

Empowering Women in the Digital Age

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July 4, 2017 | Last updated: December 10, 2020 *Tags:* [Digital society](#), [Gender Equality](#)

Digitalization offers a variety of opportunities for female empowerment and for a more equal female participation in labor markets, financial markets, and entrepreneurship. Currently, digitalization seems to favor female labor force that faces lower risk of being replaced by machines, as compared to male labor force. Women's often superior social skills represent a comparative advantage in the digital age, and this is particularly so when social skills are complemented with higher education and advanced digital literacy. However, the same barriers and deficits that obstruct women's current advancement in many G20 countries may deprive them from many beneficial opportunities in the digital age. Major efforts by G20 governments are required to invalidate these barriers. Rendering women better access to the new digital technologies seems a promising starting point for such efforts, and for thereby achieving the goal of gender equality.

Challenge

The digital revolution opens new windows of opportunity for the G20 to spur their goal of gender equality. The digital revolution, characterized by artificial intelligence, big data, cloud computing and mobile robotics could improve female participation in economic life and enhance the economic and social autonomy of women in (at least) three ways. Firstly, mobile and digital technologies offer women the potential to bypass some of the traditional cultural and mobility barriers, particularly in emerging and developing countries. Digital technologies could help women access new markets, work flexibly and distantly, acquire and interact with customers, receive training and provide mentoring, improve financial autonomy and access finance for their ventures. Second, women quite often possess superior social skills, which can expect increasing rewards on labor markets in the digital age. Such social skills are often a feature of women-dominated jobs and they include, for instance, a heightened sense of responsibility towards the wider community, greater empathy, more effective communication and a greater willingness to adapt to changing circumstances. They should help women avoid the enormous employment losses from automatization, which, in developed countries, are predicted to account for up to 60 percent of all jobs over the next two decades. It is worth noting that little is known about effects of digitalization on labor markets in emerging and developing countries. Third, the female social skills advantage could be developed even further if complemented by competencies in abstract (or cognitive) skills and advanced digital literacy, which becomes a core requirement in the digital age. Such skills complementarities are expected to increase and they could open the way for women into better-paying management and leadership type of jobs.

Current gender inequalities may prevent women from fully benefiting from opportunities offered by digitalization.

Women often find themselves trapped in a vicious circle, where current gender gaps hinder the chances for future improvements. Thus, prevailing legal and cultural restrictions towards female autonomy in many emerging and developing economies tend to prevent women from accessing digital devices that could help overcome some of these restrictions. And even in the most developed G20 countries, lower female enrolment rates in higher education, especially in STEM fields (Science, Technology, Engineering, Mathematics), deters women from fully realizing the chances offered by digitalization. Accordingly, women are at risk of missing out on the most promising jobs of the digital age.

Digitalization is likely to create a vast variety of new opportunities for entrepreneurship, too. Current gender imbalances like gaps in entrepreneurial skills, lack of developed social networks for female business founders, insufficient number of female role models of entrepreneurship and prevalence of financial constraints may keep women from recognizing and pursuing those entrepreneurial opportunities. If women are to realize their full potential in the digital age, the G20 governments need to target these current gender gaps. Many of these gender imbalances can effectively be addressed by means of deploying new digital technologies.

Proposal

Policy is thus required to pave the way for a successful adoption of the new digital age opportunities by women.

Given the potential for gender gap persistence to undermine any future gains to women from digitalization, the G20 leaders need to take action. And G20 leaders seem resolved to do this: Since the watershed 2012 Los Cabos summit, they have repeatedly committed themselves to overcoming the barriers preventing the full economic and social participation of women. Several earlier studies analyzing the challenge of digitalization for gender equality have already come up with recommendations for remedial policy action. These policies include providing universal, affordable, secure and open broadband internet access; fostering female digital literacy; encouraging more women to enter tertiary education and STEM occupations; facilitating web-based female entrepreneurship; and empowering women financially through innovative digital finance tools and e-government. Many governments have already taken measures to achieve these goals. Still, progress is slow. The recent study by Sorgner et al. (2017), while also corroborating the recommendations of the earlier studies, suggests that the G20 should additionally take action in the five following areas:

1. **Establish an early warning system for potential adverse effects of digitalization on gender equality.** The G20 should continuously monitor changes in female employment prospects that accompany digitalization developments. Such a cross-country initiative should help to spark an early warning system, which in turn can trigger timely policy responses. But the G20 should not confine its focus to digitalization impacts for the female workforce in developed countries only. Rather the G20 should also consider initiating high-profile research for emerging and developing countries since they may be particularly vulnerable to digitalization.

Female employment is currently expected to be less vulnerable to digitalization than male employment, and this particularly applies to low-skilled jobs. This is because low-skilled males are more likely to work in routine jobs, e.g. in manufacturing, where the rise of industrial robotics has been replacing such jobs already for some time. In turn, low-skilled females are more likely to work in jobs that rely on non-routine manual tasks that are rather difficult to digitalize, for instance, in health care. However, the most recent advancements in artificial intelligence have demonstrated that future technological progress may succeed in extending digitalization into fields regarded unattainable for computers. Accordingly, many jobs that were, up to now, considered safe from automatization, may similarly become obsolescent in the future. Female employment may, therefore, be disproportionately affected during the next wave of digitalization. The early warning system should help the G20 to recognize emerging threats to female employment and facilitate timely reaction for meeting these threats. Additionally, more research is urgently required on the vulnerability of female employment in emerging and developing countries, which often rely on low-skilled labor.

2. **Redesign existing government programs to foster women's economic and digital inclusion.** G20 should launch an initiative to use existing government programs, especially in developing and emerging economies, for further female empowerment.

Existing government programs, such as social welfare programs, can be redesigned to address women's economic and digital inclusion in addition to accomplishing the primary objectives of these programs. These programs may enhance women's economic inclusion by targeting women as beneficiaries of financial transfers to their families or communities. As a result, these modifications will not only enhance women's economic inclusion but even improve program effectiveness by actively leveraging the women's strengths regarding their social and family responsibilities to the advantage of the program's primary objectives. The programs may both enhance the digital inclusion of women as well as reduce the cost of program delivery by using digital technologies more extensively for payment, management or monitoring. Conditional cash transfer (CCT) programs like Mexico's "Prospera" or Brazil's "Bolsa Familia" programs provide good examples for the complementarities between female economic inclusion and program effectiveness. Some of these programs, including Colombia's "Más Familias en Acción", do already use mobile money technologies for money transfer. There is still scope for leveraging such benefits to CCT programs in other countries where they are conducted and for redesigning similar programs to exploit the same type of

complementarity between program effectiveness and female economic and digital inclusion.

3. **Help women complement their social skills with higher education and advanced digital skills in all G20**

countries. The G20 should more actively foster female participation in higher education and research as well as the acquisition of advanced digital skills by women.

Digitalization is likely to promote jobs that will strongly rely on complementarities between social and emotional intelligence and abstract (or cognitive) skills that can be acquired through higher education, such as creativity and critical thinking. In addition, high proficiency in digital skills will become a core requirement in the digital age. Since many women possess stronger social skills than their male peers they could benefit from exploiting these complementarities. However, the current gender gaps in higher education and digital literacy that are particularly strong in emerging economies may deprive women of these opportunities, and they may hinder them to occupy those high-profile jobs in management, STEM occupations or entrepreneurship that are expected to flourish best in the digital age.

Many of the G20 countries have introduced various initiatives to promote advanced digital literacy and to increase interest towards STEM fields among girls and young women, for instance, in form of hackathons, coding workshops or mentoring programs. Such programs are a key step towards achieving the goal of gender equality, and G20 need to support more of such initiatives to help women be best prepared for new requirements on labor markets of the digital age.

4. **Support high-quality online platforms to foster women's entrepreneurial skills.** The G20 should support high-quality online platforms that provide training to novice female entrepreneurs and facilitate knowledge exchanges with experienced female entrepreneurs.

Digitalization is likely to create new opportunities for entrepreneurship. Women often lack sufficient entrepreneurial skills and role models, which hinders them (compared to their male peers) from recognizing and pursuing more promising entrepreneurial opportunities in the digital age. Entrepreneurship-relevant human capital can be acquired by means of higher education and work experience, particularly in STEM fields, as well as through frequent interactions with entrepreneurial peers. This avenue remains closed to many women who are currently excluded from labor markets. Internet platforms represent a promising new tool for disseminating entrepreneurial skills among women and providing them an interface to mentors and role models. High-quality online training and mentoring platforms for female entrepreneurs should prove particularly beneficial for women in regions with few entrepreneurial role models or who face restrictions in access to these role models.

5. **Popularize innovative web-based instruments that improve female entrepreneurs' access to financial capital.**

The G20 should promote innovative web-based instruments for women-led businesses to raise financial capital for their ventures. It should popularize high-quality digital platforms for angel investors, venture capital investors or equity crowdfunding that bring together female entrepreneurs and female investors. It should also promote innovative ways of risk assessment that rely more on transaction histories and other Big Data rather than relying on traditional forms of securities.

Female entrepreneurs face difficulties in accessing the necessary financial capital to set up and grow their businesses. One reason for these difficulties is that many women lack the necessary collateral required by traditional financial institutions. Another reason is that angel and venture capital networks, which are still male-dominated, often prefer funding male-led businesses. More web-based platforms like the Next Wave Ventures program in the United States are needed that provide training programs and mentoring for novice female investors by their more experienced peers. Innovative risk assessment methods like those used by the Goldman Sachs' internet-based 10,000 Women program help to overcome the lack of collateral available to lenders from women by using the online transaction and behavior histories to make inferences about the client's creditworthiness.

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Existing Initiatives & Analysis