

Digital development and the digital gender gap

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Question

How does digital development change pathways to development for women and girls? What are the economic, social and political risks and opportunities?

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The K4D helpdesk service provides brief summaries of current research, evidence, and lessons learned. Helpdesk reports are not rigorous or systematic reviews; they are intended to provide an introduction to the most important evidence related to a research question. They draw on a rapid desk-based review of published literature and consultation with subject specialists.

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1. Overview

This rapid literature review collates findings from recently published papers on digital development and gender, highlighting some of the most commonly discussed discussions related to economic, social and political development. As the scope of this query is very large, this review provides an illustration of some of the commonly identified issues in the literature. The digital inclusion agenda seeks to close the gaps in access to, and adoption of, fast evolving information and communication technology (ICT) services, particularly mobile phones and the internet. It is an important aspect of the Sustainable Development Goals (SDGs) as both an end and a means to the cross-cutting policy aim of 'leaving no one behind'. The potential gains from digital technologies are high, however they often remain unrealised, especially for women and girls (World Bank, 2016). There is a large and growing amount of recently published policy relevant literature on this broad ranging subject particularly in policy/practitioner papers and in academia.

The **key messages** emerging in the literature include:

- While there is widespread acknowledgement that the world is undergoing a digital revolution which is changing the way people, businesses, and countries operate and develop, there is little consensus on concepts or on a framework to understand these trends. Some trends represent a *qualitative* change – e.g. the new digital economy, while many represent a *quantitative* change – e.g. in the pace of development.
- A new 'digital economy' (or information economy) has emerged as digital technologies have increased the amount of information available, with increasing ease of access and reducing costs of access.
- The potential gains from digital technologies are high, yet the impact is mixed, and uneven and therefore often unrealised.
- The extent and speed of digital development is unequal and is contributing to unequal development trajectories. This mixed picture suggests that digital development is not only disrupting development pathways, but is also a continuation of traditional development challenges and divides. The nature of these gender divides is rooted in structural gender inequalities and more research is needed to understand it in its specific contexts.
- Digitalisation is transforming economic activities with new industries, technologies, ways of working, and networks.
- Keeping up with fast-paced digital developments is a huge and multifaceted challenge with policy levers across a wide spectrum of areas.
- Digital technologies promote development by three mechanisms: inclusion, efficiency and innovation (World Bank, 2016, p.2, 9-10).
- This rapid review of the literature identified five key areas of digital development within the broad remit of economic, social and political development that pose particular opportunities and risks for digital inclusion of women and girls: jobs and employment; service delivery; changing social norms and values; e-governance; and digital skills development and education.

2. Is the digital economy changing pathways to development?

There is widespread acknowledgement that the world is undergoing a digital revolution which is changing the way people, businesses, and countries operate and develop. These trends are discussed in several overlapping and broad subject areas and there is little consensus on concepts or on a framework to understand these trends. Some represent a *qualitative* change – e.g. the new digital economy, while many represent a *quantitative* change – e.g. in the pace of development. Key ideas emerging from the literature include:

A new ‘digital economy’ (or information economy) has emerged as digital technologies have increased the amount of information available, with increasing ease of access and reducing costs. ‘This has facilitated searching, matching, and sharing of information and contributed to greater organization and collaboration among economic agents—influencing how firms operate, people seek opportunities, and citizens interact with their governments’ (World Bank, 2016, p.8). Increased access to ICT allows many people to access services and information that previously were out of reach, e.g. those in rural areas, people with disabilities. New connections, sensors and applications automatically generate information, providing a wealth of data for further innovations.

The potential gains from digital technologies are high. The World Bank (2016, p.5) argues that the greatest potential for “digital dividends” are in: economic growth – as digital technologies help businesses become more productive; jobs – providing greater access to employment opportunities; and services – as governments capacity to deliver better public services increases. Many more people, businesses and governments are gaining access to, and are using, digital technologies across the world. At an aggregate global level, mobile phone ownership in the developing world reached about 80% in 2015, and is steadily rising (World Bank, 2016). While global internet penetration is expected to reach 50% in 2017, up from just 20% a decade ago (A4AI, 2017). At the micro and meso levels, digital technologies may make services and information more available, e.g. to people in rural areas, and people with disabilities (World Bank, 2016). It is evident that ICTs are contributing to an overall increase in the pace and scale of global development, yet the impact is mixed, and is uneven, and therefore it is often unrealised (World Bank, 2016, p.5).

The extent and speed of digital development is unequal and is contributing to unequal development trajectories (UNCTAD, 2017). At an aggregate level the literature reveals it to be exacerbating and deepening some old development divides (e.g. gender, income and rural-urban divisions), to be creating some new divides (e.g. age), and may be rebalancing some divides (e.g. (dis)ability) (Hanna, 2016, p.3). This picture is much more nuanced at a meso- and micro-level and analysis needs to be context specific. Early adopters of digital technologies have a competitive advantage, likewise those who are slow or poor to adopt digital technologies face bigger threats to their development. ‘There is a risk that digitalisation will lead to increased polarisation and widening income inequalities, as productivity gains may accrue mainly to a few, already wealthy and skilled individuals’ (UNCTAD, 2017, p.1). This mixed picture suggests that digital development is not necessarily disrupting development pathways, but is also a continuation of traditional development challenges and divides.

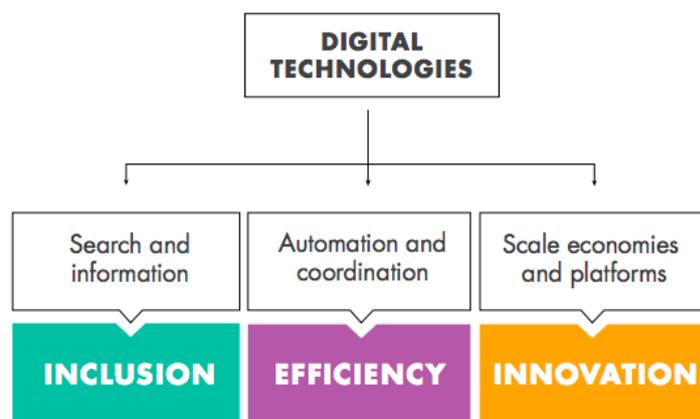
Digital gender gaps persist and in some contexts, are growing. Women are 14% less likely to own a mobile phone than men in low and middle income countries (GSMA, 2015). Globally, the proportion of women using the Internet worldwide is 12% lower than the proportion of men (ITU, 2017, p.3). While the gender gap in internet access has narrowed in most regions since 2013, it has widened in Africa. In Africa, the proportion of women using the Internet is 25% lower than the proportion of men (ITU, 2017, p.3). The nature of these gender divides is rooted in structural gender inequalities and more research is needed to understand it in its specific contexts (Steeves & Kwami, 2017, p.176).

Digitalisation is transforming economic activities with new industries emerging (e.g. artificial intelligence), new technologies (e.g. cloud computing), new ways of working (e.g. the gig economy) and more communication opportunities (e.g. connecting smaller businesses to global markets). Digitisation is changing how products and services are produced, distributed, and sold across borders. The digital economy is 'smart', data-driven, and a 'learning economy'. As more data is open and accessible, the network turns 'from being a means for connection to a source of innovation'. (Hanna, 2016, p.3).

Keeping up with fast-paced digital developments is a huge and multifaceted challenge with policy levers across a wide spectrum of areas including: infrastructure, education and skills development, labour market, competition, science, technology and innovation, fiscal issues, trade and industrial policies, etc. (UNCTAD, 2017, p.5).

Digital technologies promote development by three mechanisms: inclusion, efficiency and innovation, argues the World Bank (2016, p.2, 9-10) (see Figure 1):

Figure 1: The internet promotes development through three main mechanisms



Source: (World Bank, 2016: 9)

Inclusion (World Bank, 2016, p.10-11):

- 'By reducing the cost of acquiring information and making more information available transparently, digital technologies can make new transactions possible'.
- 'Mobile phone records, business-to-business e-commerce, the sharing economy, online reputation mechanisms, and digital identification systems all help to overcome these information barriers'.

- While they make the market more efficient, the biggest benefit seems to be their market creation effects: expanding trade, creating jobs, and increasing access to public services—and thus promoting inclusion’.

Efficiency (World Bank, 2016, p.10-11):

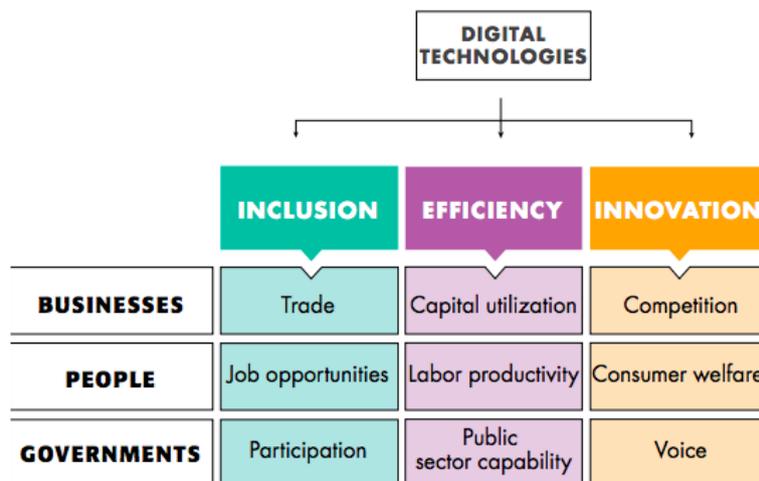
- ‘Perhaps the largest impact has been on transactions that existed before the arrival of the internet but are now quicker, cheaper, or more convenient to carry out’.
- ‘The dramatic decline in the price of digital technologies has led businesses and governments to replace existing factors—labour and non-ICT capital—with ICT capital and to automate some of their activities’.
- ‘Digital technologies augment the factors not substituted and make them more productive. They help managers to better supervise their workers, politicians to monitor the service providers, and workers to use technology to become more productive, thus raising the returns to their human capital’.

Innovation (World Bank, 2016, p.10-11):

- ‘The extreme case of efficiency is when transactions are executed automatically, without human input, and transaction costs fall to essentially zero. This is the realm of the “new economy,” such as search or e-commerce platforms, digital payment systems, e-books, streaming music, and social media’.
- ‘Scale and zero marginal costs also explain why many of the social network sites have become the preferred vehicles for social mobilization and political protests. By enabling almost frictionless communication and collaboration, the internet can support new delivery models, encourage collective action, and accelerate innovation’.

These three mechanisms - inclusion, efficiency, and innovation - often operate together with different application for people, businesses and governments (see Figure 2).

Figure 2: How the three mechanisms apply to businesses, people and governments



Source: WDR 2016 team.

Source: (World Bank, 2016: 11)

3. Trends, opportunities and risks

As this query has a very broad remit, this section is illustrative of the potential trends, opportunities and risks in five key areas:

3.1 Jobs and employment

Digital technologies can reduce gender gaps in labour force participation by making work arrangements more flexible, connecting people to work, and generating new opportunities –e.g. in online work, e-commerce, and the gig economy (World Bank, 2016, p.134; UNCTAD, 2017). The Internet boosts women’s income and income potential. An Intel Corporation (2013, p.12) paper based on extensive interviews and surveys with 2,200 women and girls in urban and peri-urban areas of Egypt, India, Mexico, and Uganda found nearly half of respondents use the Internet to search for and apply for jobs, and 30% use the Internet to earn extra income used the Internet to earn additional income. Women are likely to benefit from a shift in employment toward non-routine occupations, and away from physical work. The rate of women’s participation in ICT specialist occupations is low (UNCTAD, 2017). Technology-driven shifts in skills demand can reduce wage gaps, especially among the better educated (World Bank, 2016, p.134).

The rapid global emergence of the “gig economy” has seen technology-focused companies develop platforms that directly link service purchasers (clients) and service providers (workers) (Hunt & Sarwar, 2017, p.13). Within this, there are different models – “crowdwork” is when tasks are commissioned and carried out virtually via the Internet (Hunt & Machingura, 2016, p.10). The “on-demand” economy is when specified tasks are carried out locally, with the service purchaser and provider based in the same physical location (Hunt & Machingura, 2016, p.10). To date much of the literature has focused on the gig economy and digital labour as an economic development strategy to bring jobs to places that need them, but it is important to look at the issue more holistically, e.g. examining how this way of employment affects the livelihoods of workers (Graham, Hjorth & Lehdonvirta, 2017).

The gig economy has improved flexibility for both workers and employers. However, this work is often low-paid, insecure and ad hoc especially for less-skilled workers and marginalised/discriminated groups (Hunt & Sarwar, 2017, p.13). A multi-year study with digital workers in Sub-Saharan Africa and South-East Asia, identified four key concerns for digital workers: bargaining power, economic inclusion, intermediated value chains, and upgrading (Graham, Hjorth & Lehdonvirta, 2017). The paper identifies four broad strategies to mitigate against these concerns and to improve working conditions and livelihoods for digital workers: certification schemes, organising digital workers, regulatory strategies and democratic control of online labour platforms (Graham, et al, 2017). A study of gig economy opportunities for Syrian women refugees in the Jordanian labour market, identified addressing the following challenges to make gig work more beneficial: improving digital access, providing skills training and worker protections, and ensuring safety – especially given the vulnerable position of many refugee women. (Hunt, Samman & Mansour-Ille, 2017, p.6).

The on-demand economy for domestic work is growing rapidly in developing countries, and is largely dominated by women (making up 80% of the 67 million domestic workers globally). Hunt and Machingura (2016, p.6) identify several opportunities and risks for this area including:

- On-demand platforms offer some benefits to domestic workers, such as choice over working times, tracking of hours worked and wages earned, and potentially better remuneration compared with other forms of domestic work.
- Although some benefits can be identified, overall the on-demand economy threatens domestic workers' access to decent work – e.g. low and insecure incomes, discrimination, further entrenchment of unequal power relations within the traditional domestic work sector, and the erosion of established labour and social protections.
- On-demand companies have adapted to developing country contexts, notably by taking steps to engage workers by overcoming digital and financial divides.
- The infancy of the on-demand domestic work economy in developing countries means it is not too late to raise standards. This will involve proactive efforts by companies to 'design-in' good practice, as well as by government to ensure an integrated future policy, legal, practice and research agenda.

3.2 Service delivery

Digital technological innovations can potentially support better access to public service delivery, increased quality via efficiency savings, and better monitoring and targeting. Access to services can be strengthened by the increase in electronic registration methods for banking, electricity, healthcare services, and through government dissemination of information - e.g. through text messaging or providing information online. The quality of systems can increase as tax collection and compliance is simplified – e.g. through electronic filing of tax returns and electronic tracking of business activity; and digital monitoring to reduce public sector staff absenteeism. Digitisation increased the possibilities for data collection, processing and storage. This is also supported by improvements in data standardisation (Gupta, Keen, Shah, & Verdier, 2016, p.3-4).

Mobile and digital solutions can facilitate greater financial inclusion for small firms and individuals. Compared to men, women entrepreneurs in developing economies tend to be disadvantaged in accessing finance, time constraints, mobility, and access to skills and training. E-commerce and digital solutions can help overcome some of these barriers – e.g. via cloud services and crowd financing on online platforms (UNCTAD, 2017, p.45). Women are less likely to access financial services, and particularly less via mobile technology (Hunt & Samman, 2016, p.19).

Globally, nearly 2.5 billion people lack official identification, this particularly affects women in poor rural areas of Africa and Asia, and children whose births have not been registered. A lack of identification is a major barrier to accessing welfare, education, and financial services (Daha and Gelb 2015). This has an important gender dimension as women are less likely than men to have official identification, and they are most likely to seek welfare and education services for their families. An innovation used by governments called Blockchain provides permanent, immutable records of identity for citizens and businesses.

3.3 Social norms and values

The gender gap in access, ownership and usage is driven by a complex set of socio-economic, social norms and cultural barriers that negatively affect women and girls. Even when women own mobile phones, there is a significant gender gap in usage. Women report using phones less frequently and intensively than men, especially for more advanced services such as mobile internet. In most countries, fewer women than men who own phones report using messaging and

data services beyond voice. Without targeted intervention from the mobile industry, policy-makers, and other stakeholders, the gender gap in ownership and usage is unlikely to close naturally on its own (GSMA, 2015, p.6).

Social norms influence women's access to and use of mobile technology, and often contribute to women experiencing barriers to mobile phone ownership and use more acutely than men. While cost remains the greatest barrier overall to owning and using a mobile phone, particularly for women who have less financial independence than men. Security and harassment also emerged as one of the top five barriers, and a key concern for women. Women also cite service delivery issues (network quality and coverage and agent or operator trust) and technical literacy and confidence as key barriers. Systemic barriers, including a lack of gender disaggregated data at all levels (e.g., mobile subscribers, national statistics) and unconscious biases within organisations, have kept the focus off women and sustained the gender gap in ownership and usage (GSMA, 2015, p.6). Digital technologies also shape social norms and values by facilitating greater connections and exposure to different ways of life, norms and values. For those that do not access and use digital technologies, conservative gender roles can become more entrenched (Intel Corporation, 2013, p.34).

Digital technologies and spaces to use them are gendered. Internet cafes in developing countries are often dominated by boys and men, and girls and women are discouraged from entering. With increasing Internet connectivity in urban areas, many children, have access to computers in Internet cafes, yet girls are often excluded from entering either explicitly or implicitly through stigma. Boys also report having greater financial resources to spend at cafes, while girls are expected to contribute more time and money (if they have an income) to the family. (Steeves & Kwami, 2017, p.185)

3.4 E-government and online participation

The literature identifies opportunities for gender-responsive e-government services in addressing the gender digital development gap and supporting empowerment as it can facilitate the development and sharing of relevant content (e.g. health information); create "safe" online discussion spaces; support women to challenge traditional norms and build peer connections; and build confidence to participate in the labour market (Intel Corporation, 2013, p.15; UNESCAP, 2016). UNESCAP (2016, p.3) identifies the following elements to support gender-responsive e-government policies and programmes:

- To support better service delivery: a balance between digital processes and human mediation; investments in data and connectivity capacities; and gender-responsive data governance to balance transparency and privacy.
- To support better citizen uptake: technology design that expands women's choices and engagement in government structures; and frontline workers to support appreciation for, and trust in, digitalised service delivery.
- To support better connectivity: models to promote meaningful online participation for women; and subsidised access and safe public spaces for including all women.

Despite the potential benefits, UNESCAP (2016, p.3) finds that yet e-government policies and implementation typically do not consider the differentiated gendered elements to access to, and impact of, ICTs (UNESCAP, 2016, p.3). This brings up a broader criticism highlighted throughout the literature that most ICT4D projects still do not integrate gender analysis in a meaningful way, and as a result many projects fail to address the needs of the recipients (Steeves & Kwami,

2017, p.174-176). Also that there is a need to collect, analyse, and track gender-disaggregated data (Broadband Commission, 2017, p.9)

3.5 Skills and education

Throughout the literature it is emphasised that while access to the internet is critical, it is not sufficient for improving digital development and inclusion of marginalised groups. Key complementary areas that need to be addressed including: digital literacy - the ability to use ICTs to find, evaluate, create, and communicate information, requiring both cognitive and technical skills; e-skills - the ability to use and develop ICT to adequately participate in an environment and economy that is increasingly dominated by access to electronically enabled information; and general literacy (p.4).

Women and girls tend to have lower levels of literacy, education and digital skills. Therefore, improving digital literacy and confidence is identified as an area of growth for gender inclusion, this means: understanding women's needs; investing in education and capacity-building initiatives; developing skills and confidence; supporting educators; and supporting and promoting female role models (Broadband Commission, 2017, p.9).

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