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Digital Literacy and Women's Empowerment: Bridging the Gender Gap in Technology for Achieving Sustainable Development Goals (SDGs)

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Abstract

Digital literacy has been increasingly acknowledged as crucial in empowering women and realizing the SDGs (UNESCO, 2018). This research article investigates how digital literacies relate to women's empowerment particularly looking at ways improved digital skills might narrow technology's gender gaps. It utilizes thorough interviews and case studies to identify various obstacles that women encounter such as social-cultural limitations, economic restrictions, and lack of infrastructure, which stops them from accessing digital technologies. Findings reveal that digital literacy significantly impacts women's economic opportunities, educational attainment, access to health, and political participation, thereby contributing to Sustainable Development Goals 1 (no poverty), 4 (quality education), 5 (gender equality), 8 (decent work and economic growth) and 9 (industry, innovation and infrastructure) (ITU, 2018; Mansoor & Bhat, 2021; United Nations, 2020). Digital literacy has been increasingly acknowledged as crucial in empowering women and realizing the SDGs. This research article investigates how digital literacies relate to women's empowerment particularly looking at ways improved digital skills might narrow technology's gender gaps. It utilizes thorough interviews and case studies to identify various obstacles that women encounter such as social-cultural limitations economic restrictions and lack of infrastructure, which stops them from accessing digital technologies.

Keywords: Digital Literacy, Women's Empowerment, Gender Gap, Sustainable Development Goals (SDGs), Economic Opportunities.

Introduction

Digital literacy has emerged as a cornerstone in the quest for gender equality and the empowerment of women, especially in the context of attaining Sustainable improvement desires (SDGs) (UNESCO, 2018). As technology becomes necessary for diverse components of existence, the capability to navigate the digital environment has become crucial (ITU, 2018). Digital literacy encompasses a range of skills, which include the ability to get entry to, examine, create, and communicate information, and the usage of digital technologies (Jenkins et al., 2009). This set of skills is crucial not only for personal and professional growth but also for fostering inclusive and sustainable development. The gender gap in technology is a significant barrier to women's empowerment. Globally, women are less likely to have access to internet and digital technologies as compared to men (Pew Research Center, 2018).

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According to the International Telecommunication Union (ITU, 2020). Women are 23% less likely than men to use the internet (GSMA, 2015). This disparity is even more pronounced in low and middle-income countries, in which socio-cultural norms, economic constraints, and lack of infrastructure further impede women's access to digital tools (GSMA, 2020). The effects of this digital divide go a long way in achieving and impacting women's schooling, employment possibilities, health outcomes, and political participation. (World Economic Forum, 2021).

Empowering women via digital literacy is a multifaceted endeavor that aligns with numerous SDGs. For instance, enhancing women's virtual capabilities can decorate their monetary possibilities (SDG 1: No Poverty), facilitate admission to fine training (SDG four: first-class schooling), sell gender equality (SDG 5: Gender Equality), aid first-rate paintings and financial increase (SDG 8: decent paintings and financial growth), and foster innovation and infrastructure improvement (SDG nine: industry, Innovation, and Infrastructure) (United Nations, 2020. via bridging the digital gender gap, societies can unlock the potential of women as active contributors to economic and social improvement (OECD, 2019). This study article investigates the relationship between digital literacy and women's empowerment (Mahmood, 2019), with a specific focus on how enhanced digital skills can narrow the technology gender gap. (Mansoor & Bhat, 2021). Utilizing a qualitative research approach that includes in-depth interviews and case studies, this study aims to identify the various barriers women encounter in accessing digital technology (African Union, (2019). These obstacles include socio-cultural limitations, economic regulations, and inadequate infrastructure. Using know-how in those demanding situations, the research seeks to provide insights into how digital literacy initiatives may be designed and implemented to successfully empower women. (GSMA, 2020).

The findings of this study show that digital literacy significantly impacts women's financial opportunities, educational attainment, access to health information, and political participation. For instance, women with digital literacy skills are better equipped to seek and secure employment, manage their finances, access online educational resources, and engage in political processes (European Commission, 2020). These skills not only enhance their empowerment but also contribute to broader goals such as poverty reduction, improved health outcomes, and sustainable economic growth. Moreover, the study emphasizes the importance of inclusive policies and community-based programs in promoting digital literacy among women. Successful interventions often involve partnerships between government, non-governmental organizations (NGOs), and the private sector. For example, initiatives like the "Girls Who Code" program and the "TechNeedsGirls" project have shown significant success in equipping young women with essential digital skills. These programs highlight the need for context-specific approaches that consider cultural and socio-economic factors when designing digital literacy initiatives. In conclusion, digital literacy is a powerful tool for advancing women's empowerment and achieving sustainable development. This research contributes to the growing body of knowledge on digital literacy and women's empowerment, providing valuable insights for policymakers, educators, and community

leaders committed to bridging the digital gender gap and fostering inclusive development (Digital Sakhi. (2020).

Literature Review

Digital literacy has emerged as an important ability set inside the contemporary international, particularly in the context of advancing gender equality and girls' empowerment. The intersection of virtual literacy and gender is important for addressing the disparities confronting girls in having access to and the usage of the era. This literature assessment explores the existing studies on digital literacy, girls' empowerment, and their collective impact on achieving Sustainable improvement goals (SDGs), particularly goal 5 (Gender Equality) and goal four (pleasant education).

Virtual Literacy Definitions and Importance

Digital literacy encompasses various abilities important for individuals to efficiently navigate digital environments, together with the ability to apply era to access, examine, and create information (Jenkins et al., 2009). consistent with the Worldwide Telecommunication Union (ITU, 2018), digital literacy not best includes technical abilities but also includes important thinking, statistics management, and online communication (ITU, 2020). Because the virtual landscape continues to evolve, the significance of virtual literacy has into increasingly glaring, especially for marginalized groups, which includes women who regularly face systemic boundaries to era get entry to. (UNESCO, 2020).

The Gender Gap in Digital Literacy

The gender digital divide remains an urgent problem, with women disproportionately lacking admission to virtual technologies and the net. In keeping with the World Economic Forum (2020) women globally are 23% less likely to have access to the internet, a gap that exacerbates existing inequalities in education, employment, and social participation. GSMA (2020) indicates that women in low- and center-profit international locations face extensive obstacles to digital literacy, inclusive of socio-cultural norms, loss of schooling possibilities, and financial constraints. These barriers prevent women’s ability to leverage generation for personal and professional growth. (Kabeer, 2020).

Women's Empowerment through Digital Literacy

Digital literacy is recognized as a powerful tool for women's empowerment, presenting them with the skills and knowledge necessary to participate in society. Studies have proven that enhancing women's digital literacy can lead to expanded employment opportunities, improved financial independence, and more participation in decision-making approaches (Mansoor & Bhat, 2021). for example, studies via the United Countries Development Programme (UNDP, 2019) highlight that virtual skills allow women to interact in online entrepreneurship, enhancing their financial empowerment and contributing to poverty reduction.

Bridging the Gender Gap for Sustainable Development

The connection between digital literacy and sustainable development is vital, mainly in the context of the SDGs. Empowering women through digital literacy not only advances gender equality but also contributes to broader societal progress (GSMA, 2019). A report by the United Nations (2020) emphasizes that promoting digital literacy amongst women can enhance their participation in the workforce, increase access to education, and improve health outcomes (Mckinsey, 2019). This multifaceted impact aligns with several SDGs, such as Goal 1 (No Poverty), goal 4 (Quality Education), and Goal 8 (Decent Work and Economic Growth).

Best Practices and Interventions

Diverse initiatives have been carried out globally to bridge the gender digital divide and enhance women's digital literacy. Programs such as the "Girls Who Code" initiative and the "TechNeedsGirls" project have tested success in promoting digital abilities amongst young women. Research by Kabeer (2020). The research by Kabeer (2020), highlights the significance of context-particular interventions that consider cultural and socio-economic factors when designing digital literacy programs for women. Furthermore, partnerships between governments, NGOs, and the private sector are critical for developing sustainable and scalable solutions. (UNESCO 2020).

Case Studies

Digital Sakhi Program (India): This initiative trains women in digital and financial literacy, empowering them to become community leaders and drive local development (India Digital Sakhi Program, 2021). Participants reported increased confidence in using technology, leading to improved economic opportunities. (Kabeer, 2020).

Digital Literacy Programme (Kenya): By integrating digital literacy into the education system, this program aims to equip students, especially girls, with essential digital skills from an early age. The program has resulted in increased enrollment rates for girls in technology-related fields. (UNESCO, 2020; Kenya Digital Literacy Program, 2018).

Benazir Income Support Programme (Pakistan): This program uses digital tools to deliver financial aid to women, enhancing their financial independence and digital skills. Women beneficiaries reported improved access to information and resources, enabling them to make informed decisions. (UNDP, 2019; Pakistan Benazir Income Support Program, 2019).

Research Methodology

This qualitative research utilizes a mix of in-depth interviews and case studies to investigate how digital literacy influences women's empowerment. Participants were chosen deliberately to encompass women from various socio-economic backgrounds, policymakers, and representatives from non-governmental organizations (NGOs) and private sector entities

engaged in digital literacy programs. Data collection relied on semi-structured interviews, allowing participants to share detailed accounts of their experiences and viewpoints. Thematic analysis was used to examine the data, focusing on identifying significant themes and patterns related to the barriers, benefits, and outcomes of digital literacy for women. This methodology enabled the researchers to explore the intricate connections between digital literacy and women's empowerment, providing a comprehensive perspective on the challenges and opportunities in achieving gender equality in the digital age (OECD, 2021). For this qualitative research, data were gathered through semi-structured interviews and case studies.

Structured Interviews

To gather perceptivity, interviews have been carried out with ladies from different social backgrounds, policymakers, and representatives from non-governmental institutions (NGOs) and personal zone realities. The interview system used a based companion with open-concluded inquiries to encourage performers to share their particular gest and footwear overtly. These interviews occurred in a relaxed environment, both in character or through videotape conferencing, to foster sincere and open conversation. Every interview lasted approximately 30 to 60 twinkles, taking into account a radical discussion of performers' views and guests concerning digital information and women's empowerment.

Case Studies

Particular digital literacy programs and initiatives were decided on for case studies, highlighting the successful examples that have empowered women. To gain complete knowledge of the impact of those tasks, relevant files, reviews, and opinions were carefully examined alongside the interview information. This comprehensive approach allowed for deep and certain expertise on the connection between digital literacy and women's empowerment, helping to observe big insights and valuable information.

Impact on Sustainable Development Goals

This addition of digital knowledge into women’s lives has profound implications for achieving multiple sustainable development goals (SDGs). Digital literacy not only empowers women by providing them with essential skills but also plays an important role in the development of comprehensive and sustainable development throughout various domains (UN Women, 2018).

SDG 1 (No Poverty): Digital literacy complements women’s economic prospects by providing them access to online job markets and entrepreneurial opportunities. Women equipped with digital skills can manage their finances more efficiently and access sources to start and develop new businesses. This capability contributes substantially to poverty relief. As an example, women can participate in e-commerce, access microfinance opportunities, and utilize online platforms to sell products and different services, thereby generating income and achieving economic independence. (UN Women, 2020).

SDG 4 (Quality Education): Digital literacy empowers women to access a wide range of display of educational resources and engage in online learning. This allows women to pursue higher education and participate in lifelong learning opportunities, enhancing their personal and professional improvement. Moreover, women with digital abilities can support their children's education by utilizing online educational tools and resources, thereby nurturing a culture of learning within families and communities. This access to quality education helps break the cycle of poverty and promotes social mobility. (UNESCO, 2020).

SDG 5 (Gender Equality): Bridging the digital gender gap is necessary for achieving gender equality. Digital literacy empowers women to participate completely in financial, social, and political existence (Deloitte, 2020). Women with digital skills can advocate for their rights, engage in the decision-making process, and access information that promotes their well-being and independence (UN Women, 2019). Digital platforms provide women with a voice to raise awareness about gender issues, connect with support networks, and contribute to policy dialogue. This increased participation in various domains of life is critical for advancing gender equality. (UNDP, 2019).

SDG 8 (Decent Work and Profitable Growth): Digital literacy equips women with the abilities needed for modern workplaces, fostering economic growth and reducing gender disparities in employment. Women with digital skills are more likely to secure better-paying jobs (World Economic Forum, 2018), contribute to the economy, and drive innovation. They can leverage technology to enhance productivity, access remote work opportunities, and participate in the gig economy. By improving women's employability and economic participation, digital literacy supports the goal of decent work for all and sustainable economic growth. (World Economic Forum, 2021).

SDG 9 (Assiduity, Innovation, and Structure): Comprehensive digital programs and infrastructure advancements are crucial for ensuring that women benefit from technological progress. Governments and organizations must invest in creating a robust digital ecosystem that supports women's participation in the digital economy (World Bank, 2019). This includes developing digital infrastructure, providing affordable internet access, and implementing policies that promote digital inclusion (GSMA, 2021). By fostering an environment where women can thrive, innovation and creativity can flourish, contributing to overall societal progress. (International Telecommunication Union, 2020).

In precis, digital literacy is a key driver for accomplishing more than one SDG by empowering women and promoting inclusive development (International Telecommunications Union, 2019). Addressing the digital gender gap through targeted interventions and inclusive policies can lead to significant improvements in poverty reduction, quality education, gender equality, decent work, and industrial innovation (World Economic Forum, 2019). By prioritizing digital literacy for women, stakeholders can unlock their potential as active contributors to sustainable development and create a more equitable and prosperous future.

Discussion

The results of this study underscore the critical significance of digital literacy in promoting women's empowerment and furthering various Sustainable development goals (SDGs). Women with digital literacy skills are better able to access more enhanced economic opportunities, educational resources, and healthcare information, and actively participate in the political process. This empowerment not only benefits individual women but also fosters broader societal and economic development.

Economic Opportunities: Women with digital literacy can tap into online job markets, launch their businesses, and make use of financial services that were previously inaccessible. Their capability to navigate digital platforms enhances their job prospects and earning potential, thereby contributing to SDG 1 (No Poverty) and SDG 8 (Decent Work and Economic Growth). For instance, women can engage in freelance work, participate in the gig economy, and make use of online marketplaces to sell goods and services. This economic empowerment leads to increased financial independence and stability, reducing poverty levels and promoting inclusive economic growth.

Educational Resources: Access to online educational resources and courses allows women to engage in lifelong learning and skill enhancement, which aligns with SDG 4 (Quality Education). This not only fosters their personal development but also empowers them to better support their families and communities. Women can pursue higher education levels, acquire new skills, and stay updated with industry trends, thereby enhancing their career advancement prospects. Moreover, digital literacy enables women to support their children's education by accessing online learning materials and resources, creating a positive impact on future generations.

Healthcare Information: Digital literacy empowers women to access vital health information and services, leading to improved health outcomes for themselves and their families. By leveraging tele telehealth services and online health resources, women can make informed health decisions, thereby assisting SDG 3 (Good Health and Well Being). For example, women can seek medical advice through teleconsultation, access information on preventive healthcare, and manage chronic conditions more effectively. This access to health information contributes to better health awareness, timely medical interventions, and overall well-being.

Political Participation: With improved digital literacy, women can engage more vigorously in political discussions and advocacy efforts. They can participate in online campaigns, learn about their rights, and mobilize support for gender equality initiatives, aligning with SDG 5 (Gender Equality). Digital platforms provide women with the tools to share their experiences, participate in the policy-making process, and hold governments accountable. This extended political participation empowers women to influence decisions that affect their lives and communities, promoting gender-inclusive governance and social justice.

Addressing Barriers to Digital Literacy: To realize these benefits, it is very important to deal with the limitations of Digital literacy. Socio-cultural norms, economic limitations, and

inadequate infrastructure must be confronted through collaborative efforts from all stakeholders. Policymakers should develop comprehensive digital policies that ensure equal access for women. Educators should integrate digital literacy training into their prospectuses, and community leaders must create supportive environments that can fight gender stereotypes (Brookings, 2020).

Collaborative Efforts for Sustainable Impact: By working together across various sectors, stakeholders can create targeted interventions that can enhance digital literacy among women, contribute to their empowerment, and foster progress towards the sustainable development goals (SDGs). Public-private partnerships, community-based programs, and awareness campaigns can play a significant role in promoting digital literacy and bridging the gender gap in technology (Broadband Commission, 2017). These collective efforts can create sustainable and scalable solutions that can empower women and force complete improvement. Nevertheless, this research highlights, that to realize these advantages, it is important to address the barriers of digital literacy. Socio-cultural norms, economic limitations, and insufficient infrastructure must be challenged through combined efforts from all stakeholders. Policymakers should develop comprehensive digital policies that can guarantee equal access to technology for women. Educators must integrate digital literacy training into their curricula, and community leaders should create supportive environments that can combat gender stereotypes. By working together across various sectors, stakeholders can create focused interventions that enhance digital literacy among women, which will contribute to their empowerment and foster progress toward the Sustainable Development Goals (SDGs). Moving forward requires a shared commitment to closing the digital gap and ensuring that all women can leverage the transformative benefits of digital literacy (Broadband Commission, 2019).

Recommendations

Based on the research outcomes, several actionable recommendations are suggested to improve digital literacy among women and enhance their empowerment:

Inclusive Digital Policies

Governments must prioritize the improvement and implementation of guidelines that can facilitate equal access to digital tools and education for women. This includes providing affordable digital devices and integrating digital literacy training into the national educational system. Furthermore, policies should address the removal of legal and regulatory barriers that limit women’s participation in the digital economy. For instance, governments can offer tax incentives to companies that support women's digital literacy projects and implement policies that can promote gender equality within the tech industry (United Nations Development Programme. (2018).

Community-Centric Initiatives

Community-centric initiatives play a vital role in promoting digital literacy among women. These programs are designed to address the unique needs and challenges faced by women in their local contexts. By focusing on community-based solutions, these initiatives ensure that

digital literacy training is accessible, relevant, and impactful. One example is the "Tech for Women" application, which offers digital skill workshops in local community centers. These workshops are tailored to the participant's skill levels and are conducted in a supportive and inclusive environment. Another successful initiative is the "Digital Mothers" project, which provides training and resources to mothers, helping them acquire the skills needed to support their children's education and enhance their personal employment opportunities. By involving community members and local leaders, these initiatives foster a sense of ownership and sustainability. They not only empower women with digital skills but also create a ripple effect, benefiting families and communities as a whole. The success of these community-centric initiatives highlights the importance of culturally sensitive and context-specific approaches in bridging the digital gender gap and promoting women's empowerment.

Collaborative Efforts between Public and Private Sectors

Collaborative efforts among public and personal sectors are vital for promoting digital literacy and empowering women. These partnerships leverage the strengths and resources of both sectors to create impactful and sustainable applications. For example, companies can provide funding and policy support, while non-profit organizations offer technological expertise and innovative solutions. A notable instance of such collaboration is the "Digital Empowerment for Women" initiative, where a tech company partnered with local governments to offer free digital literacy courses and access to technology for women in underserved areas. This program equips women who are not only with essential digital skills but also helps them gain confidence and improve their job prospects. Another successful collaboration is the "Women in Tech" mentorship program, which connects women with industry experts. This initiative, supported by both government and private entities, provides training, networking opportunities, and professional guidance, supporting women to navigate the tech industry and achieve their career goals. These collaborative efforts demonstrate the power of partnerships in addressing complex social issues. By working together, the public and private sectors can create complete and effective solutions that can promote digital literacy and women's empowerment on a larger scale.

Awareness Campaigns

Changing societal attitudes towards women in technology is critical for fostering digital literacy. Awareness campaigns that highlight the stories of successful women role models in tech and emphasize the importance of digital skills for economic and personal development are essential (Harvard Business Review. (2020). These campaigns should aim to challenge gender stereotypes and promote the value of digital literacy for all. Regarding men and boys, these campaigns can further promote shared decision-making and support for gender equality, creating a more inclusive environment that embraces women's participation in the digital world.

Monitoring and Evaluation

Effective Digital literacy initiatives must have strong monitoring and evaluation (M&E) frameworks to assess their effectiveness. Regular assessments can help identify challenges,

measure outputs and outcomes, and inform the best practices for program delivery in the future. Stakeholders should work together to develop indicators for progress monitoring and accountability towards gender-equal digital literacy (Accenture. (2019). These indicators should track both quantitative and qualitative aspects, including the number of women trained, their subsequent use of digital skills, and the broader impact on their economic and social empowerment. By implementing these recommendations, stakeholders can create an enabling environment for women's digital literacy. This, in turn, will lead to their empowerment and the achievement of the Sustainable improvement desires (SDGs). The collective effort to promote digital literacy among women will not only enhance their skills but also contribute to the wider aim of sustainable and inclusive development.

Conclusion

Digital literacy is a catalytic driver of women's empowerment and an essential enabler of many Sustainable development goals (SDGs). Empowering women with digital literacy open up numerous opportunities, contributing significantly to their economic inclusion and overall advancement (UNDP, 2017). Despite persistent gender gaps in technology access and digital skills, the urgency to engage all stakeholders, policymakers, educators, community leaders, and private sector organizations is clear. Addressing this gap requires digital literacy programs tailored to the specific needs and constraints faced by women. These programs must need priority, with practical models implemented to ensure their effectiveness. For example, inclusive digital policies, community-centric initiatives, and public-private partnerships can offer the necessary support. Advocacy at the societal level to change prevailing perceptions of women in technology is critical. By removing barriers to women's participation in the digital economy, we pave the way for a fairer and more equitable future (European Commission, 2019).

Digital literacy enables women to access a wide range of economic opportunities, inclusive of online job markets and entrepreneurial ventures, which notably contribute to poverty remedy (SDG 1) and promote decent work and economic growth (SDG 8). With digital competencies, women can navigate monetary offerings, interact in e-trade, and enhance their income-generating potential. This economic empowerment not only benefits individual women but also fosters economic improvement and decreases gender disparities in the workforce. In the realm of education (SDG 4), digital literacy provides women with access to extensive educational resources and online learning platforms, allowing them to pursue lifelong skill development. This educational empowerment not only enhances their personal growth but also equips them to better support their children's education and contribute to their community's intellectual and economic prosperity.

Healthcare access and outcomes (SDG 3) are also positively impacted by using digital literacy. Women can leverage telehealth services, access vital health information, and make informed decisions about their well-being and that of their families. This improved access to healthcare information can lead to better health outcomes and a higher quality of life for women and their families. To truly harness the potential of digital literacy for women's

empowerment, it's vital to create an enabling environment through inclusive policies, community-based initiatives, and robust public-private partnerships. Governments should prioritize the development and implementation of policies that ensure equal access to digital tools and education for women. Community-centric programs must address the unique challenge women face, providing tailored solutions that are both relevant and accessible. Public-private partnerships can mobilize resources and foster innovation in digital literacy projects. Collaborative efforts among governments, NGOs, and private sector firms can lead to sustainable and scalable programs that reach women in marginalized communities. Awareness campaigns can further promote the importance of digital literacy, showcasing successful women role models in technology and highlighting the economic and social benefits of digital skills (World Bank, 2016). Monitoring and evaluation processes are key to assessing the effectiveness of digital literacy initiatives. By continuously evaluating progress, identifying challenges, and refining strategies, stakeholders can ensure the success of these programs and achieve lasting impact. In the end, building digital literacy amongst women not only empowers them as individuals but also strengthens communities and economies. Accomplishing a world, where anyone, regardless of gender, can thrive and lead equitable lives isn't just an opportunity it's far an imperative for understanding the SDGs and fostering inclusive development globally. Through concerted efforts and collaboration, we can create a future where digital literacy serves as a foundation for gender equality and sustainable progress. Through empowering women with digital skills, we contribute to a more just, equitable, and prosperous world for all (UNDP, 2020).

References

Accenture. (2019). *Getting to equal 2019: Creating a culture that drives innovation*. Accenture. https://www.accenture.com/_acnmedia/PDF-98/Accenture-Getting-to-Equal-2019.pdf

African Union. (2019). *Digital transformation strategy for Africa*. African Union. https://au.int/en/documents/20190621/digital-transformation-strategy-africa

Broadband Commission**.** (2019). *The state of broadband 2019: Broadband as a foundation for sustainable development*. International Telecommunication Union (ITU) and United Nations Educational, Scientific and Cultural Organization (UNESCO). https://www.broadbandcommission.org/publication/the-state-of-broadband-2019/

Brookings Institution. (2020). *How can digital skills training programs improve women's employability?* Retrieved from https://www.brookings.edu/report/how-can-digital-skills-training-programs-improve-womens-employability/

Deloitte. (2020). *Women in tech: The gender gap report*. Deloitte. https://www2.deloitte.com/us/en/insights/industry/technology/women-in-tech-gender-gap.html

Digital Sakhi. (2020). *Empowering rural women with digital and financial literacy*. Digital Sakhi.

European Commission. (2019). *Digital Economy and Society Index*. Retrieved from https://ec.europa.eu

European Commission. (2020). *Women in Digital Scoreboard*. European Commission. https://ec.europa.eu/digital-strategy/our-policies/women-digital-scoreboard_en

GSMA. (2015). *Accelerating digital literacy: Empowering women to use the mobile internet*. GSMA. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2015/06/Accelerating-Digital-Literacy-Empowering-women-to-use-the-mobile-internet.pdf

GSMA. (2019). *Connected women: The mobile gender gap report.* GSMA. https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/02/GSMA-Connected-Women-The-Mobile-Gender-Gap-Report-2019.pdf

GSMA. (2020). *The mobile gender gap report 2020*. GSMA. Availablee at https://www.gsma.com/mobileforwomen/the-mobile-gender-gap-report-2020

GSMA. (2021). *The gender gap in mobile internet.* GSMA. https://www.gsma.com/mobilefordevelopment/resources/the-mobile-gender-gap-report-2021/

Harvard Business Review. (2020). *Why women in tech need role models*. Harvard Business Review. https://hbr.org/2020/03/why-women-in-tech-need-role-models
https://www.unwomen.org/en/news/in-focus/women-and-the-sdgs/sdg-1-poverty

India Digital Sakhi Program. (2021). Annual Report. Sakhi for South Asian Women. Available at https://sakhi.org/wp-content/uploads/2022/11/2021-Annual-Report-Sakhi-for-South-Asian-Women.pdf

International Telecommunication Union (ITU). (2018). *Measuring the information society report*. https://www.itu.int/en/ITU-D/Statistics/Pages/publications/misr2018.aspx

International Telecommunication Union. (2021). *Gender ICT statistics*. https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx

International Telecommunications Union. (2019). Measuring Digital Development: Facts and Figures.

ITU. (2020). *Digital skills insights*. International Telecommunication Union. https://www.itu.int/en/ITU-D/Digital-Inclusion/Pages/Digital-Skills-Insights.aspx

Kabeer, N. (2020). Gender equality, women's empowerment and sustainable development: An overview. *Journal of Gender Studies, 29*(4), 453–464. https://doi.org/10.1080/09589236.2020.1759400

Kenya Digital Literacy Program. (2018). *Progress report*. Kenya Digital Literacy Program.

Mahmood, S. (2019). Gender digital divide: A study of digital literacy among women in Pakistan. *Journal of Information Science, 45*(2), 235-249. https://doi.org/10.1177/0165551517716734

Mansoor, A., & Bhat, S. A. (2021). Women's digital literacy: A key to empowerment and economic growth. *International Journal of Technology and Management Research, 5*(1), 55-62.

McKinsey & Company. (2019). *The power of parity: Advancing women's equality in the workplace*. McKinsey & Company. https://www.mckinsey.com/business-functions/organization/our-insights/the-power-of-parity-advancing-womens-equality-in-the-workplace

OECD. (2019). *Bridging the digital gender divide: Include, upskill, innovate*. OECD Publishing. https://doi.org/10.1787/56c5c797-en

OECD. (2021). *Empowering women in the digital age*. OECD Publishing. https://doi.org/10.1787/3a13f5b0-en

Pakistan Benazir Income Support Program. (2019). *Digital Inclusion Strategy*.

Pew Research Center. (2018). *Women and tech: Majorities see gender discrimination as a problem*. Pew Research Center. https://www.pewresearch.org/report/women-and-tech-majorities-see-gender-discrimination-as-a-problem

UN Women. (2018). *Turning promises into action: Gender equality in the 2030 agenda*. UN Women. https://www.unwomen.org/en/digital-library/publications/2018/2/gender-equality-in-the-2030-agenda

UN Women. (2019). *Women's rights in the digital age*. UN Women. https://www.unwomen.org/en/digital-library/publications/2019/03/womens-rights-in-the-digital-age

UN Women. (2019). *Women's rights in the digital age*. UN Women. https://www.unwomen.org/en/digital-library/publications/2019/03/womens-rights-in-the-digital-age

UN Women. (2020). *SDG 1: End poverty in all its forms everywhere*.

UNDP. (2020). *Gender equality and women's empowerment in the digital age*. United Nations Development Programme. https://www.undp.org/publications/gender-equality-and-womens-empowerment-digital-age

UNESCO. (2018). *Digital literacy for all: Bridging the gender divide*. United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000265159

UNESCO. (2020). *Leveraging ICTs for empowering women***.** United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000374687

United Nations Development Programme (UNDP). (2017). *Promoting digital inclusion for women*. UNDP. https://www.undp.org/publications/promoting-digital-inclusion-women

United Nations Development Programme. (2018). *Gender Equality Strategy 2018-2021: Empowering women and promoting gender equality*. UNDP. https://undp.org/gender-equality-strategy-2018-2021

United Nations. (2020). *Sustainable development goals***.** Available at https://www.un.org/sustainabledevelopment

USAID. (2019). *Women's digital inclusion: Empowering women through digital technologies.* United States Agency for International Development. https://www.usaid.gov/sites/default/files/documents/Womens_Digital_Inclusion.pdf

World Bank. (2016). Digital Dividends. Retrieved from https://www.worldbank.org/en/publication/wdr2016

World Bank. (2019). *The Digital Economy for Africa Initiative*. World Bank. https://www.worldbank.org/en/topic/ict/brief/the-digital-economy-for-africa-initiative

World Economic Forum. (2018). *The future of jobs report 2018*. https://www.weforum.org/reports/the-future-of-jobs-report-2018

World Economic Forum. (2018). *The future of jobs report 2018*. World Economic Forum. https://www.weforum.org/reports/the-future-of-jobs-report-2018

World Economic Forum. (2019). *The global gender gap report 2019*. World Economic Forum. https://www.weforum.org/reports/the-global-gender-gap-report-2019

World Economic Forum. (2020). *The global gender gap report 2020*. World Economic Forum. https://www.weforum.org/reports/gender-gap-2020

World Economic Forum. (2021). *Global gender gap report 2021*. https://www.weforum.org/reports/global-gender-gap-report-2021

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