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Digital Transformation and The Future of Work and Women: The Case of The European Union

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Abstract

Digital transformation and technological advances are in the process of transforming work. This transformation is perceived both as a threat or an opportunity by workers, citizens, policymakers, and businesses. Whether and to what extent the digital transformation will qualitatively change labor markets and welfare states is intensely debated. When these topics are evaluated in terms of gender, how women are positioned in the labor market where new technologies occur becomes significant. This study examines the effects of digital transformation on women in the labor market in the European Union (EU) context. The research question of how digital transformation affects women in the context of the future of work will be examined within the framework of the discussions on gender and digital transformation in the labor market, use of technology, digital skills, and gender stereotyping in the labor market, artificial intelligence (AI), cyber violence, and care work.

Keywords

European Union, Digital Transformation, Future of Work, Digital Gender Divide, Women's Employment

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Introduction

Digital transformation affects every aspect of life and has significant effects on job markets. These effects have been opened to discussion with various dimensions in the context of the conceptualization of the future of work. Many national and international actors develop policies to positively reflect the digital transformation in life. The EU is one of the primary actors with this goal. For this reason, in this study, the EU case study, which is a good example of producing policies for the positive reflection of digital transformation on women's lives in the context of the future of work, is examined.

Digital transformation and its positive reflection on people's lives are among the main future goals of the EU. In this context, the EU's digital strategy published in 2020 states that it will work for a European society based on shared values and supported by digital solutions that enrich people's lives. Based on this, three key objectives have been set within five years to help digital solutions move towards a digital transformation in Europe that works for the benefit of people. These targets are: "technology that works for people, a fair and competitive economy, an open, democratic and sustainable society" (European Commission, 2020a). The Commission has stated that people, regardless of age, gender, or professional background, should have the opportunity to develop personally, make accessible and safe choices and participate in society (European Commission, 2020a). In addition, the EU's Gender Equality Strategy covering the years 2020-2025 draws attention to the need for women to take part in the digital future of Europe to achieve gender equality (European Commission, 2019a). It is possible to argue that the EU has made a digital transformation plan prioritizing gender equality in this context.

Despite the plans of the EU, figures today show that men dominate the development and use of new technologies in the EU. The proliferation of online work has also reproduced traditional gender inequalities in recent years. For instance, men are more likely to work in software development, while women are more likely to work in online translation jobs. At the same time, there is a significant development, change, and transformation process in digital technologies in the world, the Fourth Industrial Revolution or Industry 4.0. and new applications and new information technologies directly affect the social structure and labor market (Ecevit Satı & Oktay Yılmaz, 2020: 55). Despite the growth in Information and Communication Technologies (ICT),

the gender gap is high in the high-tech industries, including the creation and development of new digital technologies (EIGE, 2020: 14). The "Gender Equality Index 2020: Digitalization and Future Jobs" reveals that women are at a slightly higher risk of having their jobs replaced with robots and are underrepresented in developing high-tech products such as artificial intelligence (AI), spacecraft, optical fibers, lasers, and microchips. Also, statistics show that the proportion of women choosing fields related to new technologies in both vocational and higher education is low at the EU level. In this context, women are less involved in jobs related to ICT and STEM (Science, Technology, Engineering, and Mathematics) fields across the EU.

The situation summarized above in the EU, which develops projects aiming to realize digital transformation in an egalitarian structure, shows that it is imperative to research how women will be affected by digital transformation and what should be done about gender equality in the future of work. In recent years, evaluations made regarding the future of work and the position of women in digital transformation have become issues for discussion. The digital transformation of the labor market brings some challenges for women. On the other hand, this transformation will allow women to be employed in more skilled jobs. The following sections evaluate the digital transformation and its impact on labor markets and discuss its effects on women.

Background

Throughout history, industrial revolutions have represented the most significant turning points in shaping the economy and social life. Technological developments in their effect on production forms have created a tendency towards the classification of industrial revolutions. For example, the mechanization of production using water and steam power represents the First Industrial Revolution. Mass production with electrical power and automation with electronics and information technology development represents the Second and Third Industrial Revolutions. Various historical classifications have been proposed to identify these turning points. Perez (2010: 189) defines a technological revolution "as a set of interrelated radical breakthroughs, forming a major constellation of interdependent technologies; a cluster of clusters or a system of systems," and he identifies five systems of systems, namely five technological revolutions from the 1770s to 2000s. The founder of the World

Economic Forum (WEF), Klaus Schwab, popularized the concept of the Fourth Industrial Revolution. He suggested that the reasons why today's transformations are handled within the scope of a fourth and different revolution are speed, scope, and system effect. The speed of current transformations is unprecedented throughout history. It affects all countries and almost all sectors. The changes signalize the transformation of all production, management, and governance systems. As in previous revolutions, the Fourth Industrial Revolution has the potential to improve the quality of life. On the other hand, it might also lead to enormous inequalities, especially in its potential to damage labor markets (Brynjolfsson, E. & McAfee, 2011). For this reason and being a fundamental economic concern, "inequality represents the greatest societal concern associated with the Fourth Industrial Revolution" (Schwab, 2015).

Studies on the labor market outcomes of digital transformation have become widespread in recent years. Many arguments pointing to the positive and negative results of technological progress have been put forward along with these studies. In their quantitative analysis of the impact of technological progress on future jobs, Frey & Osborne (2013) estimated that approximately 47% of total employment in the United States is in the high-risk category and evaluated the concept of jobs expected to be at risk soon. In contrast, Arntz et al. (2016), taking an approach that considered differences in task structure rather than an occupation-based approach, investigated automatability for 21 OECD countries. They suggested that 9% of OECD jobs are potentially automatable. In the US, they argued, only 9% of jobs face a high level of automatability. Nedelkoska and Quintini (2018) extended this research to include 32 countries participating in the Survey of Adult Skills. They found that 14% of jobs in OECD countries are at high risk of being automated based on current technological possibilities. In addition, other significant findings of the research are that there are big differences in automation risk between countries and that automation risk decreases in almost all countries with education level, measured skill level, and wage level. However, some studies show that today's industries are likely to respond heterogeneously to new computer-based productivity-enhancing technologies. Employment will increase in some sectors and decrease in others (Bessen, 2019). Acemoğlu and Restrepo (2018) argued that technological progress could reduce labor demand, wages, and employment when economic factors did not counterbalance and if positive forces such as productivity are not large enough to offset the labor

displacement effects from automation. Gregory et al. (2019) revealed that technological change created more jobs than destroyed. Their study shows that in the period 1999-2010, routine replacement technologies significantly increased employment in Europe. And in the absence of any compensatory mechanism, employment would decrease by around 6 million jobs due to machines replacing workers while performing routine tasks.

Within the framework of the different arguments above, the impact of technological progress on job markets continues to be a subject of debate in academia, politics, and civil society. However, there are more explicit arguments for the reflection of technological progress on labor markets in the context of gender inequality. The literature on the gender and technology debate started to examine technological developments from a feminist perspective in the 1990s, focusing on the use of and benefit from new technologies by women.

When it comes to the opportunities offered by technology, the stereotypes generally adopted in social life are based on the premise that "technologies are masculine" or "men benefit from technology." In addition, it presents an approach based on gender discrimination, which is directly related to the identification of men with technology, that is, "being smart, objective and powerful," and women with "nature, being subjective and emotional." Those who explain this situation through identity draw attention to the belief that there is a difference between the technical competencies of men and women, which is a significant judgment in the formation of feminine and masculine identities (Savcı, 1999). Feminist researchers state that gender relations are not taken into account in production relations and emphasize the effects of changes in technology in terms of division of labor and qualification between the sexes (Hirata et al. 2009: 325).

Established gender roles affect the production and use of technology. Moreover, the use of new technologies does not reduce gender inequality. The inequalities experienced at different levels in accessing and using ICT have revealed a new form of social inequality called the "digital gap" and further deepened the social disparities in the transformation process into a digital society (Ecevit Satı & Oktay Yılmaz, 2020: 66). It is argued that the disadvantaged position of women in the ICT sector, which is considered the sector of the future, will continue, Industry 4.0 is unlikely to open new opportunities for women, and gender inequality will deepen. On the other hand, some researchers

mention the positive impact of the Industry 4.0 transformation on women and argue that women can take part in new employment areas that will emerge in the ICT sector (Ansal, 2018). In the following sections, how digital transformation affects women in the context of the future of work is examined, emphasizing gender, new technologies, and women. In this context, topics such as the gender and digital transformation of the labor market, use of technology, digital skills and gender stereotyping in the labor market, AI algorithms, cyber violence, and care work are covered. The topics mentioned above are evaluated through the case study of the EU.

Gender and Digital Transformation of the Labor Market

Gender-based analysis of the digitization of working life is of great importance. Advances in digitalization, development of the ICT industry, increasing use of digital data, results in AI and robotics are transforming the labor market. The following issues come to the fore in the digital transformation of the labor market: a) With the automation of work, human labor is partially or entirely replaced by machines. The capacity of machines to do work previously done by workers has been increased. As machines replace or complement workers, further transformations in employment structure and content are inevitable. b) The use of new technologies in the workplace and the increasing number of employees working with machines developed with new technologies lead to a greater demand in the labor market for those with basic and advanced digital skills. Jobs that require advanced digital skills contribute to employment growth in some high-paying sectors, such as ICT. c) Flexible working is gradually increasing. The widespread use of portable devices (computers, tablets, smartphones, etc.) and the developments in internet connection and infrastructure enable people to work remotely at various places and times. d) Platform work[1] has become increasingly widespread as one of the new ways of working that has emerged with the use of innovative digital technologies (EIGE, 2020: 83).

Although women are expected to experience higher job losses than men with the automation process, scenarios, where the automation of jobs will improve gender equality should not be overlooked. For instance, the labor market

1 Eurofound (2018) defines platform work as "an employment form in which organizations or individuals use an online platform to access other organizations or individuals to solve specific problems or provide specific services in exchange for payment."

transformation can offer an opportunity to change the generally accepted gender-based employment models, especially with the rapid increase in women's skills. And also, if machines replace a significant portion of human labor, the distribution of the residual work will come into question. In this situation, proposals to reduce the working week to allocate the total amount of work better are often discussed with potentially positive consequences for the gender division of unpaid work. Moreover, automating some routine tasks can enable people to devote more time to tasks that require creative or advanced ICT skills (Rubery, 2018). These outcomes point to the potential of digital transformation to improve gender equality in the labor market. However, it is not easy to realize them without gender-sensitive regulations, institutions, and policies; creating changes in established gender roles related to participation and care activities in the ICT and STEM sectors; and finally increasing the representation of women in decision-making mechanisms (Rubery, 2018; EIGE, 2020).

ICT is one of the most important pillars of digital transformation. When we look at the data related to this field as an example of digital transformation, it is seen that the importance of the ICT sector in the economy has increased, and the sector has been one of the few industries that have resisted the effects of the financial crisis and sustainable growth. From 2011 to 2020, the increase in the number of employment of ICT specialists was 50%, and the share of ICT specialists in total employment increased by 1.3% (from 3.0% to 4.3%). However, these positive indicators for the sector are not valid for the gender distribution in the sector. The majority of ICT specialists in the EU are men. The share of men in ICT employment was 81.5% in 2020, 1.5 points lower than in 201, and the share of women was 18.5% in 2020, 1.5 points higher than in 2011 (Eurostat, 2021a).

Despite the development of the ICT sector, there is a mismatch between the high demand in the European labor market and the relatively low supply of ICT professionals. In 2020, 8% of EU enterprises reported recruiting or trying to recruit ICT specialists, and 5% had difficulty filling these positions. 55% of enterprises that recruited or tried to recruit ICT specialists reported having difficulty filling open positions in 2019 (Eurostat, 2021b). According to an estimate made in 2018, the EU will face a shortage of around 600,000 ICT professionals in the coming years (European Commission, 2018b). Therefore, STEM professionals, especially ICT professionals, will continue to be in high

demand (Cedefop, 2018). In this case, the ICT sector can provide the experts it needs by supporting the participation of women in this field. Attracting more women to the STEM and ICT sectors will result in more jobs and an increase in GDP in the long run, and this will also provide economic growth in the EU (EIGE, 2017). However, the greater participation of women in the ICT sector constitutes one dimension of the digital transformation of the labor market. For this reason, the following sections discuss the use of technology, digital skills and gender stereotypes, AI algorithms, cyber violence, and care issues in the context of digital transformation in the EU. Problems and policy recommendations specific to these areas are also presented.

Use of Technology, Digital Skills, and Gender Stereotyping in the Labor Market

The use of the internet by women, their skills as internet users, their employment status with new technological developments, and their participation in new and changing professions constitute the most significant dimension of studies on women and new technologies. Many limiting factors that prevent women from fully participating in the digital age stem from stereotypes and prejudices. It is also significant to remove barriers to access opportunities. A Eurobarometer survey revealing gender-based behavioral differences in digitalization and technologies shows that women have more anxiety and negative judgments about digitalization and technology use. 70% of men and 63% of women stated that digital technological developments affect their daily lives positively. Only one out of every two women has a positive opinion about artificial intelligence and robots. Again, 41% of women stated that they had heard of this concept or read the news on artificial intelligence, while 53% of men indicated that they knew the AI (European Commission, 2018a).

With its policy of establishing a digital single market since 2015, the EU has aimed to support an inclusive digital society that will provide ICT learning and skills acquisition in different sectors so that men and women of all ages can have opportunities to progress at the Union level. On the other hand, due to geographical discrepancies between different regions in Europe, it does not seem possible to host a sustainable digital society (van Kessel et al., 2022). The “Digital Skills and Jobs Coalition” of the European Commission has taken a significant step in cooperating to prevent digital skills inequality by bringing

together local and national parties on this issue. However, in the digital single market, there is not enough progress in mainstreaming gender equality, primarily due to the different policies and practices of the Member States (European Commission, 2016). Member States' different approaches to gender equality increase inequality at the Union level in many areas. According to the "Women in Digital-WID Scoreboard," a tool used to measure and evaluate women's participation in the digital economy in terms of Member States' performance, stereotypes and assumptions about women and girls remain a barrier even in the Member States that are well advanced in promoting gender equality (European Commission, 2019b). For instance, the digital gender divide is lower, and access to ICT is more effective in the countries that rank high in the EU's Digital Economy and Society and the Gender Equality Indices (Finland, Sweden, Denmark, and the Netherlands) (EIGE, 2020: 67). However, the rate of STEM graduates is lower in more affluent and gender-equal countries, which creates a "gender-equality paradox" (Sossamon, 2018).

Women's lower education level is seen as an obstacle in developing their digital skills compared to men. While age affects the development of basic and advanced digital skills in women and men, gender inequality can negatively affect reskilling or skill development, especially lifelong learning. Gender stereotypes often discourage women's participation in ICT-related education and work (Clayton et al., 2009). Gender perceptions and attitudes of individuals, which begin to settle from an early age, also affect their choice of the field they will study at university. According to a study conducted across Europe in 2018, only 1% of 15-year-old girls and 10% of young boys stated that they had expectations of working in professions in ICT at the age of 30. According to WID Scoreboard 2021 data, only one-third of STEM graduates are female (European Commission, 2021a). The gender gap at the university level in the STEM field affects the employment participation preferences of graduate students and creates gender discrimination in the labor market.

AI Algorithms, Cyber Violence and Care Work

Closing the gender gap in technology use, digital skills, STEM education, and increasing women's employment in the digital economy requires recognition of the fact that women and men are equal and women deserve full inclusion in all aspects of the economy and society. In this respect, it is necessary to

implement policies that combat stereotypes and prejudices and provide equal chances in an egalitarian society where everyone can develop. However, it is essential to consider the different areas in which digital transformation affects women's lives based on gender. These areas include AI, cyber violence against women, and the potential of digital technologies to transform the world of care.

One of the critical elements of technological transformation is the development of AI. In the 1950s, the term artificial intelligence was used to describe machines that could do more than routine tasks. As computing power increased, the term was applied to machines capable of learning. As a cognitive technology, AI introduces machines capable of learning and performing cognitive tasks previously limited to humans. It is recognized that these machines have the potential to mimic or even exceed human cognitive capacities. In recent years, big technology companies have started to make significant investments in using artificial intelligence in their products, and computing power has become big enough to work with big data. In addition, artificial intelligence products are becoming more and more effective in people's daily lives and professional fields such as health, education, scientific research, communication, transportation, security, and art (UNESCO, 2019: 3).

Currently, AI appears to be the main driving force of economic progress and, like other technological developments, has the potential to solve many social problems. AI technologies create opportunities to transform the economy and society; they also reproduce old risks and pose new challenges to gender equality; it also carries the risk of increasing gender inequalities. Most notable here is the risk of repeating, reproducing, or contributing to gender biases resulting from particular data selection if algorithms and related machine learning are not transparent enough. While attention is drawn to the liberating potential of technology transformations (Wajcman, 2007), it is a stronger argument that it exacerbates social inequality (Howcroft and Rubery, 2019). For example, with the disappearance of many office jobs where women are employed more with automation, women are faced with a higher risk of job loss (Lordan, 2019). AI is associated with increasing inequalities, the massive underrepresentation of women, gender bias and discrimination in the workforce's algorithmic management, the reproduction of gender stereotypes, and gender-based violence in the labor market and beyond. On the subject of representation, the study conducted by the World Economic Forum in cooperation with

LinkedIn shows that while 40% of the employees working in the field of software and information technologies have a certain level of artificial intelligence skills, only 7.4% of these are women. When evaluated globally, only 22% of professionals working in artificial intelligence are women (World Economic Forum, 2018). On the subject of algorithmic management of the workforce, algorithmic recruiting and recruiting tools lead to discriminatory results. In addition, processes such as scheduling and task allocation, invasive monitoring and surveillance tools, and performance review and evaluation, which are managed and controlled by algorithms, reinforce inequalities and discrimination.

Based on the argument that gender-sensitive policies that take into account technological changes are the critical element in reinforcing gender equality in the labor market, the EU plans and prepares strategies to combat the undesirable consequences of AI. The "Artificial Intelligence for Europe" Communication of the European Commission forms the basis of policies in this direction. Communication presents the EU's vision for ethical, safe, and innovative AI. Accordingly, the aim is to increase the technological and industrial capacity of the EU and the uptake of artificial intelligence throughout the economy, prepare for socio-economic changes and provide an appropriate ethical and legal framework (European Commission, 2018c). The EU White Paper titled "On Artificial Intelligence. A European approach" to excellence and trust has been prepared to reveal the European approach based on EU values and fundamental rights, including non-discrimination and gender equality. In this context, it proposed creating a regulatory framework for artificial intelligence and adjusting the existing legal framework (European Commission, 2020b). The Commission (2021b) prepared the proposal for a regulation "Laying down Harmonized Rules on Artificial Intelligence (Artificial Intelligence Act) and Amending Certain Union Legislative Acts" in 2021. Under the heading of consistency with the current policy provisions, consistency with the EU Charter of Fundamental Rights and existing secondary Union legislation on data protection, consumer protection, non-discrimination, and gender equality is also envisaged.

Another impact of digital transformation has been the spread of gender-based violence with ICT development and the growth of social media platforms. In this context, studies on cyber-violence have increased since the 2000s, and the

fight against cyber-violence has become a part of the fight against gender-based violence. In 2015, the UN adopted the cyber violence term in its Cyber Violence Against Women and Girls (VAWG) report. Although there is no consensus on defining and classifying digital-based behaviors and actions among the groups researching this subject, the concept of cyber violence, in general, includes "the kinds of harm and abuse facilitated by and perpetrated through digital and technological means" (Backe et al., 2018: 1). It is an umbrella term for many forms of violence that happen with the use of ICT, such as hate speech and cyber harassment, cyberbullying, and cyberstalking. Cyber violence directly impacts its victims, above all, their mental health. In addition, it causes withdrawal from the public sphere, being less present in the workplace and its reflections on the labor market, a decreased quality of life in general, and its impacts on the welfare of societies. Cyber violence has essential effects on private and public life from these perspectives. For this reason, combating cyber violence is on the agenda of national and international institutions.

Combating cyber violence is also on the agenda of the EU. Since almost all studies indicate that cyber violence will increase in the future, the EU is developing various legislative regulations and preventive policies. The European Union Agency for Fundamental Rights' (FRA) (2014: 104-105) research on violence against women, based on face-to-face interviews with 42,000 women across the EU, asked women about the role new technologies play in their experiences of harassment, sexual harassment, and abuse. According to the findings of the research, one in 10 women (11%) and one in 20 women (5%) had experienced at least two types of cyber harassment (unwanted sexually explicit e-mails or SMS messages or inappropriate behavior on social media sites) in the 12 months preceding the interviews. The variation in the prevalence of cyber-harassment ranges from 5% to 18% among the Member States. The findings showed that young women aged 18-29 were at twice the risk of becoming the target of threatening and aggressive developments on the internet than women aged 40-49 and three times higher than the risk for women aged 50 to 59. A current study by the European Parliamentary Research Service (EPRS) (2021: 8) estimates that between 4 and 7 percent of women in the EU-27 have experienced cyber-harassment, and 1 to 3% have experienced cyberstalking in the past 12 months. This research also shows that younger age groups face more risks, and the prevalence of this phenomenon increases with more internet and social media use. Although young age groups have a higher

risk of becoming victims of cyber violence, it would not be wrong to say that women are exposed to cyber violence in every sector and position. For example, the 2018 Inter-Parliamentary Union (IPU) survey on the European case found that more than half (58%) of female parliamentarians and parliamentary staff interviewed "had experience of abusive, sexual or violent content and behavior on social networks" (IPU, 2018: 6). As this research demonstrates, cyber violence can make women victims of an attack from anywhere globally, regardless of their position.

Although there has been an agenda regarding cyber violence in the EU in recent years, Member States have different definitions. The inability to establish a common definition at the EU level is one of the main obstacles to a holistic approach to the issue. In addition, EU Member States have different legal regulations regarding cyber violence. For example, gender-based cyber violence is considered a crime in Romania and France. Countries such as Belgium, Czechia, and Spain are countries where cyber violence is a crime, regardless of gender. Some countries, such as Germany, Lithuania, and Ireland, are trying to prevent gender-based cyber-attacks based on non-criminal provisions. Strategies for combating cyber violence at the EU level are included in documents such as the Gender Equality Strategy 2020-2025, EU Strategy on Victims' Rights 2020-2025, EU Strategy on Fighting against Child Sexual Abuse 2020-2025, and EU Cyber Security Strategy. In addition to these strategies, although there are Directives and Regulations associated with gender-based cyber violence, there is no legal document containing a clause on gender-based cyber violence and no general legal definition for its conception and classification (EPRS, 2021: 98).

More research is needed to determine the individual, social, and economic adverse effects of gender-based cyber violence on women and girls. In addition, there is a need for more data on the subject. Activism should also be created to raise awareness simultaneously with the studies. Support and safe protection services for victims of cyber violence need to be promoted. Collaboration with technology companies on hate speech can be given as an example of preventive policies. In addition to all these, although there is no harmonized legal definition among the Member States, an action should be established at the EU level, considering that cyber violence is a cross-border issue. This action will give a great impetus to the fight against cyber violence.

Care work is another area that digital transformation affects. The impacts of new technologies on care and gender can be examined through the technologies used for care and their effects on women's employment and the fulfillment of care work through digital platforms. It covers assistive technologies and data management tools. These technologies are based on ICT-based solutions, robotics, AI, and socially aware machines. Assistive technologies have the potential to create better conditions for independent living by monitoring the health and daily living activities of care seekers to facilitate medical and social care at home. In addition to facilitating the life activities of care recipients, it has the potential to reduce the care burden on women. They help caregivers reduce the time and energy spent, anxiety and fear, and the safety risk for physical assistance activities (Madara Marasinghe, 2016).

Europe has low population growth and an aging society. The population is getting older because of improved healthcare and rising living standards. 20% of people in Europe are aged 65 and over, and this gap is predicted to rise to 30% by 2070 (European Parliament, 2022: 5). This situation indicates that care seekers will increase, and more demand for qualified care workers will increase. In the EU, as in the rest of the world, most care work (whether paid or unpaid) is done by women. In the EU, 80% of all care is provided by unpaid care, 75% of which is undertaken by women (European Parliament, 2021). In addition, unpaid care work responsibilities in Europe prevent around 7.7 million women from entering the labor market. Digital platforms are seen as an opportunity to contribute to women's employment, including care work, especially with their flexible working model. It does not seem possible for digital platforms to be a solution to inequality in maintenance due to the reproduction of existing inequalities and non-standard maintenance work contracts by performing maintenance work on digital platforms. On the contrary, unpaid care and domestic work remain unresolved issues for women working in the platform economy. Moreover, it does not address the double burden problem of women, which points to the work and domestic work burden of women (Vyas, 2020).

Digital platforms currently do not have the potential to improve the problems of women who have to work in the care sector with low wages and low social security or without security (EIGE, 2020). To realize the potential, it is necessary to make arrangements for platform work at the EU level. Developing strategies in this context, the European Commission (2021c) published the proposal for

a "Directive of the European Parliament and of the Council on Improving Working Conditions in Platform Work " in 2021. This proposal aims to grant worker status instead of self-employed or independent contractors to people working through platforms and enable employees to benefit from rights such as minimum wage, collective bargaining, working time, paid leave, and protection against occupational accidents. If the proposal is accepted, the working conditions of employees working through digital platforms, including maintenance work, will be improved. However, new technologies do not eliminate the inequality between men and women in care work. What is required for this is the mainstreaming of gender in the policy-making process and a normative transformation targeting stereotypes, as in other policy areas.

Conclusion

With the development of new technologies, the world is experiencing changes and transformations in digital technologies and their effects on economic and social life. While new technologies have eliminated some jobs in the labor market, it has also created and will continue to create new jobs. This study aimed to approach this issue, a current debate under the conceptualization of the future of work, from a gender perspective. Therefore, in the study, the effect of technological transformation on women, especially in the labor market, is discussed through the EU case study. In this context, firstly, digital transformation in job markets was evaluated in the context of gender. Then, EU policies were examined in the context of technology, digital skills, gender stereotyping in the labor market, AI algorithms, cyber violence, and care work.

When evaluated in terms of professions that have emerged with digital transformation or that are already transforming, it has been observed that men are heavily involved in employment in jobs created by new technologies. Women are less involved in jobs related to ICT and STEM. Statistics show that women choosing fields related to new technologies in both vocational training and higher education at the EU level is low. The most important reason for this situation is traditional gender roles and stereotypes. Therefore, women still work in lower-paid jobs, are often lower-insured, and work in roles considered as women's jobs. Projections and future scenarios show that developments in the ICT and STEM sectors will require specialists with higher knowledge and skills in the labor market. The increased demand for STEM and ICT specialists

in the labor market can be achieved by supporting women's employment as the specialists needed for these sectors. Therefore, it is necessary to develop policies and strategies to attract and retain women in ICT jobs. The foremost of these is the development of policies that will enable female students at the level of vocational education and higher education to choose STEM fields. Due to the digital transformation, new jobs and new ways of working have the potential to improve gender equality in the labor market. However, it is necessary to create legal regulations, institutions, and policies with a gender mainstreaming approach. This change is not easy to achieve without shifting established gender roles regarding care activities so that more women can join the ICT and STEM sectors. Policies and initiatives promoting gender equality in digital sectors should consider the milestones that have the most significant impact on a woman's life cycle: childhood, adolescence, labor force entry, motherhood, and return to the labor market. Introducing digital literacy to girls from childhood will help reduce the digital divide or gap in the future and will be a significant step in changing the prejudice that women are away from technology.

In terms of digital transformation, AI technology and platform work are growing; they are changing the world of work and affecting women's employment. Like other developments, while they have the potential to contribute to gender equality, they might also reproduce gender stereotypes and reinforce discrimination. To prevent the deepening of inequality through AI, gender sensitivity should be prioritized in technology development, the opportunity for equality in education should be targeted, and the employment of women should be supported in these areas. The EU encourages the development of AI in an egalitarian structure and in a way that contributes to gender equality. However, it will take time for new technologies to develop through gender sensitivity after education and employment of women experts in related fields.

Another issue that the EU focuses on sensitively in digital transformation is the fight against gender-based cyber violence. In particular, institutions such as the European Commission and the European Parliament direct and accelerate the EU's efforts in this direction. One of the effects of cyber violence can be the withdrawal of women from public life. In addition to its effects on women's physical and mental health, this situation creates a problem in terms of the workforce. Therefore, legal and political activism at the EU level, awareness, and activism at the social level should be created to combat gender-based cyber violence.

Besides the potential for digital transformation to increase inequality, one of the most promising work sub-categories to contribute to gender equality is care work. Care work and a significant element of it, care workers, have a crucial role in the well-functioning of welfare states. With the development of new technologies, the transformation of care work has been made possible. Various products are being developed that use new technologies, especially in elderly care. Due to the aging population and increasing life expectancy in the EU, these technologies are given prominence to strengthen elderly care. In this respect, women are among the primary beneficiaries of these technological products, as they are significantly more likely than men to need long-term care. In addition, women also benefit from technological developments as care workers since most unpaid and paid care work is carried out by women. Digital transformation has the potential to reduce gender inequalities in the economy by helping to reduce, in particular, the unpaid and disproportionate care work for women. However, as in all dimensions of digital transformation, it is essential to prioritize gender sensitivity in technological change and the mainstreaming of gender in digital transformation. The EU is an example of good practice with its targets set in this direction. However, the lack of a similar will to implement the targets increases the possibility of digital transformation to deepen existing inequalities.

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