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# GENERAL EVALUATION FOR THE FUTURE OF WOMEN EMPLOYMENT IN THE DIGITAL TRANSFORMATION

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## Abstract

In this paper, the importance of women's employment was evaluated through empirical research in the digital transformation process brought by industry 4.0. Field-based starting points were effective in determining this objective. The field-based starting point is to begin to understand the effects of digital transformation on employment in the sectors and to need evaluations regarding employment discrimination with digital transformation. As the Fourth Industrial Revolution takes place in various sectors and working communities, it will in several ways influence female and male workers and the complexities of the gender gap in the sector. This paper reviewed from the results of some consulting studies and several empirical studies. It does not cover generalizable results. The goal is to create a prediction. The fact that there are very few academic studies dealing with the digital transformation process in terms of gender equality in the workforce has pointed out that the studies in this area still do not reach sufficient maturity.



*Keywords:* Digital transformation, fourth industrial revolution, women employment

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## 1. Introduction

The projects offered by the German Ministry of Education and Research (BMBF) at the Hannover Fair included “Industrie 4.0” (Industry 4.0), communication of all variables related to industrial production, access to all data in real time and creating optimal added value thanks to these data. Therefore, the emphasis was on digitizing all physical assets and their alignment with horizontal-vertical value chains in digital ecosystems (European Commission, 2017). At the Hannover Fair, which was reorganized in 2013, the German National Academy of Science and Research declared that the digitization process was revolutionary as a new industrial strategy with the "Industry 4.0 Strategy Document". Although the document is accepted as the German government policy, the global acceptance of applications has been inevitable (Durmuş-Özdemir, 2019).

Industry 4.0, which allows all relevant units to communicate with each other in industrial production, to access all data in real time and to provide optimum added value with this data, real among people, machines and products. It enables to realize timely communication, connection and definitions. Compared to the other three industrial revolutions, the fourth industrial revolution is based on the principle of “Internet of Things” (IoT), in intelligent factories with a smart production process, by monitoring the physical processes with cyber-physical systems, and by communicating objects and making decentralized decisions. (European Commission, 2017). Thus, digital transformation is aimed in the organization and management of the entire value chain in the life cycle of products and production systems. This cycle focuses on increasingly individualized customer requests and covers the entire chain from product development and production order, starting from the idea stage, to the distribution and recycling of a product to the end user (Siemens, 2014). The digital transformation builds on a variety of technologies such as intelligent (autonomous robots), simulation, horizontal / vertical (end-to-end) software system integration, Internet of Things, cloud computing, cyber security, 3-D printer, augmented reality and big data. That will make mass production highly scalable, individualized and resource-friendly. It is motivated by a shorter time-to-market requirement, increased flexibility and greater asset performance. More radically it will build new business models that drive both evolutionary and innovative improvements in the way we do business today (Agca et al., 2015). Around the same time, business pursues their own digital transformations, reinvent what consumers need most and build business models that take advantage of what is newly possible for competitive differentiation. The new business models confront companies with numerous challenges, in particular the pressure to dramatically increase the level of digitalization, adjusts production lines to new technology or defines the role of human resource in new processes. Redefining the company's way of generating and providing value to consumers in pursuit of digital transformation also requires that it access, acquire or grow new human resources (Berman, 2012; Rachinger et al., 2018). A workforce empowered with new skills and competences would require digital transformation. Human resource policies are therefore becoming increasingly necessary for the work force to acquire new capabilities and skills. Nonetheless, there are different predictions about the likely impact of digital transformation on gender equality, particularly in labor markets. In the related paper, the potential effects of new forms of work caused by new technologies on the female workforce, as assumed, building on qualified labor force, were evaluated through field-based research results.

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## 2. The Digitalization of Industries

Industry 4.0, which Germany expressed as a project in 2011, has been it continues to significantly influence competitive conditions. The use of these technologies, which emphasizes the digital transformation in the economy at the global level, to the “Digital Transformation Roadmap” report of the Republic of Turkey Ministry of Industry and Technology, enables the increase in added value, efficiency, profitability and quality in the sectors (Republic of Turkey Ministry of Industry and Technology, 2017). Combining the physical and virtual world in a nutshell, the digital transformation period marks a new design of the organization in real-time integration of all components connected to the value chain, from manufacturers to the end consumer (Alçın, 2016). In this transformation process, it is stated that by connecting each component in the production line to each other and to the local operator or independent executive computer via an intranet / internet network, it will provide speed and flexibility in production, significantly reduce the costs of the firms and thus increase the competitiveness in the sectors (The World Economic Forum, 2016). In an attempt to have a position in sustainable competition, today's business has made growth a priority with Industry 4.0 enabled digital transformation. Digitalization, defined as the use of information and beer in beer, becomes an obligation rather than an option for the future of companies. Çeliktaş et al. (2015) stated that the new world order created by industry 4.0 is based on the fact that the circulation and sharing of information on integrated networks on a continuous, fast and global scale creates economic value. This makes it compulsory for companies to adapt to digital transformation. The advantages of digital business transformation are operational productivity (40 percent), driving market penetration (36 percent) and meeting customer demands (35 percent), as seen in the Corporate Leaders and PTC Digital Transformation Report (2018) respectively (CorporateLeaders and PTC, 2018). According to Adobe 2019 Digital Trends, the first companies that will have a digital strategy in 2018 were 64% more successful in achieving their business goals compared to their competitors (Econsultancy and Adobe, 2019).

By giving business speed and manufacturing flexibility, digital transformation that can dramatically reduce operational costs can have some effects, particularly on human resources. According to The Future of Jobs published by the World Economic Forum, due to the increasing automation and robotic technologies, employment in many sectors will decrease and some professions will disappear, and at the same time, new jobs and new employment areas will be created due to new needs (The World Economic Forum, 2016). Depending on Kenney and Zysman (2016), the rise of the digital platform economy is the labor market allows to be rearranged. Digital platform economy has also changed when and where work is done in virtually every sector as industrial age workplaces give way to digital era work practices like remote work, flexible work (The World Economic Forum, 2016). This situation makes the perception that the structural features in the labor market change and new generation human resources practices will be inevitable. Today, the early stages of digital transformation seem to create a gap between the available workforce and the skills required to fill open employment (Deloitte and The Manufacturing Institute, 2018). As explained in Deloitte's 2018 Global Human Capital Trends reports, many organizations are working hard to put employees in the loop — rethinking job architecture, retraining staff and rearranging the organization to exploit business transformation technologies. Furthermore, as technological change is coming into business models, jobs are being replaced and a new labor market is

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materializing out of the vestiges of the old, there is also a possibility that these patterns and drivers of change will maintain or worsen other current gender gaps (Voss, 2014).

## 3. Digital Transformation and Women Employment

With the replacement of the work force with machines in the new industrial revolution, new technologies will cause the need for other jobs to decrease and/or new employment to emerge, and will be able to reveal the need for new workforce strategy. The World Economic Forum Report (2016) found that over a quarter of the firms' surveyed identified female talent as a key aspect of future workforce strategy. The World Economic Forum's report titled "The Future of Jobs" stated that the dynamics of the fourth industrial revolution will affect the current gender gap between sectors, and that female employment may be affected in the future. It is stated that losses may occur, many businesses will want to retain and encourage women employment without gender discrimination within the framework of new generation human resources practices, and some skills specific to women will attract attention in future human resources practices (The World Economic Forum, 2016). In the fourth industrial revolution, described as disruptive innovation, new and emerging professions and flexible working environment can offer an unprecedented opportunity to create solutions to the glass ceiling issue that has been going on for years. Some features such as social intelligence, sense –making, the ability to work in different cultural environments are more prominent in female employees and the expectation of these features from the next generation of employees forms the basis for preventing gender discrimination in the business world. At the same time, emerging evidence reveals that new business models in the digital economy are perpetuating gender gaps (Adams & Berg, 2017; Barzilay & Ben-David, 2017).

KPMG (2018) conducted with the participation of Turkey for the first time in the world "KPMG's Global Women Leaders Survey" results also draw attention to digital transformation should be important without gender discrimination of women employment. With the participation of 699 female managers from 42 countries which Turkey is also included for the first time organized according to the results of research that female managers are more prepared for the technological revolution compared to men, contrary to general belief 'emotional' taking decisions based on data rather than decisions that restrain technological destruction, they provide more rapidly adapt to new developments and analytical thinking and making decisions based on data. In addition, 67% of women participating in the research feel comfortable about new technologies such as artificial intelligence, block chain, 3D printing and mixed reality, 61% believe that they will destroy more jobs than artificial intelligence will create (KPMG, 2018). Located in a research report Danone Turkey Integration and General Manager of Danone Water Çuhadaroğlu John stated the following:

> Today's digital conversion, which spread to all areas of life; it drives people to be more agile. The path to this new 'digital and fast' business model goes through a team that learns how to abandon the tried-out and turn it into great products, services and solutions that rapidly evolve customer demands. Therefore, it is extremely important to work with the right skills that can significantly accelerate the company's digital transformation. I think that women leaders are more successful in keeping up with innovations. For this reason, I am confident that women leaders in Turkey will

> play leading roles in the process of digital transformation, both through their determination and problem-solving capacity. (KPMG, 2018, p. 17)

One of the topics discussed within the scope of the 21st Eurasian Economic Summit with the participation of 41 countries in 2018, Yücel, Co-founder of Sustineo Sustainability Business Platform within the scope of "The Effects of Digital Transformation on Equality Culture" stated that gender discrimination can decrease with digitalization:

> …we advance errors within the system in the same way. On the other hand, if we understand the risks and benefits, we can see digitalization as an important bridge for women to include new opportunities, improve their ability to express themselves and increase their contribution. In this way, we can come to the point that it is an important method in reducing gender inequality. (Yücel, 2018, para. 1)

According to Yücel (2018), if the regulations on human resources policies (recruitment, promotion, retention, etc.) are made for women employment until 2025, the representation rate of women in the technology industry will be 36%. The steps to be taken to increase this rate are as follows: If the content and algorithms are gender biased and do not reflect the needs and reality of women; digitalization can further increase gender discrimination if women do not become part of content creation. Therefore, the stereotype should be changed. In addition, women entrepreneurship in technology should be supported.

## 4. Conclusion

In summary, many of the technologies such as digital transformation internet, artificial intelligence have the potential to eliminate gender differences in industry by nature. Because the new generation of jobs in the digital age includes opportunities based on brain power, not muscle strength. For this reason, UN Sustainable Development Goals emphasize Goal 10, Goal 8, Goal 9 digital inclusiveness, improving women's skills, increasing their representation and security, especially for reducing inequalities (The United Nations Development Programme, 2019).While structural growth is gaining momentum with structural changes, increasing automation also necessitates the change of human resources. In this process, due to new business areas, human resources with new professional skills will be a high added value capital for enterprises. For this, business should include policies that prevent gender discrimination in the new generation human resources practices required by digital transformation.

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