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GENDER EQUALITY PERCEPTION IN INDUSTRIAL ENTERPRISES UNDER THE CONDITIONS OF INDUSTRY 4.0

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Abstract

Provided that the industrial sector is digitized, it presents an opportunity to enhance the safety and quality of work for the workforce, and it should also lead to a positive social impact by reducing the gender gap and promoting equal opportunities for men and women. Gender equality does not mean sameness, but rather equal social status, rights, and obligations, as well as fair and equitable approach. Fundamentals for both prosperity and a sustainable world is established by the above-mentioned. The primary objective of the research described in this article was to examine the impact of Industry 4.0 on gender equality within industrial organizations and how gender equality is perceived by employees of industrial enterprises. The conducted questionnaire survey was focused on the application of the current state of gender equality under the conditions of Industry 4.0 in seven large industrial enterprises in Slovakia. The survey was focused on industrial enterprises. The most important findings of the conducted survey is the facts that women and men generally perceive the issue of gender equality differently, and that the majority of female respondents do not perceive the arrival of Industry 4.0 and the digitization and automation associated with it as a trend with positive impact.

Keywords

Diversity, Gender equality, Equal Inclusion, Industry 4.0, Work Environment

INTRODUCTION

In recent times, there have been three distinct global trends attracting the attention of industrial enterprises [1]. Firstly, there is a strong demand for the use of Industry 4.0 technologies, followed by the necessity of remote work brought about by the pandemic, as well as the broader challenges of promoting equality, social justice and inclusion. These three are highly interdependent, and the pressure to be creative and continuously innovate necessitates that businesses optimize the value of human resources at one's disposal by utilizing them to

their fullest potential. Prosperous companies must acknowledge the significance of heterogeneity in their staff's perspectives, abilities and life encounters while harnessing the complete potential of human multiplicity. This emphasizes the necessity of recruiting a broad range of talents and cultivating the work atmosphere grounded on inclusivity, impartiality, and parity, thereby empowering workers to showcase their true selves.

In our article, we focus on the impact of the current Industrial Revolution on gender equality in medium-sized and large companies, and perception of gender equality by employees of industrial enterprises. Gender equality is a multifaceted concept that goes beyond a mere concept of sameness. It involves creating a society where all individuals have the same level of dignity, respect, and opportunities regardless of their gender. This means that everyone should have access to the same human rights, and be treated equally and fairly in all aspects of life. [2]. The biological differences between men and women are undeniable, but these differences can actually enrich and benefit society [3]. Full gender equality is not a goal that can be achieved in the short or medium term, as the roots of gender inequality run deep within society [4]. The World Economic Forum's 2020 report, "Diversity, Equity, and Inclusion 4.0" [5], stresses the critical necessity for all countries to act promptly towards achieving gender parity. The exclusion of half of the global workforce would prevent society from unlocking the full potential of the Fourth Industrial Revolution, growing economies for increased shared affluence, and fulfilling the Sustainable Development Goals outlined by the United Nations. However, at the current rate of progress, it would take almost a century to achieve parity, which is unacceptable in today's globalized world, particularly for younger generations who hold increasingly progressive views on gender equality. The World Economic Forum projects that workplace gender parity will not be achieved until 2095 [6]. As per the analysis conducted by McKinsey, establishing genuine gender parity in the workforce could potentially contribute more than $28 trillion to the worldwide GDP (gross domestic product), surpassing the combined GDP of China and the United States. Meanwhile, the World Bank estimates that roughly 2.4 billion women of working age lack equivalent economic prospects to men, and 178 nations worldwide maintain legal hindrances that impede women's full involvement in the economy [7].

In Europe, women working in companies earn an average of 16 % less than men, and only 8 % of women hold directorships in the largest companies [8]. Creating equal opportunities for both genders is crucial in both, private and corporate sectors. Though initiatives to encourage gender equality in the corporate world have gained momentum in recent years, taking particular steps in the workplace alone is insufficient, and while gender equality is valuable and advantageous for organizations, executing it is often perceived as challenging and necessitates substantial training. As the significance of gender equality continues to gain traction, investors are now directing their attention towards investing in companies that prioritize and maintain strong gender diversity strategies. This is because such an approach has the potential to positively impact the image and reputation of a corporation, especially when viewed from a stakeholder's perspective [9], [10]. Studies have shown that women tend to perform better than men in time management, cooperation in achieving goals, and not engaging in competitive struggles with one another [11], [12]. Conversely, ambition, assertiveness, and persuasiveness are often viewed as key traits for male managers [13].

To succeed, companies should prioritize addressing gender inequality as a diverse workforce can provide a business advantage and drive profits. Women's role in the global economy has been growing exponentially, making them an increasingly powerful economic force. With their immense potential and capability, women have emerged as one of the most efficient demographic groups in driving social progress and contributing to the expansion of economies, as reported by the World Bank and the World Economic Forum. This is why a diverse workforce is crucial. Women have significant purchasing power, and as the majority

customer base; it is likely that they hold considerable influence over a company's products or services. As a result, industrial companies should acknowledge the importance of having gender-balanced female executives and workers who play a significant role in deciding the direction of the company [14]. Participation of men in the efforts promoting gender equality is essential, particularly those in leadership positions. Given that change typically commences at the top and that most leaders occupying executive positions are men, their involvement in developing and implementing gender equality strategies is of utmost importance. For gender equality initiatives to be successful, male leaders must collaborate with their female counterparts and work in unison as strong advocates for change [15].

Companies can benefit from gender balance in multiple ways [16]. Globally, it enhances financial performance, employee engagement, company culture and trust, and the ability to attract and retain talent. Additionally, it brings companies closer to their customers, strengthens their employer brand, and facilitates better and more innovative decision-making. In today's digital age, gender balance is even more critical [17]. Due to the rapid digital transformation of the economy, almost 90 % of jobs now require digital skills. However, only 17 % of ICT (Information and Communication Technology) workers and students are women, and despite performing better than men in digital literacy, only 36 % of graduates in technology, science, mathematics, and engineering are women.

According to the World Economic Forum's 2022 Global Gender Gap Report[18], which covers 146 countries, it will take about approximately hundred years to achieve full gender parity at the current rate of progress. Although no country has yet achieved complete gender parity, the 10 largest economies have closed 80 % of the gender gap, which is a notable achievement. The report highlights various factors that contribute to the gender gap, such as long-standing structural barriers, socio-economic transformations, technological advances, and economic shocks like pandemics or conflicts. Despite the increasing number of women entering paid work and leadership positions globally, societal expectations, employer policies, and legal frameworks continue to have a significant influence on the educational and career choices of both genders.

MATERIALS AND METHODOLOGY OF RESEARCH

In this section of the article, a comprehensive analysis of the existing status of gender equality in the context of Industry 4.0 is presented. This detailed analysis is based on the findings of a survey conducted with the aim to evaluate the current state of gender equality within large-scale industrial enterprises situated in Slovakia. The survey provides critical insights into the current state of gender equality within the industrial sector, which has been significantly impacted by the ongoing Industry 4.0 revolution. By leveraging the data obtained from the survey, the current status of gender equality within the industry has been analyzed and studied, highlighting the successes and challenges faced by large industrial enterprises with regards to this issue.

Aim of the survey, description of the survey and survey sample, and methodology of data collection

The research described in this article involved a sample of employees of seven prominent industrial enterprises in Slovakia. The primary objective of the study was to get insight into the current state of the gender equality perception in the context of Industry 4.0, as viewed by the employees working in large industrial companies in Slovakia. Data was collected through a questionnaire, which was distributed to employees regardless of their job position, either

physically or electronically. The questionnaire included 14 questions. In total, 84 employees participated in the questionnaire survey, including 40 women (48 %) and 44 men (52 %).

The respondents were then grouped based on their year of birth. Generation Y was the represented by 55.9 %. The post-war Generation represented only 3.6 %, while Generation X and Z represented 32.2 % and 8.3 %, respectively. Given the different generational structures in industrial companies in Slovakia, it is important to approach employees differently. Question 3 focused on the job classification of the respondents. Based on this, the respondents were further divided by gender to ensure the relevance of the survey results. Only 6.8 % of top management males and 2.5 % of top management females participated in the survey, while first-level management comprised 11.4 % males and 7.5 % females. The largest representation came from administration staff, white-collar employees and specialists with 52.3 % of men and 35 % of women. The second largest representation was that of manufacturing employees with 29.5 % of men and 55 % of women.

Attained results

In survey, we asked respondents, *"Are you familiar with gender equality issues in the industrial enterprise where you are employed?"*. Encouragingly, 42.8 % of respondents reported that they were familiar with the issue, while 28.6 % reported being partially familiar. However, 28.6 % of respondents reported that they were not familiar with the issue. Interviews of survey respondents revealed that their familiarity with gender equality issues was often their own initiative, rather than company-inspired initiative.

The question 2: *"Do you feel different treatment in terms of gender equality in the company where you are employed?"*. The responses to that question in the survey are shown in Figure 1[19].

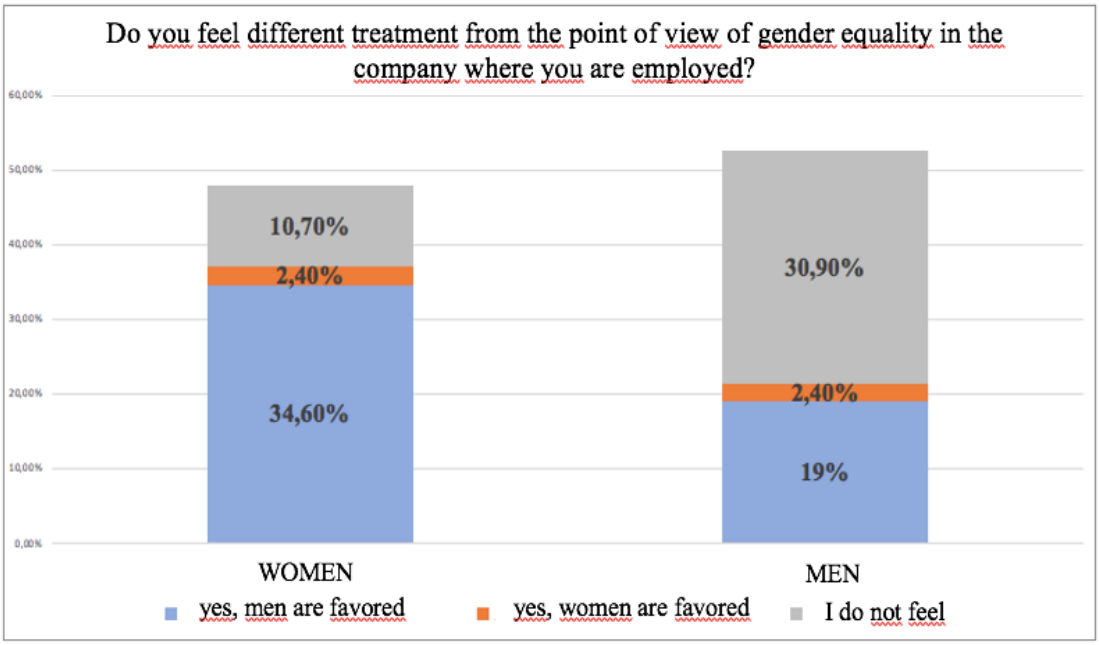


Fig. 1 *Visual representation of the disparity in the treatment of males and females basedon gender (Sabolova, et al, 2022).*

Again, we divided the respondents by gender to ensure the survey results' relevance. Figure 1 indicates that 34.6 % of females and 19 % of males responded "Yes, men are favored." Only

2.4 % of women and 2.4 % of men responded "Yes, women are favored." Up to 10.7 % of women and 30.9 % of men responded "I do not feel different treatment."

The following questions in the questionnaire were open-ended and aimed at eliciting reasons for respondents' answers to the previous question. Those who responded "Yes, women are favored" cited the reasons such as low expectations for women's work or a lack of emphasis on their work even if it is not perfect. In contrast, those who responded "Yes, men are favored" provided a variety of reasons, including preferential treatment for men in hiring, better-paid positions, better salary conditions, more opportunities for career development and a preference for male leadership. Furthermore, men were seen as having better technical skills and not taking parental or maternity leave, which gave them an advantage in their careers. The goal for the future is to ensure that all employees are treated equally in terms of gender, as there is a notable difference in male and female perception, with almost three times as many men as women responding "I do not feel" to the question.

The following question was aimed retrospectively: "*In the last three years, have you noticed changes in production processes towards gender equality in the company you work for?*" The responses to that question in the questionnaire survey are shown in Figure 2 [19].

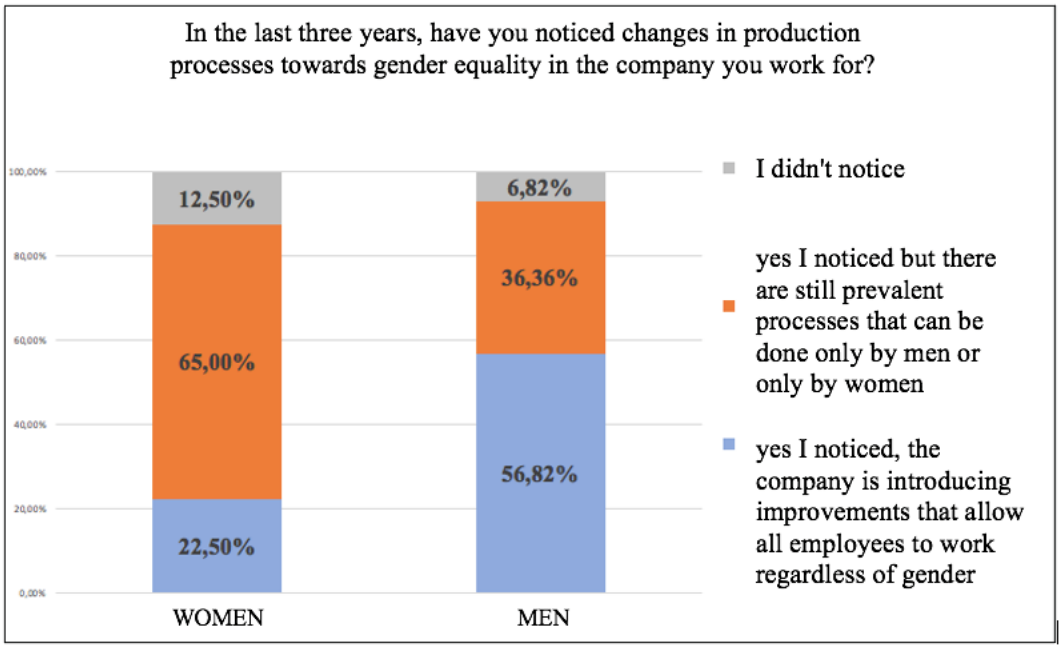


Fig. 2 *Visual representation of the changes related to gender equality perception by both, men and women (Sabolova, et al, 2022)*

Women and men's perception of the changes taking place in society are very different. Women perceive changes in the workplace, but up to 65 % of those surveyed still perceive diversity in the workplace. According to the data, a mere 22.5 % of respondents noted the implementation of improvements in the workplace that enable all employees to work regardless of gender. Shockingly, a mere 12.5 % of individuals surveyed did not see any change in relation to gender equality in their workplace. These statistics highlight the need for continual efforts to improve gender equality in the workplace. Interestingly, the data reveals that 56.82 % of men perceive changes being introduced on the employer's side as improvements without any gender differences. This suggests that men may not be as attuned to the nuances of gender equality issues as their female counterparts. Furthermore, 36.36 % of men do perceive changes in the workplace, but they still believe that certain processes can only be performed either by men or women. This perpetuates gender stereotypes and suggests that there is still work to be done in

breaking down these barriers. In a positive note, only 6.82 % of men surveyed did not perceive any changes in production processes towards gender equality. This is a small but important step in the right direction. However, it is clear that overall, men are less likely to perceive gender equality issues as they are not on the disadvantaged side. This is an important point to consider when implementing policies and procedures that promote gender equality in the workplace. It is crucial to ensure that all employees, regardless of their gender, are aware of the importance of gender equality and actively work towards promoting it.

The next question aimed to assess the current state of affairs, *"Do you think that the current trend of digitization and automation (Industry 4.0) brings positive changes for women in the company where you are employed?"* Figure 3 [19] shows that females have a less positive perception of the impact of Industry 4.0.

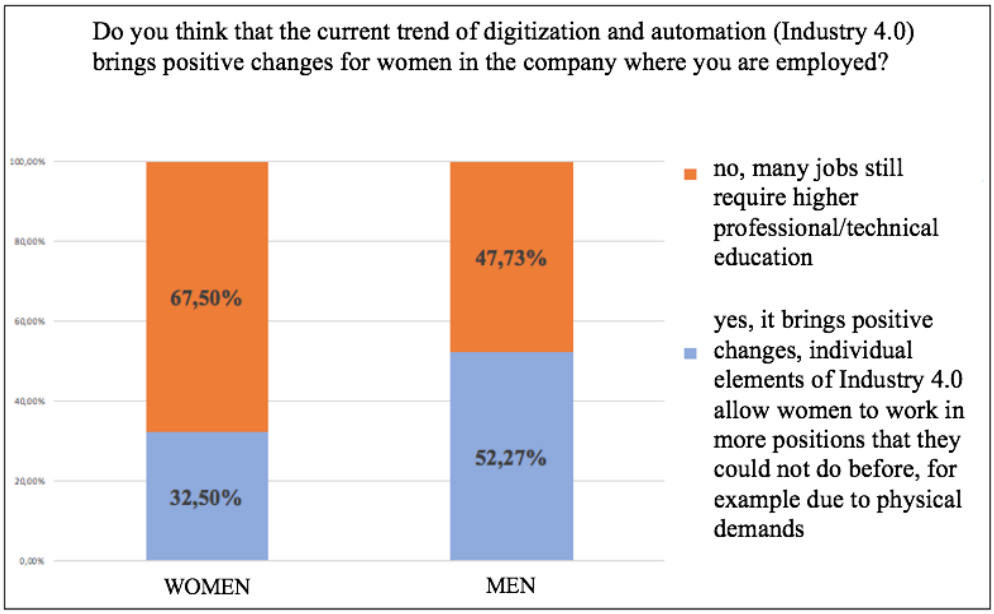


Fig. 3 *Visual representation of the transformations towards gender equality and its advantage perceived by males and females (Sabolova, et al, 2022)*

A significant proportion of women (67.5 %) responded negatively to the query, indicating that a significant number of occupations still necessitate advanced vocational or technical instruction. This reaction was picked by less than half of the male participants (47.73 %). As men have a greater dominance in the field of vocational and technical training, they have an upper hand in adapting to changes in the society. When it comes to the advancements related to gender equality, 32.5 % of female respondents and 52.27 % of male respondents perceive enhancements in the adoption of Industry 4.0 components, which empower women to work in roles that may have been in past considered as physically demanding.

In the conclusion of the survey, respondents were presented a final query: *"In the last three years, in the company you work for, have the job positions linked to digitization and automation arisen?"* The answers are shown in Figure 4 [19].

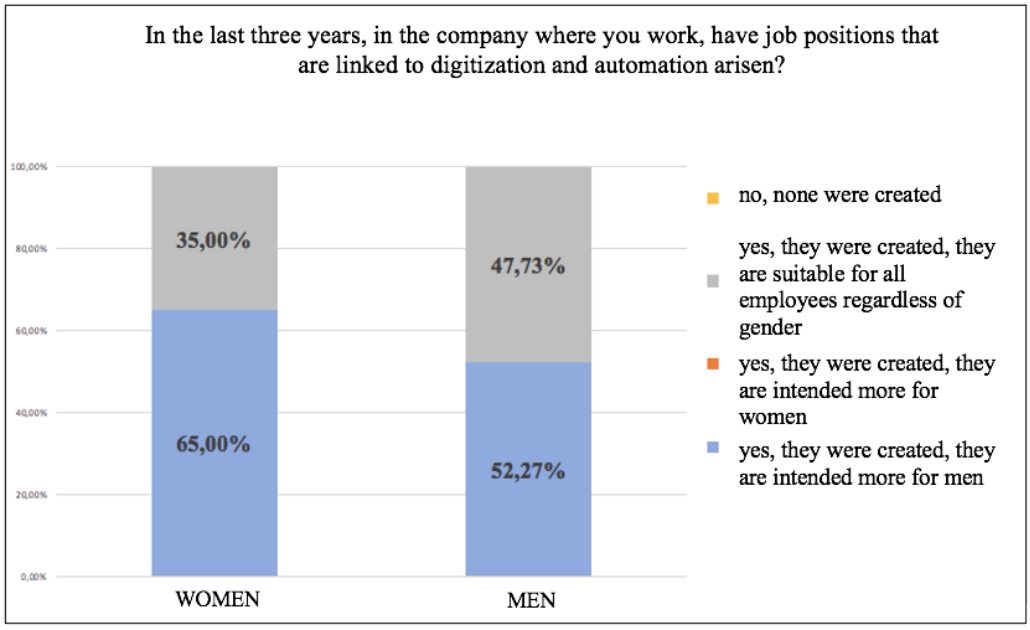


Fig. 4 *Visual representation of the positions created in relation to Industry 4.0, categorized by gender (Sabolova, et al, 2022)*

According to the survey, all participants acknowledged the emergence of new job opportunities with the advent of Industry 4.0. However, the results indicate that more than a half of both, male (52.27 %) and female (65 %) respondents perceive these new positions as being predominantly for men. Only 35 % of female and 47.73 % of male respondents believe that these positions are meant for all employees irrespective of gender. Interestingly, none of the respondents considered those new positions as designed partiularly for women.

DISCUSSION

The differences in the views of women and men highlight the need to take targeted and consistent action to remove all obstacles to gender equality. Unfortunately, many long-standing gender biases, reinforced by history, learned social customs, prejudices and compounded by the ongoing pandemic, continue to impede progress towards gender equality. Moreover, despite the many benefits brought to society by Industry 4.0 and the associated technological advances, there is still a perceived lack of adaptation of this emerging trend on a societal scale. It is essential to focus on adapting this trend while ensuring that it promotes gender equality, diversity and inclusiveness in the workplace. In this way, we can take advantage of technological advances while at the same time promoting a fair and equal society for all[19]. The current scenario reinforces the urgency of putting in place measures that address gender inequalities and pave the way for a more equitable society. This requires a concerted effort and a multi-faceted approach that tackles gender biases at their root cause. By eliminating gender biases and creating more opportunities for women, we can take steps towards the creation of a society that values diversity and promotes equal opportunities for allIn Slovakia, the sectors with the largest number of posted job offers were manufacturing, transport and logistics, and administration, with the biggest boom recorded in IT (Information Technology), digitization, and automation-related areas, according to the "2020 Labor Market Yearbook" [20]. The "Skills Revolution" survey [21] revealed that more employers than ever anticipate automation increasing or retaining headcount, globally increasing from 83 % to 87 % (83 % in Slovakia). Among businesses that pursue automation of some activities in the next two years globally, 24 % will create new jobs, and the ones that implement automation most intensively will create

the most jobs. Such jobs typically require a combination of hard and soft skills, which are often challenging to find in the labor market [22]. The emerging robotization and digitization are evident in the high demand for previously non-existent positions, such as Automation Engineer, Cloud Engineer, Controls System Engineer, Data Scientist, IT Solution Architect, Robotics Engineer, UI and UX Designer, and several other positions are included in the list [23], which are primarily occupied by men due to their technical backgrounds, compared to women.

CONCLUSION

Among the most important findings of the survey is the fact that women and men generally perceive the issue of gender equality differently and that the majority of female respondents do not perceive the advent of Industry 4.0 and the associated digitization and automation as a trend with positive impact. Women and men's perceptions of the changes taking place in society are very different. Women perceive changes happening in the workplace, but up to 65 % of the women surveyed still perceive disparity in the workplace. These statistics point to the need to continue efforts to improve gender equality in the workplace, as women are generally less positive about the impact of Industry 4.0. A significant proportion of women (67.5 %) answered the question negatively, indicating that a significant number of occupations still require advanced vocational or technical training. The results also show that more than a half of male (52.27 %) and female (65 %) respondents perceive the new jobs as predominantly determined for men. Only 35 % of women and 47.73 % of men believe that these positions are open for all employees regardless of gender. Interestingly, none of the respondents think that those new positions are designed particularly for women.

Although certain progress has been made in advancing gender equality, many obstacles still remain thereby impeding social cohesion and undermining the very fabric of society. These obstacles continue to perpetuate gender inequality, while promoting equality between women and men is essential in the development of democratic societies that uphold human rights. Over the years, gender stereotypes have shaped the attitudes and beliefs of individuals, institutions, and even entire societies. Such attitudes have created and reinforced biases that hinder the promotion of gender equality. For this reason, it is necessary to transform the attitudes and beliefs that perpetuate gender inequality. Addressing deep-rooted gender inequalities can be a challenging task that may require a disruptive change to long-accepted societal norms. However, the implementation of gender equality is not only a social issue, but also an economic one as well. Embracing gender equality is not only the right thing to do, but it also provides organizations with the benefits of diversity and inclusion that lead to increased innovation and creativity. For this reason, organizations no longer question the importance of investing in gender equality, but rather seek the ways to achieve it. The task of promoting gender equality is a collective one that requires every individual to take personal responsibility. While we cannot change societal norms overnight, we can start by transforming our own attitudes and beliefs. One of the most crucial and effective methods of promoting gender equality is by encouraging young girls to study technical subjects at primary or secondary school. By doing so, they are exposed to a diverse range of educational and career opportunities that are not restricted to traditionally "female" roles. This helps to break down the barriers that have historically limited the participation of women in technical fields and promotes inclusivity and diversity. By empowering girls with education, society can equip them to pursue any job they desire, and in turn, create a more gender-equal workforce. In conclusion, promoting gender equality between women and men is crucial for the development of democratic societies that uphold human rights. It requires transforming societal attitudes and beliefs, as well as our own attitudes that have been shaped by gender stereotypes over many years. By addressing deep-rooted gender inequalities and empowering girls with education, we can build a future that

aligns with our aspirations and promotes a more gender-equal society. Through collective action and personal responsibility, we can act towards a world where gender equality is the norm, rather than the exception.

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