

# Women in ICT sector

Dr. Magued Osman  
Baseera CEO



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## I- Introduction

Globally, the production of goods and services is going to witness significant changes as countries embark to the fourth industrial revolution. Rapid technological changes are starting to disturb labor markets as traditional jobs are being transformed and new forms of work are being created. Such global trends are going to impact both developed and developing countries.

Studies show that the world economy is transforming from automation to innovation as a result of the technology revolution<sup>1</sup>. ICT sector is one of the rapidly increasing sectors worldwide which will introduce new opportunities for women economic participation.

In Egypt, it is especially important to understand how these trends will impact the labor market given the high rates of unemployment among youths and young women are falling further behind. Understanding the opportunities and threats associated with the digital transformation is fundamental to implement the women economic empowerment agenda.

Egypt national strategy for women empowerment 2030 included four pillars: Political empowerment, economic empowerment, social empowerment, and protection<sup>2</sup>. The strategy aims at increasing women's agency so that they can make informed choices, as well as addressing discriminatory practices and cultural stereotypes that harm women and are obstacles to their effective economic participation, and

<sup>1</sup> *World Development Report, the World Bank Group, 2019.*

<sup>2</sup> *NCW 2018.*



empowerment. Enhancing women's economic participation is seen as contributing to GDP growth, and to realizing the goals of the economic pillar of Egypt's Vision 2030.

The strategy's aim is to achieve women's economic empowerment through capacity development, equal employment opportunities in all areas, including the private sector, entrepreneurship, and key posts in public entities and companies. The strategy adopts a set of interventions including "ensuring women's access to information and communications technology."

## **II- Information and communications technology landscape**

The Information and Communications Technology sector is a key driver of the Egyptian economy. The sector built over the last two decades a strong governance model and sustainable institutions for fostering innovation and entrepreneurship.

The GDP generated from the ICT sector reached 80 billion Egyptian pounds in the fiscal year 2017/2018 with an increase of 14% if compared to the year 2016/2017. Around one thousand new companies were established in year 2018 with a total capital of 976 million Egyptian pounds<sup>3</sup>.

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<sup>3</sup> The media center, Egyptian Cabinet, 2019.



Parallel to these efforts academic public and private institutions succeeded in building human capital. Compared to other sectors, ICT was ahead of the curve in adopting inclusion policies that are gender sensitive.

Digital know-how will be the highest-priority skill for businesses of the future<sup>4</sup>. The 2016 World Development Report found that ICT skills are increasingly important in today's labor markets, along with higher-order cognitive and socio-emotional skills<sup>5</sup>. Other contemporary research by the World Economic Forum similarly predicts “particularly strong demand growth” in ICT skills in workplaces of the future<sup>6</sup>. Preparing young women to automation of existing job categories and advances in artificial intelligence will be crucial in order to empower women.

### **III- ICT sector: New opportunities for women**

Although Egypt has closed the gender gap in education, investments and advances in education were not matched by the expected increase in women's economic participation. Female labor force participation is low and unemployment rate among females is

<sup>4</sup> Deloitte 2015.

<sup>5</sup> World Bank 2016.

<sup>6</sup> World Economic Forum 2016.



significantly higher than among males. It is also evident that women are disproportionately represented in the public sector and in the informal economy, and, more women are engaged in unpaid work for family members and are spending a large amount of time in such work<sup>7</sup>. Furthermore, women are likely to be discriminated against in achieving their full potentials in leadership opportunities. Recent figures<sup>8</sup> from labor force surveys indicate an improvement in female unemployment that can be attributed to governmental policies supported by a political will. Further improvement is expected if such policies are translated to sustainable and scalable programs.

The digital economy might be an opportunity to bridge the gender gap in labor force participation and can open opportunities for women to achieve their aspirations while contributing to the GDP through creating and sustaining decent jobs. It can also help women to circumvent constraints to labor market participation arising from lack of mobility or social norms<sup>9</sup>.

Within the Egyptian context, ICT can play a catalytic role in empowering women by:

- 1) Expanding economic opportunities through increased access to markets, new forms of income generation, and new forms of financial services.

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<sup>7</sup> *The World Bank (2018a) Women Economic Empowerment Study in Egypt.*

<sup>8</sup> *CAPMAS (2018 and 2019). Labor force household surveys.*

<sup>9</sup> *World Bank 2018.*



- 2) Supporting social welfare through better service delivery of health services including reproductive health, more comprehensive and updated information on health and nutrition, life-long learning and capacity building opportunities.
- 3) Fostering the care economy and helping women to maintain the balance between their dual role of caring for the family and working.
- 4) Enhancing safety through providing/connecting women to services, mapping and monitoring incidences of gender-based violence as keeping a safe public space can increase female labor participation.

Yet while digital technologies and innovation will undoubtedly eliminate some low-skill jobs from the informal sector, they can also increase the diversity of the workforce. According to a recent ITU report, “the utmost priority is to make digital skills policies in relation to gaps in the labor market and concerns about widening social inequalities more effective.” This can be done by targeting specific groups depending on need and outcomes to be achieved, rather than following a one-size-fits-all approach<sup>10</sup>, and hence, gender sensitive policies need to be considered.

Digital technology’s will generate a set of disruptions in the labor market and their net effect on women empowerment need to be studied. The positive effect can result from increasing the flexibility of jobs which

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<sup>10</sup> ITU 2018.



will allow women to maintain the balance between work responsibility and family duties. Furthermore, Information and communications technology (ICT) can provide greater access to information and services to a wider range of people, boosting the inclusion of marginalized groups and transforming the opportunities available to them.

On the other hand, one of the greatest contributions lie in speeding up the transition into formality. Females working in the informal sector might fail to join the formal sector if they do not acquire the needed skills and subsequently female unemployment might increase.

Successful public policies for digital jobs should be segmented to reflect different types of digital work, namely, ICT intensive, ICT dependent, and ICT-enhanced:

- ICT-intensive jobs that are directly focused on ICTs.
- ICT-dependent jobs that use digital technologies to varying degrees and are made possible by ICTs.
- ICT-enhanced jobs that use digital technologies to varying degrees but could be performed without ICTs.

This categorization might be especially important for planning efficient and effective capacity building programs to increase female labor force participation given the women concentration in public sector and in informal sector.





### *III-1 Using ICT*

The gender digital divide refers to the measurable gap between women and men in their access to, use of and ability to influence, contribute to, create and benefit from ICTs<sup>11</sup>. The gender digital divide limits the ability of girls and young women to participate in the digital economy to an equal extent as their male counterparts. It limits young women's ability to thrive in new categories of digital jobs too.

Only 48% of the world's population currently has at least a basic Internet connection<sup>12</sup>. Among those who lack Internet connectivity, women are significantly overrepresented. In 2017, the gender gap in Internet use was 11.7% worldwide. The Internet user gender gap is the largest in LDCs, increasing from 29.9% in 2013 to 32.9% in 2017. In 2017, the gender gaps in Asia & Pacific countries, the Arab States and Africa were 17.1%, 17.3% and 25.3%, respectively.

In Egypt, as illustrated in Figure 1, the percentage of mobile users increased significantly between 2011/12 and 2018/19 meanwhile the gender gap (10 points) disappeared and mobile usage has become almost universal.

A similar trend was observed among internet users, as the increase was 25 points among boys and girls and 32 points among the older cohort. The gender gap disappeared among those who less than 15 and is 5 points among youth aged (15 to 24) years.

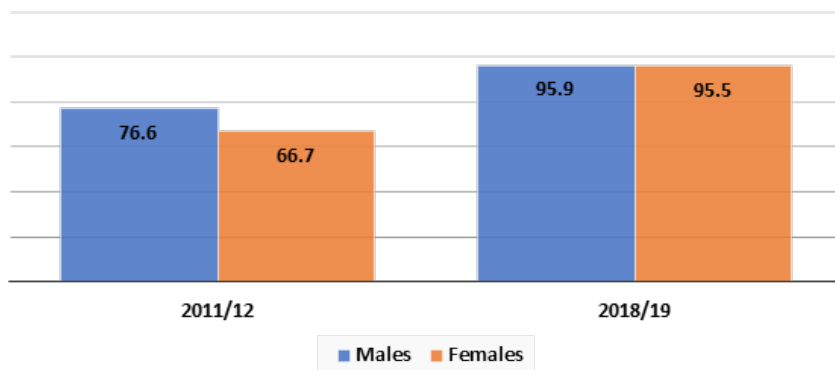
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<sup>11</sup> UNGA 2017.

<sup>12</sup> ITU 2017.

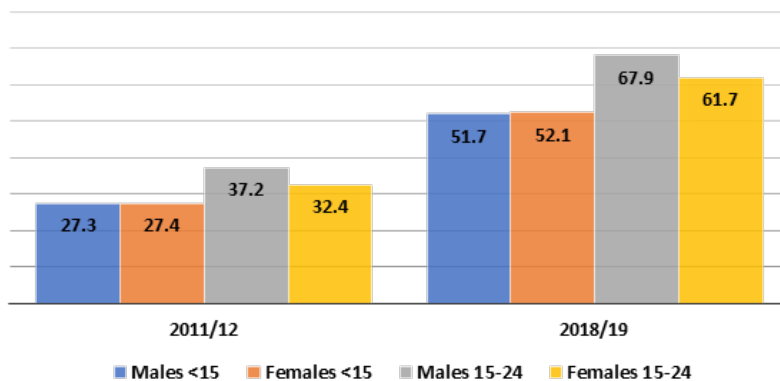


**Figure (1): Percentage of using mobile phone in Egypt**



Source: "ICT usage by Households and Individuals" survey series conducted by Ministry and Communications Information Technologies (MCIT) in cooperation with the Central Agency for Mobilization and Statistics (CAPMAS).

**Figure (2): Percentage of using the internet in Egypt**



Source: "ICT usage by Households and Individuals" survey series conducted by Ministry and Communications Information Technologies (MCIT) in cooperation with the Central Agency for Mobilization and Statistics (CAPMAS).



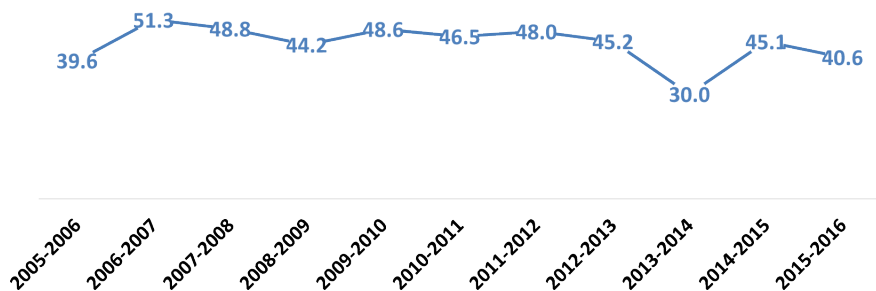
The percentage of private sector employees who use computers routinely increased among females from 22% in 2012/2013 to 30% in 2015/2016. These percentages reached among males 22% and 26% respectively, which indicates that the increase among females was higher than the increase among males.

### *III-2 Studying ICT fields*

The number and percentage of females among the graduates of faculties of computers and information in Egypt witnessed fluctuations during the period from 2006 to 2016. The percentage ranged between 40% and 51%. The highest percentage (51%) was observed in 2007. The percentage decreased to reach 41% in 2016. Females represented 52% of the graduates of the communications sections of faculties of engineering in 2014 compared to 45% in 2012. These numbers reflect that more opportunities and incentives should be given to females to study ICT fields.



**Figure (3): Percentage of females among the graduates of faculties of computers and information in Egypt**



Source: The statistical year book, CAPMAS, 2018.

### **III-3 Working in the ICT sector**

As stated in the 2019 World Development Report, technology will open new opportunities for women economic participation<sup>13</sup>. The ICT sector is perceived as a promising sector for women since it is relatively new, thus the senior managers are younger compared to other sectors and they are more likely to have positive values regarding women roles in society so they believe that workplaces should empower women. Women enjoy skills that make them successful in several jobs in this sector. These skills include the accuracy of observation and attention to details and colors and presentation skills, which makes them successful in testing functions, web-designing and graphic designing<sup>14</sup>.

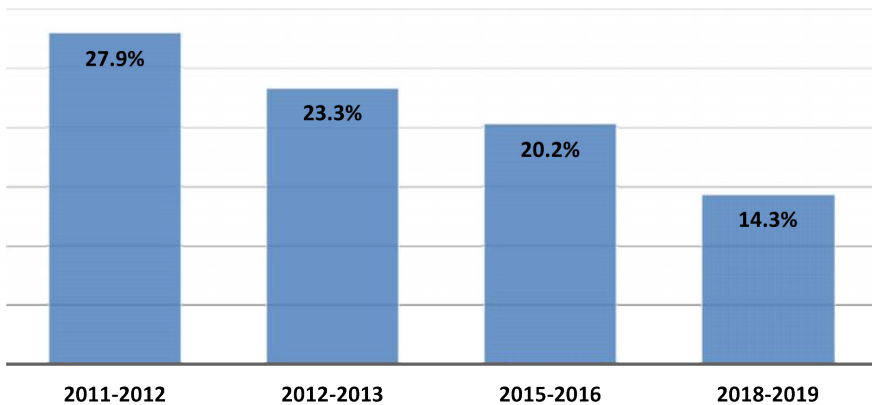
<sup>13</sup> World Development Report, the World Bank Group, 2019.

<sup>14</sup> Based on an in-depth interview with a senior team leader in private sector.



Despite the efforts that Egypt is doing to improve the presence of women in the ICT sector, the percentage of females among professionals and administrators working in the ICT sector decreased from 28% in 2011/2012 to half this percentage in 2018/2019 reflecting that more efforts are needed to create more jobs for women in the sector.

**Figure (4): Percentage of females among professionals and administrators working in the ICT sector**



*Source: ICT for women portal.*



### **IFAD-ILO Taqweem<sup>15</sup> Initiative - Egypt**

The initiative launched a nation-wide reality TV competition that included both male and female entrepreneurs as competitors. The program, El Mashrou3, followed 14 young entrepreneurs who competed for a chance to win prizes and support to launching their own businesses. The program staff designed a randomized trial that evaluated whether the TV show changed perceptions of young women as entrepreneurs and motivated viewers to launch their own ventures. Preliminary results indicated that it was possible to shift public perception on the ability of young women to launch and run their own businesses.

Egypt launched the first portal to address “ICT for women”. The portal objective is to “support females and empower them to use ICT in all aspects of life benefiting from their abilities or to join the field of ICT and help them to overcome the challenges they are facing”. It provides information for girls and women who are interested in the ICT field and seek to learn or to join a career opportunity<sup>16</sup>.

To encourage women to enter the ICT economic sector, the Egyptian Ministry of Communications and Information Technology has announced a contest for women innovation in ICT for supporting the Egyptian women through empowering them via ICT. In line with SDG target 5, the Women ICT Excellence Award comes as a part of

<sup>15</sup> World Bank 2018b.

<sup>16</sup> [http://www.ictforwoman.gov.eg/overview\\_obj.aspx](http://www.ictforwoman.gov.eg/overview_obj.aspx)



a series of initiatives and activities carried out by MCIT to support the Egyptian woman using ICT tools. The Women ICT Excellence Award includes two categories; individuals' category and MSMEs category. A technical



committee, comprised of MCIT and NCW as well as academic institutions, was formed to set up criteria and evaluate participants according to those criteria.

### **Women leadership in ICT**

- The percent of females among students majoring in computer science is on the rise in Upper Egypt Universities. The percent of females among junior students in Faculty of Computers and Information at Asyut University increased from 31% in 2014/2015 to 40% in 2017/2018<sup>17</sup>.
- Faculties of Computers and Information have a female dean in six public universities<sup>18</sup> and 50% of faculty members of the Faculty of Computers and Information at Cairo University are females.
- The CEO's of three main governmental organizations namely, Information Technology Industry Development Agency (ITIDA), Information Technology Institute (ITI) and National Telecommunications Institute (NTI) are women.

<sup>17</sup> [http://www.aun.edu.eg/faculty\\_computer\\_information/arabic/statistics\\_Students.php](http://www.aun.edu.eg/faculty_computer_information/arabic/statistics_Students.php)

<sup>18</sup> Academic year 2018/2019 in Ain Shams University, Asyut University, Cairo University, Fayoum University, Helwan University, and Suez University.



## **IV- Policy implications and recommendations**

- Develop gender responsive strategies and policies that integrate a gender perspective in ICT strategies, policies, plans, and budgets. This requires active participation of women throughout the design, implementation and monitoring of strategies and policies.
- Develop monitoring and evaluation tools around gender equality and ICT that go beyond accessibility and use. M&E tools need to measure and analyze the changing landscape of jobs, the flexible formats of work, and, the sectors where job opportunities for females are increasing/decreasing due to automation.
- Ensure women's and girls' affordable access to ICTs in line with global targets established especially for deprived women and girls.
- Leverage innovative approaches in using technology to improve security in transportation and workplace, as it is one of the obstacle to increase female labor force participation, and, prevent, mitigate and respond to threats that arise from ICTs and address inequalities that hinder girls and women from fully participating in and benefiting from the information society.
- Develop e-governance policies that address gender gaps in accessing government services and in expanding financial inclusion.





- Increase private and public investments for ICT education and training for women and girls. Specialized training and internship opportunities may help breaking down barriers and make productive sectors more gender inclusive. As skills are the currency of the modern workplace, lifetime learning in ICTs for girls and women should take high priority in community development programs conducted by governmental and non-governmental organizations. In other words, governmental organizations and non-governmental should work in two parallel tracks: building a more skillful female potential employees and eliminating obstacles that hinder creating jobs for women in ICT intensive, ICT dependent and ICT enhanced jobs.
- While designing public policies for ICT education, policy makers should not focus only on the supply side. While programs that delivers skills training and counselling are important, programs often ignore the demand side component which work with firms to ensure that the enough good quality jobs are being created to justify the increase in supply<sup>19</sup>.
- Promoting women's recruitment, retention and promotion to executive positions in the ICT/technology sector through advocating for the positive role models and enlisting existing women leaders in ICT and emphasizing their achievements.

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<sup>19</sup> For further discussion of integrating the demand side and the supply side for digital jobs see World Bank 2018.



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