

# The Relations Between Digitalization and Employee Satisfaction in Aviation

Pınar Başar<sup>1\*</sup>, Gamze Arkan<sup>2</sup>

<sup>1</sup> Business Administration Department, Independent Researcher, İstanbul, Türkiye. (pinarbasar00@gmail.com)

<sup>2</sup> İstanbul Ticaret Üniversitesi, Business Administration Department, Beyoğlu, İstanbul, Türkiye. (gamzemarkan@gmail.com)

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Corresponding Author: Pınar Başar

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## Abstract

Digital transformation and Industry 4.0 concepts constitute an important interaction in professional life. Recently academic studies have been focusing on this area. The aim of this research is to examine the positive or negative effects of digital transformation in the aviation sector on employee satisfaction with a survey. The sample of the study consists of 245 employees in the aviation sector. Digitalization can have both positive and negative effects on employee satisfaction in aviation. On the positive side, digital technologies can improve the efficiency and safety of operations, leading to increased job satisfaction and a sense of accomplishment among employees. Automation can reduce the workload of employees, freeing up their time for more rewarding tasks, and reducing the risk of human error. Additionally, digital technologies can provide employees with access to real-time data and information, enabling them to make better decisions and be more productive. It has been demonstrated that digital transformation in the aviation industry has a positive relationship with employee satisfaction. It is recommended that the study be implemented in other sectors and then a holistic approach should be developed.

## 1. Introduction

In history, there have been many industrial developments and revolutions caused mainly by social and political factors. Nowadays, these developments and revolutions are classified in four stages. The Fourth Industrial Revolution which is also popularly named with "Industry 4.0" is the industrial stage in where machines, systems and the concept of digital transformation spread to every sector and field. It can be defined as the period that the industry demands minimum manpower with digitally connected and coordinated systems. In this period Digital transformation obtain the possibility of sustainably and continuously advancing by interacting with the other machines and systems through local and global networks.

With the effect of the Fourth Industrial Revolution in many sectors, it also causes physical and psychological changes on employees. The replacement of the machines with the manpower clearly has a significant effect on the decrease in the need for manpower, but also has a certain impact on the type of the manpower that is required to be employed. While the systems mainly run by simple manpower is being abandoned, more efficient systems integrated with digital transformation requires more skilled labor. The differentiation in the required employment features have a certain negative impact on the employees' attitudes such as loss of motivation

and the employee satisfaction felt towards the work environment, their coworkers and their superiors.

The aviation sector has been under the influence of digital transformation like other sectors. However, in order to catch up with the developments and benefit from the reinforcing effect of competition, it has become necessary for companies to follow and keep up with the bilateral developments in operations and management. For this reason, business administrations, which entered the rapid adaptation process, caused their employees to undergo some physical and psychological changes. In the face of this change, the expectations of the managers from the employees has begun to differ, and as a result, the concept of employee satisfaction began to gain importance. In addition to the physical conditions that affect employee satisfaction, their communication with managers and colleagues is also effective, and it makes it possible to turn the changes that come with the digital transformation process into benefits, in the clarification of the competitive areas of the enterprises that enter the digitalization process in line with positive or negative results.

There is a brief introduction to explain the research focus and gap in the first part of the article. In the second part is a literature review about digital transformation and employee satisfaction. The third part encompasses the methodology and findings of the study. The last part provides the conclusion and practical implications of the study.

### 1.1. Digital Transformation and Employee Satisfaction

Digitalization does not only provide the connection between individuals and institutions, but also speaks of a new stage in which objects and machines are interconnected. These stages constitute four basic elements: Customer demands and mass customization; the value of data and new business models; digital transformation as resource constraints and sustainability and the transition to investment and qualified workforce has formed these four foundations (Vural, 2017). Some authors have recently defined digital transformation as a rethinking of all business models and the logic of value creation in all industries. (Kane, Palmer, Phillips, Kiron, & Buckley, 2015).

Many companies that do not recognize digital transformation and take steps towards implementing it, are faced with the consequence of losing their competitive power gradually. It is also being observed that companies of all sizes which have been increasing company efficiency, facilitating operational processes and gaining or preserving competitive ability are processing or pioneering digital transformation in their own field. It is necessary for customers to convey information about products and services from digital sources originating from social media tools on a large scale, to provide feedback, to participate in conversations through digital channels, and to develop the company through such mediations. For this reason, it is necessary for managers to gain experience and knowledge in making sense and interpreting digital data by adding to the features they should have. Digital transformation in the industry not only shapes production, but also expands its spheres of influence and enables the development of new business models. Digital technologies not only affect production, but also transform business practices, human resources and management styles. (Vural, 2017).

Digitalization refers to the use of digital technologies to improve various aspects of an organization, including communication, collaboration, and decision-making. In the aviation industry, digitalization can include the use of technology to streamline operations, improve safety, and enhance the customer experience.

There is evidence to suggest that digitalization can have a positive impact on employee satisfaction in the aviation industry. For example, digital technologies can improve communication and collaboration among team members, which can increase job satisfaction. Digitalization can also make it easier for employees to access and use important information and resources, which can increase efficiency and reduce frustration.

However, it is important to note that the relationship between digitalization and employee satisfaction is not always straightforward. The introduction of new technologies can sometimes lead to changes in the way work is done, and these changes may not be well-received by all employees. For example, the implementation of new software or automation may lead to job losses or a change in the skills required for certain roles. This can lead to dissatisfaction among affected employees.

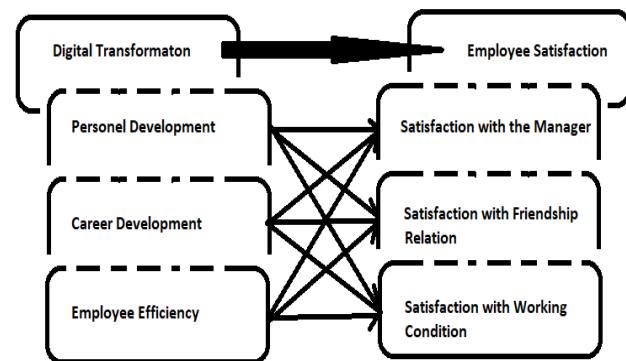
Overall, it is important for organizations to carefully consider the potential impact of digitalization on employee satisfaction and to involve employees in the process of implementing new technologies. This can help to ensure that the benefits of digitalization are realized while minimizing any negative impacts on employee satisfaction.

### 2. Materials and Methods

In the study, based on the data in the literature, it is predicted that the sub-dimensions of digital transformation, contribution to personal development, contribution to career development and contribution to work efficiency will significantly affect the satisfaction of the manager, friendship relations and work-work conditions, which are the sub-dimensions of employee satisfaction. The compliance of the current study with ethical principles was approved by the İstanbul Commerce University Ethics Committee.

First of all, it was sent to airline companies operating in the field of aviation operationally and managerially via online survey via Porsline via Turkish Private Sector Aviation Enterprises Association (TÖSHİD). 486 people were sent from airline companies and 265 people got feedback. The airline companies of the participants participating in the research; Employees of Corendon Airlines, Çelebi Hava Servis A.Ş., Gözen Air Service, Havaş Airports Ground Handling, Onurair Airline Company and Turkish Airlines participated in the survey.

Two different scales were used in this study. These are; Digital Transformation Scale (Kumar, 2016), Employee Satisfaction Scale (Yılmaz M., 2017). The first of these "Digital Transformation Scale" has been used (Kumar, 2016). It has been translated into Turkish by Begüm Yıldırım (2020) and consists of 12 questions. In the questionnaire, it is aimed to obtain the opinions of the employees about the digital transformation processes in the business. The other scale used in the questionnaire was the "Employee Satisfaction Scale" (Yılmaz M., 2017). The scale developed by Mustafa Kemal Yılmaz (2017) consists of 23 questions. Both questionnaires used are 5-point Likert-type questionnaires. The total number of questions in the survey is 42, including the Personal Information Form consisting of 7 questions, the Digital Transformation Overview Survey consisting of 12 questions, and the Employee Satisfaction Survey consisting of 23 questions.



**Figure 1.** Research Model

The research hypotheses developed to examine the relationships between the variables discussed in the study are as follows:

H1: Digital transformation has a significantly positive effect on employee satisfaction.

H1a: Personal development has a significantly positive effect on satisfaction with the manager.

H1b: Career development has a significantly positive effect on satisfaction with the manager.

H1c: Employee efficiency has a significantly positive effect on satisfaction with the manager.

H1d: Personal development has a significantly positive effect satisfaction with friendship relationships.

H1e: Career development has a significantly positive effect the satisfaction of friendship relations.

H1f: Employee efficiency has a significantly positive effect the satisfaction of friendship relations.

H1g: Personal development has a significantly positive effect satisfaction with working conditions.

H1h: Career development has a significantly positive effect on satisfaction with working conditions.

H1i: Employee efficiency has a significantly positive effect on satisfaction with working conditions.

### 3. Result and Discussion

#### The Effects of the Sub-Dimensions of the Digital Transformation

**Table 2:** Perspective Scale on Satisfaction with Friendship relationships

Satisfaction of Friendship Relations	Unstandardized Coefficient		Standardized Coefficient		
	B	Std Err.	Beta	t	Sig.
(Constant)		0.058		0.000	1.000
Personal Development	0.162	0.052	0.162	2.802	0.003
Career development	0.201	0.048	0.201	3.481	0.001
Employee Efficiency	0.254	0.051	0.254	4.402	0.000

F: 33,118 Sig. 0,002 / R: 0,462 / R Square: 0,213

In the model, Table2 shows that, the effects of digital transformation sub-dimensions on people's satisfaction with friendship relations were examined. The disclosure rate of the model is 0.462. Contribution to personal development (0.162), career development (0.201) and contribution to work productivity (0.254) seem to increase satisfaction with

friendship relations. Coefficients of independent variables are positive and statistically significant. Shallow. values are less than 0.05. In this case, hypotheses H1d, H1e and H1f are accepted.

#### Digital Transformation and Satisfaction with Working Conditions

**Table 3:** The Effects of Digital Transformation Perspective Scale Sub-Dimensions on Satisfaction with Working Conditions

Satisfaction with working Conditions	Unstandardized Coefficient		Standardized Coefficient		
	B	Std Err.	Beta	t	Sig.
(Constant)	0.003	0.024		0.000	1.000
Digital Transformation	0.204	0.042	0.289	4.887	0.000

As shown in Table 3, the effects of digital transformation sub-dimensions on satisfaction with work/working conditions were examined. The disclosure rate of the model is 0.382. Shallow. When we look at the values, it is seen that the effect of contribution to career development on satisfaction with work/working conditions is insignificant ( $0.264 > 0.05$ ). The H1h hypothesis is not supported. The effect of other variables

on satisfaction with work/working conditions is positive and statistically significant.

Contribution to work efficiency increases satisfaction by 0.114. In this case, the H1g and H1i hypotheses are supported.

#### Regression Model Between Digital Transformation and Employee Satisfaction

**Table 4:** Regression Model Between Digital Transformation and Employee Satisfaction

Satisfaction (Total)	Unstandardized Coefficient		Standardized Coefficient		
	B	Std Err.	Beta	t	Sig.
(Constant)	0.003	0.024		0.000	1.000
Digital Transformation	0.204	0.042	0.289	4.887	0.000

(Total) F: 31,573 Sig. 0,000 / R: 0,399 / R Square: 0,159

As Shown in Table 4, the simple regression model above was also examined according to the grand total values of the scales. The disclosure rate of the model is 0.399. The independent variable coefficient is 0.289 and positive. Sig. value of  $0.000 < 0.05$  is statistically significant. It has been concluded that the view of digital transformation and the studies related to it will increase employee satisfaction. H1 hypothesis is accepted.

satisfaction with the manager) and H1h (Career development has a significantly positive effect on satisfaction with working conditions) are not supported by the chosen population. The rest are accepted. And the main Hypothesis, H1, is also accepted. H1 was, "Digital Transformation has a significantly positive effect on employee satisfaction".

#### Hypothesis Tests Results

As shown in the result table, Table 5, it is clear that H1b (Career development has a significantly positive effect on

**Table 5:** Results of the Hypothesis Tests

H1: Digital transformation has a significantly positive effect on employee satisfaction.	Supported
H1a: Personal development has a significantly positive effect on satisfaction with the manager.	Supported
H1b: Career development has a significantly positive effect on satisfaction with the manager.	NOT Supported
H1c: Employee efficiency has a significantly positive effect on satisfaction with the manager.	NOT Supported
H1d: Personal development has a significantly positive effect satisfaction with friendship relationships.	Supported
H1e: Career development has a significantly positive effect the satisfaction of friendship relations.	Supported
H1f: Employee efficiency has a significantly positive effect the satisfaction of friendship relations.	Supported
H1g: Personal development has a significantly positive effect satisfaction with working conditions.	Supported
H1h: Career development has a significantly positive effect on satisfaction with working conditions.	NOT Supported
H1i: Employee efficiency has a significantly positive effect on satisfaction with working conditions.	Supported

#### 4. Conclusion

The digital transformation in the world has not yet been completed on a sectoral basis. When Turkey is considered, it is observed that the awareness of the changes experienced with the conceptual definitions of the new stages of digital transformation is low. Today, with the digital transformation experienced as a result of Industry 4.0, businesses have entered into change and transformation mobility in order to seize the opportunities in the sectors and to provide competition. Aviation companies, on the other hand, use digital technologies by taking advantage of digital transformation in order to increase their existing income, ensure operational development, catch up with developments and encourage innovation. (Tutar, Terzi, & Tinmaz, 2018).

Digital transformation, especially in today's pandemic process, many businesses carry out their business through digital channels. As a sector that has come to a standstill in operational terms with the pandemic period, the travel transactions made by the passengers over the internet and telephones, as well as the transfer of the working personnel to the digital environment, are very important for the digital transformation process in the airlines.

Digital transformation necessitates change and transformation in the personnel working together with the transformation processes in companies. The decrease in the need for manpower, which comes with Industry 4.0, comes with a great pressure along with the stress and employment problems on the working personnel. The differentiation of the expectations of the personnel working by the enterprises has led to the offering of various trainings in the field of digital transformation, as well as the fact that the personnel are requested and required to have new digitally enhanced skill set aligned with the new criteria determined in the recruitment phase.

According to the information compiled in this research, the operational and administrative units of airlines are in the process of digital transformation. Working personnel can adapt to the changing environment in order to respond to the demands of the changing management, the emergence of new occupational groups with digitalization; Employees face stress

in terms of dismissal and personal career development. While digital transformation provides advantages for businesses in different aspects, as a result of the attitudes and strategies changed by the management, the satisfaction levels of the employees towards their managers, colleagues and working environments also change. According to the results of the quantitative analysis carried out in this research, the model of the research was formed and hypotheses were formed in the study with the prediction that the sub-dimensions of digital transformation, which are contribution to personal development, contribution to career development and contribution to work efficiency, will affect the satisfaction of the manager, friendship relations and working conditions, which are the sub-dimensions of employee satisfaction. was created.

In the survey, which was applied to the personnel working in the airlines, the view of digital transformation was measured and the participants' digital transformation; It is seen that it has positive effects on business life, personal skills, career development, abilities displayed at work and productivity.

With the digitalization in the Human Resources department in the enterprises, e-training-performance evaluation, e-work opportunities and e-talent profiles provided through digital media, e-career applications such as energy saving provide positive effects such as saving time compared to traditional methods, in terms of speed. It allows the employees to devote the time given to their personal careers. Providing sufficient information about the job they want and these jobs by the manager, as well as the employee's confidence in his manager in promotion and job positions causes the person to feel confident that their needs are met. Thus, as a result of the positive returns of the working personnel, the productivity increase and the employee's commitment to the working environment are formed. In contrast to the information given in the literature review, the H1b, H1h and H1c hypotheses were found to be statistically insignificant in the study.

In the literature review, it does not indicate results in support of similar studies conducted by sampling within different sectors. However, in the study conducted by Kaya (2018), based on the sample of aviation industry ground handling workers, it was commented that the level of satisfaction with their careers did not have a significant effect on increasing their commitment to their organizations. Based on this information, the contributions applied to career management and the methods used in order to provide parallelism with the digitalization in the aviation sector, the inability to reach prevalence in the management of the enterprises today, has led to results such as the development of the career of the working personnel and the inability to perceive and make sense of the satisfaction felt towards the manager-working environment. In his digital transformation analysis study on food and beverage businesses by Barış (2021), it was emphasized that managers should be guiding in order to use and integrate renewed technological applications within the business and that they should inform the employees about the practices. Considering the different sectors, in the study conducted by Yavuz (2020) in line with the effects of digital transformation in the tourism sector, the most important challenge in digital transformation in the tourism sector is the necessity of preparing the human factor and personnel. When the information obtained is interpreted by considering the integration of digital transformation applications on internal employees, it is necessary to follow up the digital transformation experienced in Turkey by the managers and to follow new ways to implement it.

## 5. Recommendations and limitations

It has been concluded that digital transformation applications in airline companies will have positive effects on employee satisfaction and increase satisfaction. The places where the concept of digitalization in the aviation sector is seen intensely has been the airport structure. However, considering the digitalization process in Turkey and where it is now, the slow pace of progress slows down the process and perception level, as the managers and staff lack information and training on this issue. For this reason, career opportunities and changes in the concept of work efficiency; In line with the fact that it can affect the satisfaction of the employees, it is foreseen that the enterprises using digital experiences more actively and providing opportunities will affect the satisfaction.

The main constraints of the study are that the data of the research is obtained from the airline companies that contribute to the transportation of the surveys in order to contribute to the research in Turkey, and from individuals regardless of the field of study in the sector, by using the convenience sampling method due to time constraints and the difficulty of sampling. Another limitation of the study is the fact that certain digital transformation dimensions were discussed in the research and other variables that may have an effect on employee satisfaction were not included in the research.

The fact that this research was carried out on the aviation sector and that the scale expressions specified were adapted for the effects on the aviation sector constitute a limitation of this research. Research results are limited to March 2021- April 2021, the period during which research data were collected.

With the emergence of the concept of digital transformation, it has become necessary for companies to follow and keep up with the two-way developments in operations and management in order for businesses to catch up with the developments and benefit from the strengthening effect of competition. For this reason, business administrations, which have entered the rapid adaptation process, cause their employees to undergo physical and psychological changes, but employee satisfaction has gained importance. In addition to the physical conditions that affect employee satisfaction, their communication with managers and colleagues is also effective, and it makes it possible to turn the changes that come with the digital transformation process into benefits, in the clarification of the competitive areas of the enterprises that enter the digitalization process in line with positive or negative results. The subject of this research is important because of the results such as determining how and in what way the employee satisfaction is affected by digital transformation, as well as the view of the employees towards digital transformation.

The research limitation of this study is that the findings reached thanks to the sample size are large enough to provide the main mass.

### Ethical approval

Ethical Approval The survey study was carried out with the approval number E-65836846-044-206782 of Istanbul Commerce University Ethics Commission.

### Conflicts of Interest

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

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