



**TECHNIUM**  
**SOCIAL SCIENCES JOURNAL**

**Vol. 28, 2022**

**A new decade  
for social changes**

[www.techniumscience.com](http://www.techniumscience.com)

ISSN 2668-7798



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## Women's Leadership via Digital Technology and Entrepreneurship in business and society

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**Abstract.** Gender equality and digital development are inextricably linked. On the other hand digital skills are in increased demand due to the digital skill gap expanding. Most of the tech nation's reports have shown that men still outweigh women by 3 to 1. This study aims to expound the relationship between digital technology and women's leadership in business and society and try to clarify the reasons that women fall short of the demands of the digital sector as it is increasingly growing.

**Keywords.** digital technology, inclusion, entrepreneurship, education, leadership, social equality

### A. Introduction

It is generally accepted that digital technologies have expanded more rapidly than any innovation in our history and according to the United Nations; *it is reaching around 50% of the developing world's population in only two decades and transforming societies*. By improving connectivity, financial inclusion, access to trade public services, technology can be for sure a great equalizer. Thus, digital technology presents an opportunity to narrow gender gaps by enhancing access to welfare services, identification (ID), and financial services and information. On the contrary, some people are not connected and remain cut off from the benefits of this new era and remain further behind. Many of the people left behind are women, the aging, and persons with disabilities or from ethnic or linguistic minorities, indigenous groups, and residents of poor or remote areas [1].

In this article, we are specifically studying the case of women. More specifically, women continue to be discriminated against in the labour market and society at large. The reasons for these discriminations are multiple. The digital divide between the sexes is not just a technological issue; it is an economic, social, and cultural issue that needs to be addressed through multilevel and holistic policies to address gender inequality at its deepest social and cultural roots.

## **B. Equality through the promotion of 21st Century skills in the business sector**

According to human capital theory, the more knowledge, skills, and capabilities a person acquires, the greater the probability of reaching improved performance outcomes. In developing countries, women's entrepreneurship education and training are even more challenging on account of the lack of basic infrastructure and institutions within the community. Notwithstanding, the need for developing entrepreneurship programs for women is eminent in every society as soft skills, such as networking, negotiating as well as managing career transitions and work-life balance issues, can grow women's entrepreneurial activity, attitude and capability [2].

Female entrepreneurship as an alternative pathway to wealth, leadership and economic development, is set back by societal and legal factors as well as personal characteristics, such as low self-efficacy and lack of risk-taking behaviour. Education centred on passing down values, such as sustainability, equity and societal well-being can succeed in changing values and behaviours related to the management and governance of enterprises, institutions and countries. Thus, gender inequality can be seriously hindered [3].

However, gender-related violence, healthcare inequities, pay gap, unpaid work, and uneven funding depict existing structures of gender and especially, women's inequality in society. Discrimination can be reduced through engaging in collective action as well as through changing the human resources practices, starting from the culture of the organization. By changing the beliefs, assumptions, and values held by the founder and leaders of an organisation, the structure and the strategy of the organisation can lead to a positive climate for diversity and inclusion. Thus, diverse groups are included, empowered, and treated fairly [4]. In addition, women's access and training in ICTs can expand their employment opportunities, provide cost-effective health services, and enable access to lifelong learning, skills training, and financial support services to reach the sustainable development goals of the United Nations by 2030, for marginalised groups, such as women [5].

Identified barriers to gender equality in advanced digital skills include four challenges: first stands inaccurate self-perception about women being able to develop high-level digital skills or succeed in STEM studies. Second, information barriers limit women and girls' ability to make informed decisions about their education and their training options. Third, gender stereotyping of STEM as a male domain pushes away many talented young women. Also, the lack of role models to inspire prevent girls and young women from proceeding with STEM careers within schools and colleges and the society as a whole. Therefore, individual, institutional and societal reasons have formed social inequities, calling for technological innovations to expand our means to trace gender inequities as well as to train women in leadership and entrepreneurship [6].

Orser et al. emphasised the importance of ICT adoption in Entrepreneurship Education and Training (EET) Programs centred on women given the lack of empirically-grounded theoretical research on the development of such programs. Such programs aim at enhancing ICT adoption by women to elevate their accessibility to entrepreneurship training and thus, to their economic empowerment. These programs ought to be inclusive and for that reason, they need to take into account persistent gendered occupational norms, perceptions, and roles, which impact levels of engagement in entrepreneurship activities. Therefore, in such programs inclusion sets the grounds for entrepreneurship [7]. In conclusion, women's digital skills, lifelong learning as well as self-management skills can advance their business career and their employment status [8], [9].

### **C. Equality through advanced use of Artificial Intelligence in the society**

The final aim of empowering individual women is to upgrade their social status and their standard of living as a whole. Gender inequality can also be dealt with ethical Artificial Intelligence development practises, incorporating literature from computer science, the social sciences and humanities to perform rigorous testing across the lifecycle of AI systems [10]. Therefore, AI can play a serious role in the combat against gender inequities, through the implementation of rigorous theoretical frameworks and emerging technological innovations, under the common belief that diversity is aspiring. In general, Artificial Intelligence can assist women in [11]:

- 1) Finding and receiving customised information
- 2) Getting interactive communication and assessment tools to reflect on a problematic situation
- 3) Inducing their autonomy
- 4) Detecting patterns of gender differences, such as detecting and warning if inequities exist or making the gender inequality visible.
- 5) Improving their decision making

More specifically, Artificial Intelligence can focus on the instant tracing of women in danger, by analysing local risk zones as well as by using location trackers and emergency detection devices via IoT. Also, chat bots can address tailor-made training in an attempt to build women's personal and professional backgrounds. Furthermore, by analysing data to detect bias in pain diagnosis and by including women with an indigenous background in the data sets, women's healthcare can be seriously improved. Moreover, by tracking and comparing wages or promotion opportunities in companies as well as by growing on women's incentives to educate and work, especially in case of the indigenous women, gender gaps in employability and entrepreneurship, bridged. Nevertheless, household robots can take over much of the workload to save time on everyday chores [11].

Moreover, Artificial Intelligence (AI) applications can serve as a means to address the need for gender equality in the field of Precision Medicine and especially, in the formation of the prediction models of a certain disease, encapsulating sufficient demographic information on every sex and every gender. Therefore, Precision Medicine encompasses unbiased prevention and diagnosis of disease as well as more effective treatment monitoring [12], [13].

Fatehkia et al. used Facebook, big data to trace the gender gap regarding the internet and the mobile phone use in women. Gender gaps in both internet and mobile use can be explained by women's lower levels of literacy, employment and income within low-income countries in combination with lack of confidence in their skills as far as women in industrialised countries are concerned. More specifically, cultural or social stereotypes affect women's self-belief in the use of technology. By tracking relative measures through the Facebook data source, three regression models were developed so as to monitor the digital gender gap [5].

### **D. Equality through the enhancement of women's employment rate in digital technologies**

Future research should target negative stereotypes about men performing domestic tasks on the pretence of being unpaid work. Men need to build their self-efficacy and overcome stereotypical notions and cultural barriers about men being occupied with domestic work. On the other hand, women need to increase their workforce participation in combination with their civil participation [14]. More specifically, more women need to enter the innovative

technologies sector as only 22% of AI professionals globally are female, compared to 78%, who are male. This accounts for a gender gap of 72% yet to close. [15].

According to Corneliussen Hilde (2021), although Norway and the Nordic countries are admitted for a high degree of gender equality, reflected in high grading on the Economic Forum's Global Gender Index, they still endure noteworthy gender segregation in education and the labour market. In the opinion of the author, the rates of the researches attest that the gender imbalance in the field of Information and Communication Technology (ICT'S) seems to be particularly difficult to improve [16].

The low percentage of women in ICT education has been a subject for many researchers over the last decades. Blum et al. (2007), as well as Frieze & Quesenberry (2015), refers that the disproportion between men and women in technology, has *structural and contextual causes* and is definitely unrelated to girls and women's abilities to work with technology. Faulkner (2000) justifies this by indicating that, when women gain access to ICTs, they display the same capabilities as men while working with ICTs. According to most recent studies from Western countries, young people misapprehend the role of ICTs and this misunderstanding bleeds into girls more negatively than boys. This misunderstanding, in combination with the strong connection between ICTs education, gaming and programming, has made ICTs education a more alluring option for boys than for girls. The experts say that this lack of equality has *given rise to stereotypes associating ICT competence more with men than with women* [17-22]. As a result, such gendered stereotypes, give less self-confidence and, on the other hand, make it more difficult for the girls and women to get involved with the field of ICT. Moreover, less girls and women than boys and men imagine their careers in ICT and, this reflects less females' students in the discipline than males [23-25].

However, according to the *Women in Technology and IT*, the global pandemic of 2020 has had a changing impact on different tech sectors, but for Artificial Intelligence (AI), the demand for more experts and professionals in the industry is expected to be ejected. So, as the job market extends, the opportunity for women in AI also broadens. Nowadays, more than ever, it's important to encourage young girls and women to study essential subjects such as Maths and Science, on the condition that they open doors for opportunities to go on to try to attain a career in AI because this is going to be the main key to increasing the number of women in this sector in future [26].

## **E. Discussion**

The choices and the capabilities a woman has in terms of studying technology are many and as a society, we must educate our members that gender should not be an obstacle or criterion for vocational rehabilitation even in an industry that is traditionally considered male-dominated. Therefore, it is necessary to encourage the participation of women in technical professions and high-level jobs, overcoming educational and professional barriers and stereotypes, but also ensuring lifelong digital learning to prevent the exclusion of women from the labour market. It is no coincidence that large and powerful organisations have chosen women at the helm of leadership positions.

Furthermore, it is important to take action to increase the number of women in the fields of science, technology, engineering, and mathematics (STEM), as this increase can improve conditions in other sectors as well as in the economy and society as a whole. At the same time, it is important to recognize the growing importance of education in areas related to information and communication technologies, as well as cross-sectoral, business, digital and non-technical skills (such as empathy, creativity, and complex problem solving) in the digital age. Also,

mindfulness and conscious awareness as two, top-level metacognitive skills set the grounds for both effective use of technologies and successful living [27-28].

On the other hand, online learning and gaming can also bridge the technology gap at an early age as well as technological democratisation can bring serious improvements in the field of cognitive and mental health prevention and rehabilitation [29-31].

Also, the presence of women in computer programming jobs can help overcome gender bias which may lurk in the design of a particular technology. Moreover, women entrepreneurship must be supported by removing barriers to women's access to self-employment, as well as by improving access to and quality of social protection measures [32-35].

In addition, it is important to strengthen the participation of women with disabilities in the labour market by implementing the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) [36].

Notwithstanding, by bridging the aforementioned gap, a serious change towards innovation and sustainable development is accomplished. As a conclusion, *addressing the gender job gap in AI is the first step to ensuring that our technology works for all members of the society* [37].

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