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ARE WOMEN RECOGNIZED IN THE DIGITAL ECONOMY? EXPERIENCES OF DEVELOPED ECONOMIES

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Abstract:

Data and debates about the role of women in the digital world are gaining increasing importance in the study of gender and the digital economy. This paper explores the complex relationship of the role of women in the digital economy over the last two decades. The analysis used a review of the literature of scientific works and documents of official international institutions. All available sources indicate progress in recent years, but challenges remain. Several samples were created, and quantitative analysis assessed trends over time. The general conclusions suggest that the role of women in the digital economy is increasingly pronounced and significant. The results of the study confirm global expectations that promote the role of women in the digital economy (glass ceilings), where women work in key positions (women on boards) and participate in decision-making (glass cliffs). The regression econometric model shows that the role of women in the digital economy is increasingly important to recognize women who use Internet networks to a greater extent (business, social), those with above basic overall digital skills, as well as ICT experts. The paper ends with a list of potential recommendations for the modern framework of the digital economy.

Key words: *Digitalisation, ICT, Glass Ceilings, Women on the Boards, Glass Cliffs.*

1. Introduction

Today, there is an increasing commitment to promoting discussions on digitization, transformation, and rules of electronic information exchange. The results of digital transformation - the progress achieved in the use of data and the spread of innovation - represent the motivation for continuous investment in the advantages provided by the digitization of the community, with the aim of fair use, gender equality, the empowerment of women, reducing inequality and poverty. In this regard, obstacles to the equal

participation of women in the further creation of a digitized economy and society have been removed.

The participation of women in the social and business community has grown significantly in recent decades. Earlier traditional views that women should not work in companies but should devote themselves exclusively to the household, family, and raising children are outdated and abandoned. Due to the increasing participation of women in all spheres of society, the image of gender equality is being equalized every day. Of course, credit also goes to the men who partially took over jobs that were previously exclusively intended for women. Women are increasingly taking on responsible jobs that were the sole responsibility of men in the past. Women are increasingly receiving diplomas of the tertiary level of education, participating in the drafting of strategic documents, in the scientific field, in corporate decision-making, in innovative activities, and the ICT sector. Women are becoming entrepreneurs and participating in the creation of the digital economy. Even women occupy key positions in the governments of numerous countries, as well as in international organizations. Removing obstacles to women's inclusion and economic empowerment has become more frequent in recent years. Indeed, there have been significant improvements in many spheres of society, but widespread gender inequalities persist. Differences exist between countries or regions, and the reasons are numerous: cultural heritage, tradition, prejudices, wealth, social protection, health and care services, etc.

One thing is certain about digitization – no country can handle these challenges alone. (OECD & UNDP, 2019). A global initiative is needed! The United Nations is committed to gender equality, empowering women and girls, and fully respecting human rights. Every year at the OECD meetings, a significant part is devoted to the position of women in the workforce, the degree of their participation, employment, entrepreneurship, elimination of the gender gap, etc. The issues of digitization and gender equality, employment support, and women's empowerment in the digital economy are constantly discussed at the G20 summits.

In this article, we will analyse the digital economy through several digital indicators to understand the impact of digitization of some sectors or activities on the economy. Comparison with other countries is not always possible, as the impact assessment depends on the set of activities and products that a given economy considers digital. Statistical offices of developed countries are constantly developing new ways of assessing such impact, including various digital products and services. The main criterion for our analysis will be the degree and level of representation of women in the data for individual countries. We start from the hypothesis that increasing the participation of women in the digital economy creates a new, larger pool of opportunities and options for the inclusion of women.

2. Digitalisation VS Digital Economy

Digitization is present to a greater or lesser extent in all spheres of the economy. In a broader context, digitization can be defined as the inclusion of data and the Internet in production processes, new forms of consumption by individuals, households, and the government, and the formation of capital and financial flows (IMF, 2018). Such,

subjectively, makes it difficult to isolate and quantify its economic impact. There are numerous attempts to better understand its development about overall economic activity, primarily in the analysis of the labour market, inflation dynamics, technological progress, future growth, and transmission of shocks.

A key result of digitization is the digital economy. In a narrower sense, the digital economy includes any economic sector that uses information and telecommunication technologies (ICT) in its operations in any scale and form. Official statistics use international classification systems structured around what is produced, not how it is produced. However, digital technologies are affecting how products and services are produced and delivered. This makes their verification difficult because the system is not structured to enable analytical collection and grouping of digital activities (Moulton et al., 2022). In a broader sense, the digital economy implies the application of business models that come with the advancement of ICT (OECD, 2014b). According to the latest OECD definition (OECD, 2020), the digital economy is a set of activities that use digital inputs: digital technology, digital infrastructure, digital services, and data.

Earlier forecasts highlighted the growing share of the digital economy in the future in global production. Data from the World Bank show that digital technologies are directly transforming markets and economic opportunities. For example, mobile technologies and services alone generated about $4.5 trillion in economic value added or 5% of global GDP in 2021 (WB, 2023). Accelerated digital transformation has contributed to more than 65% of global GDP being digitized in 2022 (IDC, 2020). The main emphasis is on nurturing the following fundamental drivers of the digital economy: digital strategies and regulations, digital infrastructure, data, and digital skills. Digital transformation affects the key economic aggregates, institutional mechanisms, corporate policy and communication, and channels for conducting monetary policy (ECB, 2018). Mura and Donath (2023) analysed the effects of digitization within the EU and showed that it generates a positive and significant impact on economic growth.

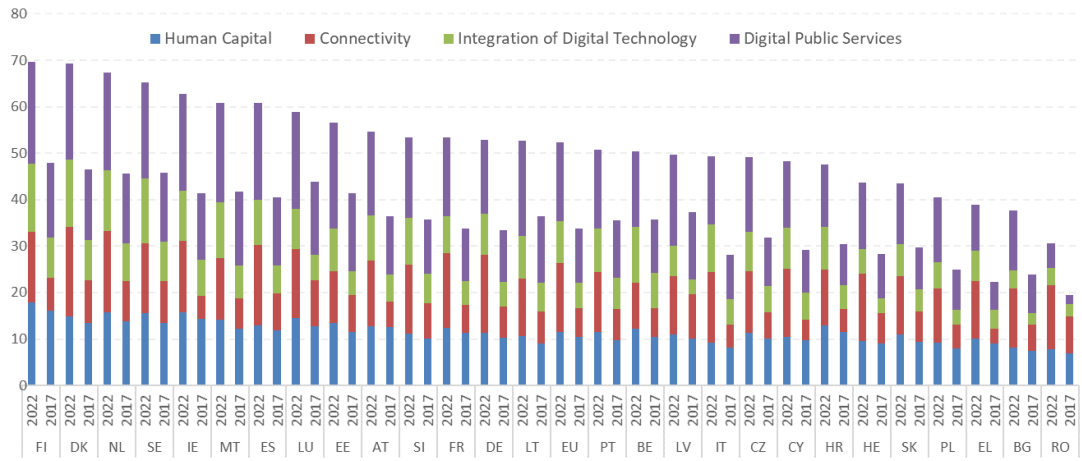
The World Trade Organization (2020) announced digitization by creating a new operating system. Instead of the existing concept of a free market, it places economic development under the auspices of the state. By introducing digitization in public sectors, such as education, health, and employment policy, governments will establish new components of economic development. These sectors will no longer be inefficient. Contrary! They will contribute to future development and the digital economy. Given that women are more represented in these sectors, it opens up space for them to improve their position and economic independence.

In recent years, the main topics at the G20 summits are global incentives for digital skills and the development of digital literacy, especially for women, girls, and people from vulnerable groups. The Riyadh Declaration (2020), from the summit in Saudi Arabia, together with the issue of taxation of the digital economy, continued to support the creation of an open and non-discriminatory environment, consumer protection, and empowerment (privacy, data protection, intellectual property rights, and security). Activities were held to promote gender equality, combat stereotypes, reduce the wage gap, and reduce the unequal distribution of unpaid work and care responsibilities between men and women.

EU members must implement the EU strategy on gender equality (EC, 2020) into the new EU strategy for the digitalization of society (EC, 2022a). This is particularly important for Member States with significant digital illiteracy and the gender gap. It is an opportunity to provide a favourable and better environment for women and girls through all three pillars of digitalization support: (1) technology, (2) a legal and competitive business environment, and (3) an open, democratic, and sustainable society. Expectations are justified. On the one hand, it opens up new opportunities for women's businesses, encouraging the development of technology. On the other hand, it creates a sustainable economy and helps fight climate change. On these issues, the role of women has grown significantly in recent years, and the results show that their greater involvement can yield better results.

The European Commission (EC) regularly monitors the digital progress of member countries. For this purpose, the EC developed the Digital Economy and Society Index (DESI) summarizes the relevant indicators of Europe's digital performance. DESI is calculated as a weighted average of four main dimensions with selected weights – human capital, connectivity, digital technology integration, and digital public services. Figure 1. shows the DESI ranking of Member States in the period 2017-2022. All member countries have become more digitized. Finland, Denmark, the Netherlands, and Sweden have the most advanced digital economies in the EU, followed by Ireland, Malta, and Spain. Romania, Bulgaria, and Greece have the lowest DESI scores. The developed countries achieved a higher level of digitalization in the observed period than the average of the EU and other member countries. Methodologically, a higher degree of digitization means a higher rate of growth in the adoption of digital technologies by citizens and the economy.

Figure 1. Digital Economy and Society Index, period 2017-2022



***Source*:** Authors' calculation according European commission database

***Notes*:** We included this index in the estimated econometric model, where we examined the role of women in the digital economy. In a linear regression model (using the OLS method), we estimated the impact when several control variables were taken into account, namely: desi, women employed with ICT specialist skills, women who order goods or services online daily, women with above basic overall digital skills, online banking (explanatory variables - Xi) on women in digital (dependent variable - Yi). The results of the evaluated mode ($Y_i= \alpha+\beta X_i+\varepsilon_i$, where α is the intercept, and εi is the error term) indicated that there is a positive feedback effect of the digital economy and society on women. Also, the digital economy favours women with ICT skills, women who regularly use the

Internet for ordering and shopping, and women with more than basic digital skills. The negative sign of the explanatory variable of online banking was expected (and statistically insignificant). The equation is estimated on the EC database of digital indicators.

3. Digitalisation in developed countries

Digitization shows positive effects on the well-being of developed countries and vice versa. Developed economies have a sufficiently favourable environment for further development and implementation of digitization. The key factors determining digitization in the developed world are access to ICT and the availability of public services in e-form.

Developed countries are continuously improving the technology sector to stay on top. They achieve this by adopting national strategies and policies. Such an approach offers options to other countries to find a solution that will benefit everyone. Finland dominates the field of digitization, implementing effective coordination of sustainable digital transformation. The digital framework is designed on a qualified workforce, technological resources, innovation financing, and smart technologies. Denmark is one of the first countries with public digital services and is imposing a greater degree of internationalization and the export of digital solutions. The German government prioritizes digitization and defines digital regulatory policy in the White Paper on Digital Platforms. In France, the modernization of digital services was implemented in 2021 through the Digital Transformation Plan. Digital transformation in the US involves a complex, multi-stakeholder change management effort to bring about business and technical change that benefits everyone. The Digital Government Strategy, launched in May 2012, was tasked with creating a 21st-century government that works better for the American people (accessing high-quality digital government information and services, managing devices, applications, and data in smart, secure, and affordable ways, encouraging innovation across nations).

Developed countries often employ various strategies to support and foster the growth of the digital economy. They invest in robust ICT infrastructure, including high-speed internet access, broadband networks, and mobile connectivity. These forms enable businesses and individuals to participate fully in online activities. Governments and educational institutions provide digital skills training programs to equip citizens with the necessary knowledge and competencies for the digital era. Also, the policies and programs that foster entrepreneurship and innovation in the digital sector are offered. This includes providing funding, tax incentives, incubators, and accelerators to support the growth of digital start-ups and encourage the development of innovative technologies. Investments in research and development in digital technologies drive innovation, advance technology, and develop new digital products and services. This is supported by intellectual property frameworks, which protect digital innovation and encourage investment in the digital economy. Governments often adopt open data initiatives, making public datasets available to the public, researchers, and businesses. It helps them to provide efficient and accessible e-government services. All this is guaranteed by adequate regulations and policies that foster competition, consumer protection, and trust in digital markets. Another advantage of developed countries lies in engaging in international collaborations and partnerships to share best practices, promote digital trade, and

harmonize policies. Finally, to bridge the digital divide, developed countries implement programs to ensure digital inclusion for all citizens, i.e. for underserved communities, low-income individuals, and marginalized groups. These strategies collectively support the development of a thriving digital economy in developed countries, fostering innovation, economic growth, and improved quality of life for their citizens.

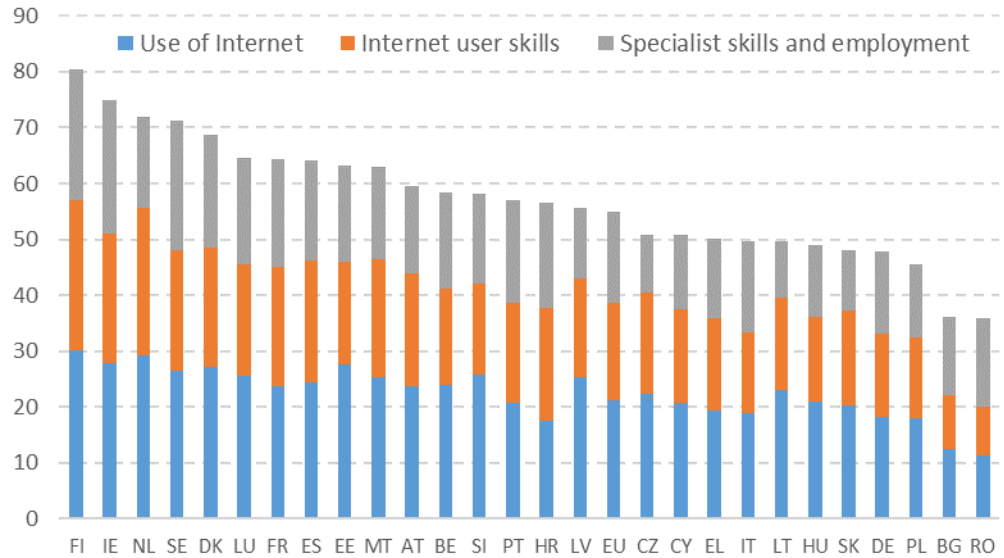
While the digital sector in developed countries offers numerous opportunities and benefits, it also faces challenges. Despite widespread access to technology, there is still a digital divide. Certain segments of the population, such as low-income individuals, rural communities, marginalized communities, and older people, may have limited access to digital devices, Internet connectivity, and digital technologies. Developed countries often grapple with striking a balance between fostering innovation and ensuring the privacy and security of individual's personal information. All digital activities highly depend on digital infrastructure, making them attractive targets for cybercriminals and hacking. Because of the rapid pace of technological advancement, there is a persistent skills gap, with a shortage of workers equipped with the necessary digital competencies. This poses challenges in meeting the demand for skilled professionals and adapting to emerging technologies. It can lead to job displacement and changes in the labour market. In some countries, online opportunities are underutilized in companies, especially for learning and training activities (De Alvis et al., 2022). An additional problem comes from the market. The digital sector is dominated by a few large tech companies, leading to concerns about market concentration and potential anti-competitive practices. Addressing the spread of misinformation while protecting freedom of expression is a critical concern. Ensuring ethical practice, transparency, and accountability for achieving development and adequate application of digital technologies is crucial. Addressing these challenges requires collaboration among stakeholders, including governments, industry leaders, civil society organizations, and academia. Striking a balance between innovation, inclusivity, privacy, and security is essential to shaping a sustainable and equitable digital sector in developed countries.

4. Women in Digital Economy

The rise of the digital economy has offered women more options. The more women participate in the digital world, the greater the chances for women's economic empowerment. It comes with available formal and informal education! Primarily, women became equal with men in education, but today in engineering, a field that men had dominated traditionally. Women who are already employed should be given access to training and retraining to more easily adapt to new jobs, conditions, and a new environment. In addition, digital technology opens opportunities for access to different forms of finance - through new channels and sources, valid financial options, and their identification through ICT. From the aspect of entrepreneurship, in addition to traditional forms of business support, easy and simple access to markets and business networks should be ensured to achieve better results. For McGuinness (2018), it is crucial to provide women with the necessary digital literacy to successfully join the digital community, contributing to the development of the digital economy, especially cyber security and privacy.

Figure 2. shows that women are the most digital in Finland, Sweden, Denmark, Estonia, and the Netherlands. Women in Romania, Bulgaria, Poland, Hungary, and Italy have the lowest scores for women's participation in the digital economy and society. Although, despite significant progress in the field of digitization, there are still many shortcomings. For example, there is still a significant gender gap in specialized digital skills (EPRS, 2023). In 2022, only 19% of ICT specialists and about 1/3 of science, technology, engineering, and mathematics graduates are women. Women leave careers in the digital sector at a higher rate than men, especially between the ages of 30 and 44. Moreover, only 14.8% of start-up founders are women. Care at home falls more on women (around 7%) than men (only 0.5%). Regarding salaries, women in ICT earn almost 20% less than men. There is no significant progress in this area as these figures have been stable for the past few years. For example, compared to 2021, the values are higher by several percentage points for all EU member states and the EU average.

Figure 2. Women in Digital Scoreboard, 2022



Source: Authors' calculation according European commission database

The Osaka Declaration (2019) shows the intentions of the developed countries to continue supporting the education and training of girls and women with quality primary and secondary education (STEM – Science, Technology, Engineering, and Mathematics). The need to raise awareness about eliminating gender stereotypes and closing the digital gender gap was emphasized. It is necessary to improve the access of girls and women to digital technology with a focus on the needs of those in poverty and rural areas. The private sector stands out in particular through the promotion of women, eradication of all gender-based violence and harassment, including the digital context, women in managerial and decision-making positions (female business leaders), and the creation of gender-responsible investments.

The digital economy empowers women economically, socially, and politically. Women play a significant role here, both as consumers and as professionals. It is crucial to close the gender gap and create a more balanced workforce by actively recruiting and promoting women in technical and managerial positions. This helps in different perspectives and insights into the industry, driving start-ups and innovative ventures. Women in Tech Advocacy provides support networks, mentorship, and resources to empower women in the digital economy and address systemic barriers. Overall, the active inclusion of women in the digital economy is key to achieving gender equality, fostering innovation, and driving economic growth. Efforts to close the gender gap, promote digital skills, and ensure equal opportunities are essential to realizing women's full potential in the digital era.

Despite these positive developments, challenges persist. Women still face gender-based discrimination, unequal access to resources, and underrepresentation in leadership roles within the digital economy. It is essential to continue working towards creating a more inclusive and equitable environment to maximize the potential of women in the digital economy.

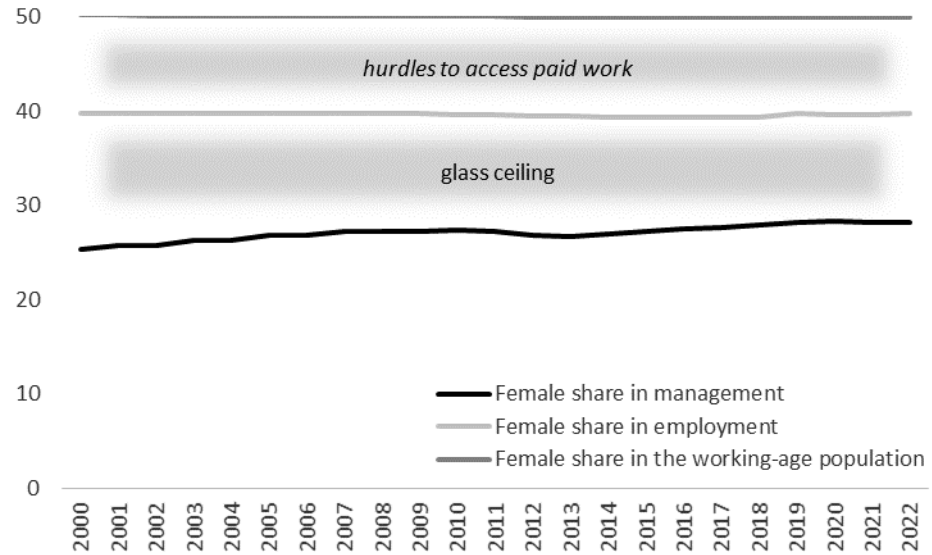
5. Glass Ceiling

While the digital sector in developed countries offers various opportunities and shows advantages, it also faces challenges. Some of the problems they face are listed above. But two more important ones remain base erosion and profit shifting (BEPS) and the 'glass ceiling.' Regarding the first problem, governments of developed countries tend to specify, through Action Plans, the places where added value is created and profits are taxed (OECD, 2014a). Another problem is curbing women's professional ambitions, especially in technology industries. Our analysis will be focused on the second problem, where women are limited in expressing and developing their leadership skills and entrepreneurial capacities.

In November 2022, the European Commission adopted the Directive (2022), which finally cleared the space for eliminating the permanent gender wage gap and overcoming the existing 'glass ceiling' phenomenon. This was preceded by the adoption of the Europe 2020 Strategy (EP, 2010) in March 2010, which unequivocally recognized that increasing the participation of women in the labour market is a prerequisite for economic growth and demographic balance in Europe.

However, this was not the final solution. In recent years, the gap in the 'glass ceiling' has narrowed (Figure 3.), but a new one has emerged. The uncertainty of retaining women in senior management positions has become a nightmare for modern management. Previously, men had an advantage when assigning high management positions compared to women, especially in specific situations, such as external market challenges, risks, crises, introduction of new business policies, etc. This concept is known as the ‘glass cliff’ and refers to the uncertainty of women remaining in the top management positions to which they have already been elected.

Figure 3. Woman share in economy, 2000-2022



Source: Author's calculations according to ILOSTAT database

Numerous scientific studies have shown the benefits of breaking the glass ceiling in the corporate sector. Companies give better results from the aspect of management diversity. Different management teams have positive effects on companies in terms of innovation (Nathan & Lee, 2013; Diaz-Garcia et al., 2013), detection of product defects (Phillips et al., 2008), business planning in conditions of uncertainty (Levine et al., 2014), even in agricultural sectors (Pavlović et al., 2019). The advantage of diverse teams of different levels of management, compared to homogeneous ones, is reflected in a more detailed approach to the problem, concrete solutions, and better finances (Ferrari & Déo, 2023; Reguera-Alvarado et al., 2017; Vanderheiden et al., 2010).

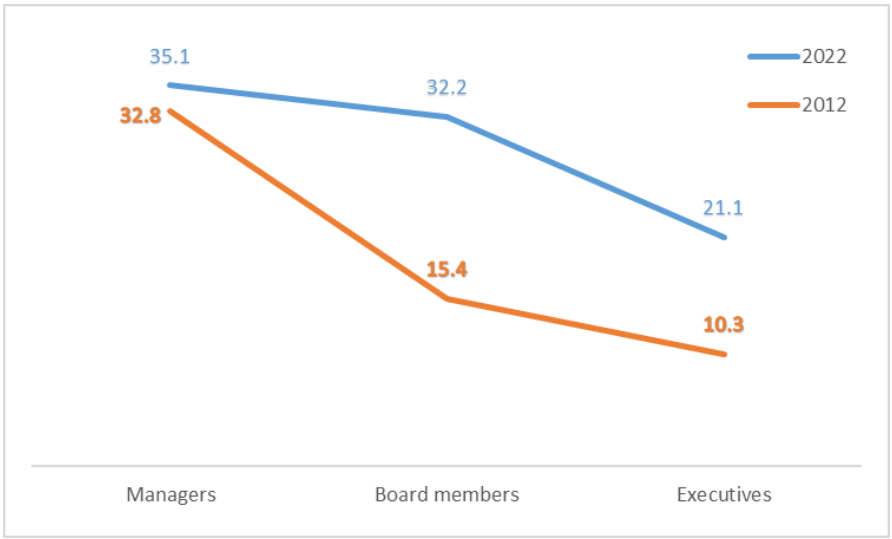
In high-wage economies, men are not more represented in senior management positions than women. Women of other skin colours are particularly disadvantaged. The Scandinavian countries have the best results, and the Far Eastern countries have the worst. The US is in the middle of the list of OECD countries mainly due to a pronounced gender wage gap, the absence of paid leave (the only OECD country), high childcare costs, and the underrepresentation of women in politics. These countries can close the gender gap by addressing three key issues: motherhood, promoting flexible working hours, and childcare.

In addition, efforts are made to achieve a balance between the work and private lives of employees. Also, female leaders have a positive effect on company results and teamwork. Women under 30 show greater flexibility and inclusiveness in the workplace. At this age, more than two-thirds want to become senior leaders, recognize the factors that can lead them to work, and are as ambitious as men (McKinsey, 2022).

In 2022, according to Eurostat data, there were almost 7 million managerial jobs in the EU. Of that number, about 2.5 million women, or 35.1%, are women in managerial positions. Even more unfavourable is the position of women on the boards of public

companies in the EU, only 32.2%, and senior executive managers, only 21.1% (Figure 4). This is a slight increase compared to 2012 (32.8%, 15.4% and 10.3%, respectively).

Figure 4. Managerial positions in the EU, 2022. (percentages)



Source: Author's calculations according to Eurostat database

Above the EU average, the most women in management positions in developed EU countries are in Sweden (42%) and France (40%), while it is below the average in Luxembourg (26%), the Czech Republic (27%), Italy and the Netherlands (both 28 %), Denmark and Germany (both 29%). Among other EU members, Latvia has the highest proportion of women in management positions (45%). It is followed by Poland (43%), Bulgaria (41%), and Estonia (40%). At the opposite end of the scale, Croatia has the fewest female managers (22%), followed by Cyprus (23%) and the Czech Republic (27%). Almost a third (32%) of board members were women at EU level. In 2012, this share was only 15%. Above the EU average, the largest share of women on boards in developed member countries is France (45%), followed by Italy (43%), the Netherlands (42%), and Germany (37%), while it is below the EU average. Only Luxembourg (28%) is above the average. At the opposite end of the scale, Cyprus (10.2%), Estonia (10.3%), and Hungary (10.4%), as well as Bulgaria (15%), Malta (16%), and Romania (18%) have the lowest share. At the EU level, a fifth of senior managers are women (21%), which is an increase of 11 percentage points compared to 2012 (10%). The highest share of women among senior managers of public companies is in Sweden (29%), France, and Finland (both 28%). Below the EU average are Luxembourg (6%), Italy (14%), and the Netherlands and Spain (both 19%). In 2022, women made up 56.8% of the US workforce (FRED, 2023). Of all leadership positions, 40.5% are held by women, but when it comes to executive positions, women held only 29.2% of these roles (BLS, 2023). In Norway, a third of management positions belong to women (managers 33%, board members 43%, CEOs 29%). Iceland ranks highly for this participation: board members 45%, executive positions 31%, and managers 40%.

Greater success, however, is achieved in countries where women are more involved in politics. They have the opportunity to lobby more for the positioning of women in society. Women mainly lead sectors related to gender equality, human rights, and social issues, fewer sectors for the environment, public administration, and education, and far fewer sectors of defence, energy, mining, and transport (IPU, 2023).

Previous analyses of women's participation in the workforce in developed countries have shown positive effects on economic growth and well-being (ILO, 2013; IMF, 2013; OECD, 2012a; World Bank, 2012). It is recognized that the full integration of women into the workforce is the key to future success in terms of optimal labor productivity, the absence of discriminatory gender pay gaps, potentially lower wages, working conditions, job types, and limited working hours. Women are less likely than men to work full-time, to progress less in their careers, and to have lower math skills. There is a significant gender pay gap, as women on average earn less than men (given their experiences). The main reason is the concentration of women in traditionally low-paid sectors (health, social protection, education, administrative jobs). Also, women have fewer businesses than men, even in developed countries (only 25%). Furthermore, women-owned companies are generally companies with less capital, fewer employees, and less turnover compared to men-owned companies, even though girls are ahead in education (OECD, 2012b).

By educating girls, training women, and spreading new skills, it is possible to improve the position of women in the labour market. Thus, the rate of participation of women in the workforce, as an estimate of the active female workforce in the economy, will be higher. The SDG indicators related to the labour market are numerous and cover a wide range of work-related topics, such as employment, economic activity, social protections, labour rights, etc., in a global and national context, along with other issues (ILO, 2018). From the fundamental 60 indicators classified in the 17 SDGs, their further breakdown leads to more than 230 supporting indicators. As the highest international labour institution, the ILO regularly submits data to the UN for 14 SDG indicators, grouped under 5 of the 17 goals. Most indicators related to the labour market are under Goal 8, but some relate to other Goals, such as Goals 1, 5, 9, and 10. According to the data of the ILO database, we can see that the conditions of women have improved throughout the world in the last two decades (SDG indicators are selected in Table 1). In rich countries, almost no registered poor women with daily consumption below US$1.90 PPP. The percentage of women in managerial positions is the highest in high-income countries, except Japan and Luxembourg, 13.2% and 21.9% in 2021. Slightly above the world average are Italy, Germany, and Switzerland (28.6%, 29.2%, and 31.5%, respectively), while Sweden (43%), the USA (41.4%), and Australia (40%) dominate. The unemployment rate of women has decreased in rich countries and is below the world average in 2023. However, there are significant deviations in individual countries. It is the lowest in Japan, Germany, Norway, and New Zealand (2.6%, 3.1%, 3.2%, and 3.3%, respectively), and the highest in Spain (12.9%), Italy (8.1%), Sweden (7.5%), and France (7.3 %). This is not to say that the latter rich economies have not effectively made jobs available to all job seekers, but rather that individuals are taking advantage of unemployment insurance systems and social safety nets, such as in Sweden, France, and Germany. The proportion of NEET women is low in high-income countries for two reasons. The first refers to the absence of institutional

barriers that limit women's participation in the labour market. The second is related to less involvement of women in housework and child-rearing. Japan (3.76%), Iceland (4.64%), Sweden (4.66%) and Norway (5.7%) dominate with low rates, while Italy (20%), USA (11.72%), Great Britain (10.57%) and Canada (10.55%) have high rates.

Table 1. Some of the labour market – related SDGs indicators

1.1.1. Female working poverty rate (living below US$1.90 PPP) (%)		*2019*	*2000*
	WORLD	6.93	26.57
	World: Higher income	0.01	0.03
5.5.2. Proportion of women in managerial positions (%)		*2021*	*2000*
	WORLD	28.2	24.9
	World: Higher income	36.1	29.6
8.5.2 Female unemployment rate, aged 15+ (%)		*2023*	*2013*
	WORLD	5.84	6.14
	World: Higher income	5.19	8.01
8.6.1. Proportion of youth female (aged 15-24 years) not in education, employment or training (%)		*2022*	*2005*
	WORLD	32.07	34
	World: Higher income	11.02	14.08

Source: Author's calculation based on the ILOSDG database

Estimates by the OECD (2012a) indicate the unequivocal contribution of women in business. Full convergence would further increase the annual growth rate of GDP per capita by 0.6 percentage points. And by 2030, it is estimated that the equivalent increase in GDP will reach 12.0%. The contribution of women to the digital economy in these countries is manifold. It is developed through women's access to skills and knowledge, digital entrepreneurship, and business leadership. Thus, the digital economy becomes a safe environment for women. An active approach implies the creation of strategies and initiatives that encourage women's economic and digital empowerment (Marsan and Sey, 2021). In the EU, the new gender equality strategy 2020-2025 (EC, 2020) led to an improvement in the position of women. The key priorities are closing gender gaps in the labor market, achieving equal participation in various economic sectors, and solving gender differences in wages and pensions.

6. Women on the boards, again!

'Women on boards' refers to the issue of gender diversity within the governing bodies, such as corporate boards of directors, of organizations and companies. It highlights the underrepresentation of women in these leadership positions and advocates for increasing the number of women who hold board seats. Previously, corporate boards have been predominantly composed of men. This is now seen as a lack of gender diversity, with potentially several negative implications, including missed prospects, improved performance, underutilization of the talent pool, or the gender pay gap. This has

led many countries to change their management approach and start with quotas, voluntary initiatives, appropriate skills and competencies, mentoring and sponsorship, and flexible work policies.

In 2022, the European Parliament adopted a new directive on gender balance in corporate boards, the so-called Women on Boards Directive. (Directive EU, 2022). The aim is to ensure gender balance on the corporate boards of large companies in the EU. The emphasis is on transparent appointment to board positions, objectively based on individual merit, regardless of gender. By June 30, 2026, companies will have to have 40% underrepresented gender among non-executive directors or 33% among all directors. The idea is that each country must ensure that the penal provisions for non-compliance with the objectives of the Directive are effective, proportionate, appropriate, and non-discriminatory. The directive was initially approved by the European Parliament in 2012 and blocked by the European Council, as some countries opposed imposing conditions on the public business sector, supporting voluntary measures. Countries that supported these measures insisted that they be implemented at the national level. However, experience (EC, 2022b) has shown that the greatest progress was achieved by member countries that introduced strict quotas (7), slightly weaker results by those with soft quotas (10), while member countries without any quotas stagnated (10). In contrast to strict measures and sanctions within the EU, the UK achieves better results thanks to its commitment to voluntary measures, highlighting the company's reputation.

Currently, the percentage of women in director positions in the EU shows an increasing trend towards the target values. However, more time is needed to achieve the goals of adequate gender balance and equal pay. According to data from EIGE (2023), on average, rich European companies currently have 35% female non-executive directors, 23% female executive directors, and around 8% female executive directors. In addition, there are significant differences between Member States.

In recent years, efforts to close the gender gap have paid off. However, women still face challenges in reaching leadership positions (WEF, 2018). It was observed that the higher the management positions, the greater the barriers: prejudices, challenges, and stereotypes.

Despite genuine efforts across Europe and numerous initiatives to achieve gender equality, results fall short of expectations. This process is slow because backward cultural norms and prejudices are not overcome quickly.

Although progress has been slow, gender equality and women's empowerment have never been more prominent in policy agendas and regulations. Further progress in closing the gender gap can only realistically be expected if there is a thorough policy debate, policy development, and implementation of gender equality policies, including the gender pay gap, leave policy, childcare, education, etc.

7. Conclusions and Recommendations

Although women play a significant role in the digital economy, they still face certain challenges and obstacles. Efforts to close the gender gap, promote digital skills, and ensure equal opportunities are essential to realizing women's full potential in the digital era.

Institutional incentives in many countries can be part of promotional measures and policies to encourage women to work and improve their economic opportunities. The fact is that they will not be enough to overcome all gender differences that exist and will undoubtedly influence the strengthening of the environment that enables greater gender equality in the participation of women in the workforce. The promotion of greater gender equality and inclusion of women should include access to quality education, new marketable skills, modern and digitized technologies, finance, and productive jobs. Finally, all of the above implies the establishment of clear regulatory frameworks that should provide a formal structure for removing obstacles to women's employment, career advancement, and inclusion in the digital economy and society.

Supporting women's digital literacy is the starting point for achieving gender equality and empowering women. This can be realized through several aspects: promoting access to digital education, removing barriers, offering digital programs, involving local communities, advocating for policies and women's literacy reforms, financial support, and long-term commitment to women's literacy. Applying these strategies can jointly contribute to breaking the cycle of illiteracy among women and empower them to lead more fulfilling and independent lives.

In this paper, we have shown that women in developed countries are in a more favourable position in the digital economy than in other countries. We confirmed the hypothesis that educated women's inclusion in the economy opens up new opportunities for women. We have also shown a high representation of women in high management positions. We have proven that the biggest problem in developed countries is the so-called glass ceiling or curbing of women's professional ambitions. All this helped us to show recommendations that map the way for future activities.

Such an analysis should be the basis for detailed research on the position of women in the digital society and digital economy. It should promote better status in companies, positions with higher managerial responsibility, better-paid jobs, jobs for business decisions, and parliament.

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