving in the civil aviation sector.	Supported
Hypothesis 4: Increasing employee motivation and innovation performance has a positive and significant effect on the business performance of businesses serving in the civil aviation sector.	Supported

Within the scope of the study carried out on the people working in the Libyan Airlines operating in the civil aviation sector, 4 different hypotheses were developed at the beginning of the research. These hypotheses are based on employee motivation, business innovation, and business performance.

Although the concept of innovation is the result that has been put forward, it is of great importance in terms of innovation. Motivation is defined as all of the activities done to motivate one or more people towards a certain purpose or goal continuously. Performance, on the other hand, is defined as the countable or uncountable results of the efforts or activities of the group or individuals during a specified process.

In this context, with this study, it was aimed to reveal the effects of increasing employee motivation through innovation studies on the performance of the civil aviation sector, which was determined at the beginning of the study, and all the hypotheses determined in line with this purpose were supported.

According to the results of the analysis, all hypotheses determined at the beginning of the research were accepted. Regression, correlation, T test and ANOVA tests were used to support the hypotheses.

V. CONCLUSION

When the studies carried out between innovation and employee performance in the previous periods are examined, it is seen that businesses and individuals that attach great importance to innovation positively affect employee performance. In the same way, it is seen that it is effective in improving innovation in the studies carried out to increase employee performance. In this context, the results of some studies carried out in previous periods are given below.

According to a study on the effect of participation on innovation, it has been determined that employees who participate in the decisions to be made in order to determine the need for change and innovation offer more creative ideas by adopting the need and show higher performance in the success of the innovation process (Wong, 2013). Similarly, in this study, it was determined that by increasing the motivation of the employees, the performance of the business would also be increased. From this point of view, it can be said that the previous studies on innovation, motivation and performance have been completed and supported.

Amabile and Pillemer (2012) states that money and time, which are two resources that affect creativity and innovation, should be allocated to employees in an adequate amount. The amount of these resources is important, as they either support or limit creativity. If employees are not allocated enough money and time to experiment or complete the project, their motivation will drop and they will not be able to succeed in the creative process. Exactly the same results were obtained with the results obtained in this study. By allocating enough money and time, it is ensured that the motivation of the employees is increased and the innovation activities are developed. This naturally contributes to the increase of the performance of the enterprise.

When the literature on the effect of increasing innovation performance on business performance is examined, it is seen that financial performance is mostly an indicator of firm performance and focuses on effects such as profitability rates, growth in sales and increase in total assets and turnover rates. Since non-financial factors are effective in increasing the company's performance, activities to increase these factors should be supported.

In his study of internet-based technology firms on the effects of product and process innovations on firm performance, Koellinger (2008) found that innovative firms have higher growth rates, but the same relationship cannot be valid for profitability. It has been shown that product innovation is more effective on firm performance than process innovation". In this study, it was determined that there was no significant difference between the innovation sub-factors. However, it has been accepted that motivation is a factor that supports all kinds of innovation.

Aspara et al. (2011) argued that "in addition to business model innovation, firms' ability to replicate successful business models in different regions and markets has an impact on performance. It has been found that among large-scale firms, those that are strategically important but do not attach great importance to duplication of business model innovation have lower financial performance than those that attach high importance to both. This shows that business model innovation alone is not sufficient to affect performance, and the findings of this study support the speculative proposition of Szulanski and Jensen (2008) that "firms can achieve profitable growth by imitating, not just initiating business model innovation". Innovation activities can also be carried out by copying successful business models.

Firm performance is affected by innovative activities, but although innovation is necessary to increase competitive performance, it is not a sufficient factor on its own. Innovation has a positive effect on firm performance, but it was emphasized that there are other factors to be considered in the relationship between innovation and performance.

Innovation speed has positive effects on both operational and organizational performance, and innovation quality has positive effects on financial performance. The effects of companies' knowledge sharing activities on innovation quality and speed.

Innovation has a positive effect on organizational performance. The improvement in financial performance is the result of increased product and market performance, while the increase in product and market performance is already due to the increase in innovative capabilities. Based on the analysis, study concluded that the efficiency levels of companies that increase their sales together with research and development activities by investing in intangible assets increase in parallel.

Atalay et al. (2013) tried to determine the effects of innovations in automotive supply industry companies on company performance through surveys. It has been determined that product and process innovations have a positive effect on firm performance, while marketing innovation and organizational innovation have no effect. In this study, similarly, it was determined

that product and process innovation affects business performance, and it is determined that market and organizational innovation directly affect business performance.

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