

# The impact of digitalisation on older workers' job satisfaction. Case study Serbia

**Milica Velickovic**

University of Belgrade, Technical faculty in Bor, Serbia,  
[mvelickovic@tfbor.bg.ac.rs](mailto:mvelickovic@tfbor.bg.ac.rs),

**Marija Panic**

University of Belgrade, Technical faculty in Bor, Serbia,  
[mvelickovic@tfbor.bg.ac.rs](mailto:mvelickovic@tfbor.bg.ac.rs),

*Abstract: In recent years, digitalization totally changed the way of work within companies because new business models evolve from digitalization processes. Most organizations are aware of the necessity of digitalization and its effect on employees' work. This paper aims at assessing the influence of digitalization on older workers' job satisfaction and their productivity. The study was conducted in the city of Bor (Serbia) and included 153 employees. Data regarding job satisfaction and level of digitalisation was collected using questionnaire*

*Keywords: digitalization, older worker, job satisfaction, productivity*

## 1 Introduction

It is very obvious that new technologies affect almost all aspects of society today. The impact of digital transformation in organizations is particularly visible in the increase in efficiency and productivity, but also in the quality of work and working conditions of the employees themselves. Of course, looking at the bigger picture, digitalization is not only happening in the context of organizations. The widespread usage of digital tools and programs has an impact on every part of our life. The occurrence of COVID-19 pandemic only speed up the process of digitalization, forcing people to work from home and communicating online [1].

Most research regarding workplace digitalization focuses on its effects on business performance and employee productivity [2]. However, the effects of digitalization on personal factors such as employee satisfaction are very [3-6]. In addition, very low number of studies particularly examined the impact of digitalization on job satisfaction or job quality among older employees [7-9]. In that sense, it could be

said that this study contributes a lot to a very limited literature by trying to resolve the inconsistent findings on the relationship between digitalization of the workplace and older people' job satisfaction.

First it is necessary to define what the term 'older employee' means. Rožman et al. [10] summarise that statisticians tend to take the age of 45 as the demarcation between being a younger (24–44 years) or an older employee (45–64 years). Other authors [11-13] define older employees as those between 55 and 64 years of age. But, taking into consideration all these pension reforms across Europe, we will be free to say that older employees are those older than 55 until their retirement. Because of that, we can expect that the percentage of older employees will only increase in the years to come. Unfortunately, employers do not pay attention to the management of older employees. When it comes to transmitting knowledge and expertise, older employees are sometimes perceived as a barrier rather than as a chance that should be developed and taken advantage of [14].

Different studies have examined the reasons why people stay in work, even after reaching retirement age, and the reasons that influence their early retirement. As the main reason for staying at work they reported higher level of job satisfaction and commitment to the organization [15]. On the other hand, the factors which facilitate their departure are organizational changes [16], which most recently involve the digitalization process.

Digitalization can have both positive [17,18] and negative impact [19] on job satisfaction and, in general, on job quality.

In this study, we have analyzed relationship between digitalization and employee satisfaction with two moderating variables, gender and sector of employment. For that purpose we have defined two hypothesis and have designed theoretical model:

H1: Digitalization level of the organization has a positive effect on employee satisfaction

H2: Gender and sector of employment are mediator variables between digitalization and employee satisfaction

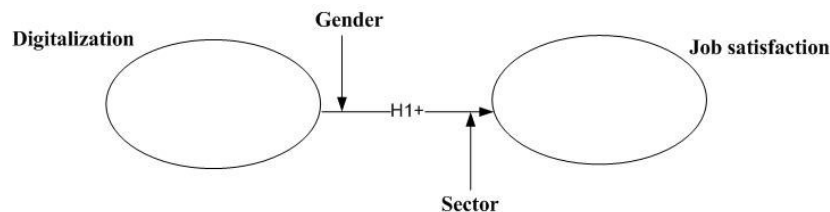


Figure 1  
Theoretical model

## 2 Methodology

The main objective of this paper was to study the impact of workplace digitalization on older people' job satisfaction. The study sample were employees older than 55 in different organizations in the city of Bor, Serbia. Study was conducted between December 2022 and February 2023. Data were collected personally with the help of the questionnaire. The survey covered a total of 153 workers and all the questionnaires were properly completed. The demographic characteristics of the sample are described in Table 1: they were mostly females, with more than 30 years of work experience.

		Number	%
Gender	Male	70	45.8
	Female	83	54.2
Sector	Manufacturing	33	21.6
	Service	29	19.0
	Education	5	3.3
	Administration	30	9.6
	Other	56	36.6

Table 1.  
Socio-demographic characteristics of the sample

The questionnaire is made up of two parts. The first part consists of 3 questions which lead to the socio-demographic data (gender, working experience in years and sector of employment), and the other part consists of 11 questions divided into 2 groups, digitalization and job satisfaction. Digitalization questions are taken from "Digital Transformation Readiness Survey Summary" by Center for Creative Leadership-Corporate Leaders. Employee Satisfaction questions are taken from "Thesis named "İşveren Markası ve İşveren Markasının Çalışan Memnuniyeti Üzerindeki Etkileri" by Meryem Demir, Bahçeşehir University (2014). Five-point Likert scale was used to assess the answers, where 1 means "I completely disagree" and 5 means "I completely agree".

The structural and measurement models are estimated using partial least squares structural equation modelling (PLS-SEM), an exploratory multivariate data analysis technique designed by Wold [20]. The structural models are assessed by examining coefficients of determination and the significance of the path models.

### 2.1 Measurement model

Measurement model assessment included establishing construct reliability and validity. Construct reliability was established through Cronbach's Alpha and Composite reliability (Table 2). The Cronbach alpha values for all the constructs

were higher than the recommended value of 0.700. For the assessment of convergent validity, the Average Variance Explained (AVE) was used. The data from Table 2 indicate that convergent validity is also achieved, taking into account that AVE for all constructs is above the threshold of 0.5 [21].

Indicator /Variable	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	AVE
Digitalization (WD)	0.896	0.902	0.895	0.633
Job satisfaction (JS)	0.901	0.914	0.900	0.607

Table 2.  
Construct reliability and convergent validity

Hair et al. [22] argued that discriminant validity means that a construct measure is empirically distinctive and represents facts of interest that other measures in an SEM do not capture. A Fornell–Larcker criterion was used for discriminant validity, so the correlations among latent variables with the square root of AVE by each latent variable are presented in Table 3.

Variables	Digitalization	Job satisfaction
Digitalization (WD)	0.795	
Job satisfaction (JS)	0.644	0.779

Table 3.  
Discriminant validity

The Fornell–Larcker criterion argues that the square root of AVE must be higher than the correlation of the construct with all other constructs in the structural model [21]. Table 3 indicates that the square root of AVE for all constructs is higher than the correlation among the considered constructs, indicating discriminant validity is achieved

SRMR and NFI are commonly used indicators for PLS-SEM in order to evaluate the appropriateness of the overall model. The range of the SRMR value is from 0 to 1. When SRMR is less than 0.08, it can be regarded as a good fit of the model. NFI is a non-statistical measure ranging from 0 (poor fit) to 1 (perfect fit). The higher the value of NFI indicator, the better the match. Good fitting is indicated by a value above 0.90 [23]. The SRMR value of the model evaluation verification in this study is 0.063. Although the NFI value of 0.858 is less than 0.9, its value is somewhat below the threshold and it is assumed that it would increase with an increase in the number of respondents. Therefore, this indicator is acceptable in our model and the overall model is well-fitted in general

Indicators	Saturated model	Estimated model
SRMR	0.063	0.063
d ULS	0.263	0.263
d G	0.204	0.204
Chi-square	106.738	106.738
NFI	0.858	0.858

Table 4.  
Model fit

## 2.2 Structural model

Since the validity and reliability of the constructs are empirically verified, the structural model can be evaluated. First, multi-collinearity was assessed using the Variance Inflation Factor (VIF). VIF values less than or equal to 5 [24] indicate no multicollinearity issues. With VIFs on the construct level ranging from 1.97 to 3.44, no collinearity issues bias the results (Table 5).

Item	VIF
JS1	3.440
JS2	2.955
JS3	2.173
JS4	2.295
JS5	1.961
JS6	1.834
WD1	2.360
WD2	2.743
WD3	2.565
WD4	2.585
WD5	2.809

Table 5.  
VIF

The next step in structural model assessment is the evaluation of path coefficients, obtained via the bootstrapping procedure in SmartPLS 4 software (Ringle et al., 2022) and presented in Figure 2. The results show consistent significant positive coefficient between variables digitalization and job satisfaction. In that way hypothesis 1 was confirmed.

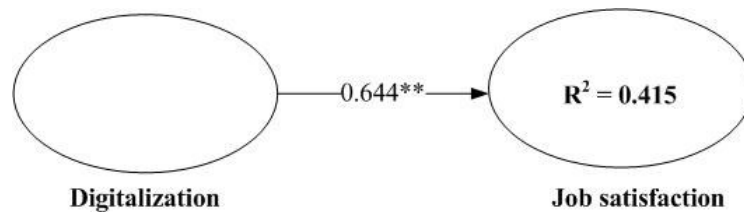


Figure 2.  
The results of PLS-SEM

$R^2$  has been used to determine the explained variance of the latent dependent variable in relation to the overall variance. The cutoff  $R^2$  values suggested by Chin (2009) are as follows: 0.190 weak, 0.333 moderate, and 0.670 substantial. According to the results in Figure 2, the overall model explained 41.5% of the variance in perceived satisfaction, so it can be said that some other factors have influence on this variable, but the model has a good predictive value.

### 3 Discussion

It is evident that there are certain stereotypes regarding older workers, who are thought to be less adaptable, less trainable, and less cost-effective than younger workers. On the other hand, according to the numerous studies older workers represent an educated, dependable, experienced, and stable workforce [27], so employers should work harder in order to eliminate unfavorable age stereotypes [28].

The results obtained in this study indicate that workplace digitalization is predominantly beneficial: The higher the degree of digitalization, the higher is the older employee's job satisfaction. This results could seem surprising, since in the literature digitalization has been associated with increased efficiency, more multitasking, and less breaks, which as a result cause bigger pressure and stress [29,30]. One possible explanation is that older people do realize how digital tools actually help them to better organize job and save time and energy.

The relationship between technology use at work and employee satisfaction has been somewhat explored in the present literature, although with inconsistent findings [6]. However, the obtained results are similar to [19,31,32} Unfortunately, further analysis didn't confirm the impact of gender and sector of employment as mediator variables, showing in that way that obtained results are not sensitive to respondents' gender or sector of employment.

This study confirmed that the usage of new technologies can increase job satisfaction and improve overall quality of work. However, the introduction of new technologies into workplace needs to accompanied by provision of training for all employees, especially older ones. The most recent data show that only 48.28% of

people aged 55–64 in Serbia are using computers [33], which is much lower compared to EU average (69.28%).

### **Conclusions**

The purpose of this paper was to analyse the impact of workplace digitalization on older employees' job satisfaction. One of the main implications of this study is comprehension of the true value of older employees which could serve to employers to overcome the negative stereotypes about older workers and to see them as an important resource.

Study also has some limitations. First one is that sample only included older employees from one country, hence partially restraining a generalization of the results. The other is that the questionnaire didn't include level of education of the employees, which could as a moderator variable to some extent change obtained results. Future research aims to expand the sample to other countries and consider other variables, such as the level of education.

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