

## Role of Women in Socio-Economic Development of India : Technology and Innovation for Women's Empowerment

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### Abstract

*Technology has shaped people's lifestyles globally. Today, the majority of the world's population seeks help through technology as a portal to learning with the wide variety of learning materials available. Women in both developed and developing countries can access learning through technology, yet the scholarly community does not have an up-to-date collective view of how technology is being used to provide learning materials to empower women around the world. Therefore, this systematic review included an aggregated and qualitative synthesis to investigate extant empirical work over five years, 2017-2021. Following a rigorous PRISMA selection process, 40 articles were included in the final analysis from 80 countries. The findings reveal that the majority (60%) of studies took place in Sub-Saharan Africa. From the grounded coding, five industries emerged as areas providing empowerment through the learning materials: health, agriculture, environment, entrepreneurship, and communication. Women were empowered by learning in three main areas: health, communication, and entrepreneurship. This study provides information for funders, policymakers, advocates, and women. This study revealed areas in need of future research, including additional systematic reviews to explore grey literature not published in scholarly outlets and academic publications published in non-English language journals.*

### Introduction

**T**echnology has empowered women to make choices and shape their own lives in a move toward gender equality (Grabe, 2011). In many high-income countries, women are more self-reliant than their counterparts in rural and low-income countries with a lack of access to resources and cultural gender barriers (Dhanamalar et al., 2020). Technology now enables access to learning resources and provides a way to circumvent gender barriers (Rajahonka & Kajjam, 2019). Scholars postulate that technology is the driver of women's empowerment through those learning materials (Bhat, 2019). While there appear to be studies showing how women can be empowered with technology, it is unclear to what extent women were empowered across geographical or industrial areas, what types of technology were used, and the benefits they received. Therefore, the purpose of this study is to conduct a systematic review to gain a collective view of how technology is being used to empower women.

### Women Empowerment

Women's empowerment plays a critical role in the development of a society (Dhanamalar et al., 2020), as women can make choices and become active members of a community, and develop capacity. The term Women's empowerment emerged in the academic literature in the 1970s with a trend in gender equality (Freire, 1970; Grabe, 2011). In recent years, women's empowerment has been described as a goal in seeking gender equality and equity (Mackey & Petrucka, 2021). In studies across the last decade, it has been used as a term to describe women as having choice or control over their options (Chew et al., 2015; Lindsay et al., 2013; Vivakaran & Maraimalai, 2017). In this study, women's empowerment is when women gain agency, resources, and/or capabilities to make decisions on matters of importance (Kabeer, 1999; Mosedale, 2005) through learning gained from access to information via technology. As women have opportunities with technology, they can gain access to information, learn, and make decisions that overcome social, political, and economic obstacles (Cummings & O'Neil, 2015). In low-income countries, women's equity issues are more prevalent.

Women are often deprived of access to educational health and financial systems due to societal norms, religion, and attitudes, preventing access to the formal labor market (Lechman & Paradowski, 2021). Nonetheless, in the World Development Indicators database (International Telecommunications Union, 2020), data reveal that since the 1990s, female labour-force participation rates have been slightly increasing. Between 1990 and 2019, female (15+) labor participation has increased by 1.4pp, 10.5pp, and 2.8pp in various regions worldwide.

### Women and Technology

Technology has played a part in increasing women's learning accessibility and choice in the economic realm and other aspects of life. Studies have highlighted that women's learning through access to finance, mobile money, and inclusive aspects of finance or microfinance, and digital-based health, agriculture have promoted higher female engagement in the formal economy and production and service sectors (Çetin et al., 2020). Technology has advanced women's engagement in the scientific field and provided political and institutional empowerment (Asongu & Odhiambo, 2020). Technology is the catalyst for empowerment as it provides different ways of accomplishing tasks at any time and location. The activities can be entirely online without leaving home if needed. Technology also offers opportunities to enhance the learning of all possible subjects, with a wealth of instructors providing video and text directions in multiple languages. Throughout this study, "technology" refers to digital technologies needing a source of power, such as mobile devices, laptops, and desktop computers (Crompton, 2014), and the Internet, applications, and programs used on those technologies.

As we all know that gender equality means equal rights and equal access to resources and opportunities for both women and men, digitization has helped people to upskill in their own fields. It has given them a chance to work remotely, take care of their household and yet excel in their fields. In today's times, technology has played a pivotal role in bringing women to par with men. With greater advancements and access to technology, women are becoming more aware of digital platforms to educate

and upskill themselves. Today they can connect with anyone in the world through digital platforms and be a part of online knowledge-sharing sessions.

Technology and innovation offer numerous opportunities to empower women economically and socially. Here are several ways in which these tools can be leveraged:

1. Access to Education and Training: Technology enables access to online courses and educational resources, allowing women to acquire new skills and knowledge regardless of their geographical location or personal circumstances. Online platforms can offer courses in various fields, from technology to entrepreneurship, enabling women to enhance their qualifications and improve their economic prospects.

2. Remote Work Opportunities: Technology facilitates remote work arrangements, which can benefit women who face challenges accessing traditional employment opportunities due to caregiving responsibilities or societal barriers. Remote work allows women to participate in the workforce while balancing other commitments, providing them with economic independence and flexibility.

3. Entrepreneurship and E-Commerce: Technology lowers the barriers to entry for entrepreneurship, enabling women to start businesses with minimal capital and reach global markets through e-commerce platforms. Digital marketplaces allow women to sell products and services online, bypassing traditional distribution channels and overcoming geographical constraints. Additionally, technology provides tools for financial management, marketing, and networking, supporting women-owned businesses in scaling and sustaining their ventures.

4. Financial Inclusion: Innovative financial technologies, such as mobile banking and digital payments, increase financial inclusion by providing women with access to banking services, credit, and savings accounts. Digital financial platforms enable women to manage their finances securely, invest in their futures, and build financial resilience, ultimately contributing to their economic empowerment and autonomy.

5. Healthcare Access: Technology improves access to healthcare services and information, particularly for women in underserved communities. Telemedicine platforms offer remote consultations and health



monitoring, reducing barriers to healthcare access and enabling women to prioritize their well-being.

6. Safety and Security: Technology can enhance women's safety and security by providing tools for communication, emergency response, and self-defense. Mobile applications and wearable devices enable women to alert authorities or contacts in case of danger, access resources for survivors of violence, and navigate unsafe environments more confidently. Additionally, online platforms and social networks facilitate community-building and solidarity among women, creating spaces for support, advocacy, and activism.

### Conclusion

In conclusion, technology and innovation hold tremendous potential to empower women economically and socially, contributing to more inclusive and equitable societies. By leveraging various types of technology, from mobile and internet platforms to fintech, edtech, healthtech, and agtech solutions, women can access education, employment opportunities, financial services, healthcare, and support networks like never before.

These technologies break down traditional barriers to women's empowerment by providing access to resources, information, and opportunities regardless of geographic location or socio-economic status. They enable women to start businesses, pursue education and skills development, manage their finances independently, access healthcare services, and enhance their personal safety and security.

However, realizing the full potential of technology for women's empowerment requires concerted efforts to address digital literacy gaps, ensure access to technology infrastructure, and mitigate risks such as online harassment and data privacy concerns. It also necessitates the involvement of policymakers, organizations, and communities to create an enabling environment that fosters women's participation and leadership in the digital economy.

Ultimately, by harnessing the power of technology and innovation, societies can unlock the untapped potential of women, driving economic growth, social progress, and gender equality. Empowering women economically and socially not only benefits women themselves but also strengthens families, communities, and economies as a whole,

leading to a more prosperous and sustainable future for all.

### References

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