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HARMONY WITHIN THE NEW DIGITAL PARADIGM: MANAGEMENT OF HUMAN FACTOR AND BALANCE BETWEEN NEW AND LEGACY PRACTICES

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Abstract

Digitalization has become a central topic within societies and organizations, described as a new paradigm or as the fourth industrial revolution. This is a change taking place at many layers, impacting people's needs, behaviour and expectations. The purpose of this research is to show that for a digitalization process to be successful, a holistic approach is required where change management practices together with the human factor are at its core. The research was performed doing a sistematic literature review together with a measurement instrument in the form of a comprehensive survey that was filled by respondents across different countries and industries.
Based on this research, it is important to understand that the environment in which organizations operate is fast and ever-changing. There are constantly new ways of doing things, new technologies and frameworks that could be implemented, new strategies to be explored, etc. What is not different is the need for change with its human centricity.

Keywords: digitalization, digital transformation, change management, human behavior, human factor

1. INTRODUCTION

1.1. Background and motivation

Digitalization or digital transformation processes are becoming increasingly important within organizations across all industries. In Parviainen et al. (2017) this process is described as one of the key tendencies that are transforming businesses and the society as a whole. In Zaoui and Souissi (2020), digital transformation is seen

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as a social change that has a direct impact on the economic development while in Henriette et al. (2016) is also perceived as a cultural evolution. What is common across the definitions is the balance between the social, cultural and/or business aspects with the technological advancements. Nowadays, society is facing a "new digital paradigm", where there is a shift towards a digital first society, but lately, with a more "sustainable, human-centric and resilient" approach (European Commission, 2022). This paradigm is even defined as the fourth industrial revolution, characterized for its speed and the size of the changes involved, impacting power, wealth and knowledge (Xu et al., 2018). This paper defines digitalization as a change that can take place at many different levels and layers (society, organizations, and more), where technological advances are made and introduced that have a profound impact and where balance is sought between different social elements (strategy, vision, mission, values, processes, operations, skills, people, etc.) and the new technologies and innovations in order to be successful and add value to the end user.

Given the importance, depth and impact of this new paradigm, organizations must be aware of this social, economic and worldwide transformation to keep up not only with competitors but also with the new customer's, employee's and societal needs, behaviours and expectations. This research intends to provide a comprehensive, holistic and structured view on this important matter where human behaviour and change management practices are placed at its core, becoming its main enabler, where the 'transformational' side is as -or even more- important as the 'digital' aspect.

1.2. Research problem, purpose and questions

Digitalization processes are affecting organizations and even society, being an extremely relevant aspect of this new enough paradigm that is being driven by new technologies and ways of acting, behaving, expecting and doing things. Despite the criticality of this topic, the academic environment is missing a comprehensive, holistic and structured approach to it, where more than one specific view or approach is taken into account. This holistic approach is a key enabler for the success on digital transformation journeys, since considering only a few aspects of these processes is not enough due to the major impact that can have.

Digitalization is a profound change, being a movement or shift from a current state to a future one. The rapidly changing and evolution of organizations is discussed in Cameron and Green (2019), where it is highlighted their struggle to keep up with those external (economic and political) and internal (structures, strategies, systems) changes in order to be able to keep meeting the needs and expectations of their employees and consumers. Similarly, Burke (2017) states that changes are taking place every day at a very rapid pace where the organizations operate and that there is a need to have a better understanding of what change entails for them. As Bellantuono et al. (2021) confirm, there are some gaps in the digital transformation literature such as change-monitoring activities, identification and management of the resistance to change and the change consolidation. The paper highlights some limitations within the digital transformation research; for example: how can the resistance to change be not only

identified but also addressed and managed, nor how to help people to accept the changes proposed.

The purpose of this research is to encapsulate together the main approaches towards digitalization within the current literature ((i) Culture, Vision and Values; (ii) IT and Technology; and (iii) Human Resources and Talent) under the umbrella of human behaviour and change management, in order to then achieve a holistic view and perspective of such a relevant topic as digital transformation is while addressing the hypothesis which is proposed at the literature review section.

2. LITERATURE REVIEW

2.1. Theoretical framework

There is not one standard definition of "digitalization" or "digital transformation". Some authors provide definitions that are purely business orientated and others see those concepts as a social phenomenon and a cultural evolution (Henriette et al., 2016) that includes not only businesses but the society as a whole. From a business perspective, there are several definitions available within the academic literature, similar but different regarding the aspects that the digitalization processes may impact or involve. These transformations are described as a change process that can either take place in an incremental or disruptive way (Henriette et al., 2016). Contrary to that, Danuso et al. (2021) propose four options for the implementation of digital transformation: (i) explosive (impacts the whole organization at once having a fast transition with high costs), (ii) decisive (impacts the whole organization but the implementation is more flexible), (iii) distributed (the responsibility lies within each business unit), and (iv) reactive (internal transformation takes place first before exploring new business models to respond to external factors).

According to McKinsley (in Ulas (2019)), digital transformation is the process where technology, businesses and processes are adjusted to bring value not only to the customers but also to the employees while being capable of adaptation in a very dynamic environment. In Vey et al. (2017) it is highlighted the importance for companies to adapt and stay relevant in order to succeed in these digitalization times. Following this idea, in Hanelt et al. (2021) is said that despite the lack of clarity regarding this phenomenon of digital transformations, organizations are impacted and they must adapt.

2.2. Digitalization research approaches

Although there is a considerable amount of literature available around digital transformation and digitalization processes, there is not a one common nor holistic approach to it. As stated in Hanelt et al. (2021), there is a lack of agreement across the literature review regarding the definition and scope of digitalization processes and what is available, tends to have a narrow view. Not all the papers approach these topics from a similar perspective, and they tend to analyse one or only a few aspects of it when discussing what makes digitalization successful (or a failure). The three approaches identified and analysed are (i) culture, vision and values; (ii) human resources and talent; and (iii) IT and technologies.

i. Culture, vision and values

Culture, vision and values of an organization are deemed as the key factors when it comes to a successful digital transformation. In Hemerling et al. (2018) it is reported that digital transformation can only take place if there is a culture that not only enables the change but also the strategic goals of the organization. In Gurbaxani and Dunkle (2019), digital transformation is defined from a business perspective as its intent to reinvent their vision, strategy, structure, processes, capabilities and culture to match the evolving digital context. Hartl and Hess (2017) state that the digitalization initiatives, within organizations, often tend to fail due to a lack of a culture that enables change. Brunetti et al. (2020) highlight that before incurring in costs related to digital technology, it is imperative to first focus on the development of a digital culture and digital skills, creating an open environment where employees feel comfortable regarding technological changes. Davenport and Westerman (2018) argue that digital transformation is not only about implementing new technologies but also about modifying the way things are done within the organization, including changes in skills, structures, systems, processes, leadership and business models.

ii. Human resources and talent

The human factor within the digitalization processes tends to be analysed from a talent or human resources ('HR') perspective, describing processes of upskilling, new jobs creation and the role of the people within those new jobs. Bajer (2017) explains that HR functions will be subject of a lot of changes and that while it will be reduced, at the same time they will become more aligned to the business value and strategy. Westerman (2016) advocates for the right balance between technology and human value, saying that, in his own words, 'digital transformation needs a heart'. While Frankiewicz and Chamorro-Premuzic (2020) also emphasize the idea that digital transformation goes beyond technology and that the key to the adoption of a digital future actually relies on the "next generation of skills", combining both technology and human skills.

Bughin et al. (2019), explain that digitalization is successful within an organization when special attention is paid not only to attracting digitally talented people but also developing existing employees. Similarly, Osmundsen et al. (2018) highlight the importance of changing the employee's mindset when it comes to digital transformation. Brunetti et al. (2020) agree with this, stating that employees must be as encouraged and involved as possible, to bring and leverage different opinions and ideas and to build an open digital culture.

iii. IT and technologies

In Ebert and Duarte (2018), digital transformation is approached from a technical perspective, being described as the implementation of disruptive technologies in order to increase value and productivity. In Crittenden et al. (2019), an overview and explanation of several of these technologies is provided, in order to understand better the possibilities or implications of digital transformation, covering artificial intelligence, machine learning, augmented reality and internet of things. There are numerous ways of implementing digital transformation when it comes to new

technologies that can have an impact across the whole organization. Therefore, the incorporation of these new digital technologies have indeed an impact in internal processes, products and services of the industries (Danuso et al., 2021).

There are many definitions of digital transformation and digitalization processes within the current academic literature and even if they are all slightly different, they can be summarized as follows: digital transformation is a change that takes place at macro (society) and micro (companies) level, where new technologies are introduced that have a wide and deep impact on people, organizations and societies.

2.3. Change management

When it comes to change management, there is a lot of literature available but there is a lack of connection towards digitalization processes, as described in Bellantuono et al. (2021). As explained in Youssef Elabshihy and Saad (2023) change management practices within organization are key since change is not only inevitable but is also the only constant over time. The environment in which businesses operate is marked by constant and dynamic change, mainly due to new discoveries, revolutions and technologies. Despite of change being a constant and a central pillar for the success and survival of organizations, there is a very high failure rate on organizational change management projects (Abdelouahab and Bouchra, 2021).

Following Kerber and Buono (2004), three approaches to change management are explained: directed change (change coming mostly from the top), planned change (supported by the top, it can actually be ignited at any level of the organization) and guided change (comes from within, based on the needs of the organization). The planned change approach is aligned with Kurt Lewin's three steps model that includes (i) unfreezing the status quo and creating the need for a new one, (ii) transition from the prior towards the new status quo and (iii) refreezing by establishing the new status quo (Sarayreh & Khudair, 2013).

Another model is the one proposed by Kotter (2012), including an eight step process that consists of creating a sense of urgency regarding the change, gather a coalition, generate a strategy for the change, communicate the vision, empower action for the change, generate quick wins and then bigger wins to create more change and, finally, implement new approaches within the organization. A similar approach with ten steps is the one presented by Jick T. (Abdelouahab and Bouchra, 2021), including also a first step of analysing if the change is needed first, then making a clear separation of the past and also getting strong leadership support and political alignment on the change process. Mento et al. (2002) have an alike proposal with twelve steps that includes determining the change needed, evaluating the specific circumstances, developing a plan, identifying key stakeholders, preparing for the change, onboard leaders, create momentum, rely on communication, measure the progress and bring lessons learned on board.

Common ground across the number of resources available in the field of change management can be found: change management is a key practice within organizations, since change (internal and/or external) tends to be the only constant over time. The need for change can have different underlying motives and can come from different directions (from the top, from

within, or from the outside). Whatever the motives or origin of the need of change, for it to actually happen, it is imperative to have clear vision, plan and/or strategy, open communication and the right amount of stakeholder engagement. As it is stated in Kotter (2012): '*Speed of change is the driving force. Leading change competently is the only answer*'. Based on these gaps identified, the following hypothesis is proposed for this research:

H0: Despite the high impact of digitalization in organizations nowadays, there is no common transformational approach that fits all. But, having a holistic view of the digitalization processes, placing the human factor at the centre of it together with change management practices are crucial variables that define the outcome of the digital transformation (Bellantuono et al., 2021; Danuso et al., 2021; Gupta, 2018; Westerman, 2016).

3. METHODOLOGY

3.1. Overview of the research problem

What is missing in the academic environment at the present is a comprehensive and structured approach around digital transformations where not only one view is taken into account. Change is a movement or shift from a current state to a future one and digitalization is a shift, a movement that is taking place where change is at the core. The rapidly changing and evolution of societies, companies and individuals is discussed in Cameron and Green (2019), where it is highlighted the struggle for organizations to keep up with those external (economic and political) and internal (structures, strategies, systems) changes to be able to meet the needs and expectations of their employees and consumers. Similarly, Burke (2017) states that changes are taking place every day and at a very rapid pace where the organizations operate, and that there is a need to have a better understanding of what change entails for them. Because unlike a few decades ago, the changes taking place externally are happening quicker than the changes happening at organizational level, forcing the organization to constantly have to play 'catch-up'. This obliges organizations to have a better and deeper understanding of how to lead and manage change in order for them to survive.

The management of change within organizations is not only about the planning and implementation of the actual change but also about the minimization and management of the resistance to it, being central to its success the right balance between strategy, culture and leadership (Schwertner, 2017). As Bellantuono et al. (2021) confirm, there are some gaps in the digital transformation literature such as change-monitoring activities, identification and management of the resistance to change and the change consolidation.

This research considers the behaviour and role of the human in the digitalization processes that take place within organizations, what challenges arise during the digital transformation journeys especially related to change resistance and change consolidation, and how is best for the organizations to manage them; demonstrating that the placement of the human factor and the management of its reaction to the changes proposed by digitalization processes are key for its success, reflecting Westerman (2018) quote: "when it comes to digital transformation,

digital is not the answer. Transformation is.". In a time that is characterized by a new digital paradigm where people behave in a different way, where they have completely different expectations than only a few years ago while also constantly changing and evolving, it is imperative for organizations to have a holistic view in this topic.

3.2. Research design

As stated by Goddard and Melville (2004), research is not only about gathering information but about being able to answer questions that were not previously answered or creating ones that currently do not exist. In this case, for this research, two approaches were taken: literature review together with a qualitative approach.

The conceptualization phase, to describe the phenomena of digitalization and to build the hypothesis, was done through a systematic literature review, agreement of definitions and identification of gaps (Afzal, 2017; Levy & Ellis, 2006). To operationalize the construct, to be able to measure the application of those theories, a measurement instrument was created in the way of a holistic survey that had two parts (mandatory main section and optional demographic sections) and that was filled by one-hundred and thirty-four people, introducing a qualitative methodology to the research, bringing the academic perspective together with the perspective of business practitioners (Rao & Reddy, 2013; Stantcheva, 2023).

3.3. Results

The results of the analysis performed based on the answers of the respondents are strongly aligned to what is proposed in this research, as it can be seen in Table 1.

When it comes to the impact of the digitalization processes within the organizations of the respondents, there is a very strong agreement: 88% of the respondents agree that the impact is very high. But only 57% of the population of the survey thinks that these tranformational processes are taking place across the whole organization at the sime time, while the remaining 43% does not agree fully with it. This can also be seen in the answers of the respondents, where they describe the approach taken by their organization to implement digitalization processes (the approaches selected for this survey were inspired by the categorization of digital transformation strategies identified in

Table 1. Findings summary and description

Finding	Description
Digital transformation processes have a high impact, there is no solution that fits all but having a holistic approach is key	Even if the impact of digitalization processes in organizations is very high, the experience of those type of processes are not the same across the organization and therefore the impact can be perceived in a different way. Most of the organizations are approaching digitalization with a more flexible approach, where the different business units have different responsibilities towards the same process
Change management practices together with the human factor must be placed at the core of digital transformation processes for them to be successful	It is imperative for organizations to manage digital transformation processes as a change where humans are at its core, understanding and sharing what the transformation entails, involving employees, being transparent and proactively managing the changes

Danuso et al. (2021)). Only 9% describe the approach as explosive and 18% describe it as reactive. The majority of the respondents selected either decisive (31%) or distributed (40%). This can also be seen in the work done by Danuso et al. (2021), where it is stated that indeed some organization may perceive digitalization processes as a broad change but other ones consider it to be a specific challenge belonging to a business unit but that at the end, and that there is no right or wrong way.

The respondents also had a common view when it comes to seeing digitalization processes as a holistic project (mean 5.1/6), meaning that it has to consider not only technology, processes and employee upskilling but also human behaviour and change management. This agreement coincides with the problem statement in this research, that states that what is currently missing is a holistic approach that does not take only the three most common variables into account (technology, culture and people) but also practices such as change management and human behaviour.

When the respondents were asked to rank some variables in the order of its criticality during digital transformation processes, "HR & Talent Management" and "IT & Technology" were mostly selected as the third and fourth option while "Organizational culture, vision & values" and "Change management & Human behaviour" were selected first and second. This is very relevant because it can be seen in the literature review but also in the answers of the respondents: most of the academic papers that talk about digitalization processes take into account only technology, culture and people, having a clear gap on research on change management and human behaviour around this topic, aligning with this research and also with Bellantuono et al. (2021) where it is confirmed that there is a lack of change-monitoring activities, identification and management of the resistance to change and the change consolidation within the digital transformation literature; this is also aligned with the opinion of the respondents of the survey where more than half (54%) assigned a "Fully agree" (6/6) and 32% selected a 5/6 as an answer to the statement "appropriate change management practices are very relevant within digital transformation processes".

While the agreement with the statement "employees are very keen to adapt new ways of working proposed by digitalization processes" is relatively low (mean 3.4/ 6), it is higher when the question is rephrased, asking if the engagement is taking place with newer and younger employees. This finding is aligned with what it is proposed in Henriette et al. (2016), where it is highlighted that to set up a digital culture it is important to take into account the difference between generations, and how the younger generations are more and constantly exposed to new technologies while the older generations face more challenges adopting those new technologies.

This information, together with the view collected about what is important when looking for digitalization processes adaptation, becomes a very fundamental part of the research. The variables stated as critical for the digital transformations by most of the respondents were proactive communication regarding reasons, impact and expectations of the change as a successful measure to ensure adoption of the new digitalized processes, the importance of addressing concerns of the employees that could feel that are being left behind during

the change process and the need to balance these new processes and/ or technologies, with the maintenance of the cultural values within the organization.

The top three answers that were considered key to avoid challenges during the transition from old to new ways of working were to involve employees from early stages and to ask for feedback, to ensure transparency and ensure alignment with the goals and vision of the organization and to apply change management practices to foresee resistance and work proactively on it. The last two selected answers were to ensure that the latest technology is acquired and implemented and that the employees are up skilled to use those technologies.

For all the variables presented, the standard deviation was calculated as well to check the variability within the dataset. In this case, as it can be seen in the Table 2, the standard deviation on the questions is very low, meaning that the answers are close to the mean, making the dataset consistent. Also, a T-Test was performed with SPSS in order to verify if there was, or not, a significant statistical difference between the different groups.

For gender analysis, most of the questions did not have major differences between the male and female answers. However, there is a significant statistical difference between the genders regarding two variables: the first one states that digital transformation can be implemented successfully if a holistic approached is followed and the second one says that change management practices are very relevant during these processes, as it can be seen in Table 3.

The first variable with a significant statistical difference states: 'Digital transformation can be implemented successfully in the business as a holistic project taking into account different aspects such as technology, processes, employee upskilling together with human behaviour and change management'. The significant statistical difference in answers between male and female respondents can be seen in the Two-Sided p of the Independent Samples test of the T-Test (0.023). This is demonstrated as well in the difference between the mean of male respondents (M=4.89, SD=0.903) versus the mean of the female respondents (M=5.26, SD=0.873). With the Cohen's d effect size point estimate (-0.409), as shown in Table 4, it can be seen that there are statistically significant differences with a small-to-moderate higher agreement levels on the part of females compared to males regarding digital transformation implemented holistically.

The second variable with a significant statistical difference states: 'Appropriate change management practices are very relevant within digital transformation processes'. This variable has a Two-Sided p of 0.0502 and as this figure is slightly higher than 0.05, it can be considered as a marginally significant statistical difference. In this specific case, the value of equal variances assumed is taken because Levene's p is greater than 0.05 (0.135). The difference in the means also shows this, between the male respondents (M=5.21, SD=0.97) against the female respondents (M=5.52, SD=0.72). With the Cohen's d effect size point estimate (-0.352), as seen in Table 5, we can see a relatively low agreement level on the part of females compared to males regarding this idea.

For these two variables, females respondents were slightly more positive than male ones. This could be related to the idea that actually digitalization can present itself as an opportunity for women's

Table 2. Descriptive statistics, standard deviation

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
The impact of digitalization processes or transformations in my organization is very high	134	1	6	4.91	**1.093**
The digitalization processes or transformations in my organization is happening across the whole organization simultaneously, rather than at a business unit or division level	134	1	6	3.72	**1.530**
Digital transformation can be implemented successfully in the business as a holistic project taking into account different aspects such as technology, processes, employee upskilling together with human behaviour and change management	134	2	6	5.07	**0.903**
Appropriate change management practices are very relevant within digital transformation processes	134	2	6	5.35	**0.878**
Clashes or conflicts between old and new ways of working during the implementation of digitalization processes are very common	134	1	6	5.23	**1.061**
Employees are very keen to adapt to the ways of working proposed by the digitalization processes within organizations	134	1	6	3.36	**1.153**
Most recent employees in the organization are more willing to adopt new digitalized processes than employees with several years of experience in the organization	134	1	6	4.80	**1.188**
Younger employees in the organization are more willing to adopt new digitalized processes than older employees	134	1	6	4.71	**1.181**
It is very critical to proactively communicate reasons, impact, expectations and lengths of the digital transformation in order to ensure adoption of the new measures among employees	134	1	6	5.40	**0.958**
It is very important to address the concerns of employees who may feel left behind during the digital transformation	134	2	6	5.37	**0.939**
It is critical to balance the need for new digitalized processes and/or new technologies with the need to maintain the cultural values within the organization	134	1	6	4.99	**1.130**

empowerment and can, eventually, lead to more equality between women and men, having a more inclusive digital world (Krchová & Höesová, 2021). If women see these further opportunities within digitalization processes, this may be the reason behind their more positive view on it. However, the speculations on gender diversity on this matter need further exploration that would go beyond the aims of this particular research.

For the educational analysis (respondents with business related studies versus the ones that have other studies) only the question addressing the importance of addressing concerns of the employees that may feel behind during these processes had a significant statistical difference between the respondents of the survey that have business related studies versus the ones that have

Table 3. Independent Samples Test, T-Test – Gender Analysis

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Digital transformation can be implemented successfully in the business as a holistic project...	Equal variances assumed	0.457	0.500	-2.300	128.000	0.012	0.023	-0.365	0.159	-0.678	-0.051
	Equal variances not assumed			-2.313	116.614	0.011	0.022	-0.365	0.158	-0.677	-0.052
Appropriate change management practices are very relevant within digital transformation processes	Equal variances assumed	2.267	0.135	-1.977	128.000	0.025	0.050	-0.308	0.156	-0.616	0.000
	Equal variances not assumed			-2.077	127.733	0.020	0.040	-0.308	0.148	-0.601	-0.015

Table 4. T-Test by gender, independent samples effect sizes, first variable

Independent Samples Effect Sizes					
				95% Confidence Interval	
		Standardizer[a]	Point Estimate	Lower	Upper
Digital transformation can be implemented successfully in the business as a holistic project taking into account different aspects such as technology, processes, employee upskilling together with ...	Cohen's d	0.891	-0.409	-0.761	-0.056

Table 5. T-Test by gender, independent samples effect sizes, second variable

Independent Samples Effect Sizes					
				95% Confidence Interval	
		Standardizer[a]	Point Estimate	Lower	Upper
Appropriate change management practices are very relevant within digital transformation processes	Cohen's d	0.876	-0.352	-0.703	0.000

Table 6. Independent Samples Test, T-Test - Education analysis

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
It is very important to address the concerns of employees who may feel left behind during the digital transformation	Equal variances assumed	7.433	0.007	-2.081	123	0.020	**0.039**	-0.353	0.169	-0.688	-0.017
	Equal variances not assumed			-2.102	108.204	0.019	**0.038**	-0.353	0.168	-0.685	-0.020

Table 7. T-Test by education, independent samples effect sizes

Independent Samples Effect Sizes					
			Point	95% Confidence Interval	
		Standardizer[a]	Estimate	Lower	Upper
It is very important to address the concerns of employees who may feel left behind during the digital transformation	Cohen's d	0.947	-0.372	-0.725	-0.018

other studies, as it is showed in Table 6.

This can be seen in the Two-Sided p of the Independent Samples test of the T-Test. This is demonstrated as well in the difference between the mean of business-related education respondents (M=5.17, SD=1.121) versus the respondents with other educational backgrounds (M=5.52, SD=0.721). The latter group, having a more positive view regarding the need of balance between digitalized processes, new technologies and cultural values of the organization. This could be due to the fact that the group 'other' included respondents with various educational backgrounds such as technical, humanities, natural sciences, social sciences, whom they could have another perspective towards digitalization, being maybe the ones who could potentially be mostly left behind rather than the drivers of these changes. With the Cohen's d effect size point estimate (-0.372), indicated in Table 7, we can see that there are statistically significant differences with a low-to-moderate agreement level on the part of other compared to business regarding this.

Similarly, three ANOVA tests were performed to check different behaviour between different groups among the respondents of the survey. The first ANOVA test was performed to compare three different groups regarding their educational

background: one group with technical, engineering studies, a second group with business, economics and finance related studies and the third group that have other studies. The second ANOVA test was done to analyse differences between years of work experience (from 0 to 5, from 5 to 15 and more than 15 years). The third ANOVA test was done to analyse differences between ages (from 18 to 34 years old, from 35 to 44 years old and 45 years old or older). Across all ANOVA tests, there were no significant statistical difference between any groups across all variables with the exception of one case: the variable that stated that employees are very keen to adapt to the ways of working proposed by the digitalization processes within organizations showed a significant statistical difference between different educational groups as it has a p value of 0.021, as showed in Table 8. The Omega- squared- fixed effect (0.046) seen in Table 9, shows that there are statistically significant differences with a small-to-moderate differences between groups.

In order to understand this further, a post-hoc analysis (in this case, Tukey-b test) is performed, that can be found in Table 10. Findings revealed that there are statistically significant differences between group 1 (technical background education) and group 2 (business education), with a ptukey value of 0.021 and between group 1 (technical education) and group 3 (other educational backgrounds), with a ptukey value of 0.035. The only comparison that did not have any statistically significant difference was group 2 (business education) versus group 3 (other educations), since it had a ptukey value higher than 0.05 (0.998).

Group 1 (technical education) had the highest scores across all groups, having the highest mean (M=4.053, SD=1.268), compared to Group 2 (business education) (M=3.25, SD=1.039) and Group 3 (other backgrounds) (M=3.262, SD=1.211), as seen in Table 11.

The fact that respondents with technical

Table 8. ANOVA by education

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Employees are very keen to adapt to the ways of working proposed by the digitalization processes within organizations	Between Groups	10.262	2	5.131	3.985	0.021
	Within Groups	157.066	122	1.287		
	Total	167.328	124			

Table 9. ANOVA Effect Sizes by education

ANOVA Effect Sizes[a,b]				
		Point Estimate	95% Confidence Interval	
			Lower	Upper
Employees are very keen to adapt to the ways of working proposed by the digitalization processes within organizations	Omega-squared Fixed-effect	0.046	-0.015	0.134

Table 10. Tukey-b test. Post Hoc Comparisons, Type education

		Mean Difference	SE	t	ptukey
1	2	0.803	0.296	2.708	**0.021**
1	3	0.791	0.314	2.521	**0.035**
2	3	-0.012	0.225	-0.053	**0.998**

Table 11. Type of education analysis for significant variable

Type Education	N	Mean	SD	SE	Coefficient of variation
1 (technical education)	19	4.053	1.268	0.291	0.313
2 (business education)	64	3.25	1.039	0.13	0.32
3 (other education)	42	3.262	1.211	0.187	0.371

educational backgrounds have the highest scores regarding the variable that talks about willingness to adapt new ways of working proposed by digitalization is not surprising since technical people have more understanding and is closer to constant evolutions of technology than people with business or other educational backgrounds.

4. DISCUSSIONS AND IMPLICATIONS

4.1. Overview of the main findings and hypothesis support

The results of this research are analysed from the perspective of the proposed hypothesis which can be seen in the Table 12 together with its confirmation. Digitalization has progressively become a central topic within societies and organizations, being described as a new paradigm or as the fourth industrial revolution. It is a change taking place at many layers, including social, economic, private and public layers that is impacting what people need, how they behave and what they expect.

In order for organizations to be successful while navigating this cultural shift, they need to be able to have a holistic and structured approach where all the key variables are taking into account. This means, not only focusing on some aspect of this transformation, such as employee upskilling, IT and technologies or mission, vision and values, but to approach this as a whole, taking into account those areas together with human behaviour and change management. In order to do so, the human variable, instead of the new technologies, must be placed at the centre of digital transformations.

Another very important finding to take into account is that even if this phenomenon impacts everyone, not everyone is affected in the same way. It has been identified different behaviours when it comes to adapting to these new ways brought by digitalization processes: that newer and younger employees tend to be more willing than older employees to implement these new ways. This is due to the generational difference that takes place during a shift in paradigm, and if this is not taken into account, then the transformation will not be successfully implemented across the whole organization.

Also, as always and with everything, communication is another central pillar on

Table 12. Hypothesis confirmation

Hypothesis	Confirmation
Despite the high impact of digitalization in organizations nowadays, there is no common transformational approach that fits all. But, having a holistic view of the digitalization processes, placing the human factor at the centre of it together with change management practices are crucial variables that define the outcome of the digital transformation	Hypothesis confirmed

this type of process. Explaining not only the 'what' but also the 'why' and 'how' is very important. These types of processes must rely on proactive communication, explaining what the reasons for the change are, what will the impact be and what the people can expect.

4.2. Recommendations for future research

This research was performed based on an extensive and systematic literature review together with a survey where individuals across different industries, countries, age groups and with different levels of education participated. The combination of these two approaches provided a valuable global input regarding digitalization processes and related change management practices. For future research to be performed based on this work, I recommend to do a deeper study on the cultural and industry specific contexts, together with in depth analysis of the difference in behaviour between different segments of the population (specific culture, industry, organization size, etc.).

Lastly, this research has shown different behavior regarding some variables related to digital transformation across different segments of the populations, mostly across the different genders and also between people with different educational backgrounds. This research has provided some potential reasons regarding this difference in behavior but only at surface level, therefore, a more in depth analysis regarding this differences could be valuable for the academia and organizations.

4.3. Conclusion

Digitalization processes are nowadays taking place at many different layers across societies and organizations of all natures, becoming a new paradigm and a fourth industrial revolution. This social change has a profound impact at macro and micro levels, impacting individuals, organizations, states, competition, demands, behaviours, and more. The environments in which organizations operate have evolved massively, where change is the only constant and where competition and demand are greater than ever. These new circumstances introduced by digital transformation are meeting -and sometimes clashing- with the set of values, beliefs, principles and shared assumptions that compose the culture of the organizations. As it is now, if the organizations do not adapt and embrace this new environment, they will most likely fail (Crittenden et al., 2019).

The current research available is lacking of a comprehensive, structured and holistic approach towards digital transformation that takes several layers and views into account, including technology, leadership, communication, strategy, culture, change management, human behaviour and more;

where the word ‘transformation’ weights as much -or even more- as the word ‘digital’. Within this research, digitalization is perceived as a change, defined as a shift or movement from a current to a future state. This specific research analyses the role of the human within the complex journey of digitalization, where there is more than implementing the latest technologies, where organizations are trying to be part of this new digital and social paradigm and embarking on a cultural change process where proper change management and monitoring activities are key for its success.

After approaching the hypothesis with a systematic literature review and with a holistic and global survey, it has been learned that the success of digital transformation processes relies on its human aspect, rather than on the technological aspects. Technologies are pre-defined, meaning that we can know in advance what is the value and what can be expected out of them. But the key to the success of new technologies, is how these technologies are implemented and how they are used; both aspects being human driven. What has been seen is that there is no right or wrong approach since what makes the difference between a success story or a failure is seeing this topic as crucial for business nowadays and understanding that this is a phenomenon that affects everyone from many different perspectives and in many different ways.

Aspects such as technology, culture and people cannot be taken as separate pieces of the equation, they need to be seen together and must be complemented with appropriate change management practices. Also, throughout this research, within the human behaviour and change management areas, it has been understood that even if these types of transformations affect everyone, not everyone is affected in the same way. There are cultural, gender, educational and generational differences that must be taken into account to successfully implement digitalization across the whole organization, leaving no one behind. In order to do so, communication must be proactively managed throughout the whole process, explaining what the reasons for the change (the ‘why’) are, what will the impact potentially be and what the people can expect.

But, what is very important to understand is that the environment in which organizations operate is fast and ever-changing. There are constantly new ways of doing things, new technologies and frameworks that could be implemented, new strategies to be explored and many more things. But what does not change in these processes is the need for change and its human centricity. Even artificial intelligence models and advanced algorithms are created and configured by people. This is just the beginning of this new digital era and there are many more transformational processes coming our way. Regardless of the shape or form of these transformations, it is of critical importance to be not only rely on traditional pillars such as technology, culture and human resources, but to also bring to the formula change management practices and human behaviour.

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ХАРМОНИЈА УНУТАР НОВОГ ДИГИТАЛНОГ ПАРАДИГМАТА: УПРАВЉАЊЕ ЉУДСКИМ ФАКТОРОМ И РАВНОТЕЖА ИЗМЕЂУ НОВИХ И ТРАДИЦИОНАЛНИХ ПРАКСИ

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Извод

Дигитализација је постала централна тема савремених друштава и организација, често описивана као нови парадигмат или као четврта индустријска револуција. Реч је о процесу који се одвија на више нивоа и који значајно утиче на људске потребе, понашање и очекивања. Циљ овог истраживања јесте да се укаже на то да успешан процес дигитализације захтева холистички приступ, у оквиру кога управљање променама и људски фактор представљају кључне елементе. Истраживање је спроведено применом систематског прегледа релевантне литературе, као и употребом мерног инструмента у виду свеобухватне анкете, коју су попунили испитаници из различитих земаља и индустријских сектора.

Резултати указују на то да је окружење у којем организације послују динамично и подложно непрекидним променама. Стално се појављују нови начини рада, технологије и оквири који се могу имплементирати, као и стратегије које је потребно истражити. Ипак, оно што остаје непромењено јесте суштинска потреба за променом чији је центар човек.

Кључне речи: дигитализација, дигитална трансформација, управљање променама, људско понашање, људски фактор

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