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## **JOB STANDARDIZATION AS A MEDIATOR OF THE USING INFORMATION TECHNOLOGIES IMPACT ON EMPLOYEE EFFICIENCY**

### **ABSTRACT**

*The content of work in all types of workplaces has been intensively changing in the last few decades, especially in the part of the way of doing work and increasing efficiency. The mentioned dynamic of changes is caused by alters in the technical system that is increasingly relying on information technology and automation systems, where today one person can perform in certain areas the same amount of work that was previously performed by dozens of employees. Standardization at the time of the fourth technological revolution, can be used to a certain extent to improve the efficiency of the work of employees in all areas and industries, whether it is production or service, but with different intensity. The aim of the paper is to test the mediating influence of job standardization on employee efficiency if the key outputs of the job analysis process are observed as predictors. The paper will test the impact of job analysis segments including information technology using intensity on employee efficiency in the context of the fourth technological revolution and digitalization, directly and indirectly through the mediation of job standardization construct. In the above way, we want to find out the answer to the question of how important the standardization of work is as a vehicle for the efficiency of employees in modern business conditions that require acceptance of the principle of deviating from the standard job description and procedures (dejobbing), which to a certain extent is in logical collision with the standardization of work.*

**Keywords:** *Job description, technical system, job standardization, mediation effect, employee efficiency*

**JEL:** *O15, M12, M15*

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## 1. INTRODUCTION

At a time when, in order to achieve high-quality work, there has been a distance from the excessively high level of work specialization and the work is carried out according to a strict job description, there are few instruments available to management to ensure a higher level of productivity. Namely, management can no longer rely strictly on some separated macro-segments related to the increase of total organisational efficiency, but must rely on complete organization design tools that also include certain management concepts, such as total quality management, which is ultimately established through the micro level, thus work standardization. In principle, on-site control is ensured through a micro-application of complete quality management assurance through the standardization of work, which in modern conditions should be understood in a specific way. In this connection, the question arises as to how an employee can at the same time be controlled through standardization and standard control and simultaneously be free in the sense of flexible work realization. How to reconcile these two opposite forces that need to exist simultaneously in the modern turbulent environment, which includes the achievement of sustainable development goals both at the macro and micro-organizational levels, is very important issue in contemporary ages.

Mediation of individual constructs in organizational theory and practice related to the relationship between management's business decision-making and the effects of improving the work of individuals and the organization as a whole represents an inexhaustible source for scientific research and testing. The mentioned aspects can be analyzed within organizations with different business orientations. The results indicated that internal service quality and job standardization in branch offices may, directly or indirectly, affect job satisfaction through support from supervisors and co-workers, which strengthened customer orientation (Chun-Fang & Kuo-Ping, 2014). In general, the most important contributors to the science related to organizational design and organizational structuring start from the fact that the organizational structure as an algorithm represents a key mediator between the business decision actions of management and the effects of individuals and the organization as a whole. In this sense, the following segments, important for the in-depth questioning of relationships within different organizations, are related to the examination and testing of the relationship between individual elements of the organizational structure with their design parameters as key variables of their characteristics in the context of the relationship cause, mediator, effect, thus independent variable or predictor, mediator, dependent or criterion variable. In social and psychological research, using the terms predictor and criterion to designate independent and dependent variable is more appropriate, and these terms have been applied in this paper.

## 2. LITERATURE REVIEW

When looking at job standardization as a workplace design parameter in the context of the work task, the context of the employee's characteristics and the context of the technological system used for the implementation of the work tasks at the workplace, it is possible to view each of the mentioned elements as independent variables in relation to the employee's efficiency. It is especially important to observe technical system in relation to the effectiveness and efficiency of employees in the context of digitalization and application of the scope of the fourth technological revolution and the progress of information technologies with the component of standardization as an intermediary variable in the mediation model. The complete process of implementing quality policies through the design of clear work procedures can be seen as a category of standardization, but it can also prescribe the reasons and criteria for deviations from standard procedures in special cases, which is again a form of soft standardization in itself. Whether it is about standardization through soft or hard approach of technology implementing within the mentioned process, it is clear that the satisfaction and effectiveness of the employees increases due to the higher level of quality of the delivered value to the clients. Jobs or tasks can be standardized through hard and soft technologies. (Karatepa et al, 2004). Taking in consideration standardization through soft or hard technology implementing approach, it is clear that the satisfaction and effectiveness of the employees increases due to a higher level of value delivered to clients, understanding the soft approach in such a way that it takes into account specific cases and adjustments, because otherwise a rigid approach can sometimes produce counter-effects.

Research findings reveal that transformational leadership oriented to changes in the organization enriched service quality through innovative behavior, but reduced service quality through work standardization, while in other organizations, transactional leadership was applied, which enriched service quality through work standardization, but reduced service quality through flexible behavior (Huo-Tsan et al, 2021). How to reconcile the components of work in the part of innovation and creativity of employees with the standardization of work remains a very difficult task for all managers due to the seemingly opposite impact direction of the two mentioned phenomena. Within the modern business conditions they must be simultaneously combined and put into the function of organizational development, and can serve as a prerequisite for modern fourth technological revolution solutions using.

In the very genesis of the research of any organization, it is necessary to say that, in general, the organizational structure is seen as a mediator between the proactive actions of decision makers and the business effects of the entire organization. Based on the above logic, considering the complexity of contemporary organizational systems and structures with a focus on the organization as a socio-technical system

with a special emphasis on human resources within its static and dynamic components, it is necessary to reconnect direct and indirect relationships between certain elements and design parameters. Precisely in this way, it is possible to observe standardization as a very important construct for designing an organizational structure with a focus on the micro aspects of the structure, thus its atomic part, which is the workplace as a key component of any organization.

As an independent variable or predictor in the model, the intensity of use of modern technological solutions is observed, where the particles that form the said construct in the model are observed. The aforementioned construct is elaborated through questioning the management and employees regarding the presence of the use of modern computer-supported technologies in work every day, the use of various specific software applications that facilitate work, and the utilization of the aforementioned technological solutions for faster learning and the application of acquired knowledge at work and the utilization of the same for better management, planning and communication. Related research suggested that organisational technology could serve to standardise and regularise an employee's behaviour, the framework allows a detailed description of various work designs and corresponding job characteristics when transforming towards cyber-physical system. It also elaborates on the management choice to allocate functions to either cyber-physical systems or humans and to organize the resulting pool of human tasks into jobs (Waschull et al., 2020).

When it comes to the second construct or mediating variable, it concerns the standardization of work methods and work time through the use of modern information technology solutions. The above-mentioned construct is elaborated through the following set of attitudes that are questioned and they include issues related to the impact of digitalization and modern information technological solutions on the faster and more precise introduction of clear procedures at work, easier monitoring of work performance through defined procedures, clearer guidelines and instructions for the behavior of human resources in time crisis situations, and elements related to the automation of certain activities and the clear, separated elaboration of instructions for performing work for each person. Therefore, a service-oriented firm must effectively manage their customer-contact employees to ensure that their attitudes and behaviour are conducive to the delivery of quality service (Hsieh & Hsieh, 2001). Technology generally influences work standardization and ensures impartiality and transparency of performance indicators, which increases employee satisfaction and motivation to achieve better performance. It is used to increase workers' productivity, standardize tasks, facilitate worker turnover, and ultimately gain control over the workforce (Delfanti, Alessandro, 2023).

When looking at worker efficiency and satisfaction, which are increasingly seen as one construct or dependent, thus criterion variable in contemporary research due to their mutual closeness, they are focused on two sets of questions. The first set of questions is related to efficiency, and the attitudes of human resources related to a better understanding of the importance of each individual's job in the context of achieving the goals of the organization as a whole, and attitudes related to the process of convergence of several jobs into one with the use of the range of modern technological solutions and digitalization. It takes in consideration issues if work is more interesting, are there better mutual understanding between employees which makes them more efficient, is there raising the quality and timeliness of work outputs, and better documentation and communication of the content of the work done. When the aforementioned aspects are observed through employee satisfaction, the same is questioned through the attitudes related to the way digitization and modern information technological solutions influence the job satisfaction that a certain person performs, for the improvement of dedication to work and work with a certain level of pleasure, and finally the attitude in which the statement is questioned related to the lack of intention to change jobs in the near future. The scale related to aspects of employee satisfaction and efficiency has eight particles, where five particles are related to efficiency and three are related to satisfaction and as such integrally make up the specified scale and the same represents the basis for valid measurement of the specified construct (García-Rodríguez et al., 2020).

### **3. METHODOLOGICAL FRAMEWORK**

The methodological framework is generally corroborated on adjusted and simplified model based on Henry Mintzberg concept of work places parameters of design and Richard Oldham and Greg Hackman theory of the job characteristic and content in combination. The aforementioned framework focuses on the observation and recognition of the organizational context as an independent variable sources, while job and employee content and characteristics are treated as source for mediating variables, and employee satisfaction and performances as outcomes are observed as the resultant or dependent variable sources. Research on the design of jobs continues to this day and focuses on such topics as alternative job characteristics, alternative outcomes, and new mediators of the relations between job characteristics and outcomes (Oldham & Fried, 2016). We rather hypothesize a simple partial mediation model over a fully mediated one as there is strong evidence of the direct relation between work characteristics and job performance, but as we have seen, the internal structure of the relation is not fully well understood. Moreover, other indirect paths may be expected in the complex influence we are analysing (Peiró et al, 2020).

### 3.1. SAMPLE AND DATA

Data collection was carried out over a period of 25 days during the November 2022 by using modern digital data collection tools based on the Google Survey application. The purpose of data collection was to examine employees' attitudes regarding a series of issues related to organizational design and structuring of the organization with a focus on the micro aspect of the same based on the study of the workplace, thus the executors at the workplace. During the research, data related to seven segments were collected, which are viewed as variables of a higher order, that is, of the first order of complexity, where a certain valid scale with a certain number of particles that make up research constructs were used as questionnaires of each segment of questionnaire. In this paper, the focus is on three constructs, where first, intense of information technology using, plays the role of a predictor, independent variable and the second, job standardisation, represents a mediating variable, are created on the basis of five earlier explained particles each, and employee satisfaction and working performances, which plays the role of a criterion or dependent variable in the model, is based on integral eight earlier, through measuring scales elaboration, mentioned particles.

During research process 186 valid responses were collected on the basis of a randomly selected sample consisting of 138 male respondents or 74.2% and 48 female respondents or 25.8%. According to the age of the respondents 22 or 11.8% of them belong to the younger age category between 18-30 years, while employees between 31-40 years numbered 60 respondents or 32.3%, then 69 of them or 37% are between 41-50 years, while 35 or 18.8% of employees belong to the range between 51-65 years old. According to experience at work, 29 or 15.5% have 1-5 years of experience, 27 or 14.5% have 6-10 years, while 80 respondents or 43% have between 11-20 years of experience and 50 respondents or 27% more than 20 years of experience. The educational level of employees is mostly college graduated, 109 or 58.6% of the respondents, 40 or 21.5 respondents completed a master's degree, 22 or 11.8% completed secondary school, and finally 15 or 8.1% have completed PhD programs. More than 80% of respondents come from micro, small and medium-sized enterprises and most of the enterprises belonging to the service area starting from trade, finance, education and other service activities, which makes up approximately 80% of the total sample. At least 75% of the respondents come from companies that have innovative potential, while positive financial results and stable operations are related to more than 96% of the companies from which the respondents come.

In addition, 17.2% of respondents in the sample come from wholesale and retail trade, 11.3% each from education and businesses related to energy production and distribution, 8.6% from processing companies, 9.1% from financial and insurance companies, 5.9% from other service activities, 5.4% from public administration, 4.8% from administrative and auxiliary service activities, 4.3% from informatics and

communications industry, 3.8% from organizations that perform professional, scientific and technical activities, 2.2% each come from construction and non-governmental sector organizations, while the rest of respondents come from the fields of art, entertainment, health care, real estate trade and other services. When looking at the position of the respondents within organizational hierarchy, 72 of them or 38.7% are executive employees, 29 of them or 15.6% are first-line managers, 41 of them or 22% are middle-level managers, and finally top managers represent 44 of the respondents or 23.7%. When it comes to the type of jobs performed by the respondents, they are mainly related to sales activities 43 or 23.1%, research and development activities 28 or 15.1%, operational executive activities 27 or 14.5%, finance and accounting operations 22 or 11.8%, activities related to human resources 18 or 9.7% of them, while 11 or 5.9% deal with legal work, and the rest of respondents, about 20% of the sample, deal with various combinations of the previously mentioned and some additional activities. More than 90% of respondents come from service industries, while only ten percent of them come from both processing and manufacturing activities. Finally, 131 respondents or 70.40 of them come from private companies, while 55 or 29.60% come from the state public government sector.

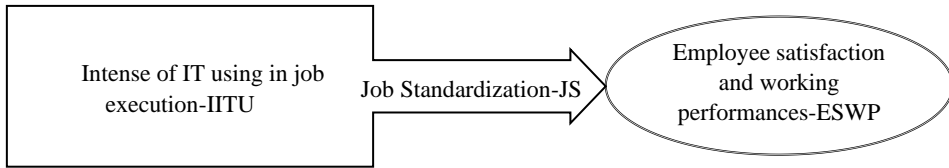
Through research and analysis, the consistency of the questionnaire is examined, and the relationships between the variables/constructs of the model are tested through regression analysis based on simple partial mediation corroborated by using Sobel and Hayes methodological concept.

### **3.2. RESEARCH MODEL**

According to earlier explanations and states mentioned above it will be done research and testing of mediate role of job standardisation-JS in relation between employee attitudes about intense of IT using in job execution-IITU and employee satisfaction and working performances-ESWP. On that base next research proposal could be posted: RP: Are there a statistical significant mediation effect of the job standardization-JS on regression relation between intense of IT using in job execution-IITU and employee satisfaction and working performances-ESWP at the workplace? Conceptual framework of research can be defined through questioning how certain components of workplace affect employee satisfaction and performances in the organization. The starting point is the assumption that the constituent elements of the fourth industrial revolution and the digitalization process, through intensification of information technology using, have a significant impact on the changing key components of workplace design. It implies assumption that there is a statistically significant impact of individual components of workplace, thus intense of IT using in job execution within contemporary environmental context, on employee satisfaction and performances. Hypotheses in this research are defined as

follow: There is a significant job standardisation mediating effect on impact of using intensity advanced information technology achievement in the workplace on employee satisfaction and working performances. The component defined as employee attitudes Intense of IT using in job execution-IITU within contemporary context is the first construct, thus first independent latent variable, while the Job Standardization-JS construct is the second latent variable with assumption of its mediating role, and all them tested in relation with employee satisfaction and working performances-ESWP as final third construct, thus dependent latent variable.

**Figure 1.** *Conceptual framework of the research*



**Source:** *Author's illustration*

All the previous identified three components represent latent variables or reflective constructs of the research model and each of them are formed by manifest variables, thus items that serve as observable measures for these constructs, as complex variables, according to earlier explained adjusted valid scales. All the variables in the questionnaire were measured using seven-point Likert type scale format where 7 = strongly agree, 1 = strongly disagree and the value of the Cronbach's Alpha coefficient for each item is over 0.93, but also for each construct integrally, which indicates high reliability of the questions in the used questionnaire. The normality assumption was tested using framework of descriptive statistics and it showed that measures of the central tendency (arithmetic mean, mode, median) do not significantly deviate from each other, while kurtosis and skewness fulfil requirements of normal distribution. For checking assumption of mediate role of job standardization-JS it is used Sobel test for mediation testing and Hayes Macro statistical option, through its fourth model, for additional confirmation. Through Sobel and Hayes procedure testing it is made by separate checking of relation intense of IT using in job execution-IITU and employee satisfaction and working performances-ESWP with the job standardization-JS as mediator.

#### **4. RESULTS**

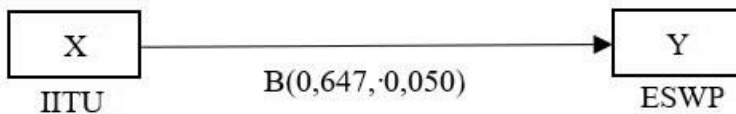
Using Sobel Procedure the mediating effect was verified through a three-step regression analysis. Step 1 verifies whether an independent variable shows a significant effect on mediation variable. Step 2 verifies whether an independent variable has a significant effect on a dependent variable. Step 3 verifies whether an independent variable and a mediator have a significant effect on a dependent variable



at the same time. According to the Sobel Procedure for calculating of mediation used next steps: Step 1: Estimate the direct effect between X and Y: Bivariate regression, Step 2: Estimate direct effect between X and M: Bivariate regression, Step 3a: Estimate direct effect between X and Y: Multiple regression with X and M as predictors and Y as dependent variable, Step 3b: Estimate direct effect between M and Y: Multiple regression with X and M as predictors and Y as dependent variable and Step 4: Estimate and test indirect effect for statistical significance: Sobel test or bootstrapping. In this model independent variable X will be IITU variable, dependent variable Y will be ESWP and mediating variable M will be JS variable. After calculation in SPSS from the table 1. it could be seen that total effect between IITU and ESWP is 0,647, with the standard error 0,050 and that it is statistically significant as shown on figure 2. below.

**Figure 2.** Direct effect calculation IITU → ESWP

Step 1: Direct effect:



Source: Author’s illustration

All the above data can be read from table 1 in which an individual linear regression model is presented where IITU-X appears as an independent or predictor variable in the model, while ESWP-Y appears as a dependent or criterion variable in the model and the stated regression ratio is statistically significant which provides sufficient basis for further analysis and calculations (Table 1.).

**Table 1.** Coefficients<sup>a</sup>

| MODEL |            | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig   |
|-------|------------|-----------------------------|------------|---------------------------|--------|-------|
|       |            | B                           | Std. Error | Beta                      |        |       |
| 1     | (Constant) | 1,768                       | 0,289      |                           | 6,117  | 0,000 |
|       | IITU       | 0,647                       | 0,050      | 0,694                     | 13,077 | 0,000 |

a. Dependent Variable: ESWP

Source: Author’s calculation

Using the Sobel testing procedure with the aim of fulfilling precondition within step 2 the focus is on checking relation between X-IITU and M-JS and it could be seen

that relation is amount 0,641 with standard error 0,064 and that relation is statistically significant (Table 2.).

**Table 2. Coefficients<sup>a</sup>**

| MODEL |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig   |
|-------|------------|-----------------------------|------------|---------------------------|-------|-------|
|       |            | B                           | Std. Error | Beta                      |       |       |
| 1     | (Constant) | 1,944                       | 0,376      |                           | 5,168 | 0,000 |
|       | IITU       | 0,641                       | 0,064      | 0,591                     | 9,950 | 0,000 |

a. Dependent Variable: JS

**Source:** Author's calculation

In step 3 through segments a and b, according to the procedure, the relationships are tested where X-IITU and M-JS are considered as independent variables and the variable Y-ESWP as a dependent variable in the multiple regression model where the following values from table no. 3, where it is seen that the IITU regression coefficient on ESWP is 0.389 with a standard error of 0.052 and the regression coefficient on the JS-ESWP relation is 0.403 with a standard error of 0.048, and in both cases the relations are statistically significant (Table 3.).

**Table 3. Coefficients<sup>a</sup>**

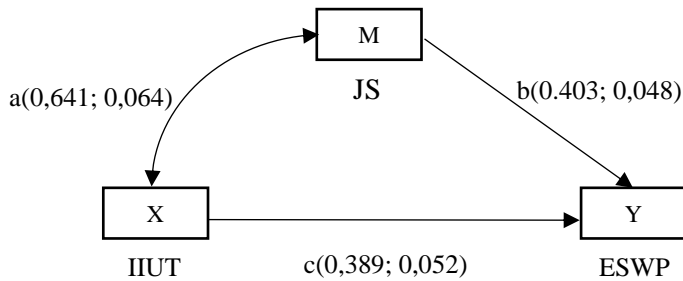
| MODEL |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig   |
|-------|------------|-----------------------------|------------|---------------------------|-------|-------|
|       |            | B                           | Std. Error | Beta                      |       |       |
| 1     | (Constant) | 0,985                       | 0,264      |                           | 3,730 | 0,000 |
|       | IITU       | 0,389                       | 0,052      | 0,417                     | 7,423 | 0,000 |
|       | JS         | 0,403                       | 0,048      | 0,468                     | 8,327 | 0,000 |

a. Dependent Variable: ESWP

**Source:** Author's calculation

Based on the above data and Figures 3, through Sobel Procedure step 4 the direct effect (c) and the indirect effect (a\*b) are calculated. Of course, the total effect is obtained by summing the magnitude of the indirect and direct effect and based on it, the percentage of indirect-intermediate effect in relation to the total effect is calculated.

**Figure 3.** Direct effect (c) and indirect effect (a\*b) elements for calculation



**Source:** Author’s illustration

Based on all the above Figure 2, it can be seen that the direct regression effect (c) of IITU and ESWP is 0.389 with a standard error of 0.052, while the indirect effect (a\*b), where JS appears as a mediating variable, is (a\*b = 0.641 \* 0.403 = 0.258323) and the same ratio is statistically significant while the total effect is expressed as a sum (Total=direct+indirect=0.647=0.389+0.258323), (0.243≈0.242697) where the indirect effect accounts for almost 40% of the total effect, which is both practically and statistically significant (Table 4) where two-tailed probability is 0.0000000, thus confirming the research hypothesis presented through an simple partial mediation model. We used Sobel test calculator within which there are additional two tests Aroian test and Goodman test and according p value we can see that this relations is statistically significant.

**Table 4.** Sobel test calculation

| Input                       | Tests                | Test statistic:  | Std. Error: | p-value   |
|-----------------------------|----------------------|--|-------------|-----------|
| <b>a. 0,641</b>             | <b>Sobel test:</b>   | 6.43419798   | 0.04014844  | 0.0000000 |
| <b>b. 0,403</b>             | <b>Aroian test:</b>  | 6.41544512   | 0.0402658   | 0.0000000 |
| <b>S<sub>a</sub>. 0,064</b> | <b>Goodman test:</b> | 6.45311627   | 0.04003074  | 0.0000000 |
| <b>S<sub>b</sub> 0,048</b>  | <b>Reset all</b>     | Calculate: <a href="http://quantpsy.org/sobel/sobel.htm">http://quantpsy.org/sobel/sobel.htm</a> |             |           |

**Source:** Author’s calculation

For more precisely calculation it could be used Hayes Macro Process SPSS procedure using model 4 where it is defined that Y is ESWP, X is IITU and M is JS as it could be seen in the table below (Abu-Bader, et all, 2021). Total effect and direct and indirect mediating effect could be measured using Hayes Process Macro SPSS bootstrap (Andrew F. Hayes, Nicholas J. Rockwood, 2017). The calculations show that all relations are statistically significant. We performed three different relation path analyses for used constructs, I: Total effect of X on Y, II: Direct effect

of X on Y and III: Indirect effect of X on Y. To perform these analyses, it is used PROCESS syntax for SPSS for all of the required calculations (version 2.16; Hayes, 2013).

**Table 5.** Total, Direct and Indirect effect of X:IITU on Y:ESWP (M:JS)

| Total effect of X on Y                               |        |          |          |        |        |        |
|--|--------|----------|----------|--------|--------|--------|
| Effect   | SE     | t        | p        | LLCI   | ULCI   | c_cs   |
| 0,6475   | 0,0495 | 13,0766  | 0,0000   | 0,5498 | 0,7451 | 0,6940 |
| Direct effect of X on Y                              |        |          |          |        |        |        |
| Effect   | SE     | t        | p        | LLCI   | ULCI   | c'_cs  |
| 0,3892   | 0,0524 | 7,4231   | 0,0000   | 0,2858 | 0,4927 | 0,4172 |
| Indirect effect(s) of X on Y                         |        |          |          |        |        |        |
| Effect   | BootSE | bootLLCI | BootULCI |        |        |        |
| 0,2582   | 0,0422 | 0,1777   | 0,3437   |        |        |        |
| Completely standardized indirect effect(s) of X on Y |        |          |          |        |        |        |
| Effect   | BootSE | bootLLCI | BootULCI |        |        |        |
| 0,2768   | 0,0427 | 0,1943   | 0,3623   |        |        |        |

**Source:** Author's calculation

After calculation and testing it is clearly that some significant part of the relation between Intense of IT using in job execution-IITU and Employee satisfaction and working performances-ESWP is defined indirectly through job standardisation-JS construct. We can read that total effect is 0,6475, direct effect is 0,3892 and indirect effect is 0,2582 and completely standardized indirect effect is even a little larger 0,2768 and that confirmed earlier calculation. If there remains a significant direct X on Y effect after controlling for the mediator, researchers typically report that the mediator partially mediates the X on Y impact (Rucker et al, 2011). The all effects are significant, because the p value of the model is less than 0,05 and the bootstrap confidence interval does not include zero, but because there is still significant and rather high direct effect in this case we can recognize statistical significant partial mediate or indirect effect through standardisation and managers should take in considerations this findings during decision making process. According that almost 40% or even more in case of completely standardized indirect effect amounting nearly 43% of total effect is mediated through job standardisation that shows even if modern companies which have the best equipment what makes work easier for management and employees, the overall effect of their satisfaction and efficiency largely indirectly depends on the standardization of work. The reasons for this situation can be sought for at least two reasons, where the first relates to the increase in efficiency and satisfaction with the effects of employees' work through the use of clear procedures in terms of how to perform work, while the second reason can be

sought through the increase in employee satisfaction and their performances in terms of clearly defining the work time or when to work and use the mentioned technologies.

## **5. DISCUSSION, FURTHER RESEARCH AND LIMITATION**

In this research, a high degree of partial mediating influence of job standardization on employee satisfaction and performances was confirmed when intensity of IT using on work place, as main driver of fourth industrial revolution, observed as a predictor and employee satisfaction and working performances as criterion variable. Certain researches in this area have some contradictory results in the context of the effects of standardization but the special cases should be seen only as exceptions that prove the rule, but its evidence should be taken in consideration in future research within this area. Furthermore, as job standardization limits the autonomy of the employees on their jobs, this may strengthen the negative attitude towards the organization (Gökhan & Babadağ, 2018). Previous works in this field have focused on examining the construct of standardization and its impact on the quality of delivered value, or more specifically customer service, while the present work opens a new perspective on standardization as an intermediary variable within the organizational system for delivering value, in a way that the same observes in the context of employee efficiency, which as a rule of thumb means a higher degree of client satisfaction. In addition to the above, certain works investigate the impact of standardization on the deviant behavior of employees and show that a higher degree of standardization leads to a higher degree of deviant behavior, which brings both the theory and the practice of the organization into contradiction (Mao, H.-Y., 2022). In this regard, the contribution of the concrete paper is reflected in the clear identification of the positive mediation effects of standardization on employee satisfaction and performance, which certainly includes behavior that generates good results for both the individual and the organization. Research in this field also examined the indirect effects of standardization in relation to the application of different types of leadership on employee effectiveness measured by the quality of work execution and innovation issues, where opposite effects of standardization were shown, depending on whether transactional or transformational leadership was used as a predictor. In the aforementioned sense, the procedure for implementing changes in the organization can be taken as a part of standardization, and when interpreting the results, other observations with a lower degree of contradiction could be given. The paper in question indirectly hints at the aforementioned expectations because companies that intensively use the scope of the fourth technological revolution and digitization as paragons of transformational leadership, and the results show that the same as predictors through the mediation effect of standardization have a positive impact on employee efficiency. Part of the works

within the mentioned field dealt with the soft and hard approach to standardization, and the mentioned distinction was not made in this work, so that a space is opened for a special analysis of the intermediary influence of standardization measured as a soft and measured as a hard construct, separately, on the relationship between the intensity of use of the scope of the fourth technological revolution context observed through intensity of IT harnessing and the efficiency of employees. Through this type of distinctive separate analysis, differentiated results could be obtained that would more clearly present the mediating influence of individual segments of the standardization phenomenon as an important design parameter in organizational structuring. These results are in line with our assumption that formalization increases the transparency of organizational processes and hence seem to facilitate the identification and interconnection of financial and especially non-financial value drivers (Nowotny et al, 2022). The formalization of the organizational structure which main component is work and processes standardisation, as a result of the influence of managerial decisions or impact of some other variables, including the process of more intensive use of information technologies and the achievements of artificial intelligence as main content of the fourth industrial revolution, has a positive effect on the effectiveness of the organization and each employee measured through different indicators including the scope of value based management indicators. The impact of the intensification of the use of information technologies on employee satisfaction and performances can be indirect through the structural context that includes various constructs determined by the organizational structure itself and its key elements and their design parameters (Borle et al, 2021).

## **6. CONCLUSION**

Regardless of the effort of some authors to view standardization in modern business conditions as a vehicle that negatively affects the efficiency of employees, standardization observed in any form will continue to produce positive results. The reason for the above lies in the fact that modern science insists even on disciplined entrepreneurship, which by definition means delivering value in a qualitatively different way. This means that creativity aimed at changes and development without discipline, which implies respect for certain standards and processes, cannot achieve a positive result. The paradigm of ensuring a simultaneous balanced existence and a high degree of work standardization together with creative freedom remains the task facing managers if they want their companies to remain competitive and well conditioned in the future.

The way to achieve the above effects through the use of the positive effects of both phenomena, both discipline and creativity, is a task that can only be achieved through the proper use of the postulates of human resource management and knowledge management through the five principles of organizational learning, which, among

others, includes the development of individual process of learning and individual employee knowledge and skills. The above implies that in the future, managers will increasingly be obliged to use heterarchical management systems of organizations by observing people through the lens of seniors and juniors option while relying on a high degree of empowerment of human resources at the individual level through concept of selfcontrolling culture. In the mentioned case, the standardization of work implementation should be accepted in the cultural sense as an individual characteristic incorporated into the system of thinking, work and behaviour of each individual through the application of standard quality circles at the individual level, which will lead to a better development of each organization through dvelopment of its employees.

**LITERATURE**

1. Abu-Bader, Soleman and Jones, Tiffanie Victoria, (2021). Statistical Mediation Analysis Using the Sobel Test and Hayes SPSS Process Macro, *International Journal of Quantitative and Qualitative Research Methods*, Pages 42-61. Available at SSRN: <https://ssrn.com/abstract=3799204>
2. Andrew F. Hayes, Nicholas J. Rockwood, (2017). Regression-based statistical mediation and moderation analysis in clinical research: Observations, recommendations, and implementation, *Behaviour Research and Therapy*, Volume 98, Pages 39-57, ISSN 0005-7967, <https://doi.org/10.1016/j.brat.2016.11.001>
3. Borle, P., Boerner-Zobel, F., Voelter-Mahlknecht, S. (2021). “The social and health implications of digital work intensification. Associations between exposure to information and communication technologies, health and work ability in different socio-economic strata”, *International Archives of Occupational and Environmental Health*, 94, pp. 377–390 <https://doi.org/10.1007/s00420-020-01588-5>.
4. Delfanti, A., (2023). *The Warehouse: Workers and Robots at Amazon*. Pluto Press, JSTOR, <https://doi.org/10.2307/j.ctv2114fnm>.
5. Dr. Chun-Fang Chiang PhD. and Kuo-Ping Wu, (2014). The influences of internal service quality and job standardization on job satisfaction with supports as mediators: flight attendants at branch workplace, *The International Journal of Human Resource Management*, Routledge, Vol. 25, Numb. 19, Pg. 2644-2666, doi:10.1080/09585192.2014.884616
6. Francisco J. García-Rodríguez, Daniel Dorta-Afonso, Manuel González-de-laRosa (2020). Hospitality diversity management and job satisfaction: The mediating role of organizational commitment across individual differences, *International Journal of Hospitality Management*, Volume 91, 102698, ISSN 0278-4319, <https://doi.org/10.1016/j.ijhm.2020.102698>.
7. Greg R. Oldham, Yitzhak Fried, (2016). Job design research and theory: Past, present and future, *Organizational Behavior and Human Decision Processes*, Volume 136, ISSN 0749-5978, <https://doi.org/10.1016/j.obhdp.2016.05.002>
8. Huo-Tsan Chang, Yu-Jia Chou, Min-Chih Miao & Jia-Wen Liou (2021). The effects of leadership style on service quality: enrichment or depletion of innovation behaviour and job standardisation, *Total Quality Management & Business Excellence*, 32:5-6, 676-692, DOI: 10.1080/14783363.2019.1626708



9. José M. Peiró, Jaime Andrés Bayona, Amparo Caballer, Annamaria Di Fabio, (2020) “Importance of work characteristics affects job performance: The mediating role of individual dispositions on the work design-performance relationships”, *Personality and Individual Differences*, 157, 109808 <https://doi.org/10.1016/j.paid.2019.109808>
10. Kerse, G. & Babadağ, M. (2018). I'm Out If Nepotism is in: The Relationship Between Nepotism, Job Standardization and Turnover Intention, Pg. 631-644. 10.21121/eab.2018442992
11. Mao, H.-Y. (2022). Job Standardization and Deviant Workplace Behavior. *E&M Economics and Management*, 25(3), 88–105. <https://doi.org/10.15240/tul/001/2022-3-006>
12. Osman M. K., Turgay A. & Huseyin A. (2004). Effects of Job Standardization and Job Satisfaction on Service Quality, *Services Marketing Quarterly*, 25:3, 1-17, DOI:10.1300/J396v25n03\_01
13. Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891. doi: 10.3758/BRM.40.3.879
14. Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Mediation analysis in social psychology: Current practices and new recommendations. *Social and personality psychology compass*, 5(6), 359-371. <https://doi.org/10.1111/j.1751-9004.2011.00355.x>
15. Nowotny S., Hirsch B., Nitzl C., (2022). The influence of organizational structure on value-based management sophistication, *Management Accounting Research*, Volume 56, 100797, ISSN 1044-5005, <https://doi.org/10.1016/j.mar.2022.100797>.
16. S. Waschull, J.A.C. Bokhorst, E. Molleman, J.C. Wortmann, (2020). Work design in future industrial production: Transforming towards cyber-physical systems, *Computers & Industrial Engineering*, Volume 139, 105679, ISSN 0360-8352, <https://doi.org/10.1016/j.cie.2019.01.053>.
17. Y-M. Hsieh & A-T. Hsieh (2010). Enhancement of Service Quality with Job Standardisation, *The Service Industries Journal*, 21:3, 147-166, DOI: 10.1080/714005029

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## STANDARDIZACIJA POSLA KAO MEDIJATOR UTICAJA KORIŠTENJA INFORMACIONIH TEHNOLOGIJA NA UČINKOVITOST ZAPOSLENIKA

### SAŽETAK

*Sadržaj posla različitih vrsta radnih mjesta se akceleracijski intenzivno mijenja u zadnjih nekoliko decenija a pogotovo u dijelu načina obavljanja posla i sagledavanja učinkovitosti na poslu. Navedena dinamika promjena je uzrokovana promjenama tehničkog sistema koji se sve više naslanja na informacione tehnologije i sisteme automatizacije gdje danas jedan čovjek može u pojedinim područjima obavljati efikasnije isti obim posla koji su ranije obavljale desetine zaposlenika. Standardizacija u vrijeme četvrte tehnološke revolucije, može se u određenoj mjeri iskoristiti za poboljšanje efikasnosti rada zaposlenih u svim oblastima i industrijama, bilo da je riječ o proizvodnji ili uslužnoj djelatnosti, ali različitim intenzitetom. Cilj rada jeste testiranje medijacijskog utjecaja standardizacije posla na učinkovitost zaposlenika ako se kao prediktori posmatraju ključni izlazi procesa analize posla. U radu će se testirati utjecaj intenziteta korištenja savremenih informacionih tehnologija, kao segmenta analize posla, na učinkovitost zaposlenika u kontekstu četvrte tehnološke revolucije i digitalizacije kako direktno tako i indirektno kroz medijaciju konstrukta standardizacije posla. Na navedeni način se želi otkriti odgovor na pitanje koliko je standardizacija posla bitna vehikula za učinkovitost zaposlenika u savremenim uvjetima poslovanja koji u određenim situacijama zahtjevaju i prihvatanje principa odstupanja od standardnog opisa posla i propisanih procedura što je do određene mjere u logičkoj koliziji sa standardizacijom posla.*

**Ključne riječi:** *Opis posla, tehnički sistem, standardizacija posla, medijacijski efekt, učinkovitost zaposlenika*

**JEL:** *L21, O15*