
Navigating the Digital World - the Impact on the New World of Work, A Multigen Perspective

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Abstract

Digital technology impacts the 21st century, and it shapes our lifestyle, the way we think and the way we act. This paper presents aspects of the digital transformation of the workplace and how this process requires the creation and development of new skills and competencies for employees today but especially in the future. In this new context, an essential role is played by education, by educational systems that need to adapt to new requirements, precisely so that educators have the skills needed to be more productive. From this perspective, in the paper, the authors present a teaching and learning method called the TADEO method, which encourages learning the skills needed for Education 4.0. This method is based on a technology support software tool to help teachers build their teaching plan, teaching duration, teaching materials, and assessment method.

Hybrid work is an opportunity that brings new challenges: the work environment is changing rapidly, and automation is replacing human tasks in order for organizations to thrive. Recruitment has become complicated with the digital transformation, and new challenges are emerging for employers as they need people with the skills needed to cope with a changing work environment. The study was conducted on a sample of respondents from a multinational service company based in western Romania, where the accounting department employees were interviewed to see what they think about artificial intelligence, the implications of robots, and the future at work. This research is based on four objectives that have been achieved and three hypotheses that have been tested. The study results showed that about half (43.7%) of the employees who answered this questionnaire worked in the office. Only 28.2% consider themselves very satisfied with the job, and 37.9% see themselves working at the same company for 10 years.

Key words: digital transformation; human resources; generations; jobs; artificial intelligence;

JEL Classification: O15, M15

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Introduction

Digital technology impacts the 21st century, it shapes our lifestyle, the way we think and the way we act. New habits, beliefs and working principles are emerging and developing.

According to experts, the World Economic Forum, jobs will be significantly transformed in the coming years, and individuals with jobs that involve repetitive activities will have to think about a job reset. Today's young people will embrace new professions in 5-10-15 years when the world will already be even more changed and artificial intelligence, robotics, 3D printing, biotechnology, 5G, augmented reality or autonomous transport will become an integral part of our lives (Inaco, 2020).

The jobs of the future will be those that involve human interaction, but also the use of AI technologies.

Currently, employers place more emphasis on soft skills, digital skills, as well as knowledge of working methodologies such as Agile (project management process), Scrum (method of managing program development projects), Kanban (modern management method). The jobs of the future will be different from those of the present because they will allow employees to choose where they want to work, to choose their work schedule and to achieve productivity and efficiency.

Active listening, adaptability, self-discipline, learning autonomy, the ability to collaborate virtually, creativity, empathy, cognitive flexibility, critical thinking, and problem solving, cultural intelligence, collaborative leadership and initiative are increasingly required skills in the job market.

It is a reality that the work environment is changing rapidly: automation and machines are replacing human tasks and work roles, thus changing the skills that organizations need to thrive.

Current and future jobs require technology, but also organizational and process adaptation to make the transition from a traditional to a digital job. Social and technological changes have affected the means of communication, cooperation, and collaboration.

This transformation does not wait for individuals or organizations to be prepared in this regard. The new generation of employees in the labor market will be more in control, more resilient and more comfortable with ambiguity compared to those so far (Abrudan et al., 2021).

Most contemporary researchers perceive the digital workplace as a multidisciplinary concept.

Eckardt et al. (2018) state that among the factors that characterize the new jobs we can mention: the power that has moved from employer to employee and the proactive participation of generations X, Y, Z and R.

The last two decades are recognized by the significant development of information technologies and the changes that they have brought to the labor market at an accelerated pace.

A digital job comes with new challenges allowing employees to cooperate with other employees who are at a relatively long distance or who have a different time zone.

Meske and Junglas (2021) point out that the jobs of the future should focus less on routine operations and more on the effects of digitization, whether positive or negative - in the latter case, for example, negativity and stress.

Attaran et al. (2019) describes a positive effect that is at the core of a digital job, namely the reduction of so-called "time wasters". The costs for transport, for reserving the space in which the individual can carry out his activity, etc. are reduced to a minimum.

1. The impact of digital transformation in education 4.0

According to Norton et al. (2020), the digital transformation consists in a change in the organization of a workplace motivated by emerging digital technologies and innovative business models. It involves more than implementing a technological solution, it is an alignment between digital technologies, human and organizational factors.

According to Mahlow and Hediger (2019), digital transformation is building new skills and competencies through digital technologies in a profound and strategic way.

Generation 4.0 education and jobs need more ways for individuals to put their digital skills, knowledge, and technology into practice. Education 4.0 leads to a new educational paradigm based on the application of relevant skills and the need for improvement and retraining in work (Hong & Ma, 2020).

Among the expected results of education facing the demands of the Fourth Industrial Revolution we can count: the competence of individuals in the field of digital technologies perceived through the prism of an

interconnected and multifaceted world, in which daily improvements are based on new digital technologies (WEF, 2020) and innovative pedagogies to encourage the learner to take an active role in promoting and exercising the skills and attitudes needed in the learning process (Peterson et al., 2018). Education needs to adapt to train students with the skills needed to create a more inclusive, coherent, and productive society (OECD, 2018). Basically, we are talking about educational systems whose mission is to provide learners with the skills needed to build a fairer and more productive world. Schools will build and develop hard skills, such as technological design and resource management, but also soft skills such as communication, empathy, and social awareness, which will ultimately lead to the shaping of inclusive and equitable societies (WEF, 2020). These skills are essential to allow people to progress in a more complex, interconnected and rapidly changing world (OECD, 2019).

Schools need to equip students for jobs and technologies that have not yet been created and to solve problems that have not yet been foreseen (OECD, 2018b). According to the World Economic Forum (WEF, 2020), Education 4.0 is an education open to addressing today's pressing challenges, such as global climate change, ecosystem degradation and depletion of natural resources, and the implementation of new pro-environmental behavior to motivate human commitment and action in solving environmental problems.

Among the main technological factors of the digital transformation in education is the educational software. Barbosa and Souza (2021) present a method based on innovation factors and indicators to guide the development and evaluation of educational software. Such factors and indicators, classified in technology and pedagogy, are associated with the skills and competencies needed for students to learn in the 21st century.

2. TADEO - a method of teaching and learning characteristic for education 4.0

This approach aims to guide the development of teaching and learning experiences given the multidisciplinary nature of the causes and effects of climate change and to encourage the exercise of the skills needed for Education 4.0.

The method is based on the key factors of the digital transformation in education, identified from the analysis of reports produced by international organizations such as the OECD and the WEF. The TADEO method is aligned with the pedagogical processes related to the introduction of the topic of climate change in education and technologically supported by a WEB-based software tool, developed for this purpose.

The technology support software tool for this method, available at <http://tadeo.com.br>, can be used by teachers to help design teaching and learning experiences regarding the use of a set of drivers that lead to digital transformation in education.

The web-based tool offers the following main features: interactive panel with digital transformation factors; building teaching plans by selecting drivers; the purpose of the teaching; duration of activities; the necessary materials and the assessment method to be used; digital storage of student products in teaching and learning experiences; dashboards with the result of self-assessments and reviews by students.

3. Human resources in the digital age - more generations at the same workplace

Individuals are unique in their creativity and ability to bring new solutions to the world's problems. Creativity, ingenuity, entrepreneurship, discoveries are based on the natural state of business (Organization for Economic Cooperation and Development, 2019). Creativity and technology are what are currently making a strong impact on work.

Technology affects people in different cultures, transforming the way they interact, work and develop. This technology is marked by automation, robotics, auto-learning, remote control, databases (cloud databases), cyber-physical systems, virtual reality, voice response devices - all fully integrated into systems that allow intercultural communication, on different meridians of the globe in the same time.

In the new world of work, the hybrid form is offered as a new opportunity that brings many challenges. In general, experts and researchers are beginning to talk about the post-pandemic and digital age that bring with them new rules of labor (People Management Forum, 2021).

The age of globalization encourages companies to embrace and exploit the opportunities presented by digital strategies. The world seems to be without limits, and scientific and technological development is unstoppable.

According to the new Digital 2020 report published by *We are Social* and *Hootsuite*, over 4.5 billion people use the internet, and there were over 3.8 billion users on social media platforms at the beginning of 2020. About 60% of the global population is online and compared to the previous year, the number of internet users increased by about 7%, while the number of social media users increased by 9% (Kemp, 2020).

This information makes us understand why no consensus is reached on the definition of Big Data, despite all efforts. The common reason of all the studies conducted over the last twenty years is that large amounts of data are being produced every day due to digitization, and the most significant database has not yet been reached.

In this world, where data is of great importance, it is essential to raise awareness, facilitate access to data and work on this issue. In addition to the abundance of data, the quality of the data and its processing, the maintenance of its security, the detection of errors and deficiencies and, above all, the ability of employees to be able to manage it becomes very important.

Accelerated digital transformation creates real challenges for employers in recruiting people with the skills, competencies and knowledge needed to adapt and perform in a changing work environment.

The coexistence of generations X, Y and Z on the labor market is a reality that almost every organization lives. Different generations, different perceptions. Different perceptions, which lead to different processes and solutions precisely because each generation has its own perspectives, values, needs and expectations in the workplace. Developing skills and understanding the diversity of the organization can lead to increased quality of performance and employee satisfaction in the workplace. Today, more than ever, we need an organizational culture that is based on collaboration and creativity. And it will be able to transform the existing way of working.

The European survey conducted by the European Center for the Development of Vocational Training (2021, p.11) stated that every fifth European employee must have advanced digital skills, mainly innovation, communication, digital skills and literacy.

The Covid-19 pandemic and its widespread impact have accelerated the demand for digital skills in most occupations in various fields. The share of digital skills in

total demand in online job postings has increased from 20% in 2019 to 23% in 2020 (European Center for the Development of Vocational Training, 2020). This makes digital skills a cluster with the most pronounced change. In addition, the percentage of people with moderate or advanced digital skills varies across countries throughout Europe. For example, in Sweden, Denmark and Norway, the percentage of people with intermediate or advanced digital skills exceeds 40% compared to Bulgaria or Romania, where it is less than 20% (European Center for the Development of Vocational Training, 2020).

4. Case study: the impact on the new world of work, a multigenerational perspective on a company in Romania

4.1 Methodology

The paper aims to analyze the perception of employees of a company in the western part of Romania, who belong to several generations, about the jobs of the future.

This company is a world leader in providing outsourcing services for complex business products and services. It develops integrated and innovative services in areas such as monitoring, mobility, consumer goods, customer experience, industrial technology, business solutions but global services also.

Regarding the methodological design, we opted for the research method based on sociological survey, a quantitative method, in-depth research, involving the questioning of a representative number of individuals with accurate and statistically analyzed data using the survey as a working tool. We opted for quantitative research to collect data from employees from different backgrounds, with different ages, to see what they think about this digital transformation.

In our opinion, a study that has heterogeneous responses from a relatively large sample with different opinions is more eloquent than a study based on a relatively small number of samples, that tend to be subjective.

Objectives:

1. Identifying the work regimen of employees in this company
2. Analysis of the degree of satisfaction with the current job of employees.

3. Identifying the perception of employees by different age groups regarding artificial intelligence.
4. Measuring the level of confidence of employees about the implications that robots could have in the future.

Hypotheses:

1. There are significant differences between backgrounds in adapting to new changes.
2. There are significant differences between the gender of respondents in terms of artificial intelligence.
3. There are significant differences between the gender of respondents as to what the jobs of the future will offer.

The concepts behind this study are the digital world and the impact of the transformation of digital work. The questionnaire was developed online through the *Google Forms* platform (<https://docs.google.com/forms/u/0/>) to facilitate division into items.

The employees of the company from the west of the country were also chosen as a research sample because in this company, work is done from home office, in hybrid mode, but is also carried out in the office.

The questionnaire was distributed to the company's accounting department. It was applied between December 3, 2021 - January 11, 2022.

The questionnaire consists of a single dimension that measures the perception of employees in a company in western Romania about future jobs. It comprises 13 questions, 12 closed-ended and one open-ended, the last three questions being factual questions. Likert scale was

used from 1 ("I adapted easily") to 4 ("I couldn't adapt"). A single grid with multiple response variants has been added that measures the perception of the implications that robots will have in the future (will replace current jobs, retraining, how people will react to this revolution, how corporations will act at the time of their appearance).

The limit of the research is the inequality between the groups; the questionnaire was completed to a greater extent by female respondents than by male respondents. The questionnaire consisted of 13 variables and it was sent to a total of 168 employees at the accounting department, of which 126 were female and 42 were male. 103 employees (61.3%) answered the questionnaire.

With the help of *IBM Statistics*, frequency, descriptive, correlation, media comparison and Independent T Test analysis were performed.

4.2 Results

4.2.1 Descriptive analysis - general aspects

Examining the responses received, we observed that 23 of the total respondents (103) are part of generation Z, 51 are part of generation Y, and 29 are part of generation X. Regarding the perception of generations regarding artificial intelligence, generation Z considers that it has a strong impact on humans, generation Y believes that artificial intelligence is necessary to protect us from cyber-attacks, and generation X believes that it is increasingly present in our daily lives.

To begin with, we performed a descriptive analysis on the variable "Gender" to demonstrate the limit of the research, the inequality between the groups of respondents.

	Gender	N	Average	Deviate from the standard	Standard error
Implications	female	61	10.33	2,300	0,295
	male	42	9.52	2,822	0,435

Source: Authors' processing, 2022

From **Table no. 1**, we can see the inequality between the groups: 61 female respondents and 42 male respondents. A study by the European Institute for Equal Opportunities between Women and Men shows that 9 out of 10 girls / boys (16-24 years old) have enough skills to use digital technologies, but the difference between them is self-confidence. Boys are more

confident about digitization, with 73% of all male respondents trusting their digital skills compared to girls, where the percentage is 63% out of all female respondents from the same age group.

As previously mentioned, 23 of the total respondents (103) are part of generation Z, 51 are part of generation Y, and 29 are part of generation X.

For the first variable, we performed a frequency analysis | to see where the respondents work.

Table no. 2. Working regime				
	Frequency	Percentages	Valid percentage	Cumulative percentages
	45	43.7	43.7	43.7
Home office	34	33.0	33.0	76.7
In hybrid mode	24	23.3	23.3	100.0
Total	103	100.0	100.0	

Source: Authors' processing, 2022

From **Table no. 2**, it is observed that 43.7% of all respondents work from the office, 33% work online from home and only 23.3% answered that they work in hybrid mode.

For the second variable, we also performed a frequency analysis to measure the degree of satisfaction of the respondents regarding their current job.

Table no. 3. Appreciation of the current job				
	Frequency	Percentages	Valid percentage	Cumulative percentages
I'm satisfied	15	14.6	14.6	14.6
I am very satisfied	29	28.2	28.2	42.7
I'm less satisfied	27	26.2	26.2	68.9
I'm dissatisfied	20	19.4	19.4	88.3
I am very dissatisfied	12	11.7	11.7	100.0
Total	103	100.0	100.0	

Source: Authors' processing, 2022

From **Table no. 3** it can be seen that 28.2% representing the majority, consider themselves very satisfied with their current job and only 11.7% of the total respondents, representing a small proportion, consider themselves very dissatisfied.

To the question "In 10 years, you personally see yourself working in this company?" We performed a frequency analysis to see how the answers are divided in terms of the perception of work in the future also in this company.

Table no. 4. The future at the company				
	Frequency	Percentages	Valid percentage	Cumulative percentages
Yes	39	37.9	37.9	37.9
Not	40	38.8	38.8	76.7
I don't know / I don't answer	24	23.3	23.3	100.0
Total	103	100.0	100.0	

Source: Authors' processing, 2022

Regarding the future in this company, as one can see in **Table no. 4**, opinions are divided, largely representing 38.8% of all respondents do not see themselves working in this company, 37.9% of all respondents see themselves working in this company in 10 years, and 23.3% did not comment on an answer to this question.

In the following we conducted an Independent t Test to demonstrate whether there are differences of opinion regarding the appearance of robots and the implications of new technology on employee perception. The results were summarized in **Table no. 5**.

Table no. 5. Robot implications

Leven's test for equality of variations			T test for equality of means				95% confidence interval of the difference			
Implications	F	Threshold	t	df	Significance threshold	Differences in environments	Standard error	lower	higher	
Equally proposed variants	1,607	0,208	1,588	101	0,115	0,804	0,506	-0,200	1,808	
Equally unproposed variants			1,530	76,197	0,130	0,804	0,526	-0,243	1,851	

What implications do you think the robots will have?	Answers		Percentage of cases
	N	pro-percentage	
They will replace jobs that require repetitiveness	33	41.8	60.0
Retraining	10	12.7	18.2
How people will react to this evolution	16	20.3	29.1
How corporations will act when they emerge	20	25.3	36.4
Total	79	100.0	143.6

Sursă: Prelucrările autorilor, 2022

In order to be able to perform the Independent Sample Test, we recorded the variable "What implications do you think they will have? (robots)". Performing the test t, we noticed that the significance threshold of the Levene test $P = 0.208$, is greater than 0.05, so we will refer to the first line of the test t, the value of the test t, $t(101) = 1.588$, $p = 0.115$, $p > 0.05$. The result of the test shows that we have significant differences in the choice of respondents regarding the implications that robots could have in the future.

The second part of the table confirms that we have significant differences in respondents' views on the implications, with 41.8% representing the concern of

current employees performing repetitive work. 25.3% are worried about how the company will act when the robots appear, and the fewest of them think about re-training (12.7%).

4.2.2 Hypothesis testing

This variable measures the degree of adaptability of employees to the new changes caused by the pandemic. We measure the first hypothesis of this study. "There are significant differences between the backgrounds in adapting to new changes."

Table no. 6. New changes caused by the pandemic

		urban	rural	total
On a scale of 1 to 5, how do you assess the new changes caused by the pandemic?	I adapted easily	9	8	17
	I adapted	13	7	20
	I tried to adapt	8	7	15
	I haven't really adapted	20	10	30
	I haven't adapted yet	13	8	21
Total		63	40	103

Source: Authors' processing, 2022

We made a correlation with the environment of the respondents and included the results in **Table no. 6**. We can see that 63 of the total sample come from urban areas and 40 from rural areas. The largest proportion of respondents in urban areas (20) and respondents in rural areas (10) did not adapt very well to the new changes.

Therefore, *the first hypothesis of the research is confirmed*, there are significant differences between the backgrounds of the respondents concerning the adaptation to the new changes.

We are going to test the second hypothesis – *There are significant differences between the respondent's gender in terms of artificial intelligence* – of the research using the variable: "What do you think about artificial intelligence? "

		Female	Male	Total
What do you think about artificial intelligence?	It is present in our daily lives	26	16	42
	It has a strong impact on humans	21	13	34
	Helps fight cyber attacks	14	13	27
Total		61	42	103

Source: Authors' processing, 2022

In terms of artificial intelligence, as we can see in **Table no. 7**, a large proportion of female employees (26) consider it to be more and more present in our daily lives, while male employees consider this to be almost double (42). Therefore, we find different proportions in what female employees and male employees perceive the usefulness of artificial intelligence has that can help combat cyber-attacks.

Our hypothesis is confirmed because there are significant differences between the groups of respondents in terms of artificial intelligence.

Finally, we test the third hypothesis – *There are significant differences between the gender of respondents regarding what a future job will offer* – using the variable "Jobs of the future in your opinion will provide:"

		Female	Male	Total
In your opinion, the jobs of the future will provide:	Flexible jobs	16	8	24
	Productivity	13	10	23
	Efficiency	6	9	15
	The freedom to choose to work where you want	13	7	20
	The opportunity to develop professionally	13	8	21
Total		61	42	103

Source: Authors' processing, 2022

In **Table no. 8** we can see a ranking of answers by groups of respondents.

Male respondents rank productivity in first place, and in the opinion of female respondents, flexible jobs come first. Women consider in equal proportions that the jobs of the future will bring productivity, an opportunity to develop professionally, but also freedom in choosing a job, and on the last place in the

ranking, female employees chose efficiency. Men rank efficiency second place, flexible jobs and the opportunity to develop third place, and last in the ranking of the men's group is the freedom to choose where to work. As a result, *our hypothesis is partially confirmed*, because there are differences, but not significant, between the gender of the respondents and their opinion on what the future jobs will offer.

5. Conclusions

In the digital age, people can make a difference. Employees continue to be at the heart of the digital transformation. It is crucial to understand at all levels that it is vital to appreciate people and their creative and professional abilities, especially nowadays when it becomes increasingly difficult to identify what motivates employees to be fully dedicated and involved to achieve the desired results. Therefore, in order to stimulate their involvement and performance, we need to create and develop a specific way of thinking in which technology can be harmonized with human nature. Managers of organization need to understand that digital transformation requires a holistic approach that focuses on the employee.

The targets of the research have been achieved.

They aimed to identify how some of the employees of a company in the western part of Romania work, to analyze their satisfaction with their current job, to reflect the opinion of the respondents according to generations on artificial intelligence and the measure of the confidence level of the employees of this company regarding the appearance and implications of robots.

It has been identified that most respondents in this case study are from Generation Y, and their views on the implications of artificial intelligence reflect the fact that it is beneficial to society as it helps to prevent cyber-attacks.

The results of the case study show that approximately half (43.7%) of the respondents to this questionnaire work in the office and only 28.2% consider themselves very satisfied with their current job, and 37.9% see themselves working in this company in 10 years.

Regarding the future implications of robots, 41.8% of all respondents believe that they will replace jobs that require repetitiveness, but even in this context only 12.7% think of retraining.

The hypotheses that are the basis of this study are confirmed in the sense that there are significant differences in gender regarding artificial intelligence, significant differences in gender regarding adapting to new changes, and less significant differences in gender of respondents regarding what a job will offer in the future.

The limits of the research consist in the access to only one department of the company, as well as the gender inequality between the groups, being more female employees at the Romanian branch of the studied company. Another limitation of the research is the structure of the questionnaire, which was built very formally, succinctly precisely to obtain a higher rate of completion and for employees to stay interested.

Given that the study was conducted in the accounting department of a company with a subsidiary in western part of Romania, in the future we want to expand the study in all departments to see what is the opinion of employees on artificial intelligence. This would help to generalize the results obtained and to identify a general opinion of the company's employees regarding the future of work.

Moreover, we want to conduct a larger study to build a tool that can measure employee satisfaction with the advantages and disadvantages of digitalization, but also to highlight its impact on employees and to identify the number of employees in this branch who are willing to work with robots.

REFERENCES

1. Abrudan D., Boşcai B., Iacob O. (2021). Talent management. Professional career, *Ed. Solness*, Timișoara
2. Attaran, M., Attaran, S., & Kirkland, D. (2019). The need for digital workplace: Increasing workforce productivity in the information age. *International Journal of Enterprise Information Systems*, 15 (1), 1–23. <https://doi.org/10.4018/IJEIS.2019010101>
3. Barbosa, R. & Souza, R. (2021). Drivers and Indicators of Innovation to Educational Software. *Informatics in Education*, 20 (1), 1-17. Available at: <https://doi.org/10.15388/infedu.2021.01>
4. European Center for the Development of Vocational Training (2020). Available at: <https://www.cedefop.europa.eu/ro>
5. Eckhardt, A., Endter, F., Giordano, A., & Somers, P. (2018). Three stages to a virtual workforce. *MIS Quarterly Executive*, 18 (1), 19–35. Available at: <https://doi.org/10.17705/2msqe.00006>
6. Hong, C., Ma W.W.K. (2020) Introduction: Education4.0: Applied Degree Education and the Future of Work. In: *Hong C., Ma W. (eds) Applied Degree Education and the Future of Work*. Lecture Notes in Educational Technology. Springer, Singapore.

