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More Digital More Engaged: How Does Digital Transformation Strategies Affect Work Engagement?

Daha Fazla Dijital Daha Fazla Bağlılık: Dijital Dönüşüm Stratejileri İşe Bağlılığı Nasıl Etkiler?

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ABSTRACT

The aim of this study is to examine how employees might become more engaged at work as a result of digital transformation, which is accelerating with the pandemic process in the digitalizing business sector. The link between the two variables was anticipated to be positive, and the investigation validated this assumption. The variables were subjected to factor analysis without regard for the relationship between them, and components were found that were both similar to and dissimilar to those found in the literature. One of these sub-factors that has a significant impact is employee digitization. The level of job engagement is influenced by employee digitalization rather than the organization's digitalization. Only this subfactor appears to have a major impact on employee concentration and excitement. The differences of the variables in terms of demographic groupings were explored except for the hypothesis test. In terms of organizational tenure, there was a considerable difference in work engagement. The relationship between tenure and job engagement has been demonstrated to be linear using difference tests, implying that as tenure increases, so does employee work engagement. A digital research panel was used to reach a total of 326 white-collar individuals for the study. Data was collected in April, May and June in 2021. The research findings are generalizable because the employees were chosen at random from a representative sample of Turkey.

Keywords: Digital Transformation Strategies, Work Engagement, Digital Strategy.

Jel Codes: D23, L10, M10

ÖZET

Bu çalışmanın amacı, dijitalleşen iş sektöründe pandemi süreciyle birlikte hızlanan dijital dönüşümün bir sonucu olarak çalışanların işe nasıl daha bağlı hale gelebileceklerine bakmaktır. İki değişken arasındaki beklenen pozitif bağlantı bu araştırma ile doğrulanmıştır. Değişkenler öncelikle faktör analizine tabi tutulmuş ve literatürde bulunanlara hem benzer hem de farklı olan bileşenler bulunmuştur. Önemli etkisi olan bu alt faktörlerden biri çalışanın dijitalleşmesidir. İşe bağlılık düzeyi, organizasyonun dijitalleşmesinden ziyade çalışan dijitalleşmesinden etkilenmektedir. Sadece bu alt faktörün çalışan konsantrasyonu ve hevesi üzerinde büyük bir etkisi olduğu görülmektedir. Hipotez testi dışında değişkenlerin demografik gruplara göre farklılıkları araştırılmıştır. Örgütsel kıdem açısından, işe bağlılıkta önemli bir fark saptanmıştır. Görev süresi ve işe bağlılık arasındaki ilişkinin, farklılık testleri kullanılarak doğrusal olduğu bulunmuştur. Buna göre kıdem süresi arttıkça çalışanların işe bağlılığının da arttığını anlaşılmaktadır. Çalışma kapsamında toplam 326 beyaz yakalı bireye ulaşmak için dijital araştırma paneli kullanılmıştır. 2020 yılından itibaren yapılan her anket çalışmasında etik kurul zorunluluğu getirilmiştir. Fakat bu çalışma 2020 yılından önce yapıldığı için etik kurul izni alınmamıştır. Çalışanlar Türkiye'yi temsil eden bir örneklemden rastgele seçildiği için araştırma bulguları genelleştirilebilir sayılmaktadır.

Anahtar Kelimeler: Dijital Dönüşüm Stratejileri, İşe Bağlılık, Dijital Strateji

Jel Kodu: D23, L10, M10

1. INTRODUCTION

With the developing technologies in the digital age, the way work is done is also changing. In this age being unreachable is almost inevitable. The fact that companies do not see an e-mail from their managers or companies cannot find a subject on the internet is impossible. With the rapid change and development in technology, the computers used by companies processing power is also changing and evolving at the same level, internet connection is always can be used everywhere and all these developments. It also changes the way of adhesion. Increase in processing speed and storage areas, it provides virtual and global cooperation in companies. Employees to the office their business using their personal computers, tablets or considers it appropriate to continue with their smart phones. Widespread digitalization and increased use of technology in the working environment, increasing productivity, saving costs and increasing complexity in companies plays a role in gaining flexibility and adaptability in the market. Companies thus, it can cooperate with universal human resources at the international level and employees from anywhere in the world where there is internet access can continue to work. One of the innovations brought by digitalization is employees and managers in different time

zones and countries. Skype, e-mail and that kind of devices provide employees to work remotely with cloud storage technologies.

The COVID-19 pandemic has made digitalization in the world of work more than ever before has accelerated. In some countries more than a third of work can be done at home (Dingel and Neiman, 2020). Although online work is due to the recent development of information technologies, it is a result of digital transformation (Erşen, 2020). It has created new opportunities and threats for companies around the world with its instruments such as Internet of things, artificial intelligence, blockchain, big data, social media (Mello and Ter-Minassian, 2020).

This study explores work engagement and its dimensions, examining the relationship with possible or negative effects on employees who have worked under high digital conditions after pandemic. Although there are many studies in the literature on the work engagement that have developed with digitalization after covid-19, the studies on how the employees of the companies applying the digitalization strategy are affected by this variable are limited. This study will fill this gap in the literature, as well as draw attention to the impact of companies on employees when they switch to rapid digitalization in the post-pandemic period.

In the theoretical framework part, the variables work engagement and digital transformation that are the subject of the research are defined. The hypotheses created to test the relationships between the variables are presented in the third sub-title. In the methodology part, the research sample and the measurement scales are clarified. In the conclusion section, the relationship between the variables are discussed in terms of findings.

2. THEORETICAL FRAMEWORK

2.1. Digital Transformation in Worklife

The terms digitalization and digital transformation have been frequently encountered in different fields in recent years. Digital transformation means that businesses develop new business models using new digital technologies (social media, mobile applications, data analytics, embedded systems, etc.) and perform all kinds of structural transformations necessary for this in order to respond to new customer needs and gain competitive advantage in the market. (Fitzgerald, Kruschwitz, Bonnet & Welch, 2014). Digital transformation, which represents a comprehensive transformation from business processes to business models, from organizational structure to customer relations, causes a devastating change, so businesses need a digital transformation strategy that reduces the risk of failure of this change and transformation process, plans, executes, controls it and measures its success. needs (Matt, Orzes, Pedrini, Beltrami & Rauch, 2019). A business may experience different digital transformation scenarios using different technologies or starting from different points (Pflaum & Schulz, 2018). For example, a business that actively uses social media experiences digital transformation by changing its marketing processes, while it changes its production processes by using robots in product production in the factory and experiences digital transformation again.

Digital technology is increasing in the direction of businesses to achieve the goals they foresee for themselves is gaining importance. Businesses are now using digital technology in their decision processes, production processes, different in product designs, providing high quality services and effectively against time and cost risks. This gives the company a significant competitive advantage over its competitors. With the effect of this driving force, digital technology has brought new radical structuring in all industries. It has also caused changes in all parameters of the local and globalization process of enterprises. According to Riberio (2011), digital technology creates a wide field of knowledge, creating a high economic can be characterized as expansionism. Information now has more economic value and a global size as well. Although it is a difficult process to integrate the management system into the world it is obviously seen as an inevitable necessity. For example, open and big data, cloud computing, internet of things, artificial intelligence, deep learning, virtual new technology such as reality, machine learning and decision making and its applications, as well as blockchain technology, which requires a distributed structure, crowdfunding, crowdsourcing, gamification is questioned on how it can provide added value in the management system (T.C.KB Working Group Report 2018).

Digital Transformation, the widespread use of the Internet for civic purposes in the 1990s and the ever-increasing growth of four technologies—social, mobile, analytics, and cloud platforms accelerated with processing power. This development is today with increasing storage capacity has become an important phenomenon (Bennett & Lemoine, 2014). Not only high tech digital transformation, but also the change of competition and consumer behavior is counted among the triggers of the need (Verhoef, Broekhuizen, Bart, Bhattachary, Dong, Fabian, and Haenlein 2021). The formation and adoption of a culture of change can only be achieved through innovative digital not only to the definition and application of technologies, but also to the

more innovative and digital transformers in their work by taking advantage of technologies depends on them (Osmundsen, 2018).

During the Covid-19 Pandemic outbreak, many businesses have started to provide online services (Chen, Lin, Chen, Chao and Pandia, 2021). Digital transformation, which is a vision for the future, many issues, including technological, economic, social and political issues. difficulties (Guo, Zhou, and Zhang, 2015). Not knowing how to benefit the whole society, lack of skills and qualified workforce, inadequate infrastructure, incomplete or inadequate regulation and consumer protection, and in particular barriers such as difficulty in obtaining financing are some of these difficulties (Ebert and Duarte, 2018). Companies face some challenges in this transformation process: expertise in digitalization lack of an overarching strategy for digitization, limited technical expertise required access, unsupportable partners, employee rejection, limited budget (Hoch, 2017). Success in digital transformation requires bringing together and coordinating a wide range of efforts. To work with a strong leader who can create change bringing together the team of technology, data and process people. Digital transformation is a journey. It covers the various requirements for digital transformation and these requirements. Technological trends in finance by 2025, it is estimated that this will cause a 40% reduction in personnel levels in the sector (Jackson, 2020). One of the key impacts of transformation will be the need for new role(s) are new competencies. Competence in general; one's role and responsibilities at work knowledge, skills that can be measured by standards, that can be improved through education and development and features (Lucia and Lebsinger, 1999). This knowledge, skills and characteristics consists of behaviors critical to personal performance.

According to the Fraunhofer Institute's digital maturity level scale, 6 sub-dimensions determine the maturity level of companies. Corporate strategy shows how central digitalization is in companies' corporate strategies and how companies strategically address digitalization. Corporate culture and leadership dimension express the perspectives of senior managers on the digitalization processes of companies and their place in the corporate culture. In terms of organization and processes, it is important how much digital maturity the company achieves in its processes on the basis of all departments, and how much digital tools they use while providing service in terms of products and services. In terms of supply and business networks, it is important how digital the company is in finding alternative suppliers and solution partners abroad. Employees' digital awareness, trainings to increase their skills and their ability to use digital tools are also important sub-dimensions, and finally, measuring the level of technology used by the company in all areas is one of the critical sub-dimensions of digital transformation process (https://websites.fraunhofer.de/Digital_Transformation_Assessment/index.php/222723?lang=en).

2.2. Work Engagement and Digital Transformation

Work engagement is when individuals feel vigorous while doing their jobs. It means devotion or getting satisfaction from their work and concentrating on their work. There is continuity in commitment to work. It is not tied to a particular object, event or person. Employees express themselves in the workplace. They want to achieve, use their potential and be satisfied. Work engagement is both individual attitudes, behaviors and performances of employees as well as organizational performance, as an important driver of efficiency, competitiveness and financial performance (Gruman and Saks, 2011). Macey et al. (2009) define work engagement as “dive, effort, defines it as a psychic energy of concentration, focus, and commitment”. According to another definition, work engagement is the simultaneous use of personal energies of the employee a relatively permanent mental state that he transfers to his work (Christian, Garza & Slaughter, 2011). Rothbard and Patil (2010)'s definition; work engagement ion is the psychological state of the employee while doing his/her job. Existence is expressed as 'being there'. Being there while you do your job the employee's concentration by focusing all his attention on his work and his current energy related to the work. It is defined as a process that takes place by channeling it to tasks Dedicated employees fulfill their job roles with a high level of emphasis and focus on their responsibilities, they are emotionally attached to the tasks that constitute it (Rich, Lepine and Crawford, 2010). More open to new information, more productive and more self-development they are willing. It also has a high level of discretionary compared to non-engaged employees they work more efficiently through their efforts (Bakker, 2011).

Schaufeli & Bakker (2004) stated that work engagement has three dimensions: vigor, dedication and absorption. *Vigor* refers to a high level of energy and mental resilience at work, a willingness to work and even persistence in coping with problems. If the employees carry out their work with high vigor, then they would complete their work optimally and it would have an impact on increasing the performance. Thus it could be concluded that there is a positive relation between vigor and employee performance (Jaya and Dawood, 2020).

Likewise, Carter et al. (2016)'s study also stated that vigor has a positive and significant affect on performance. Schaufeli and Bakker (2004) argued that *dedication* is an employees' emotional attachment to their jobs. The dedication describes as the enthusiasm of employees at work and proud of the work done and the company that they worked for and those inspiration and challenges that employee's feel. Employees who have high dedication score are strongly enthusiastic and proud of their work and the company. They consider if their job as a challenge which inspires them to do their best so this would lift up the employee performance in the company. Meanwhile, the employees who has low on dedication score it means that they are unable to do their job properly because they are not enthusiastic and proud of their work and company. *Absorption* is defined by Schaufeli and Bakker (2004) as employees behavior who pay full attention to their work. It describes as the state of employees who have full focus on doing their work. It is difficult for employees to run away from work. Employees who have high absorption can fully concentrate on their work. This ability to have an influence towards their performance in the company.

With the spread of digitalization, information technologies (IT) are almost in the process of innovation and transformation. It has become a driving force. The technological tools that BT offers to the digital world provide a basis for this situation has prepared. Using the power of IT enables to take even stronger steps in the changing world. In the digital world, especially in the working life, information technologies have a wide place has acquired. IT facilitates the working life with both software and hardware tools has become the most important factor for the progress of the transactions. With the advancement of IT, various professions the development of professional knowledge and skills in his life as a part of the transformation in this direction required. About the concept of digitization RICOH research company located in Germany conducted research with 1.600 SME (<https://www.ricoh-europe.com/insights/reports/small-business-future-growth>). What does the word "digitalization" mean for their companies? has been asked. With the digitalization of 86% of employees, companies become more flexible and stated that they can adapt to the market even faster. 70% of them think that their companies will grow more healthily due to the increase in technology standards. 64% of employees analyze the information produced by digitalization and allow them to open new opportunities. According to the statements of 52% of companies, it takes five years for companies to go digital stated that when the investment is made, they can improve and increase their performance.

H1: The level of digital transformation in an organization contributes to the level of employee's engagement to work.

H1a: Increasing digital transformation in an organization conduces to employee to be more vigorous.

Opportunities provided by digitalization to companies, the relationship of employees and companies to physical regions and cooperating markets, it eliminates the compulsory dependency. Firms stay where they are founded. They can easily reach the environments they want to work in without feeling the obligation. Smartphones, tablets and other mobile devices allow employees to work from anywhere. The ability of employees to connect with the people they work with and do business with enables them to stay and cooperate. The digital workplace working environment brings with it the security problem and the new digital problems of its own. The expectation to stay leads to burnout and mental problems. A more digital transition to the working style, the corporate mentality to work with the understanding of "7 days 24 hours" directs the work mentality of employees, their relationships with work. Keep cell phones within easy reach reveals the need for dividing the lines between professional and private life. He is designing a world that has blurred over time, and his working life and private life are makes it difficult to strike a balance between work and private life. Striking the balance between working life and private life to make the working environment a more human and technology-oriented workspace, companies that can bring new digital methods (Tariyan, 2018). From the point of view of today's business world, digitalization because it creates a constant change and innovation in the field of causes stress on mental health. Advanced technology with Industry 4.0 level of use, work environment and organizations deeply speed, increasing abstraction, flexibility, complexity causes stress on processes and results (Brod, 1982).

H2a: As digital transformation increasing, employees feel more dedicated to their work

H3a: Digit transformation makes employees to absorb their work more.

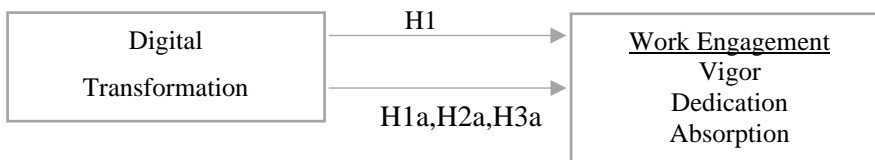


Figure 1. Research Model

3. METHODOLOGY

The study was done on white collar employees with the goal of determining the impact of an organization's digital maturity on employees' work engagement. A private digital consumer panel was used to contact a total of 326 workers. Nearly 15.000 panelists, 90 percent of them are full-time employees, are scattered across Turkey's 12 statistical regions (NUTS 1). As a result, the study's sample comprises of these randomly selected employees from various areas and sectors in Turkey. Except for the condition of working status, no quota was enforced throughout data collecting. The study results in this example may be extrapolated to Turkish business since the research panel reflects representative demographic distributions of the country and the sample was randomly picked among the panelists. Ethics Committee Permission obligation has been introduced in every survey conducted after 2020. However, since this study was conducted before 2020 (December 2019), ethics committee approval was not obtained.

As it is seen in the table below employees in the sample are 46 percent male and 54 percent female. The sample's average age is 38. 51% of these workers are graduates, 5% are post-graduates and the rest consists of high school graduates. These individuals have been working for an average of 9 years. Finally, service (28%), retail (13%), and automotive are the top three sectors from which employees participate from.

Table 1. Descriptive Analyses

Characteristics	Frequency	Valid Percent	Cumulative Percent
Gender			
Female	46	54	54
Male	171	46	100
Total	326	100	
Age			
20-29	164	50	50
30-39	143	44	94
40-49	19	6	100
Total	326	100	
Education			
High school	59	44	44
Graduate	158	51	95
Post graduate	18	5	100
Total	326	100	
Work Life Span (in years)			
One year or less	72	22	22
2-5 years	0	57	79
6-10 years	0	18	97
Over 10 years	3	3	100
Total	326	100	
Sector			
Service	91	28	28
Retail	42	13	41
Automotive	29	9	50
Others	163	50	100
Total	326	100	

Participants were asked to confirm their consent to participate in the study before answering the questionnaire, in order to comply with research ethics regulations. Demographics, digital maturity evaluation, and a work engagement scale were all included in the poll. The Likert scale was used to create the scales.

Fraunhofer Digital Transformation Assessment is used to assess digitalization. Fraunhofer IPK researchers are now undertaking a study to assist businesses in identifying their particular digital transformation state. They designed this evaluation tool with this goal in mind, and firms may use it to examine themselves to discover how digitally advanced they are. Corporate strategy, leadership, and corporate culture, organization and procedures, employees and competencies, technology, goods and services, and supply chain and networks are all included in the evaluation. Because the rest of the questions could only be answered by managers who are solely responsible for the company's digitization challenges, the poll only included the first four elements

(business strategy, leadership and corporate culture, organization and procedures, workers and skills). Only the elements that could be responded by normal employees were included in the study survey because it was conducted to employees regardless of their managerial level. According to Fraunhofer digital transformation scale cronbach's alpha internal consistency coefficients were found $\alpha_{\text{employee digitalization}}=0.912$; $\alpha_{\text{organizational digitalization}}=0.901$.

Utrecht Work Engagement Scale was developed by Schaufeli and his colleagues (2002) to measure employee engagement. The scale consists of three dimensions: Vigor, dedication, and absorption. The development of the scale had started with 24 items and the scale was reduced to 17 items by using various item elimination methods. Cronbach's alpha internal consistency coefficients were found to vary between .60 and .88 for the factors.

4. FINDINGS

First and foremost, the reliability and validity of the variables' measurements were checked in order to derive meaningful conclusions from the acquired data. The scales, whose validity had previously been validated, were reduced to sub-factors and made available for additional studies using Exploratory Factor Analysis (EFA). Hypotheses were then examined using regression analysis, and non-parametric tests were used to identify significant differences in findings.

After considerable iteration, the KMO value was ultimately discovered to be 0.918 as a result of the component analysis for the items of the digital transformation scale, which is the independent variable of the study model. Three items were eliminated because their factor loadings were comparable across factors. The measured variable indicated two significant components in the final factor analysis: employee digitalization and organizational digitalization. This factor division was found similar to previous study of Tinaztepe & Kılıç (2021). The factors were not discovered to include relevant items gathered under them when the factor analysis was constrained to four factors since only four original factors were engaged in the study survey. In the previous factor analysis, the two factors comprised elements that were classed as employee and organizational digitalization since it was more convenient. Because the Bartlett Sphericity test for the data group yielded a p.001 result, it is assumed that there is a significant association between the scale items. As a result, it may be concluded that this scale is suited for factor analysis and that the measured characteristic in the universe from which the sample was drawn is multidimensional. ($X^2=3541.332$; $sd=128$). It shows that the reliability of the items constituting both factors is quite high ($\alpha_{\text{employee digitalization}}=0.912$; $\alpha_{\text{organizational digitalization}}=0.901$). Explained variance by employee digitalization is 30.569% variance of the scale and by organizational digitalization, it is 29.456% variance of the scale. In total, they explain 60.025% of the variance (Table 2). Considering that the variance rates ranging from 40–60% are considered ideal in social sciences (Erdoğan et al., 2008; Çokluk et al., 2010), it can be said that the 60% variance rate obtained as a result of this research is quite satisfactory.

Table 2. Factor Analysis for Digital Transformation

Factors	
1	2
Employee digitalization	Organizational digitalization
0,84	0,86
0,784	0,807
0,769	0,765
0,757	0,722
0,75	0,681
0,707	0,616
0,681	0,583
0,613	0,572
0,604	
Variance explained: 30,57%	Variance explained: 29,47%
Cronbach's alpha: 0,912	Cronbach's alpha: 0,901
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0,918
Bartlett's Test of Sphericity Approx. Chi-Square	3541,332
df	128
Sig.	0

The dependent variable, work engagement, was found to have a KMO value of 0.941 as a result of EFA after a few iterations. ($X^2=4424.037$; $sd=136$ & $p<0,001$). Although in the original version of the scale, the variable was considered to have three factors (Vigor, Dedication and Absorption), it was seen that the variable was significantly divided into two sub factors namely Enthusiasm and Concentration. Accordingly, these three factors explain 67.93% of the total variance of the variable ($S^2_{\text{enthusiasm}}=38.72\%$; $S^2_{\text{concentration}}=29.22\%$).

Reliability analyzes of the three factors were performed and the internal consistency coefficients of all factors were found sufficient to continue the analysis ($\alpha_{\text{enthusiasm}}=0.94$; $\alpha_{\text{concentration}}=0.92$). (Table 3)

Table 3. Factor Analysis for Job Engagement

Factors	
1	2
Concentration	Enthusiasm
0,853	0,841
0,828	0,733
0,817	0,709
0,778	0,669
0,76	0,641
0,751	0,631
0,719	0,624
0,571	0,55
0,494	
Variance explained: 38.72%;	Variance explained: 29.22%
Cronbach's alpha: 0.94	Cronbach's alpha: 0.92
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0,941
Bartlett's Test of Sphericity Approx. Chi-Square	4424,037
df	136
Sig.	0

Regression analysis was used since the study hypotheses included assumptions for investigating causal linkages. Multiple regression analysis was used since the independent variable included two sub components. To analyze the links between variables and their sub-factors, correlation analysis between variables must be performed first. The Kolmogorov-Smirnov test was used to determine if the variables had a normal distribution before doing the correlation analysis. The H0 hypothesis was rejected since the significant values for each group were less than 0.05 according to this test and it was concluded that the data were not normally distributed with 95 percent confidence (Sipahi, Yurtkoru, & Inko, 2010). As a result, Spearman's rho coefficient is the correlation coefficient employed in the correlation analysis. Since the correlation coefficient "r" in correlation analysis fluctuates between (-) 1 and (+) 1, 0.4 and below are considered weak or unrelated (Kılıç, 2012); moderate correlations ranging from 0.4 to 0.7 or good correlations ranging from 0.8 to 0.9 were investigated.

The amount of correlation between the dependent and independent variables is determined to be $r=0.687$ in non-parametric correlation analysis, which is considered a moderate association. As for relationship of work engagement with the sub factors of digital transformation, the correlation is found to be the highest between employee digitalization and work engagement ($r=0.708$). This correlation is at strong level. Accordingly it can be said that work engagement is correlated with digital transformation most particularly through employee digitalization. Examining the correlation between the sub factors of both variables; it is seen that the strongest relationship exists between concentration and employee digitalization ($r=0.675$). (Table 4.)

Table 4. Correlation Analyses

	1	2	3	4	5	6
1. Enthusiasm	1					
2. Concentration	,767**	1				
3. Job engagement	,932**	,937**	1			
4. Employee digitalization	,636**	,675**	,708**	1		
5. Organizational digitalization	,581**	,619**	,642**	,857**	1	
6. Digital transformation	,624**	,652**	,687**	,935**	,978**	1

Both the dependent and independent variables were fully engaged in the regression analysis for hypothesis testing. Simple regression analysis was used since the first hypothesis primarily assumes the influence of digital transformation on work engagement. As it is seen in Table 1, the hypothesis that the idea of digital transformation increases work engagement level was tested with simple linear regression and it was found that the hypothesis was significantly supported ($\beta=0.693$; $p<0.05$); (Model 1). Accordingly, the power of digitalization to explain work engagement is $R^2=0.48$. This means that; digital transformation explains 48% variance of work engagement.

For the sub hypotheses that assume the effect of the independent variable on the sub factors of dependent variable, simple regression model was firstly conducted. Here, the important thing is that the factor analysis revealed two sub factors (concentration and enthusiasm) sharing the items of three sub factors (vigor, dedication, absorption) as stated in literature. Since the effect of digital transformation on enthusiasm ($R^2=0.412$; $\beta=0.642$; $p<0.05$) and concentration ($R^2=0.466$; $\beta=0.683$; $p<0,05$) is approved; it can be said that

the sub hypotheses of the research are supported. In the regression table, the results of the multiple regression analyses were demonstrated to understand through which sub factor of digital transformation work engagement dimensions are affected. The table indicates only the significant results.

In the second model, when both factors of digital transformation are regressed together, only the employee digitalization significantly is seen to affect work engagement. In other words only employee digitalization can take place in the regression equation model to explain work engagement [Work engagement= 0.844+ (0.679 x employee digitalization)]. This regression equation means that a unit change in the level of employee digitalization makes a 0.68 unit change in his/her engagement to work. The model explains only 50% of the variation in work engagement ($R^2=0.503$, $p = 0.000 < 0.05$).

Similarly for explaining both enthusiasm and concentration, when employee and organizational digitalization factors regressed together, the only significant result is found for employee digitalization. It is proved that only employee digitalization in multiple regression model could contribute to the factors of work engagement (for enthusiasm $R^2=0.659$ $\beta= 0.604$; $p<0,05$; (for concentration $R^2=0.697$ $\beta= 0.612$; $p<0,05$).

Table 5. Regression Analyses

Dependent variable: Work engagement			
Variables	Beta	t	p
Model 1			
Digital transformation (overall)	0.693	16.599	0.000
R=0.693; $R^2=0.480$; F=275.516 ; p=0.000			
Model 2			
Employee digitalization	0.636	8.057	0.000
R=0.709; $R^2=0.503$; F=150.501; p=0.000			
Dependent variable: Enthusiasm			
Variables	Beta	t	p
Model 3			
Employee digitalization	0.604	7.164	0.000
R=0.659; $R^2=0.434$; F=113.881 ; p=0.000			
Dependent variable: Concentration			
Variables	Beta	t	p
Model 3			
Employee digitalization	0.612	7.621	0.000
R=0.697; $R^2=0.486$; F=140.558 ; p=0.000			

After the hypotheses were tested, it was determined if the variables differed across the groups generated using demographic data such as gender, age, seniority, and education. According to the findings there were only variances in tenure across the demographic groupings ($p_{enthusiasm} = 0.019 < 0.05$; $p_{concentration} = 0.001 < 0.05$; $p_{engagement} = 0.001 < 0.05$).

The change in work engagement in terms of tenure shows a linear line in the Kruskal Wallis analysis (see Table 6.), which is used to determine the significance of the difference between the means of more than two groups that do not have normal distribution. It indicates that as employees gain more experience in work, they feel more engaged to work. The difference of change between enthusiasm and concentration draws attention. While employees' concentration at work increases by time ($\mu Rank_{6 \text{ months-1 year}} = 137.99$, $\mu Rank_{2-5 \text{ years}} = 141.58$; $\mu Rank_{6 \text{ years} +} = 187.10$), their enthusiasm decreases in their middle years at work and then it increase as the time passes ($\mu Rank_{6 \text{ months-1 year}} = 142.2$, $\mu Rank_{2-5 \text{ years}} = 139.88$; $\mu Rank_{6 \text{ years} +} = 187.26$).

Table 6. Non Parametric Difference Test

	Age	N	Mean	p value	Chi square
Work engagement	6 months-1 year	82	138.19	0.001	11.887
	2-5 year	170	145.34		
	6 years +	74	176.91		
Enthusiasm	6 months-1 year	82	142.20	0.019	10.283
	2-5 year	170	139.88		
	6 years +	74	187.26		
Concentration	6 months-1 year	82	137.99	0.001	10.283
	2-5 year	170	141.58		
	6 years +	74	187.10		

5. CONCLUSION

The purpose of this study is to see if there is a link between digital transformation and work engagement. For the advanced analysis, the acquired data was compared to the factors indicated in earlier research in the

literature and those discovered in this one. The sub hypotheses could thus be examined using factor analysis. Finally, the variables were looked at to see whether there were any significant differences between the sample groups.

The first finding to be addressed is the factors discovered by factor analysis. Similarly, the factors for both variables are not found to be identical to those published in the literature. To begin with, digital transformation is determined to be split into two significant factors: organizational and personnel digitalization. The scale, which was adapted from Fraunhofer Digital Transformation Assessment (www.ipk.fraunhofer.de), includes factors such as corporate strategy, leadership, and corporate culture, organization and processes, employees and competences, technology, products and services, supply chain, and networks. The components were deemed to be gauging a company's digitization in terms of people and organizational dynamics while looking at this evaluation. Organizational and employee digitization were identified as the variables that contributed to this. Sebastian et al. (2017) define digital transformation as the blending of personal and business contexts that reflects the transformational influence of emerging digital technology. It emphasizes the changes that have occurred at the human, organizational, and social levels that are important to the previous scenario and are occurring as a result of digital technology, which in reality involves much more than the end result (Kokolek, Jakovic & Curlin, 2019).

Work engagement is an active, positive work related state that is characterized by vigor, dedication and absorption (Schaufeli et al., 2006). When these dimensions are examined closely it is seen that the meaning that the factors carry indicate similarity with the factors (concentration and enthusiasm) that are found in the current study. Schaufeli and his colleagues (2002) refers work engagement to a positive and fulfilling work-related mental state, characterized by vigour (high levels of energy while working), dedication (sense of meaning, enthusiasm, inspiration, pride and challenge) and absorption (complete concentration of the individual at work, which makes time pass quickly without his noticing). It is said that work engagement is a state of enthusiastic and complete involvement in work (Rich et al., 2010; Cooper-Thomas et al., 2014).

After regression analysis, the study's primary hypothesis was confirmed. Employees are positively affected by digital transformation at work, and they experience increased job engagement as a result. In literature, employees were shown to be more involved in work-related decision making as a result of both workplace digitalization and enhanced employee–manager interactions, giving them more influence over their jobs (Palumbo, 2020b). While this may lead to increased workplace conflicts, digitalization is expected to improve the plasticity and flexibility of working arrangements and assignments, giving individuals more freedom to design their own organizational activities (Kim and Christensen 2017). This is said to be especially true for digital native workers, who stand to gain the most from workplace digitalization (Haeger and Lingham 2014). Furthermore, richer and more frequent interactions between subordinates and supervisors in digitalized environment boost employees' engagement in work-related dynamics, allowing them to exert greater influence over their jobs (Kwon, Farndale & Park, 2016).

Digitalization is defined a job resource in two ways: on the one hand, it allows employees more flexibility in work scheduling and location, giving them more control over when and where they work; on the other hand, it reduces physical and emotional demands by automating repetitive, unmotivating, and physically demanding work processes (Larjovuori, et al., 2016). This fact contributes to the finding of the current research that employee digitalization is significantly effective on work engagement when it is regressed on the variable with organizational digitalization. Concerning this, authors also propose a new notion of "techno-work engagement" as a measure of organizational subjective well-being (Cazan, 20202).

With reference to difference tests, it is supported that the relationship between tenure and work engagement is a linear one which means that as tenure increases, the level of work engagement of employee increases too. It is explained that tenured employees put out their best effort not because of the benefits they receive from their employer, but because of the employer's commitment to the employee's continuous employment. A highly tenured employee, for example, is more likely to believe that he or she is entitled by the employer because of his or her veteran status and long-term dedication to work (Rousseau & Parks, 1993).

For future research different variables may be included in the relationship of work engagement and digital transformation. Digitalization, which refers to the increasing use of information and communication technology in all aspects of our life, has had an impact on all levels of society and has altered how we do business. In the workplace and in life in general, digitalization has brought both obstacles and opportunity. The possibility of technological unemployment, the quality and circumstances of labor, the risk of even greater economic

inequality, and so on are all concerns across the world. Accordingly negative consequences of this digital transformation can be included in the current research relationship.

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