

Uçuş Operasyon Görevlilerinin Dijitalleşme ve Yeni Teknolojilere Yönelik Tutumları

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Öz

21. yüzyılda dünyayı saran internet ve bilgisayar sistemleri, insanların iş yapma şeklini geri dönülmez biçimde değiştirmiştir. Son yıllarda artan yapay zeka ve uzman sistemler birçok mesleği tehdit etmektedir. Yakın gelecekte çalışanların kariyer planlamasını engelleyeceği tahmin edilmektedir. Ayrıca bazı görüşlere göre yapay zeka teknolojilerinin entegre edildiği bu dönemin, çalışanların hayatlarını zorlaştırmaktan ziyade niteliklerini değiştirdiği düşünülmektedir. Endüstri 4.0 ile ilişkilendirilen dijitalleşme, kuruluşların çalışma hayatını ve çalışmalarını dönüştürüyor. Önümüzdeki yıllarda kuruluşların dijitalleşme eğilimlerinin artarak devam edeceği öngörülmektedir. Dijital çağda yapay zeka ve uzman sistemlerdeki gelişmeler havacılık sektörünün dönüşümünü hızlandırmaktadır. Teknolojik gelişmelerin yaşandığı bu dönemde çalışanların değişime yönelik tutumları değişim sürecinde önemli bir konudur. Hava taşımacılığında ilk uçuş yaklaşık 100 yıl önce yapılmış olmasına rağmen, havacılık dünyanın en büyük endüstrisi haline geldi. Hava taşımacılığı sektörü, 2019 verilerine göre dünya çapında yaklaşık 65,5 milyon kişiye iş sağlamıştır. Dünyada havayollarının sunduğu hizmetler sonucunda bu sektör, küresel GSYİH'ya yaklaşık 665 milyar dolar katkı sağlamakta ve dünya GSYİH'sini %3,5 oranında desteklemektedir. Sivil Havacılık Genel Müdürlüğü tarafından 2020 yılında yayınlanan yıllık rapora göre; Havacılık sektöründe 295.547 kişi istihdam edilmektedir. Bu çalışmanın amacı; Türkiye'de havacılık sektöründe çalışan uçuş operasyon uzmanlarının dijitalleşme ve yeni teknolojilere yönelik tutumlarının ölçülmesidir. Araştırma için özel olarak hazırlanan ölçek çevrimiçi platformlarda yayınlanmıştır. Araştırma, 2021 yılında Türkiye'de gerçekleştirilmiştir. Araştırma, farklı havayolu şirketlerinde çalışan uçuş operasyon uzmanları ile yapılmıştır. Araştırmanın literatür bölümü Örgütsel Değişim ve Dijitalleşme Sürecinin Çalışma Hayatına Etkisi kapsamında değerlendirilmiştir. Araştırmanın sonuç kısmında ise anketin sonuçları tartışılmıştır.

Anahtar Kelimeler: Dijitalleşme, Havacılık, Organizasyonel Değişim, Uçuş Operasyonları Dispatcher

Jel Kodları: M1, L93, O30

The Attitudes of Flight Operations Dispatchers towards Digitalization and New Technologies

Abstract

Internet and computer systems surrounding the world in the 21st century have irreversibly changed the way people do business. Artificial Intelligence and expert systems that have increased in recent years have threatened many professions. It is estimated that in the near future, it will block the career planning of employees. In addition, according to some opinions, this period in which artificial intelligence technologies are integrated is thought to change the qualifications of the employees rather than make their lives difficult. Digitalization, which is associated with Industry 4.0, transforms the working life of organizations and their work. In the coming years, it is predicted that the digitalization tendencies of organizations will continue to increase. In the digital age developments in artificial intelligence and expert systems accelerate the transformation of the aviation industry. Employees' attitudes towards change in this period of technological developments are an important issue in the process of change. Aviation has become the world's largest industry, although the first flight in air transport was made about 100 years ago. The air transport industry provides jobs to approximately 65.5 million people worldwide, according to 2019 data. As a result of the services provided by the airlines in the world, this sector contributes approximately 665 billion dollars to the global GDP and supports the world GDP by 3.5%. According to the annual report published by the General Directorate of Civil Aviation in 2020; 295,547 people are employed in the aviation industry. The aim of this study is; It is the measurement the attitudes of flight operations experts working in the aviation industry in Turkey towards digitalization and new technologies. The scale specially prepared for the research has been published on online platforms. The research was conducted in Turkey in 2021. The research was conducted with flight operations experts working in different airline companies. The literature section of the research was evaluated within the scope of the Impact of Organizational Change and Digitalization Process on Working-life. In the conclusion part of the research, the results of the survey are discussed.

Keywords: Digitalization, Aviation, Organizational Change, Flight Operations Dispatcher

Jel Codes: M1, L93, O30

1. Introduction

With the developing technologies, there are big changes in the working models of enterprises. Due to Industry 4.0, changes in information technologies will be one of the important thresholds for organizations. The concept of Industry 4.0 was first used at the Hannover Fair in Germany in 2011 (Schwab, 2017). This new industrial revolution is described in the simplest sense as "a process in which the strengths of traditional industry and advanced internet, information and automation technologies are integrated". Therefore, business environments, organizational structures, and working models continue to change and transform as a result of advanced technologies (Hermann, Pentek, & Otto, 2016).

This revolution attracts more attention over time, both in business and in the academic environment. Industry 4.0 technologies contribute to the great changes of organizations. It is aimed to increase both the performance and productivity of employees with new technologies. Technological changes revealed by the digital age are foreseen to produce more efficient and effective business models (Schwab, 2017).

As stated by World Economic Forum's 2020 report titled "The Future of Jobs"; Although the activities of digital technologies are increased in the working life today, one fact will never change: there will be people in working life. Therefore, the manager of organizations should be aware that the process of change is inevitable. In addition, the awareness of the purposes of the changes will help them adapt to these changes. As a result of the opportunities brought by the digital age, new working environments of the workforce are transformed by information technologies (Ersöz & Özmen, 2020).

As stated by Mc Kinsey's 2020 report titled "The Future of Our Business: Turkey's Talent Transformation in the Digital Age"; 50% of jobs are automated worldwide. 6 out of every 10 professions are automatable by 30 percent with the technologies available in Turkey. Moreover, the report predicts that automation, artificial intelligence, and digital technologies have the potential to create 3.1 million job growth in the next 10 years with its economic benefits and social changes. 7.6 million Jobs will be lost, also turning into new jobs and creating 8.9 million new jobs by 2030 with the impact of automation and digitalization. Particularly 1.8 million new jobs will be created, in technology-related areas (Kinsey, 2020).

Aviation has become the world's largest industry, although the first flight in air transport was made about 100 years ago. The air transport industry provides jobs to approximately 65.5 million people worldwide, according to 2019 data. As a result of the services provided by the airlines in the world, this sector contributes approximately 665 billion dollars to the global GDP and supports the world GDP by 3.5%. According to the annual report published by the General Directorate of Civil Aviation in 2020; 295,547 people are employed in the aviation industry.

The aviation sector is rapidly affected by technological developments and adapts to these developments quickly compared to other sectors. Digital technologies that continue to develop also change the future goals and expectations of aviation sector stakeholders. Every step towards digitalization in this sector continues

to affect the working models and structures of aviation organizations. In this study, the results of the analysis of the attitudes of flight operations dispatchers in Turkey towards digitalization and new technologies were revealed.

2. Theoretical Framework

2.1 Organizational Change

Change in general; relocating individuals and objects or relocating personal information, skills and abilities from the current situation, as it refers to bringing anything from one level to another (Taşlıyan & Karayılan, 2011). As stated by Yeniçeri (2002), when the changes around the organization reach great dimensions, the organization has to change in line with the demands of the environment in order to maintain its future existence (Yeniçeri, 2002). Organizations that want to adapt to changing competitive conditions focus on renewing, developing, and changing themselves through new competition strategies. Openness to organizational change can be defined as the perception that change is necessary, including willingness to support change and readiness for change, and expresses the ability of the organization to change (Chiang, 2010).

Adapting to change is a necessity for today's world. The fact that the employees are primarily open to the changes to be experienced in the organization is the first step in the process of change. Employees who are open to change can adapt more easily to this new process, while those who are closed to change can resist (Uzkurt, 2017). In the age of knowledge and technology we live in, the continuity of change and the increasing speed in every field is undeniable. At this point, the awareness levels of the organization's employees for change also affect their openness to change and their ability to adapt to change. As stated by Chiang, the leaders of the organizations have a great task to make the organizations' adaptability to the changes sustainable. Especially in today's digitized work environment, leaders need to analyze environmental change well, make good use of potential threats or opportunities, and support the process of change with new projects. On the other hand, if the leader of the organization remains passive in the process of change, it will be very difficult for organizations to adapt to change (Chiang, 2010).

As stated by Koç (2014), one of the important changes experienced contained by the organization has occurred in the field of information technologies. Organizational change due to technological developments allows people to constantly learn new knowledge and skills and to communicate actively with other people. Thru the technological changes carried out in the organizations, employees have easier access to information. Analysis and analysis of information are carried out more quickly and reliably (Koç, 2014).

Resistance to change is one of the factors that negatively affect the success of organizations in adapting to rapidly changing environmental conditions. Employees probably do not accept an inevitable cycle when they resist change. The size of the search for the routine of the employees during the change process is expressed as follows; It is the lower dimension of resistance to change that employees would rather be bored than confront the unexpected, and rather than acquire new and different skills, they want to continue their business life with existing skills. When organizations need change, it is useful to convey the causes and consequences of this change to employees through quality communication (Beger & Özmen, 2020).

2.2 Impact of Digitalization Process on Working Life

The concept of digitalization, which enters the working life with Industry 4.0, causes big changes and rapid transformations in working life with new technologies. As stated by Ersoz and Ozmen (2020), it is common for employees to have some problems in using these new technologies due to the fact that digital technologies have taken a more active role in working life in recent times. It is necessary to increase the skills of employees to use these technologies by providing technology-oriented training in business environments where a high level of technology is used. Focusing on improving the performance and productivity of employees will play a major role in success in the digitalization process (Yankın, 2019). In order for enterprises to be successful in this process of change, they must first invest in human capital. Employees who adapt to new technologies will be equipped with new skills and will be more motivated to do their job (Schwab, 2017). Otherwise, skills gaps will prevent the adoption of digital technologies both among employees and among senior leaders. Therefore, such enterprises will lose their sustainability in a competitive environment and will be quickly removed from the market (Konyalılar, 2020). According to The Future of Jobs report; 85% of the businesses surveyed said that by 2022, they have developed new strategic plans to make more use of big data analytics and internet of things applications from new technological trends. The report provides information from 15 different industrial sectors from 26 developed or developing countries; 43% of the businesses surveyed stated that they are ready to reduce their workforce due to technology integration. By 2025, more than 80% of company executives will use digital technologies and automation more in their business processes (World Economic Forum, 2020).

With the Covid-19 pandemic, the steps taken by enterprises towards digitalization will affect future business models (Erol, 2020). According to Turkey on the Path to Digitalization report published by the Digital Turkey Platform in 2021; 77% of global CEOs and 67% of CEOs in Turkey stated that they will continue to use and develop the digital collaboration tools they have started to use. In addition, 73% of global CEOs and 87% of CEOs in Turkey say that working remotely expands the potential talent pool. In this report, 69% of global CEOs stated that the concept of space has decreased in this process of change, and 60% of CEOs in Turkey have indicated that they will reduce their office space in the coming periods. As stated by the report, as the share of digitalization and remote work in the business world increases, the expectations of employees will change in the same direction, it will be important for employees to have high individual awareness about adding different skills to themselves, adapting to change within the organization and to be open to development in the coming periods (Dijital Türkiye Platformu, 2021).

While digitalization is rapidly changing the working life, new concepts are also emerging. In particular, the concept of gig economy is a term on which both employees and businesses work. The concept of gig economy in general; is a method of work based on people doing temporary work, each paid separately, rather than being affiliated with an employer or a business (Görmüş,2020).

Employees in the gig economy are more flexible in choosing the to-do, getting a job and quitting, or setting working hours. In this way, the potential benefits, their efficiency is higher (Şen, Arslan, & Bütün, 2020).

3. Methodology

The purpose of this research is; Industry 4.0 awareness of flight operations specialists operating in the Turkish aviation sector is to measure their ability to adapt to digitalization and new technologies and their resistance to change. This research is carried out in Turkey in 2021 and an interview form was organized as a data collection tool. According to the corporate activity report for 2020 published by the General

Directorate of Civil Aviation, a total of 408 licensed flight operations specialists operate in the sector in Turkey (Sivil Havacılık Genel Müdürlüğü, 2020). 125 flight operations dispatchers participated in the interview form prepared according to the likert scale of 5. A comprehensive literature study was carried out in the process of preparing the interview form. Using the Industry 4.0 Conceptual Awareness Scale (E4.0-KFÖ) developed by Dogan and Nuroglu (2020), the questions asked to the participants were adapted. In addition, the Attitude to Digital Technology scale developed by Cabi (2015) has been used. In the light of the data obtained; The form consists of two parts. In the first part, participants were asked about their demographics. In the second part, there are 18 questions to determine the participants' industry 4.0 awareness levels, their adaptation, and resistance to digitalization and new technologies. Participants were reached via the Internet; the responses of the participants were collected through the Google Form System. Moreover, the obtained data were analyzed using the SPSS program. According to the information obtained from the SPSS program, the problem of the research was discussed.

4. Findings and Analysis

4.1 Reliability and Validity Analyses

Table 1 shows that all items range from 0.50 to 0.88 when factor loads are examined. Four expressions are grouped in the first factor and this factor is called "Industry 4.0 Awareness"; seven expressions are grouped in the second factor and this factor is called "Adaptation to Digitalization and New Technologies"; In the last factor, six expressions were grouped and this factor was called "Resistance to Digitalization and New Technologies". The reliability of the three factors shown in the table was looked at with the Cronbach Alpha coefficient. The reliability coefficient varies between 0 and +1. The reliability coefficient is close to 1, which means that the internal consistency between the substances is high.

Table 1. Factor Loads of Scale Items, Item Total Correlations, Alpha Reliability Coefficients

Factor	Expressions	Factor Load	Item Total Correlation	Cronbach Alpha Coefficient
Factor1: Industry4.0 Awareness	I know about the concept of "Industry 4.0".	0,69	0,62	0,67
	I think it's premature for the concept of Industry 4.0 to enter our lives.	0,82	0,58	
	I follow the developments related to Industry 4.0 technologies.	0,88	0,75	
	I use industry 4.0 technologies such as artificial intelligence and cloud computing in my working life.	0,52	0,63	
Factor2: Adaptation to Digitalization and New Technologies	I can easily adapt to digitalization and technological developments.	0,86	0,65	0,69
	I am developing myself in this direction in order to adapt to digitalization and new technologies.	0,72	0,64	
	I feel ready for the developments related to digitalization and new technologies in the office where I work.	0,83	0,67	
	With digitalization, I support new technological models that will prepare my profession for the future.	0,76	0,68	
	I think airlines that can't adapt to technology and digitalization will lag behind in the competition.	0,65	0,63	
	I strive to acquire the skills that digitalization and new technologies will bring.	0,58	0,61	
	I am attracted to digitalization and technological developments in the aviation sector.	0,72	0,68	
Factor 3: Resistance to Digitalization and New Technologies	I am positive about artificial intelligence - human cooperation.	0,78	0,58	0,61
	I think the expenditures on digitalization and technology products are unnecessary.	0,65	0,5	
	Every technological development related to my profession will reduce the need for people and as a result, it will become more difficult to find a job.	0,75	0,58	
	Thanks to digitalization and new technological developments, my knowledge, skills, and habits change.	0,72	0,53	
	I think my job needs digitalization and technological change.	0,77	0,58	
	I believe in digitalization will make my job harder.	0,74	0,56	

Table 2 includes frequency and percentage analysis results of the participants' gender, age and educational status variables. When the findings from the analysis of the data were examined, it was observed that 11 (8.8%) of the participants were female and 114 (91.2%) were male. When data about the age of the participants are analyzed; 53 (42.4%) of the participants were aged 20-34; 56 (44.8%) were found to be between the ages of 35 and 49, and 16 (12.8%) of the participants were 50 years of age or older. When the education status, which is the last variable of table 2, is examined; 10 (8%) of the participants are associate

degree graduates; 110 (88%) are undergraduates and finally 5 (4%) of the participants are graduates or are still continuing their postgraduate education.

Table 2. *Frequency and Percentage Analysis of Participants' Demographic Characteristics*

Variable	Category	f	%
Gender	Female	11	8,80
	Male	114	91,20
Age	20- 34 age range	53	42,4
	35- 49 age range	56	44,8
	50 age and older	16	12,8
Education Status	Associate's degree	10	8,0
	Bachelor's degree	110	88,0
	Master's degree	5	4,0

4.2 Findings for Participants' Position Status in Total Work Experience and Operations Control Center

Table 3 includes frequency and percentage analysis results for participants' total work experience. According to the findings, the total work experience of the participants is as follows: 63 (50,8%) participants with a total of 1-10 years of work experience, 32 (25,0%) participants with 11-20 years of work experience and finally 30 (24,2 %) participants with 21 years or more of work experience participated in the evaluation form. In addition, when the data on the positions of the participants are examined; 102 (84,6%) of the respondents were flight operations specialists. Those with senior positions were found to be in the minority.

Table 3. *Frequency and Percentage Analysis of Participants' Total Work Experience and Positions in The Operations Control Center*

Variable	Category	f	%
Work Experience	1-10 years	63	50,8
	11- 20 years	32	25,0
	21 years and up	30	24,2
Total		125	100
Position	Flight Operations Specialist	102	84,6
	Shift Chief	12	7,9
	Office Manager	11	7,5
Total		125	100

4.3 Findings from Expressions to Measure Participants' Industry 4.0 Awareness Levels

In this subheading, the responses to the expressions were analyzed primarily to measure the participants' awareness of industry 4.0. Since the answers to the expressions directed to the participants are in different categories, they are prepared in the form of two tables and an image.

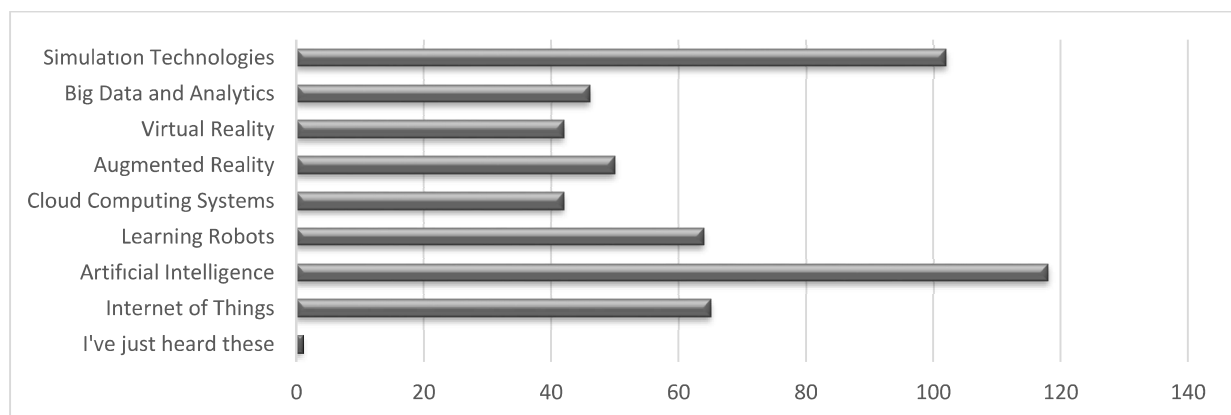
Table 4. Participants' Participation in Industry 4.0 Awareness Statements

EXPRESSIONS	I strongly disagree.		I disagree.		Natural		I agree.		I strongly agree.		Total	Average
	N	1	N	2	N	3	N	4	N	5	125	
Factor1: Industry4.0 Awareness												
I know about the concept of "Industry4.0".	4	%3,0	2	%2	26	%21	88	%70	5	%4	125	3,70
I think it's premature for the concept of Industry4.0 to enter our lives.	21	%17	45	%36	38	%30	18	%14	3	%2	125	2,49

Note: N=125; Scale: 1= I strongly disagree, 2= I disagree, 3= Natural 4= I agree, 5= I strongly agree

According to Table 4, the majority of participants were found to have knowledge of the concept of industry 4.0. In addition, 66 (53%) of respondents; Industry 4.0 has stated that it is not premature to enter our lives. 38 (33%) of respondents stated that they were undecided. When the data of participation status of expressions for Industry 4.0 awareness were examined, it was observed that flight operations specialists had an average level of awareness.

Figure 1. Information Status of Participants about Industry 4.0 Technologies



In this part of the first factor, participants were asked which industry 4.0 technologies they were used to digitize. Participants were able to select multiple optional options. Participants in Figure 1, respectively; it has been observed that they have knowledge about artificial intelligence, simulation technologies, internet of things, learning robots, augment reality, big data and analytics, cloud computing systems, virtual reality technologies. Only one of the participants stated that they were only aware of the new technologies.

Table 5. *Flight Operations Dispatchers' Participation in Industry 4.0 Awareness Statements*

EXPRESSIONS	Never		Rarely		Sometimes		Most of the time		Always		Total	Average
	N	1	N	2	N	3	N	4	N	5	125	
Factor 1: Industry 4.0 Awareness												
I follow the developments related to Industry 4.0 technologies.	7	%6	14	%11	47	%38	67	%46	0	%0	125	3,23
I use industry 4.0 technologies such as artificial intelligence and cloud computing in my working life.	0	%0	18	%14	62	%50	42	%34	3	%2	125	3,24

Note: N=125; Scale: 1= Never, 2= Rarely,, 3= Sometimes, 4= Most of the time, 5= Always

According to the findings of the last part of Factor 1; It has been observed that the majority of participants follow the developments related to new technologies and are aware that these new technologies are involved in their working lives.

When Factor 1 is evaluated in general, it is concluded that; 74% of respondents are familiar with the concept of industry 4.0. While 53% of respondents thought it was not premature for the concept of industry 4.0 to enter our lives; 30% of respondents were undecided; 16% of the other participants think that the concept of industry 4.0 is premature.

Participants were found to have the most knowledge of artificial intelligence and simulation technologies. In addition, most respondents (84%) said they followed developments related to industry 4.0 technologies; 6% of the participants were found not to follow the developments related to new technologies, and as a result, it is seen that the participants are aware of the concept of industry 4.0, are aware of new technologies and use these technologies in their working lives.

4.4 Findings on Participants' Participation in Expressions for Digitalization and Adaptation to New Technologies

This part of the research includes expressions for participants' adaptation to digitalization and new technologies. Table 6 was created in line with the responses of the participants to these statements and the answers of the participants were analyzed.

According to Table 6, the majority of flight operations experts who participated in the research were found to be adapting to digitalization and new technological developments, striving to adapt to change and ready for digitalization in the office where they work. More than 80% of respondents support new technological models that contribute to the digitization of the relevant profession and prepare the profession for the future. 84% of respondents state that airlines that cannot adapt to new technologies and digitalization will be left behind in the competition during the digitalization process. In addition, 83.3% of the participants were found to be interested in digitalization and technological developments in the aviation sector.

Table 6. Participation situations in statements aimed at digitalization and adaptation of flight operations dispatchers to new technologies

EXPRESSIONS	I strongly disagree.		I don't agree.		Natural		I agree.		I strongly agree.		Total	Average
	N	1	N	2	N	3	N	4	N	5		
Factor 2: Adaptation to Digitalization and New Technologies											125	
I can easily adapt to digitalization and technological developments.	0	%0	6	%5	22	%18	76	%60	21	%17	125	3,89
I am developing myself in this direction in order to adapt to digitalization and new technologies.	3	%2	16	%13	53	%43	40	%32	13	%10	125	3,35
I feel ready for the developments related to digitalization and new technologies in the office where I work.	3	%2	11	%9	33	%26	57	%46	21	%17	125	3,65
With digitalization, I support new technological models that will prepare my profession for the future.	0	%0	0	%0	20	%16	69	%55	36	%29	125	4,12
I think airlines which can't adapt to technology and digitalization will lag behind in competition.	0	%0	15	%12	4	%3	44	%35	62	%50	125	4,22
I strive to acquire the skills that digitalization and new technologies will bring.	0	%0	6	%5	27	%22	57	%46	35	%28	125	3,96
Digitalization and technological developments in the aviation sector attract my attention.	0	%0	9	%7	11	%9	58	%46	47	%38	125	4,14

4.5 Findings of Participants' Participation in Expressions regarding Digitalization and Resistance to New Technologies

In the last part of the research, Factor 3; the statements of the flight operations specialists who participated in the survey were given about their resistance to digitalization and new technologies. In line with the responses of the participants to these statements, Table 7 was created and the data was analyzed.

Table 7: Flight Operations Dispatchers' Participation in Expressions regarding Their Resistance to Digitalization and New Technologies

EXPRESSIONS	I strongly disagree.		I don't agree.		Natural		I agree.		I strongly agree.		Total	Average
Factor 3: Resistance to Digitalization and New Technologies	N	1	N	2	N	3	N	4	N	5	125	
I am positive about artificial intelligence-human cooperation.	14	%11	4	%3	20	%16	63	%50	24	%19	125	3,63
I think the expenditures on digitalization and technology products are unnecessary.	63	%50	37	%30	10	%8	15	%12	0	0	125	1,81
Every technological development related to my profession will reduce the need for people and as a result, it will become more difficult to find a job.	3	%2	15	%12	30	%24	48	%38	29	%23	125	3,68
Digitalization and new technological developments are changing my knowledge, skills and habits.	0	%0	9	%7	23	%18	81	%65	12	%10	125	3,76
I think my job needs digitalization and technological change.	0	%0	22	%18	12	%10	71	%57	20	%16	125	3,71
I believe that digitalization will make my job harder.	37	%30	51	%41	19	%15	18	%14	0	%0	125	2,14

Note: N=125; Scale: 1= I strongly disagree, 2= I disagree, 3= Natural 4= I agree, 5=I strongly agree

According to Table 7, more than 69% of respondents said they viewed AI-human cooperation positively, and that digitalization and investments in new technologies were necessary. 75% of respondents state that their knowledge, skills and habits have changed with the development of digitalization and new technologies. In addition, 73% of respondents have an opinion that their profession needs digitization and new technologies. At the same time, more than 70% of respondents think that digitalization will not make it difficult. In summary, it is right to make the following analysis from Table 7: Most of the participants support them rather than resisting digitalization and new technologies. They are aware that they cannot meet the requirements of the digital age in which they have knowledge, skills and habits. It is also worth noting that while participants support digitalization and new technologies; Every technological change in their profession will reduce human need and it will be difficult to find a job.

5. Results

The Industry 4.0 revolution continues to digitize the century we are in quickly. It is now imperative rather than an option for organizations to adapt to changes in order to survive in the future. Many organizations have new technologies that will require a change in their working methods and work is being carried out on these technologies every day.

Digitalization and the development of new technologies over time affect all professions as well as undoubtedly flight operations specialists operating in the aviation sector. As a result of the developments in artificial intelligence technologies in the coming years, it is an inevitable fact that the relevant professionals will undergo a change as in every profession.

In day-to-day flight operations, strategic digital enhancements, now being delivered through a suite of intuitive airline applications and services, offer airlines both immediate and future-proof benefits. These, by supporting the roles involved at every flight stage, are, in turn, helping airlines optimize their overall operations. In the operation control centre, digitalization is increasingly transforming work processes to become natively digital. These new digital technologies can help flight operation dispatchers enhance operational efficiency, situational awareness, collaboration and safety processes, as part of an airline's bespoke digitalized portfolio (Dimnik, 2020).

As a result of the research, 125 flight operations specialists are aware of digital change and support this change in the profession, and state that the profession needs to be equipped with digitalization and new technologies. It is seen that they will also strive to adapt to the changes made in this direction. AI – Participants who are positive about human cooperation also state that it will be even more difficult to find a job in the profession due to developing technologies.

In order to achieve positive value from human-new technologies cooperation in the current digital age, employees must first have industry 4.0 awareness. Otherwise, if this awareness does not occur in employees, their ability to adapt to innovations in technological changes will be weak. Incidentally, a great responsibility falls on both the leaders of the organization and human resources experts. Industry 4.0 awareness should be established in employees by carrying out the necessary orientation training within the company. In this training, it should be stated why the organization needs change, and the reasons for the resistance of employees who do not accept change should be examined. The fact that employees take an active role in these training in order to adapt to digitalization and new technologies can also be considered as one of the methods of reducing resistance to change. Moreover, in organizations that are beginning to be renewed for the future, units such as talent and innovation management need to take a more active role.

References

- Beger, G., & Özmen, D. (2020). Değişime Direnç ve Çalışan Yaratıcı Davranışı Arasındaki İlişkide Stresin Aracı Rolü. *Dicle Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*.
- Chiang, C.-F. (2010). Perceived Organizational Change in the Hotel Industry: An Implication of Change Schema. *International Journal Of Hospitality Management*, 157-167.
- Dijital Türkiye Platformu, (2021). Dijitalleşme Yolunda Türkiye. <https://assets.kpmg/content/dam/kpmg/tr/pdf/2021/04/dijitallesme-yolunda-turkiye-raporu-2021.pdf>
- Dimnik, I. (2020). <https://www.sita.aero/globalassets/docs/brochures/ddo-aviation-digitalization-tips.pdf>
- Erol, S. I. (2020). Covid-19'un Çalışma Hayatına Yansımaları: Salgından Etkilenen Bazı Ülkeler Tarafından Alınan Önlemler. *Dicle Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*.
- Ersöz, B., & Özmen, M. (2020). Dijitalleşme ve Bilişim Teknolojilerinin Çalışanlar Üzerindeki Etkileri. *Bilişim Teknolojileri Online Dergisi*.
- World Economic Forum (2020). *The Future of Jobs*. http://www3.weforum.org/docs/WEF_Future_of_Jobs_2020.pdf
- Görmüş, A. (2020). Gig Ekonomisinde İstihdam ve Endüstri İlişkileri: İstihdam Statüsünden Kaynaklanan Zorluklar. *Sosyal Güvenlik Dergisi*, 231.
- Hermann, M., Pentek, T., & Otto, B. (2016). Design principles for industrie 4.0 scenarios. *Hawaii International Conference*.
- Kinsey, M. (2020). *The Future Of Our Business: Turkey's Talent Transformation in the Digital Age*. https://www.mckinsey.com/tr/~/_media/mckinsey/locations/europe%20and%20middle%20east/turkey/our%20insights/future%20of%20work%20turkey/isimizin-gelecegi-mckinsey-turkiye-raporu_ocak-2020.pdf
- Koç, Z. (2014). Örgütsel Değişim, Değişim Yönetimi ve Örgütsel Davranışlar Üzerine Örnek Bir Uygulama. *Yüksek Lisans Tezi*. İstanbul, Türkiye: T.C. Bahçeşehir Üniversitesi Sosyal Bilimler Enstitüsü.

Konyalılar, N. (2020). *Havacılık Sektöründe Entelektüel Sermaye, İnovasyon ve Performans*. İstanbul : Kriter Yayınevi.

Sivil Havacılık Genel Müdürlüğü, 2020 Yılı Kurumsal Faaliyet Raporu, <http://web.shgm.gov.tr/documents/sivilhavacilik/files/pdf/kurumsal/faaliyet/2020.pdf>

Schwab, K. (2017). *The Fourth Industrial Revolution*. London: Portfolio Penguin.

Şen, G., Arslan, A., & Bütün, E. (2020). Gig Ekonomisinin Havacılık Sektöründeki Geleceği. *Journal of Aviation Research*.

Taşlıyan, M., & Karayılan, D. (2011). *Organizasyonlarda Değişim ve Yönetimi*. İstanbul: Beta Yayınları.

Uzkurt, C. (2017). *Yenilik (İnovasyon) Yönetimi ve Yenilikçi Örgütü Kültürü*. İstanbul: Beta Yayınevi.

Yankın, F. B. (2019). Dijital Dönüşüm Sürecinde Çalışma Yaşamı. *Trakya Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 1-2.

Yeniçeri, Ö. (2002). *Örgütsel Değişimin Yönetimi*. Ankara: Nobel Yayınları.

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