STRATEGIES FOR DIGITAL TRANSFORMATION OF HUMAN RECOURCES IN TIMES OF COVID-19

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ABSTRACT

The objective of the study is to analyze why and how businesses should proceed to adapt digital transformation processes to their work during Covid-19 pandemic. Benefits of incorporating tools for digital transformation during pandemic are believed to overcome some of the great obstacles of pandemic restrictions, what is more, even create greater workforce by optimizing repeating processes that are otherwise impossible to complete due to covid restrictions resulting in greater workload in many economic sectors, while being left with fewer workmen. The role of a leader in the process of digital transformation, as well as opportunities and challenges of the transformation process and appropriate technologies for its implementation, its impact on individual HR processes and the methodology for implementing the process are the main topics this study aims to cover. Correlated relationships between digital transformation processes and workforce productivity will be explored.

This study considers the consequences of the COVID-19 pandemic on the future of work processes, while exploring the changes in the perception of digital transformation and the role this process is playing in businesses' capability to successfully meet obstacles and adapt to changes led by COVID-19 pandemic. To estimate the long-term consequences of the pandemic on the digital transformation processes, and therefore their influence on work force and financial performance of businesses, this research explores official data from businesses based in the same geographic regions. Providing a solution for the obstacles that managers face during the process of digital transformation of human recourses is crucial during a world pandemic, as well as discussing effective tools in the process of managing the influence of external factors, such as COVID-19, on the process of digital transformation of human recourses. This study is to present conclusions on the discussed topic based on bibliographic approach on the summarized data from searches across a broad number of databases. The qualitative methodology of this study allows detailed analysis of the chosen data, but gives little ground for generalizability. To address this limitation, future research can discuss the proposed theory made by the author by testing various industries functioning during pandemic limitations.

Keywords: *Pandemic, Digital transformation, Human Recourses, Covid-19 Pandemic, Opportunities and challenges*

INTRODUCTION

The fourth industrial revolution, otherwise known as "Industry 4.0", is the natural extension of the previous third revolution that required manufacturers to implicate technology and computers to automate processes. As a result, in 2011 business were ready for the addition of cyber-physical systems into daily and repetitive tasks, that could gather data from each step of the vertical organizational structure for further analyzing. In terms of data, "Industry 4.0" makes it possible for a great amount of data to be collected through sensors, revised and synthesized in order to be used in the process of decision making. Although data has been gathered for decades, it is just in "Industry 4.0" that data becomes the main tool for management to make decisions based on data from each process that could be monitored. As addition, a great level of importance is given to decision making without human interaction, fully based on gathered data.

It is a common understanding that with each industrial revolution come new possibilities and just as many requirements for businesses. Faced with certain challenges to adapt to the new actuality, businesses need to fully restructure main work processes, which often requires great managerial knowledge needed to successfully meet the challenges of the new industrial revolution. What makes the fourth industrial revolution truly changing in terms of business performance is the established interconnection between computers and machinery that allows decision-making without human presence needed. What is more, in terms of management practices, there is a tendency of decentralization of management and delegation of decision-making responsibilities to descending levels of the organizational pyramid, resulting in better organizational efficiency in operations and greater access to organizational data from each level of organizational structure.

The onset of the Covid-19 pandemic further increases the need for digitization of part of the company's processes, so that business activities can be carried out without the presence of the entire team, even remotely. To effectively optimize production through automation, leaders must seek to use technology in new ways. Many leaders are aware of the need to adapt to the new conditions of "Industry 4.0", but are not capable to do it shortly and without the required knowledge. According to a Deloitte's survey of 2,000 global leaders, the top three challenges to adapting to Industry 4.0 are lack of vision, too many technology choices, and organizational or geographic barriers. [1]

This paper contributes to the existing literature on the topic of digital transformation of human recourses during a world pandemic, as well as strategies for implementing change in organizations and the importance of leadership principles on the outcome of the transformation. A conceptual framework managing transformational challenges is formed, based on extended literature research. This paper discusses tools and strategies for improvement of businesses'

capability to successfully meet obstacles and adapt to changes led by COVID-19 pandemic with the help of emerging technologies and managing strategies.

Digital transformation in the context of "Industry 4.0"

Based on recent research results, McKinsey describes the process of digital transformation of human resources as "an effort to enable existing business models by integrating advanced technologies". The same research also shows that the best performing digitalized organizations in each industry earns as much as 80% of the digital revenues generated in their industries. [2] "Industry 4.0" also aims to increase productivity and profits by using machines and intelligent components connected to the internet. Alike digital transformation, Industry 4.0 introduces endless opportunities for businesses to become smarter and more efficient.

Opportunities

- **Increased efficiency and effectiveness of workflow :** A 2020 survey on Macedonian institutions and companies indicates that as a result of digitalization and digital transformation of the work process, there is a significant increase in employee satisfaction resulting in increasing efficiency. [3]
- **Increased level of satisfaction in employees:** Results from the same survey show that as the process of digital transformation usually terminates the need for most repetitive activities performed daily by employees, results show that there is a growing satisfactions due to increased potential for creativity.
- **Introduction new business models:** The introduction of digital tools in companies could and must result in change of current business models through the opportunities digital economy offers. The launch of e-commerce sites, digitalization of processes in HR department (recruitment, self-service portals, applicant tracking systems, digital adoption portals), chatbots for increased customer service satisfaction, along with other practices should be initiated into and transformed digitally-oriented business mode.
- **Lower HR costs:** In the long term, organizations that have invested in the digitization and digital transformation of human resources create economies of scale in terms of time and resources as processes are rationalized.
- **Automation of manual processes:** Many administrative activities should be automated through the introduction of digital tools, which could eliminate or at least minimize the amount of cases of human error and promote better management of the changes that are of importance to the transformational process.

Challenges

There are many challenging aspects of each comprehensive change, especially when changes are made on every step of the work process and require higher level of human skills and extreme awareness to the success or failure of aspects of the transformation strategy.

- **Capital investments:** New technology based tools in manufacturing could be an unexpected expense for small and medium businesses. Nevertheless, significant investment is required for implementing the technological tools and software needed for the technological shift to digital transformation of human resources.
- **Resistance to change:** There might be lack of courage on employees' side when it comes to radical changes in relation to companies' plan for digitalization. Thus, company's culture and flexibility in adopting changes should be examined beforehand in order for the managerial team to be able to face challenges of this sort successfully. [4]
- **Data security and management:** One of the main advantages of digital transformation is the ability to access important data anytime by all employees in the organization. However, many companies are taking extreme measures to make sure their data could only be accessed by inside figures. This challenge may require the employment of cyber specialists to keep data organized and secured.
- **Reorganization of work processes:** As the major shift digital transformation is for every business unit, it is of high importance for the managing positions to be well prepared with adequate techniques for adopting changes in every aspect of the work process. Digital transformation of human recourses requires certain technological knowledge that should be present in employees working closely with the adopted technologies and software, therefore it is advised that technologically-oriented courses should be proposed and planned ahead of changemaking.
- **Poor management commitment for adoption of sustainability**: An economic and ecological efficiency in the production should be expected as a result of implementing tools for digital transformation, due to increasing of the prices for resources as well as the social change in ecological aspects. [5]
- **Lack of technological knowledge:** Due to lack of IT departments in SME's (Small and medium enterprices), managers often have to face the challenge of working with "Industry 4.0" technologies that require greater technological maturity than present in managerial team members. As a result, data-gathering technologies are not considered transparent and user-friendly due to misconceptions of

the technological complexity of software and technologies needed for digital transformation of human recourses in SME's. [6]

Technologies

According to KPMG's 2018 report [7] and extensive literature review, the following technologies are mostly used and effective in terms of digital transformation of human recourses [3] :

- **Cloud computing:** Cloud computing is computing services provided through a remote computer to which employees connect via the Internet, thereby gaining access to shared resources, software, and information.
- **Internet of Things (IoT):** IoT technology collects raw data from the physical world and converts it into useful information for the company. The indoor source data is collected by the placed sensors, which is then forwarded to the database where it can be processed by analytical software or artificial intelligence.
- **Augmented reality:** Augmented reality helps workers improve productivity and quality of work by experiencing an enhanced real-world environment. Augmented reality technologies are used as a simulation to present products in a real environment without physically existing there.
- **Artificial Intelligence (AI):** AI is a combination of multiple technologies that enable machines to independently collect and process data about certain processes and selected objects in order to improve performance by stimulating the same processes performed by humans.
- **Data-Driven Decision** or **Big Data:** Technologies that are used to collect, organize and store data from certain objects and processes to then generate insights and suggest decision-making based on collected data.
- **Robotics:** RPA (Robotic Process Automation) is the process of creating software robots that learn to imitate, analyze and then perform certain tasks and business processes, thereby increasing productivity and limiting the possibility of human error in performance.
- **Cyber security:** Protects information and hardware from theft and damage.
- **Machine learning:** Digital learning platforms guide employees with instructions at each step of the way using the software, resulting in great progress in digital transformation without the need for additional human intervention in the processes.
- **Simulation:** Helps identify the possible errors that might occur in real-time processes.

Leadership and digital transformation

It is the duty of management teams to present the estimated digital transformation strategy to team members and provide the adequate support on each step of the set roadmap. In this occasion it is of extreme importance for management to implement the correct leadership practices during organization's digital transformation, especially within the framework of a world pandemic. While both "Industry 4.0" and a COVID-19 are changing organizations at all operating levels, as well as the way in which people communicate and exchange information, leadership in both organizational and governmental matters can have a positive influence on the outcome of every overwhelming change. A 2021 survey on the role of leadership in digital transformation process during pandemic [8] demonstrates results pointing out the strategic role of leadership in digital transformation as a primary reason for successful implementation of new technology and software. Managers are expected to take actions in the fields of defining the where and how change is needed, designing a strategy for change and overviewing the process every step of the way, as well as becoming digital transformation's best advocates. Transition leadership is preferred over passive leadership in the context of drastic organizational changes during digital transformation and the world pandemic still ongoing. More than ever, innovation and entrepreneurship should be valued in work environment, leaded by active leaders with digital knowledge and compassion for the complexity of working with entire new software and technology on every level, to be able to overcome the challenges posed by digital transformation. Another study carried in 2020 determines the required leadership characteristics in transformation process. [9] Using sixty literature sources, researchers point out that the most important characteristic in digital leadership, or in other words leadership focused on digital transformation, are innovative visionary, networking intelligence, adaptivity to change, motivational coaching, digital and social intelligence, agility, and ability to learn from errors.

On the basis of this knowledge, a successful leadership strategy for change could be established. It can also be summarized that in the era of digital leadership, leaders should develop a clear roadmap on the process of change and aim to engage all team members in the process. Afandi (2017) [10] specifies few steps to successful, as following: successful leaders are able to engage all members in creating and a common vision, oversee efforts of change and reward innovative behavior. It is also important for the successful leader to embrace obstacles and consider the as reason for change rather than failure, presenting them as a source of knowledge and pointing out ways to overcome obstacles on the way to a clear vision of change.

Digital transformation strategies within the framework of COVID-19

Defining the business objectives in sync with the transformation process is the main step of the implementation process. At this stage of implementation, the

relationship between business objectives and all other areas of the scope of the effect of digital transformation is traced. Analyzing external forces and trends, identifying and prioritizing stakeholders' needs and visions, analyzing digital technologies suitable for improving customer service and manufacturing process, as well as monitoring employees' potential for change are the pillars of the digital transformation strategies. Even though strategies for digital transformation are customized on each company's need and potential for change, according to Tekic and Koroteev (2019) [11], there are a few basic strategies that summarize the basic components:

- **Disruptive digital transformation:** This strategy targets a significant change of the value of the goods and services offered by the company. It is suitable for companies showing high level of digital maturity and business model readiness. It is characterized by a high level of experimentation and eagerness for change. The leadership style presented in this model is vision led. The model is most suitable for startup companies in the B2C (Business to customer) sector.

- **Business model led digital transformation:** This model is identified by high level of business model readiness and low digital maturity. Companies following this model are thought to be motivated for change by the level of competition in the sector they operate in, striving for change in order to save their position. This transformation is based on extensive research, great amount of preparation and step by step transformation roadmap. It is mostly used by companies in the B2C sector, operating in finance and insurance, retail, telecom, media, professional services, where digital transformation is mandatory for keeping head positions in the industry.

- **Technology led digital transformation:** This model is identified with high level of digital maturity and low level of business model readiness, mostly used by B2B (business to business) and B2C companies with previous successful experience with digitally led change, investing freely in technological devices and tools, realizing well this path is less risky for them to take, as technology is in the core of their activity. This model aims to optimize activities and minimize production costs. It is led by risk avoidance style of leadership, mainly chosen by industries perceived to have high entry barriers, such as healthcare, high education, legal services.

- **Proud to be analog:** Companies choosing this model are usually characterized by a low level of both technical maturity and business model readiness, due to their products being handmade or human inspected. These companies are not looking for change, and as the name of the model states – would rather be analog. This goes for many luxury goods companies, offering unique pieces, based on traditional handmade production. If steps towards a more digital

business model are made, they are extremely cautious and led by a risk avoidance leadership style. Therefore, digital transformation only includes parts of the business that will not change its identity.

Digital transformation of human recourses in the Bulgarian industry

According to the Digital Economy and Society Index (DESI) for year 2021, Bulgaria is on 26th place in the ranking of all 27 EU countries, second to last place in the ranking. According to the same report, 29% of the total Bulgarian population aged 16-74 wield basic digital knowledge, as opposed to an average of 56% for all EU countries. This leaves local organizations with little chance to find employees with enough digital knowledge to innovate and grow. [12] Multiple national programs for digitalization of the Bulgarian population have been found in the period 2020-2030, which gives a hopeful image for near future national digital transformation and more skilled and digital aware staff.

Literature review

To better understand the place where the country and its industries stand in the process of digital transformation, a literature review of local data will be introduced. Gathered data on the topic of digital transformation of logistics in Bulgaria [13] confirms the unsatisfactory degree of digitization amongst respondents from the local logistics industry with answers showing low level of implementation of IT solutions in researched organizations. Following part of questionnaire "To what degree do you use your software system for transport management?" reveals disturbing data on the level of transport management software usage, introducing another serious challenge for future development. Evaluation of validity of ERP systems in organizations' activity has shown similar results, leading to the conclusion there is a great level of lack of knowledge on the benefits of an ERP system. Lack of adequate usage of supplier management software indicates is also shown in another part of the survey, exposing low scores on the opportunity to explore SRM's positive impact on customer satisfaction by using all features this software has to offer. Results for CRM's usage are more promising, showing that certain features are well integrated in everyday processes to decrease repetitiveness in manual actions. However, results also reveal that the full potential of the tool has not yet been explored, leaving enough room for further improvement. Overall results reveal the unsatisfactory reality of digital transformation tools' usage by employers and employees in local logistics organizations. There is room for great improvement on the path to full digital transformation of processes, focusing mainly on employees' lack of knowledge and willingness to further explore digital transformation tools.

Another recent paper on the state of digital transformation in Bulgarian medical centers, as part of the business industry, covers similar questions to reveal the level of digital transformation performance presented by researched objects. [14] As every other process in the face of pandemic, medical services faced the

same challenge to transform activities digitally, as did other businesses, assuming that medical centers are as much of a business institution, as any other, since medics offer professional paid services and benefit from practices that drive innovation and growth. According to the provided particulars, the following conclusions have been can be drawn: 1) The level of digitization of studied healthcare centers is considered low, meaning the objects are still in early transformation stages with just 15% of them having set a digital transformation strategies in official business plan documentation; 2) All participants use dominant platforms for information exchange.; 3) All surveyed centers collectively agree on the statement that digital transformation creates favorable work conditions for both staff and administrations. To summarize, even though according to the results presented Bulgarian medical centers are still in the beginning of the digital transformation change, there is a very positive outlook on the idea of comprehensive digital change and a great level of anticipation when it comes to digitalizing repetitive processes.

Research methodology and results

To better explore the level of digital transformation throughout different Bulgarian industries, this paper will present a multilateral research based on 42 respondents operating in 8 industries and multiple different levels of the organizational hierarchy. The survey questionnaire based, consisting of sixteen questions on the topic of digital transformation of human recourses in Bulgarian industries. Respondents are representing the following industries: *IT & Software* - 28,6%; *Finance* - 23,6%; *Public administration* - 14,3%; *Sales and retail* - 14,3%; *Marketing and advertising* - 4,8%; *Agriculture* - 4,8%; *Manufacturing* - 4,8%; *Healthcare* - 4,8%. The size of the organizations they work in are mainly in the range of 10-50 employees, therefore 40,5% of respondents are presenting *small enterprises*, 26,2 *large enterprises*, 23,8% form *medium enterprises* and 9,5% from *micro enterprises*. The summarized results are presented in the context of COVID-19 pandemic and based on participants' observations of the past three years (from year 2019 to year 2022). This data has been collected in the month of September of 2022. The empirical data has been collected using the tool "Google Forms", followed by summarization of data by "Microsoft Excel". In a synthesized form the following statements regarding this paper's topic can be presented:

- **The majority of respondents (92,9%) have experienced digital transformation of their workplaces in the past three years.** The respondents that answered negatively to this question are workers in healthcare and public administrations industries. There respondents have allegedly also not been introduced to new technologies during the pandemic, but are however using cloud storage and digital adoption platforms. As a reason of the unsuccessful digital adoption respondents point out the lack of digital talent and unclear transformation strategy.

- **61,9% of respondents have been introduced to new software for automatisation of repetitive work processes**. Positively, 58% of them have received the needed training to work with the new software. Correlation between the size of the corporation and whether training is provided has not been found.

Fig. 1. *Types of HR software used by Bulgarian organizations – survey results. Source: author source*
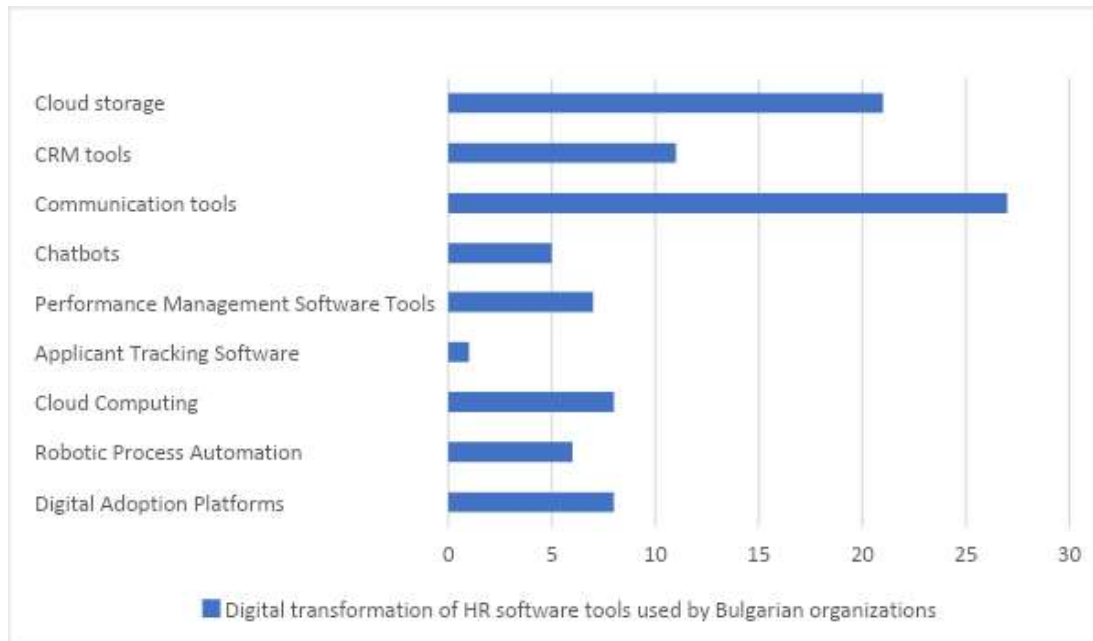
- **Communication tools are the most used tools amidst responders**, followed by Cloud storage and CRM tools. As shown on "Figure 1", Digital Adoption Platforms, Cloud Computing and Performance Management software are shortly after.
- **Level of digital literacy skills could determine digital transformation knowledge.** Exactly 50% of respondents either do not know or cannot recall what the term means, 30% of them show little to know digital skills. On the contrary, nearly 91% of respondents who are aware of the term have shown good or excellent level of digital literacy skills.
- **Respondents point out the positive change towards productivity, time efficiency and facilitation of work processes.** They have also recognized a positive change of management styles during the digital transformation process. This is one very important correlation, meaning that digital transformation strategies are indeed successful when a change of management styles is made and when transformation is team-led, or in other words – led by employees potential for change and accompanied by the right digital training for every level of digital literacy skills.

Fig. 2. *Digital transformation challenges in the Bulgarian industry - survey results. Source: author source*
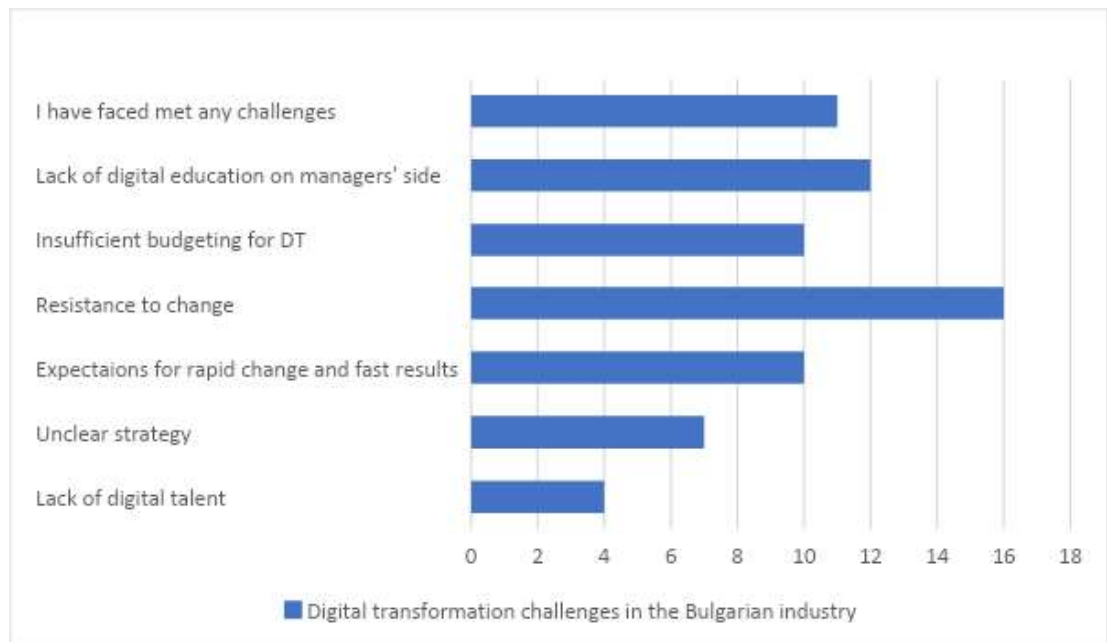
- **Resistance to change and lack of digital education on manager's side are most stated challenges workers have faced while working with new software and technological devices.** Insufficient budgeting and expectations for rapid change are also chosen as challenges on digital transformations path, as shown on "Figure 2". On the other hand, 31% respondents have not faced any challenges and these are the same respondents that have received further education or the help needed from their collogues when finding new software hard to use. It can be stated that when challenges are met with high level of responsibility ad compassion on team's and manager's side, they are no longer a threat to a well-prepared digital transformation roadmap.
- **The world pandemic has changed the work reality for nearly half of the respondents.** For some, this change has been welcomed and taken advantage of by making the best of home office and hybrid working. According to survey results, changes have been made along all levels of the hierarchy and all local industries. It seems the size of an enterprise does not determine the level of readiness for digital transformation, quality of management and transformation process success. Another result evoking interest is that age group, resistance to change and literacy skills are in no way connected. This is yet another solid reason for organizations to invest more time in their digital transformation strategy and leadership styles as it appears no tool can prepare employees for the change required without the presence of adequate transformation roadmap and sufficient digital knowledge of team leaders.

CONCLUSION

According to research conducted on the impact of digital transformation of human recources in times of world pandemic, the connection between an organization's digital transformation strategy, leadership style and productivity of labour is observed. It can be stated that digital transformation is capable of affecting management costs and increasing management efficiency, thereby increasing total factor productivity. The effectiveness of management of management of human resources, financial resources, production, customer service and external factors is a subject to digitization and digital transformation for the purpose of increasing their productivity and its positive impact on the overall activity of organizations.

The process of digital transformation of human recourses is driven by the continuous introduction of new technologies, as a result of which enterprises cannot meet their production and operational needs unless they upgrade technologically and transform existing processes. The advent of new technologies not only simplifies operations and reduces human error possibility, but also improves the efficiency of simple and repetitive operations. Thanks to these new technologies, enterprises have the opportunity to achieve higher levels of customer service and satisfaction, labor productivity and efficiency from work processes by reducing the error rate of process execution through multi-factor analysis of observed processes. Introducing a customer-oriented transformation process, carefully monitoring the internal changes occurring in the transformation process and their impact on customer service and satisfaction is a strategy that will not allow the selection of an incorrect model that could negatively affect the results of the activity and the digitalization strategy.

In addition to the analysis presented in this paper, the following recommendations influenced by extensive literature review and the results considered, the following recommendations to businesses in all Bulgarian industries are made:

- Every digital transformation strategy should be accompanied by adequate training for usage of each new software and digital tool.
- Managers should be well digitally educated to be able to assist their team members every step of the way. Lack of digital education could an obstacle for an otherwise prosperous strategy.
- Quality control should be digitized so that information is constantly collected on all stages of production processes.
- Replacing manual inspection business models with digital solutions powered by artificial intelligence could lead to a significant reduction in production errors by achieving higher efficiency with lower time-consuming processes.
- Improvement of digital literacy skills should be encouraged. Lack of digital skills and resistance to change come hand in hand when

digital skill improvement is not required in the digital transformation process.

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