

## Digitalization from a gender perspective

### What is Digitalization?

Digitalization can be defined as the development and use of digital technologies and artificial intelligence to change a business model and provide new revenue and value-producing opportunities. It is the process of moving to a digital world, including e-governments, e-health, e-services, etc.

### How will it affect the world of work?

The impact of digitalization in the world of work can be divided into 4<sup>1</sup> categories:

1. Job creation: the creation of new sectors, new products and new services.
2. Job change: new forms of worker/machine interaction and new forms of jobs and employment.
3. Job displacement: the eradication of jobs which can be digitalized, automatized or robotized. Studies<sup>2</sup> predict that jobs that will become redundant include secretarial and office jobs, sales positions and low or unskilled jobs in the postal, courier services and storage sector, in the cleaning sector and in the restaurant and catering industry.
4. Job shift: the development of digital platforms and crowdworking, where workers from countries with high levels of social protection are brought into competition with those from countries with low levels of protection and from developing countries. These developments challenge the tradition understanding of employment, working time and place, and companies.

Per studies<sup>3</sup>, 47% of people employed are in job categories that are amenable to computerization (particularly those that require routine measurements, operation, pattern recognition or manipulation). *“... there’s never been a worse time to be a worker with only “ordinary” skills and abilities to offer, because computers, robots, and other digital technologies are acquiring these skills and abilities at an extraordinary rate”<sup>4</sup>*

This trend could lead to a net employment impact of more than 5.1 million jobs lost to disruptive labor market changes in white collar office functions like administrative and office work and a

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<sup>1</sup> DEGRYSE, Christophe. Digitalisation of the economy and its impact on labour markets. ETUI, 2016.

<sup>2</sup> VOGEL, Sandra. Germany: Effects on the labour market and working conditions. Eurofound, October 2015.

<sup>3</sup> Frey, CB & Osborne, MA 2013, ‘The future of employment: how susceptible are jobs to computerisation?’, *Oxford Martin School Working paper*, United Kingdom, accessed at [www.oxfordmartin.ox.ac.uk/downloads/academic/The\\_Future\\_of\\_Employment.pdf](http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf)

<sup>4</sup> BRYNJOLFSSON, Erik and McAfee, Andrew. *The Second Machine Age*. W.W. Norton and Company, Inc., New York, 2014. Pg.11

total gain of 2 million new jobs in Computer, Mathematical, Architecture and Engineering related fields<sup>5</sup>.

Examples:

### **Probability of job computerisation**

Job Probability

Recreational therapists 0.0028

Dentists 0.0044

Athletic trainers 0.0071

Clergy 0.0081

Chemical engineers 0.017

Editors 0.055

Firefighters 0.17

Actors 0.37

Health technologists and technicians 0.4

Economists 0.43

Commercial pilots 0.55

Machinists 0.65

Word processors and typists 0.81

Real estate sales agents 0.86

Technical writers 0.89

Retail salespersons 0.92

Accountants and auditors 0.94

Telemarketers 0.99

Furthermore, the advancement of technology will place new demands on employees. *“In all jobs, across all sectors, the ability to work with technology and understand its impact on the business is now a basic job requirement<sup>6</sup>”*. For example, in Europe, the 2010 edition of the European Working Conditions Survey (EWCS) estimated that more than 50% of the EU workforce used ICT in their daily work and that the sector with the heaviest use of ICT was finance.

*“...However, training in information and communications technology (ICT) alone will not guarantee success in the future workplace. As computing power continues to increase, more and more tasks will be automated. This will require employees to undertake tasks that are less routine and not readily automated, which will involve complex problem solving, teamwork and interpersonal negotiation skills<sup>7</sup>”*.

## **What is the impact of technology and digitalization on women?**

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<sup>5</sup> World Economic Forum. “The Industry Gender Gap: Women and Work in the Fourth Industrial Revolution”, January 2016.

<sup>6</sup> BRADLOW, Hugh. “The Impact of emerging technologies in the workforce of the future”. Australia’s future workforce? Committee for Economic Development of Australia (CEDA), June 2015. Pg. 39

<sup>7</sup>Ibid.

- **Workers will be able to choose their location for work-life balance reasons and have more flexible working hours.**

The future world of work will be characterized by its fluidity. This means that people will be able to shift between employment forms (part-time, permanent, platform, etc.) often, but this fluidity or flexibility will affect workers in different ways.

In the case of gender, flexible working impacts women and men differently. With flexible working time, men often invest more time in work. Women, by contrast, use their flexibility for activities and duties outside work. The reason behind this premise is that women still take the bigger share of household responsibilities.

This constant movement between works will create an additional surcharge of “overhead” work (changing jobs, interviewing, applying for jobs, etc.) for women, putting even more strain on their time and responsibilities.

Furthermore, at the workplace the idea of “ideal worker” still prevails and that is the worker who works full-time, has no duties outside the workplace and is therefore available for the employers’ needs at any time.

Since women take on most of the home duties, they have fewer capacities than male counterparts to be “ideal workers”.

- **Workers will need to invest further in training and life-long learning.**

The flexibility of work will also be accompanied by an increasing need to educate, train and build new skills and capacities to face the challenges of the new world of work. The problem lies in the fact that when digitalization is discussed, it is done so on a gender-neutral basis. This also includes the issue of training and life-long learning, which are essential to keeping up with digital innovations.

Unfortunately, we are at risk of leaving a large portion of the workforce behind, particularly women, because they either can’t afford training or because they cannot fit their family duties with the need to work in a flexible workplace and re-train.

*“Because further education is seen as an inevitable consequence of the digital revolution, we might even expect that the ‘ideal worker norm’ will be stretched out further. At the digitalized workplace, the ‘ideal worker’ might not only work full-time and comply with the employer’s needs but might also constantly engage in further training. Since men have more time on their hands than women to invest in training and life-long learning, such a work norm would worsen gender inequality at the digitalized workplace”<sup>8</sup>*

In the case of older women, this is particularly evident not because of their age, but because learning new things becomes more challenging, especially when technology is always changing. This also implies that if they are not engaged in life long training, their chances to remain employed diminish considerably.

- **Greater demand for some specific types of skills**

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<sup>8</sup> LOTT, Yvonne. The need for a Gender Perspective on Digitalization. [www.socialeurope.eu](http://www.socialeurope.eu)

STEM (Science, Technology, Engineering and Math) and digital skills are some of the fastest growing skills in the labour market<sup>9</sup>.

But the number of women represented in these areas is not equally fast growing<sup>10</sup>. The reason is that women are many times discouraged from STEM careers, or computer sciences because they feel they are male dominated sectors. For example, in OECD countries, at age 15, fewer than 5 percent of girls consider careers in engineering and technology, compared to 18 percent of boys.

*“At both Facebook and Google, women make up around a third of the company’s payroll, but only 16% of technical jobs at Facebook and 18% at Google are held by female engineers. At Twitter, it’s only 10%. These figures are the norm across the industry – in Europe, only 7% of engineering jobs are held by women”<sup>11</sup>.*

In Europe, only 9 % of developers are women, only 19 % of bosses in the ICT and communications sectors are female (compared with 45 % in other service sectors) and women represent just 19 % of entrepreneurs (compared with 54 % in other service sectors)<sup>12</sup>.

Furthermore, women who do earn degrees in STEM fields, tend to specialize in areas like health and life sciences, while men are more likely to go into computer science and engineering, which tend to pay more

But there is also the problem of the “leaky pipeline” for women in STEM careers. In the UK for example, women leave STEM roles, rather than pursuing a lifelong career in STEM. Some of the reasons for this include, family responsibilities, lack of employer flexibility, unclear career paths, and moving to non-technical roles at the employer’s request.

Per the 2012 WISE Report, 13% of all the STEM workforce are women, but the higher up in the career ladder, the larger the deficit with of women: only 10% in managerial positions and 17% of top grade academic positions.

If this trend continues, the lack of women in STEM careers and the digitalization of the workforce will mean, in other terms, that while men will face nearly 4 million job losses, they will still gain 1.4 million new jobs,; while women will face 3 million job losses but only 0.55 million new jobs <sup>13</sup>.

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<sup>9</sup> In Australia, the Australian Bureau of Statistics, the number of people employed in these occupations since 2006 has increased in 14 percent with ICT professionals growing by 19 per cent. In the United States this increase has been of 17 percent.

<sup>10</sup> According to the National Center for Women & Information Technology of the United States, women made up just 18% of computer science college grads in 2012. In 1985, it was 37%.

<sup>11</sup> FISH, Grace. Women in Technology: Ways to Close the Gender Gap. [www.techchange.org](http://www.techchange.org).

<sup>12</sup> European Parliament Report on gender equality and empowering women in the digital age (2015/2007(INI)). 8 April 2016.

<sup>13</sup> Ibid. World Economic Forum Report.

But that is not all. A recent paper by the World Economic Forum<sup>14</sup> states that although women are in some cases, such as computer coding, more competent on an overall basis than men, there is still a bias against them, to the point that women need to hide their gender when they submit their work.

Lack of access to technology and education; investment gaps; unsupportive working environments; and cultural beliefs and stereotypes, will only make it harder for generations of women to access and adapt to the new world of work.

#### - **Widening of the technology gap**

In 2013, the gap between men and women's access to internet was 200 million. By 2016 it has been estimated to be 350 million<sup>15</sup>.

*"In Africa, for example, women are 50 percent less likely to use the internet than men. In addition to ownership and access, lack of control over the use of technology can be an additional barrier for women. A recent report by Intel and Dalberg reveals that in Egypt and in India, for example, 12 percent of women did not access the internet more often because they did not think it was appropriate, and more than 8 percent did not access it more often because family and friends would disapprove"<sup>16</sup>.*

Additionally, more than 1.7 billion women around the world do not own a mobile phone, even when 80 per cent of the population in developing countries have one.

This limited access to science and technology keeps women from having the power to change and modify their living conditions and environments, from economic opportunity, like growing businesses and social enterprise, to opportunity for greatly improving health outcomes (including sexual and reproductive health), energy, environment and natural resource management, and infrastructure development.

#### - **The impact of technology and labor segregation**

*"The Fourth Industrial Revolution will transform the global economy and society in an unprecedented manner. Industries are already undergoing profound shifts in their business models as technology is disrupting current methods of production, consumption and delivery. Labour markets are also rapidly changing in this context. As a result, gender gaps are set to increase in some industries as jobs traditionally held by women become obsolete, while at the same time opportunities are emerging in wholly new domains. We must clearly understand the progress thus far as well as the future outlook to reap the opportunities and mitigate the challenges presented by these trends"<sup>17</sup>.*

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<sup>14</sup> World Economic Forum. « Women are seen as better coders than men – but only if they hide their gender », 15 February 2016.

<sup>15</sup> UNESCO/ITU Broadband commission

<sup>16</sup> SANTOS, Indhira. Gender matters: from digital divides to digital dividends. [www.worldbank.org](http://www.worldbank.org)

<sup>17</sup> The Global Gender Gap Report 2015 from WEF

As we observed previously, in the upcoming decades, 47% of the jobs currently existing will be amenable to computerization. The problem lies on the type of jobs that will disappear. Per the US Bureau of Labor Statistic, some of them are: sewing machine operators (in Bangladesh, 80% of the people working in the textile and garment industry are women); agricultural workers (43% of the worlds agricultural labour force in developing countries are women); administrative assistants, file clerks, (they represent 96% of the 4 million workers employed in this area in the US) and bank tellers.

This means, that the impact of job cuts as a part of technology being implemented will have a direct impact on areas of work that are generally feminized.

## Why do we need women in technology?

Let's begin with the users. Half of the users of both technology and websites are women. Their choices impact up to 85 percent of purchasing decisions and in countries like the United States, they account for \$4.3 trillion of the total U.S. consumer spending of \$5.9 trillion<sup>18</sup>. This means they are the largest single economic force in the world.

Their participation in the workforce also provides a more diverse workplace which helps drive creativity and innovation in technology.

As members of the workforce, women's participation in ICT sectors would increase significantly countries GDP. In Europe for example, the European Parliament estimates this growth to be worth 9 billion EUR.

Women, as active members of information driven societies will also be essential to the generation and distribution of wealth and knowledge. It will also provide for new platforms for expression, opening new opportunities to defend rights and freedoms, as well as the inclusion of disadvantaged groups, thus creating more fair, equal and inclusive societies.

Should the current industry gender gap persist, and labor market transformation leave women behind, women will be at a risk of losing out on future job opportunities while reducing the diversity dividend in the workforce

## What can we do?

The digital revolution, which includes the rise of the personal computer, mobile devices, computers embedded in everyday appliances, the commercialization of the internet and the continued advances in information and communications technology in the workplace and in society, has resulted in major transformations in businesses, communications and at the workplace; as well as an opportunity to increase workers' autonomy and work life balance.

With the right skills and education, people, particularly women, can use technology to create and capture value. Creative, problem-solving, and social skills will be key skills in the 21st

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<sup>18</sup> KHANNA, Derek. "We need more women in Tech: The data prove it". The Atlantic, 29 October 2013.

century; especially in those areas where computers are still challenged to match human proficiency.

Jobs in the arts and media, management, business, and healthcare are intensive in social intelligence, suggesting that human workers are likely to retain their comparative advantage despite the inroads made by digital technology. Similarly, workers with creative intelligence, complex problem-solving, or specialist technical skills are likely to have a bright outlook, with employment opportunities.

But technology and digitalization can also mean that the quality of employment be strained due to the undermining of collective bargaining practices, eroding revenues in tax and social security systems, as well as the hollowing out of workers' rights and mechanisms of worker participation. For women, it can signify a bigger gender gap in terms of economic benefits, skills, education, and job opportunities.

For this reason, it is important to establish a series of priorities and long term commitments that should include:

- **Measuring** the causes of gender imbalances to provide adequate policies.
- **Awareness** of the need to develop the necessary skills to face the new challenges, including the need to change those social and cultural paradigms that create labor and educational segregation of women.
- **Lifelong learning programs**, including Mentorships and training, to help impart knowledge and to help manage a more diverse workforce that will help attract, retain and promote female talent.
- **Work life balance** to ensure that women have more possibilities to maintain a sustained career progression as well as continuous training.
- **Inspire** more women to follow in the steps of leadership, breaking social and cultural barriers and perceptions regarding women's' work.
- **Strategic policy making** to ensure that the right tools are in place for the promotion of women and their inclusion in the new digital workforce.

As unions, we need to continue to fight for the enforceable and fundamental rights of all types of workers in all forms of employment; and by helping empower women with the skills and the knowledge to adapt to the technological changes, we will be helping to improve the efficiency of their work, their participation in the labor markets, increase economic wealth and provide for better living conditions for societies around the world.