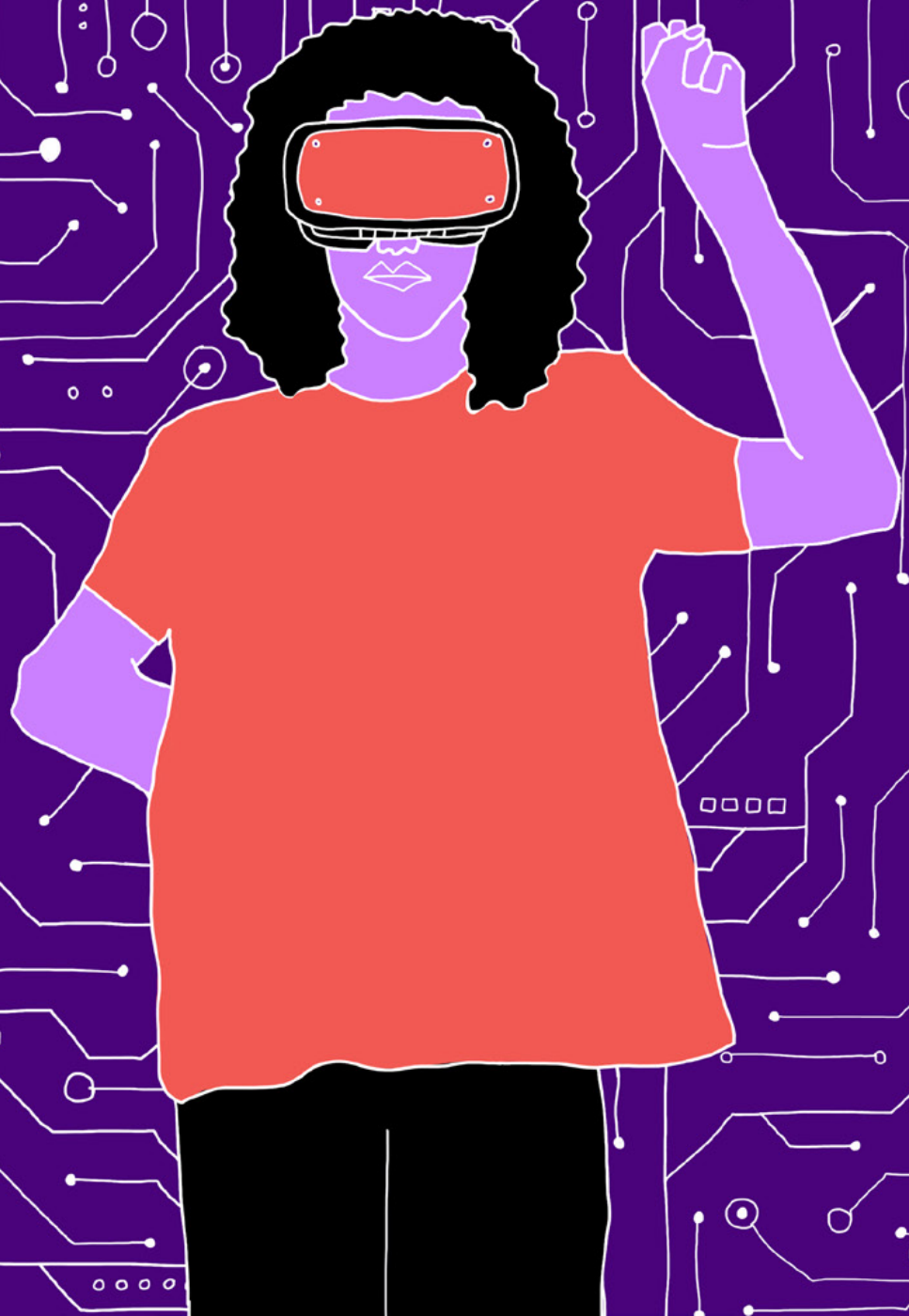# Feminist Perspectives on the
Digital Economy
in the MENA Region

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السياسية
POLITICAL FEMINISM

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About The Author

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Introduction

Information technology has provided women with new job opportunities. However, in light of existing conditions, the International Labour Organization (ILO) has expressed concern about the possible reproduction of gender disparities in the information economy, with men occupying the majority of high skilled jobs that generate high added value, and women occupying low skilled jobs that generate low added value. The positive changes that occurred as a result of advancements in Information and Communication Technology (ICT) did not benefit everyone equally. Since existing power relations dictate who enjoys the benefits of such changes, this technology is not gender-neutral. Will the socio-cultural structure of Arab states help women in this regard? Will national policies empower women and allow them to benefit from available opportunities? Will the current regional circumstances help strengthen women's position within the digital economy[1] (Sheikh Ali, 2002:222)?.

"The positive changes that occurred as a result of advancements in Information and Communication Technology (ICT) did not benefit everyone equally."

1. Digital Economy is the economy that largely utilizes Information and Communication Technologies across new high-tech sectors. It is based on generating, disseminating, and using knowledge, which is the main driving force for economic growth and increased wealth, given that knowledge, creativity, and renovation play a pivotal and increasing role in achieving and sustaining growth. Knowledge is one of the most important growth factors in a digital economy, and it is considered an autonomous commodity. A knowledge economy represents the maturity and development phase of an information economy, which focuses on data processing and rapid communication.

Part 1.
Regional Diversity and the State of the Digital Economy

Arab countries can be categorized into four different groups in terms of their progress towards the digital economy. The first group includes the high-income countries of the Gulf Cooperation Council (GCC). These states have a high internet penetration rate, high literacy rates, and, in most cases, relatively low youth unemployment. The second group includes Jordan and Lebanon, which have a high internet penetration rate due in part to their urban nature. The third group includes the rural, lower-middle income countries of North Africa (Algeria, Egypt, Morocco, and Tunisia). These countries have GDP levels similar to those of the Middle East, but with lower literacy rates and a total of 100 million citizens who are not connected to the internet. The final group includes conflict-ridden countries, namely Yemen, Iraq, Syria, Palestine, Sudan, and Libya, and the least developed countries (LDCs) (Comoros, Djibouti, Mauritania, and Somalia) (Mostafa, 2019).

Arab markets are considered fertile ground for digital and technological entrepreneurial ventures, with 266 million internet users and the highest growth rate of internet users around the world. Estimates indicate that the rate of data flow across borders that connect the Middle East to the rest of the world increased by more than 150 times during the past decade. This is despite the fact that the use of the internet, social media, and digital technology in general is based on news circulation, communication, and entertainment, which means that it is still primarily of a consumerist nature. But it also means that there are untapped opportunities for different types of internet usage available. Some Arab states, however, namely the United Arab Emirates, have shown significant progress towards a digital transition, with the digital economy contributing to 4.3% of the total GDP (2017 statistics), in addition to a high level of growth that exceeds other economic sectors (Swiss Arab Entrepreneurs, 2019).

The region's citizens and companies need access to reasonably priced broadband internet services to be able to benefit from digital opportunities. The reality, however, is that the region is not prepared for that. Its digital infrastructure lags behind compared to other emerging regions, the internet speed is slow, and internet markets suffer from monopolies or other obstacles to entering the market (World Bank Group, 2018:38).

The fourth industrial revolution[2] provided an opportunity to include more of the region's women in ICT and other sectors. However, the female labour force participation rate in the Middle East and North Africa (MENA) region is the lowest in the world at 21.2%, according to a 2017 report by the ILO, compared with approximately 40% in other parts of the world (Fathi, 2017). Women only contribute 18% to the total GDP. Although this low percentage is due to the exclusion of the value of women's unpaid care work at home from the GDP. The present gender gap is not only reflected in the traditional labour market, but has also extended to other economic fields, including the technology sector, thus affecting women's access to digital services (Fathi, 2017).

The MENA region includes some of the - most educated but unemployed people in the world. In 2019, high-skilled university graduates constituted around 30% of the total number of unemployed workers in the region, many of whom were women. Across the region, women tend to outnumber men in universities and

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2. The fourth industrial revolution describes the blurred lines between the physical, digital and biological worlds. It is a combination of advancement in artificial intelligence, robotics, the Internet of Things, 3D printing, genetic engineering, quantum computing and other technologies. It is the collective force behind many products and services that have become indispensable amidst the pace of modern life. Some may define it as the era of rapid technological advancement and new innovations, whose rapid application and dissemination led to a sudden change in society.

account for almost one third of all students pursuing science, technology, engineering and mathematics (STEM) in Arab universities. The MENA region ranks last in terms of the Global Gender Gap Index, and the World Economic Forum projects that it will take the region 153 years to overcome the gender gap. In terms of economic participation, the female employment rate is just one aspect of the story. The gender gap also refers to equal pay, income level, the percentage of women in professional and technical jobs, and the percentage of women in senior and leadership positions (Manna, 2019).

Digital Economy Policies in the Region

During the 11th International Conference on Intellectual Capital, Knowledge Management and Organisational Learning, Arab states pledged to work towards an information society, i.e. a society in which the generation, dissemination, and use of information has a significant impact on all economic, social, political, or military sectors (Rooney, 2014). At the national level, some Arab states began to translate these pledges into their legislative structures. In Beirut, an agreement was made to include the digital economy in the January 2019 Summit's list of approved items. Later, Lebanon began paving the way for a digital transformation by adopting Law No. 81 on Electronic Transactions and Personal Data, which legalized digital transformation and e-signatures (Wahab, 2019). In Saudi Arabia, the Knowledge Economic City was built in Medina. In Egypt, the Ministry of Communication and Information Technology established the first specialized technological incubators at the end of 2000. In the United Arab Emirates, the Dubai Internet City was built. Tunisia, Morocco, Bahrain, and Oman also made a number of advancements in the digital sphere (Abou El-Chamat, 2012).

In 2014, 11 out of 19 countries in the MENA region adopted national broadband strategies. At the core of these strategies are targets addressing broadband penetration or coverage across the MENA region. These targets may differ across the region, depending on available broadband infrastructure and on the disposable income of the population, as well as on the state of government finances (Gelvanovska et al., 2014: 3-4). Moreover, the Joint Arab Strategy for Digital Economy was launched to work on strengthening the economy's main pillars and applications that add value to the digital economy (Al Eqtisadiah, 2019).

Women and the Digital Economy

Although one of the primary goals of the United Nations was to bring internet connectivity to the world by the end of 2015, the large digital divide between the rich and poor still exists today, creating a multifaceted digital gap between countries as well as between different groups within societies, particularly between women and men. Most Arab states could not make the most of the ICT sector, given that the majority of people living in rural areas cannot afford access to relevant services. In these areas, access to electricity and communication is still a major challenge. Without these essential elements, these communities, and women in particular, cannot benefit from technology in any area of their lives.

At the same time, digital economy channels provided women with a major opportunity. Possessing skills in modern technology and one or more foreign languages divided IT-literate female workers into two categories. The first category consists of women who have superficial knowledge of how to operate electronics and who practice e-commerce or sell services on social media platforms or on their own websites. Their work centres on traditional female products, such as clothes, beauty products, home supplies, and food. Although real gains from such initiatives may be limited, these first attempts provided socially disadvantaged women with new opportunities, even if this is not an easy approach to generate income. The second category consists of women who have a certain level of education and skills that allows them to make optimal use of technology. One such example is Pharmacist Rasha Rady, co-founder and Chief Operating Officer (COO) at Chefaa, an Egyptian e-pharmacy service where people can order and schedule regular deliveries for the medications they need. Rasha claims that "The digital transformation of healthcare in the MENA region is coming, that's for sure." (Gabr, 2019).

Women use modern technology based on their economic capacities, their knowledge, and their desired goals. Opportunities in the digital economy therefore are available according to the skills that each person possesses. These skills can be classified as follows:

- **Basic skills**: these include the use of hardware (e.g. using a keyboard and operating touch-screen technology), software (e.g. word processing, managing files on laptops, managing privacy settings on mobile phones), and basic online operations (e.g. using email, search, or completing an online form). Basic technological skills enrich our lives and enable us to digitally interact with others and access government, commercial, and financial services. Most female university students and women who possess minimal English-language skills have the ability to utilize these basic skills. While these skills enable women to access knowledge, they do not have a significant impact on their employment status.

- **Intermediate skills**: these skills refer to the use of digital technologies in even more beneficial ways. These skills allow users to perform a wide range of digital tasks. They are needed to produce, analyse, interpret, and visualize large amounts of data, including desktop publishing, digital graphic design, and digital marketing. The number of women who possess intermediate skills is lower than those who possess basic skills as the former most likely gains their skills through specific ICT education.

- **Advanced skills**: these are the skills that are needed in professions such as computer programming, network management, system engineering, and IT project management. The number of women who master these skills is lower than the previous two categories. The jobs that require advanced digital skills are generally associated with salaries much higher than the salaries in jobs that require basic or intermediate digital skills (International Telecommunication Union, 2018).

"The large digital divide between the rich and poor still exists today, creating a multifaceted digital gap between countries as well as between different groups within societies, particularly between women and men."

Part 2.
The Future of Digital Developments in the Region

Digital transformation caused a shift in existing markets and industries around the world and led to rapid and fundamental transformations in human lifestyles and behaviours. This digital transformation held prospects at its core for a smarter, more inclusive economy that is connected by a global ICT network. In the MENA region, the fourth industrial revolution provided more women with the opportunity to participate not only in ICT and other technological sectors, but also in other markets and industries in general. Digital technologies also enhance women's ability to express their opinion and increase their participation within society by providing interactive channels that allow them to take part in public discussions.

The region is considered the epicentre of the world's fastest growing data transit market. Data traffic growth in the region will increase at a precipitous 42% compounded annual growth rate from 2016 to 2021. Influenced by historically intertwined geographic and cultural ties, the MENA-Europe data exchange rate grows at over 50% per year. The Arab region's potential in the digital economy is also evidenced by the successful projects that have emerged in recent years, such as Maktoub and Souk.com, launched and based in Amman, Jordan, and Magnitt, an Iraqi start-up now based in Dubai which is a marketplace for investors that links 5,500 start-up firms with investors from across the region (Rossotto and Haddad, 2019).

The report "A New Economy for the Middle East and North Africa" states that the foundations have been laid for the transformation into a digital economy. However, the broadband infrastructure in the MENA region is still influenced by mostly overstaffed, state-owned companies that operate using outdated infrastructures. At a time when a former monopoly like Orange plans to invest hundreds of millions of dollars in Africa's large digital commerce platform, Jumia, MENA countries are still paralyzed by state-owned companies (World Bank Group, 2018: 44).

Citizens of Middle Eastern countries have shown notable interest in digital media. However, large companies and governments did not tap into this interest, as only 6 percent of people in the region live under a digitized smart government (Benni, Enrico et al., 2016).

Technology may increase labour efficiency and create job opportunities in new sectors, but it can also lead to the disappearance of a number of jobs. In addition, income and employment gaps may continue to increase unless the workforce that suffered from job losses is reintegrated into the economy. There is no doubt that technological change improves living standards, but this improvement does not affect all workers and companies equally. World Bank researchers found that digital technologies create opportunities for skilled workers and dynamic companies, while they harm low-skilled workers and less productive companies. The report issued in September 2018 by the World Economic Forum indicates that a seismic shift in the way humans work alongside machines and algorithms may lead to the displacement of 75 million jobs, while 133 million new jobs are expected to be created by 2022, creating a net average of 58 million jobs. Jobs such as programme developers, data analysts, and digital transformation specialists will be in great demand in the coming period (Cann, 2018).

Forbes magazine prepared a list of 20 professions or occupations that have started to disappear, such as postal workers, mail sorting and delivery workers, and transport-related logistics, as the sorting process becomes automated and consists of scanning package barcodes. The list also includes call centre workers who have been replaced by computer programmes that switch calls and reroute them as requested by the customer. Disappearing jobs also include

office machine operators, sewing machine operators in clothes factories, oil pumping system operators, and even fast food cooks. Programmed technological and robotic systems are now able to replace these professions at a lower cost and higher degree of efficiency.

The trend toward greater automation will be especially challenging for women. It is estimated that 26 million women's jobs in 30 countries are at high risk of being displaced by technology within the next 20 years. Women who are 40 years and older, and those in clerical, service, and sales positions are disproportionately at risk. Nearly 50 percent of women with a high-school education or lower degree are at high risk of losing their jobs due to automation (Dabla-Norris and Kochhar, 2018).

Technology allows skilled young people to overshadow older workers, but it makes low-skill youth fall further behind, requiring a refocusing of social protection and labour policies (World Bank Group, 2018: 52).

The new work patterns may fall within the informal and unstructured sector. In several countries, workers in this sector do not benefit from social protection systems. The Careem application for transportation services, which has started to recruit women, is an example of this new type of work. Freelance work websites, such as Appwork, allow unemployed computer programmers and other high-skilled workers to find informal remote jobs through the internet. The informal sector employs a large number of workers, ranging between 40 and 70% in Arab states, who are deprived of any social or legal protection, as self-employment – a feature of the economy that is not based on recruitment – is not covered by the prevailing traditional social security programmes in the region (Mehdad, 2019).

Social protection systems rely on monthly contributions from fixed-salary workers in the public and private sectors to provide protection in cases of disability or old age, or to protect families in cases of death. However, there are certain sectors of employment that do not fall under social insurance programmes, such as daily wage workers or the self-employed. This is also the case for many professions related to new technology (World Bank Group, 2018: 52).

"Nearly 50 percent of women with a high-school education or lower degree are at high risk of losing their jobs due to automation."

Challenges Related to Women's Participation in the Digital Economy

Given the growing trend towards shifting to a digital economy in the region, there is an urgent need to attract a workforce skilled in the fields of technology, engineering, math, and science. This shortage in technologically qualified workers presents a great opportunity for women to increase their participation in the global ICT sector, as it currently does not exceed 24%, according to a World Economic Forum report. The increase in women's labour force participation is expected to greatly benefit technology and related industries, as well as achieve an increase of about $2.7 trillion in GDP by 2025 (World Bank Group, 2018:6).

The low rates of women's economic participation in the MENA region is due to the cultural and social landscapes of those countries, as well as to gender roles that confine women to care roles within the family. The weak participation of women in the labour market is also due to the absence or weakness of affordable social services, the lack of a safe and reliable public transport network and the gender-based wage gap, with women earning 60-75% less than men (Manaa, 2019).

Unlike the traditional economy, the digital economy encourages workers to perform their jobs remotely making gender less of a factor in employment. However, women who wish to join the digital economy markets face the same cultural, social, and economic challenges as the traditional economy. This prevents them from making the most of the opportunities available in the ICT sector (World Bank, 2015). The challenges that affect Arab women's participation in the digital economy the most are:

- Digital illiteracy: this is one of the biggest challenges that women face when seeking to enter the traditional and digital labour markets. The issue of digital illiteracy cannot be addressed separately from traditional illiteracy, weak education policies, and low quality of educational content.

- Weak digital security: discrimination against women limits their access to the labour market. Women do not only encounter hatred in public spaces, but also hostility, aggressive language, and sexual harassment in the virtual world. Their personal information may be used to threaten, defame, or blackmail them, financially or sexually, leading many to disengage from the internet to avoid such risks. The amount of abuse that female internet users endure is inversely proportional to their electronic expertise (Hamdi, 2019).

- Internet access disparities: the latest Ooredoo report on the MENA region shows that two out of three internet users in the region are men. In 2015, 84 million women in the Arab world did not have a mobile phone. According to World Bank figures, gender disparities in internet and mobile phone use greatly contribute to the expansion of gender disparities overall (Al-Suais, 2015). Moreover, internet access is not available to all segments of society, especially the working and middle classes, who consider the internet more of a luxury than a necessity. (Hamdi, 2019)

- Poor broadband coverage: many Arab countries now recognize that broadband coverage is important for reducing poverty and creating jobs, especially for women and young people (Al-Suais, 2015), but investment in broadband is still far below what is needed.

- The low number of women working in STEM fields: although the proportion of female students in STEM departments is high, their

transition into the labour market remains challenging. In Arab countries, the proportion of female university graduates is higher than the proportion of male graduates. The United Nations Educational, Scientific and Cultural Organization (UNESCO) estimates that women in the region make up 34-57% of students who graduate with honours in the fields of science and mathematics, a rate unmatched in neither the United States nor Europe (World Bank Group 2018:6).

• Lack of role models: role models attract others to the field. However, the lack of female role models in the fields of science, technology, mathematics, and engineering in the region can discourage young girls to take this path as they do not see it as being open and welcoming towards women (Manaa, 2019).

• Difficult access to funding: the private sector remains the main actor tapping into the digital economy. Just like in the traditional economy, the adoption of a digital economy requires capital. In Arab countries, women and men have unequal access to funding. Women receive 23% less funding than men, according to studies, and 30% fewer positive exit deals than men (Manaa, 2019).

• Lack of training or lack of access to training: lack of technical skills training is a common barrier to women's entry into the ICT sector in all developing countries (World Bank, 2015). Three types of skills development training programs have been made available recently to catch up with the digital economy:

- The first type of training is provided by government programs aimed towards building new generations of technologists. These programs focus on skills such as the development of digital games, mobile phone applications and websites, mechatronics, multimedia and big data analysis, among many other advanced technology disciplines (Ministry of Communications, 2017).

- The second type of training is provided by private training companies in all Arab countries. It attracts technology students who wish to develop their skills and non-tech students who wish to join the field. However, these companies are often located in capital cities, and the training courses they offer are expensive. Thus, they automatically exclude low-income segments of the population, regardless of talent, as well as those living in provincial and rural areas.

- The third type of training is online training. Thousands of sites offer training courses accessible to all those who own a computer and good internet speed. However, many areas that are not connected to advanced broadband networks do not have good internet speed.

• Unequal access to senior positions: the digital economy is currently reinforcing gender-segregation patterns in the job market, with men occupying most of the high-skilled, high-value-added jobs, while women occupy low-skilled, low-value-added positions (Goromorthy, 2004: 31).

• Double workload: digital economy channels have enabled some women to earn money through e-commerce, allowing them to easily access the latest products and develop their businesses without having to travel. Many sectors of Arab society are moving towards adopting the e-commerce approach, reinforcing current gender roles by allowing women the possibility to generate income while staying at home and caring for their families. Some conservative movements are advocating for this trend by providing women with all the knowledge and financial support they need to become successful models for modern working women who nonetheless uphold traditional roles. These same movements have so far supported the establishment of thousands of women's websites, whether intended for commerce, education, or services, in order to create a parallel cyberspace that retains separation between the sexes.

Despite the many challenges women face when they explore the opportunities offered by the digital economy, female business leaders in the region have already been able to achieve great successes, paving the way for a potential fourth industrial revolution that will bring about an entrepreneurial transformation in the region. One in three start-ups in the region is either founded or run by a woman. Women are offered better job opportunities and have greater chances of reaching leadership positions in enterprises led by women than in those led by men. Indicators reveal that women's opportunities to participate

in the digital economy and the rapidly changing labour market are greater under women leaders and entrepreneurs (World Bank Group, 2018:7).

Countries in the region are witnessing a rise in women-led initiatives in the ICT field, which could ease many of the challenges mentioned above. Some of these initiatives are based on the support of international organizations, while others receive governmental support. Examples of these initiatives are:

• The Arab Network for Women in Science and Technology (ANWST), which is overseen by the Arab Gulf University in collaboration with UNESCO. The network was launched in 2005 and involves 250 female scientists from 18 Arab countries. It was established to increase the visibility of women in the fields of science and technology, allow scientists specialized in different domains to become acquainted and interact with one another, and encourage girls to major in science and technology (Laha Online, 2005).

• The "WeMENA"[3] initiative provides network connectivity, training, mentoring, and funding to start-up firms established by women in the MENA region. This initiative aims to develop women's resilience through an annual competition that involves female contestants from countries facing dangerous conditions such as wars and the lack of safe shelter. The competition is designed to motivate contestants to find solutions and overcome obstacles to obtaining credit, transportation difficulties, or security threats (Suleiman and Lavinal, 2017). Contestants receive business training at the hands of Silicon Valley instructors from the United States and are given the chance to compete for a cash prize of $150,000 (WeMena, n.d.).

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3. WeMena (Women entrepreneurs for a resilient future) is a platform that supports women entrepreneurs in the MENA region.

Feminist Perspectives on the Digital Economy: A Discussion Impulse

Technology as a Tool for Marginalization

In her book entitled *The Real World of Technology*, Ursula Franklin expresses her concern regarding the extent to which technology interferes in everyday life, resulting in a "culture of subordination," where technology itself becomes an instrument of social control (Franklin, 1989). Vandana Shiva also challenges the claim that technology is a global phenomenon that emerged from a dominant culture and views modern knowledge systems as colonial. Shiva calls for an alternative local technology as well as a redefinition of knowledge so that the local becomes the legitimate. Therefore, the perspective on the democratization of knowledge and technology is linked to human liberties, as it liberates knowledge from its dependence on mono-perceptual systems and makes it more authentic and better linked to local communities (Shiva, 1993).

Looking at the internet through a human rights lens requires reflection not only on access but also on equality and equity in regard to the knowledge available on the internet. The massive reach of the internet over the past decade has brought more diverse populations and communities to the network. However, the knowledge available on the internet does not reflect global diversity, given the low number of women, people of colour, and people from the Global South producing content (Allman and Singupta, 2019).

Only those in power decide which voices are heard and which knowledge appears on the internet. Wikipedia, for example – which ranks fifth in the world in terms of the number of visitors – reflects the depth of this inequality between countries in the Global North and South. In fact, 80% of its editors are from Europe and North America, despite the fact that they only constitute 20% of the world's population. Noting that more than 75% of the original sites with the highest visitor yields are registered in Europe and North America, while most internet users are from the Global South. Wikipedia also lacks gender balance, as women only constitute 10% of its editors, and biographies of women only make up 17% of the total number of biographies listed on the English-language site. These indicators reveal multiple inequalities that, if not addressed, will make the internet yet another area of inequality between countries (Allman and Singupta, 2019). There is no doubt that controlling the field of ICT supports and strengthens the power of states, companies, groups, and even individuals, and gives them the ability to innovate and make rapid changes in the field of information technology. However, most middle- and low-income countries are unable to provide sufficient access to technology or bear the financial burdens it entails. The disparity between the capabilities of rich and poor countries points to the digital gap and the associated unequal distribution of technology revenues. Developing countries suffer from this gap, as do different regions, groups, and social classes within them (Gurumurthy, 2004: 23-24).

Marginalized groups – which make up the majority of the world's population – deserve better internet services, and to learn history and gain knowledge in an easier and safer way. Only when this is achieved will the right to internet access lead to the justice of knowledge on the World Wide Web (Allman and Singupta, 2019).

An Opportunity to Bring About Positive Change... Or Is It?

Does ICT promote social change? A study published in 2003 indicated that technology was not as much a tool for change as it was rumoured to be, despite the huge resources that have been invested in low and middle-income countries to increase their access to ICT. Although ICT is not a panacea for fighting poverty, the study indicates that its power can be harnessed for

development and poverty reduction by using it as a tool to help in developing broader strategies and programs for building opportunities and bettering the situation of poorer communities (McNamara, 2003: 1-2).

Technology can also be used to combat harmful cultural practices, such as violence against women. The "Get Ready Technology" campaign was able to shed light on the problem of violence against women through technology, in addition to providing information, research, and proposed solutions from various parts of the world. Moreover, modern technology possesses all the features that would create new opportunities for feminist networks and movements to carry out advocacy, mobilization, and solidarity-building work. Recently, the region witnessed the proliferation of several positive models that harness technology for transnational feminist organization.

Although developing countries benefit from the ICT industry to create certain jobs, global transnational corporations still have an upper hand in controlling markets, production, and distribution processes (Gurumurthy, 2004: 28). This leads to the continuation of the socio-economic and gender gaps in society.

Therefore, we must consider the nature of these opportunities, how fair they really are and whom they benefit the most. We must also think about who has the ability to access them. Taking advantage of opportunities in tech requires knowledge, capital and communication networks, all of which are resources enjoyed by the owners of large capital and influential international companies.

The Internet: An Outlet for Censorship and Tyranny

Threats to democratic content on the internet are increasing and individual freedoms are under attack. Global transnational corporate interest groups and some national governments seek to assert both economic and political control over the internet to advance their interests. Many of the giant multinationals in the field of ICT are interested in maintaining their monopolies over the "personal information" of their customers. The "war on terror" has been, as is widely recognized, a pretext to exploit new technologies as weapons of control to curtail the right to privacy and the right to dissent. When

the internet proved its worth as an effective tool to demand citizens' rights after the events of the Arab Spring in 2011, governments did not hesitate to cut off access to the internet, and the authorities of Arab countries took arbitrary measures to suppress citizens' online freedom of expression. Authorities also targeted political activists, and passed laws that authorize criminalizing dissidents and journalists (Abruqi, 2019).

The authorities tightened their control over social media platforms and mobilised their "electronic armies" to rouse and direct public opinion (Arabicpost, 2018). There was also coordination between countries in the region to further tighten control and oversight, and to watch those considered mouthpieces for the opposition (Radash, 2015). As people find new ways of expressing opinions, authorities find new ways of silencing and countering them.

Etisalat and Ooredoo are among the worst ranked companies according to the RDR Index, which assesses the extent to which ICT companies respect the rights of users by publishing usage policies, especially those related to freedom of expression and customer privacy. Both companies failed to publish policies intended to clarify how they deal with user data. The publication of usage policies is considered a basic principle in digital privacy for advocates of digital rights. Some companies have even partnered up with governments to enforce internet censorship (Abrouqi, 2019). By enacting legislation that prioritizes cyber security and the interests of ruling regimes over those of citizens, some Arab countries have overridden international treaties and the basic tenants of international law (Al-Jawhar, 2018).

Towards a Future of Work Based on Social and Gender Justice

ICT can contribute to building a just future of work for women if policies to ensure workers' rights, insurance, parental leave, as well as healthy and safe working conditions are put in place. The most common job opportunities in the ICT sector are still performed remotely, but these opportunities often fall under the informal sector. Therefore, social protection systems need restructuring in light of the changes brought about by technology to labour markets, and in light of the increase in the number of workers outside traditional and regulated frameworks.

Building a just future for women in the digital economy will only be achieved through a structural change in the ICT sector, not merely through the inclusion of women within that sector. The first step in structural change should be to develop a common vision for a global information society that contributes to human development. This should be based on human rights principles which include anti-monopoly and anti-hegemony movements that strive to use technology to achieve social justice. The current ICT system is organized around elite, patriarchal, techno-central, and non-democratic lines. Moreover, it is based on capitalist values, making opportunities for change impossible without searching for alternative ethical frameworks to govern the system. A more inclusive, democratic, and gender-equitable information society can only be achieved if the actors involved in it commit to coordination and cooperation.

Technology can contribute to building a just future of work if women have equal access to higher-paying tech jobs. To achieve this, women need access to the education and training opportunities necessary to equip themselves with rapidly-evolving skills. In rural communities, women may need to acquire basic technological skills, such as creating digital content and learning the basics of digital safety (Mannaa, 2019). In view of the rapid technological changes, digital economy markets will need to regularly update skill requirements in order to qualify for employment in multiple professions during a worker's life cycle. Digital economy markets will also need to re-examine tax policies as well as be flexible enough to enable workers to move from old occupations to new (Badran, 2017: 7).

Moreover, a just future for women in the digital economy cannot be achieved without the support of the international community, which must promote clear strategies in the field of gender when designing, implementing, and evaluating ICT projects and programs. It is also crucial to confront the monopoly of large companies by using international forums such as the "World Summit on the Information Society" to confront the hegemony of the Global North and large firms over the ICT field.

The two NGO working groups on gender strategies and the civil society at the World Summit on the Information Society collaborated on preparing a list of the most pressing issues in the field of gender equality, which was dubbed "The Seven Necessities". The list included issues such as a review of the diverse needs of women; respecting efforts to promote and build on international conventions and declarations; supporting information and communication technologies as effective channels for peacebuilding; adopting and promoting development based on social justice; and adopting possible national alternatives that are low-cost and accessible to all (Jolly et al. 2004: 30).

To achieve gender equality, women must play an active role in shaping the digital future. This requires the establishment of qualified female cadres in STEM fields. It also requires policies that allow for a fair representation of women in leadership positions (Badran, 2017: 2).

A gender-just future also needs to create new patterns of economic activity and provide opportunities for economic, political, and social empowerment for women, as well as the promotion of gender equality. However, this can only be achieved through a solid understanding of and appropriate exposure to the information society in terms of user needs, access conditions, policies, applications, and regulatory frameworks.

Policies that facilitate the redistribution of labour and shorten its downtime are also required to ensure a gender just future in the digital economy. The adoption of strong and flexible social protection systems would help in the redistribution of employment. The experience of Denmark with low unemployment rates is a case in point as its generous social safety nets created a flexible movement in labour markets, allowing for smooth recruitment, layoffs, and a healthy state of labour supply and demand. However, the flexibility of markets and the quality of safety nets are not enough without building sufficient human resources and constantly developing and nurturing them in order to enable them to seize new opportunities brought by future labour markets. This brings us back to emphasize the need to raise the quality of education, link it to the needs of labour markets, and provide opportunities for pursuing education (Peralta-Alva and Reutmann, 2018).

Building a just future also requires a restructuring of social protection systems to accommodate new forms of work associated with information technology, which also include the potential

fluctuation of the levels of income. Some countries became aware of the potential change in labour markets, so they resorted to adopting a minimum wage. Some experts also suggest reviewing the tax system for those who lose their jobs due to automation (Dabla-Norris & Kochhar, 2018).

Finally, in order to build a just future for women, the digital economy must produce a "technology that is friendly to humanity and the environment, and we will not be able to do so without democratic control over the means of producing this technology." (Darwish, 2019).

"Modern technology possesses all the features that would create new opportunities for feminist networks and movements to carry out advocacy, mobilization, and solidarity-building work."

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