Uneven Disruption: COVID-19 and the Digital Divide in the Euro-Mediterranean Region

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With more than three billion people forced into lockdown worldwide, the COVID-19 pandemic induced some profound changes. From video conferences and telework to online shopping and online learning, "going digital" has become crucial for sustaining economic activity and social interactions. But beyond speeding up the transition towards a more digital world, the COVID-19 pandemic is shining a light on serious equity challenges, as all are not equal in terms of access to the Internet and the capacity to navigate the web. The COVID-19 pandemic is exacerbating a relatively recent, yet significant, form of social inequality; digital inequalities, also known as the digital divide. In the Euro-Mediterranean zone, within the space of just a few months, the global pandemic highlighted the profound disparity of responses and approaches to technology deployment and adoption both within and across the two shores of the Mediterranean. The digital divide is emerging as a significant threat to the Barcelona Process' goal of bridging the gap in living standards for people living in the Euro-Mediterranean zone.

This paper will start by offering snapshots of how digital technologies are being used in southern Mediterranean countries as critical tools for maintaining certain essential services and a general sense of continuity. It will then explore inequalities between the connected and the unconnected across selected Euro-Mediterranean countries. Finally, it will propose a set of policy responses to fight the harmful impact of the global health crisis on the digital divide and enable an inclusive and thriving knowledge society to develop across the Mediterranean.

COVID-19 as a Catalyst for Digital Transformation

Before the pandemic, a paradigm shift towards the digitization of the economy was already underway in southern Mediterranean countries. For instance, in 2019, Egypt launched an e-payment system to collect taxes and fees for government utilities such as electricity, natural gas, water and sanitation. In January 2020, the Jordanian Ministry of the Digital Economy announced that it was migrating its information and communication technology (ICT) infrastructure to the cloud, as part of its ongoing E-government programme. The move was set to expand the scope of online public services available to its citizens.

Despite some progress, the region was unprepared for the crisis. Lockdown measures, curfews, and the suspension of several public and private services forced governments, businesses and civil society groups in the region to hasten their digital transformation. Below are a few examples of digital applications during the pandemic.

E-Health

From big data analytics for epidemiological surveillance to telemedicine and mobile health applications, digital health solutions are playing a pivotal role in the fight against the COVID-19 pandemic. In southern Mediterranean countries where public health systems are crumbling due to years of underinvestment, the use of ICTs has proved to be a cost-effective way to disseminate scientific guidelines on how to avoid the spread of the virus and keep safe. For instance, the Algerian government collaborated with mobile operators to deliver SMSs to subscribers containing COVID-19-related health information. In Tunisia, a digital platform for online consulta-

tion, Tobba.tn, was launched by a group of medical doctors to provide the necessary assistance to people unable to attend physical meetings.

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E-Education

With COVID-19 forcing over 1.2 billion students across the world out of school, e-learning platforms served as a useful substitution to traditional classroom teaching. To keep students engaged, the Jordanian government, together with domestic technological startup companies, developed the platform "Darsak" (Arabic for Your Lesson). Every day, three to four new lessons are uploaded to the platform between 6 am and 4 pm, but they remain accessible at any time. The Egyptian Ministry of Education extended access to the Egyptian Knowledge Bank to students, providing content by grade level and subject. The material was made available in Arabic and English. For the 2020-2021 academic year, the country is set to rely on a hybrid system integrating face-to-face teaching and online learning. This, as explained by Egypt's Minister of Education, would require rapidly investing in the development of the country's digital infrastructure.

E-Commerce

Social distancing measures led consumers to ramp up online shopping, producing a spike in business-to-consumer (B2C) sales and business-to-business (B2B) e-commerce. The increase in B2C sales is particularly evident in online sales of medical supplies, household essentials and food products. According to Sacha Poignonnec, the chief executive of Jumia, Africa's largest e-commerce operator, Jumia has registered a four-fold surge in grocery sales during the pandemic, especially in Tunisia and Morocco where lockdowns resulted in a 100% spike in sales. Once people have experienced the benefits of online shopping, these practices will likely remain, resulting in efficiency gains.

As digital technologies become more firmly embedded in all aspects of life, they enable users to lead more productive and fulfilling lives. They can help southern Mediterranean countries solve long-standing economic and social problems. However, it is unlikely that the progress in digitalization mentioned above will produce a significant difference to the millions of people living in the region, many of whom work in the informal economy and have limited access to the Internet. If the global health crisis is surely speeding up the transition towards a more digital world, it is also exposing a grim reality in terms of digital equity within and across countries.

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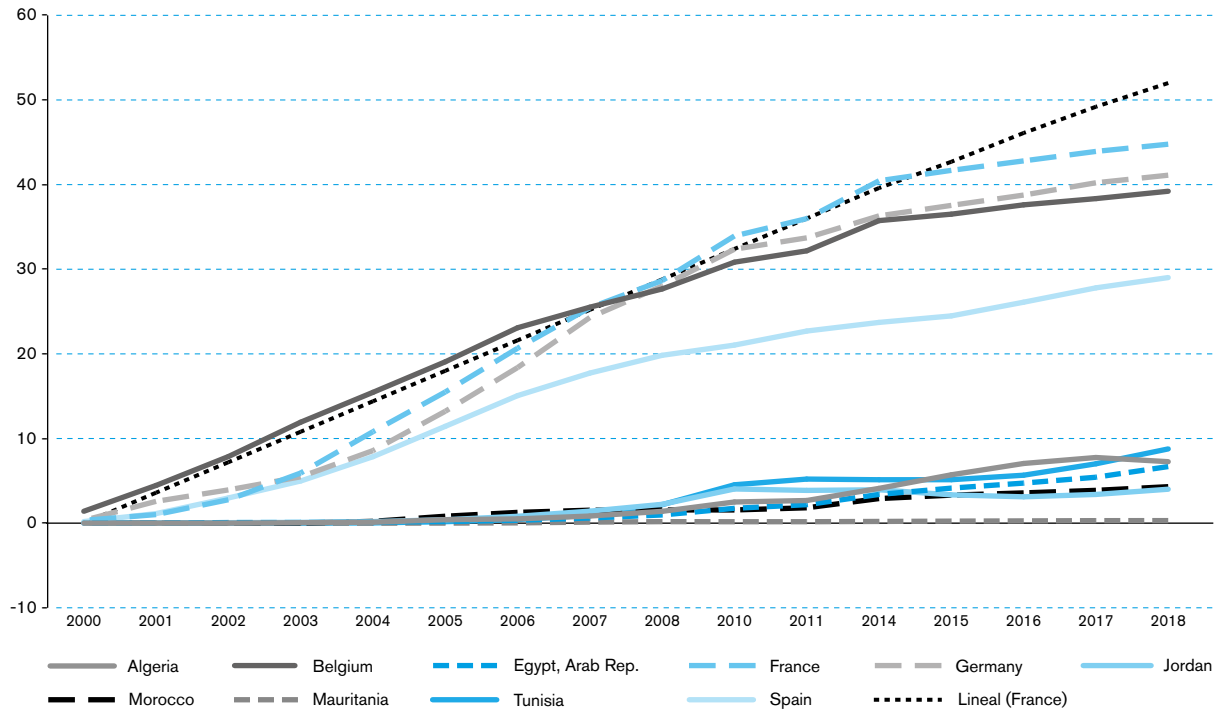
The Digital Economy: A Major Equalizer?

There has been much fanfare about the potential of digital technologies to produce inclusive growth and bridge inequalities. In some of the academic literature and policy circles, ICTs are perceived as radical tools that can "flatten" the global economy. The argument, in short, holds that by improving user's access to information and reducing transaction costs related to trade, the integration of digital technologies in economic activities will result in productivity gains and economic growth.

Yet, the claim that the digital revolution will level the playing field has no empirical evidence. Contrary to conventional wisdom, digital technologies have been associated with sharpening geographical inequalities in information control and processing capabilities. Technological catch up requires considerable organizational and institutional change. ICTs are unlikely to be transformative in the absence of broader changes, including in infrastructure and human

CHART 7 **Fixed Broadband Subscriptions per 100 Inhabitants**



Source: World Bank Data, 2020.

capital. The global digital revolution is, similarly to previous economic revolutions, hierarchically organized, creating spaces of exclusion and marginalization (Huws, 2014).

The COVID-19 pandemic is brutally uncovering this reality. How people, social groups and economies are able to cope with the crisis depends largely on their material means and their capacity to benefit from their use of technology. The following data analysis reveals asymmetries in both Internet access and usage within and across Euro-Mediterranean countries.

Broadband Access and Usage in Euro-Mediterranean Countries

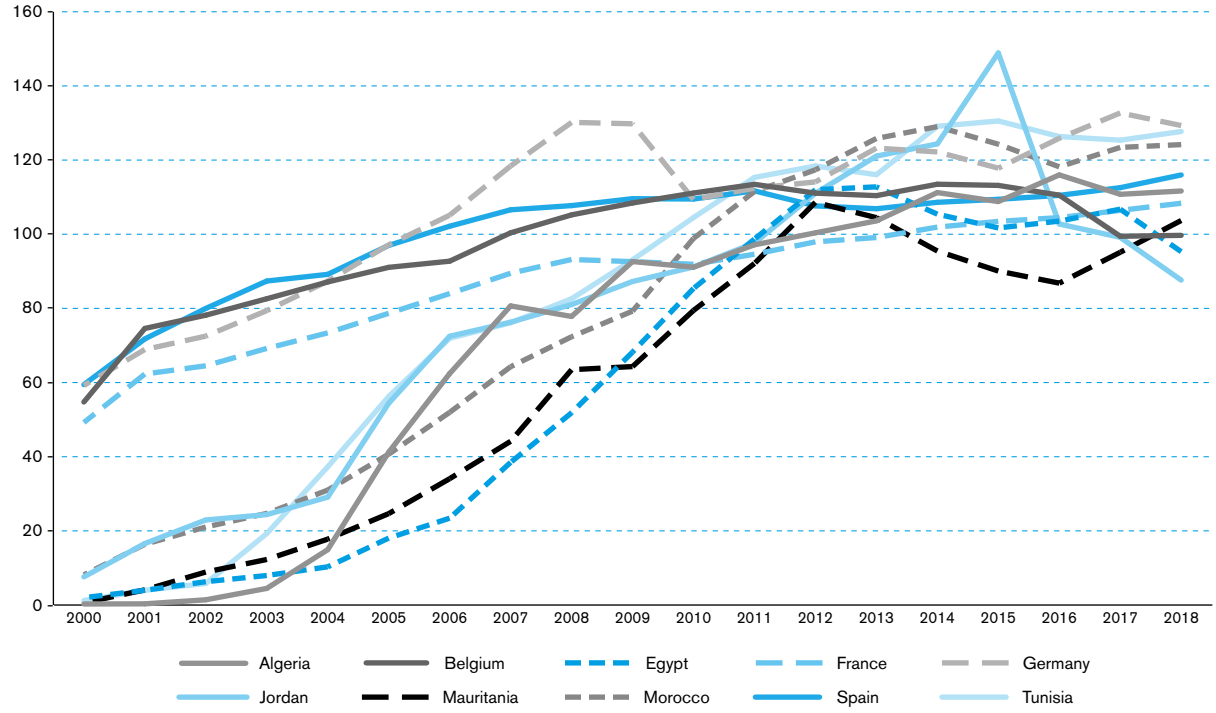
In 2018, it was estimated that 90% of European households had domestic access to the Internet, 33.5% of which had fixed broadband subscriptions. Despite an increasing share of homes with internet access in southern Mediterranean countries with an average of 61% as of 2018, data indicates that southern Mediterranean countries did not make meaningful improvements in terms of fixed broadband subscriptions. Algeria and Egypt registered only 7% of fixed broadband subscriptions while Mauritania counted virtually no such subscriptions.

While the number of fixed broadband connections in southern Mediterranean countries remains low, there has been a significant catch up in mobile broadband penetration with 3G and 4G networks covering over 60% of the population. This growth in mobile broadband access is correlated with an impressive surge in mobile-cellular subscriptions. Tunisia and Morocco surpassed Belgium, France and Spain in terms of mobile subscriptions, both registering over 120 subscriptions per 100 inhabitants (Chart 8).

However, the spike in mobile subscribers in southern Mediterranean countries has not translated into a substantial bridge in the asymmetry in internet usage between Euro-Mediterranean countries. Additional challenges, such as the lack of access to reliable and affordable electricity and the relatively high prices of broadband in the region, make bridging the digital divide even more complicated.

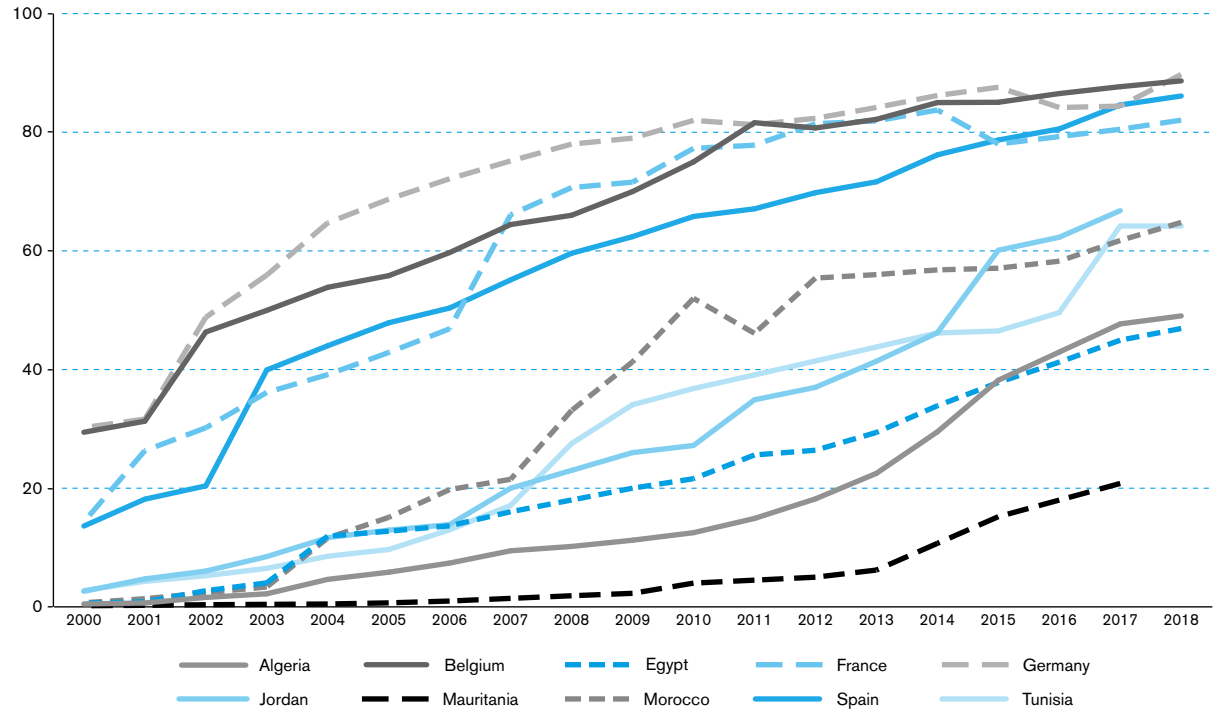
Internet user values (as a percentage of population) indicate the "proportion of people who used the Internet from any location in the past three months." Data on internet users show significant discrepancies

CHART 8 **Mobile-cellular Telephone Subscriptions per 100 Inhabitants**



Source: World Bank Data, 2020.

CHART 9 **Percentage of Individuals Using the Internet**



Source: International Telecommunication Union (ITU).

across Euro-Mediterranean countries. In 2018, 82.41% of the populations in the European Union used the Internet, while only 59.64% in North African and Middle Eastern countries (excluding high-income countries) had the privilege of using the Internet.

Among Arab countries, gender-disaggregated data shows a noteworthy gap between males and females in terms of internet usage. Algeria registers the most substantial gap with a 12.2% divergence in the share of male and female internet users, followed by Egypt with a difference of 11.1%. The International Telecommunication Union (ITU) estimates that the gender gap in Arab countries is the second highest in the world after the one registered in Sub-Saharan Africa.

TABLE 1 **Percentage of Individuals using the Internet by Gender**

Country	Latest year	All individuals	Gender	
			Male	Female
Algeria	2018	49.0	55.1	42.9
Belgium	2018	88.7	90.1	87.3
Egypt	2018	46.9	52.4	41.3
France	2018	82.0	83.8	80.4
Germany	2019	88.1	91.1	85.3
Italy	2018	74.4	77.1	71.8
Jordan	2017	66.8	..	..
Mauritania	2016	14.1	16.9	11.0
Morocco	2018	64.8	68.5	61.1
Tunisia	2018	64.2	..	..
Spain	2019	90.7	90.7	90.7

Source: International Telecommunication Union (ITU).

Urban-Rural disparities in internet usage are also significant. Data from a subset of analysed countries highlights that the number of internet users in rural areas is lower than in urban agglomerations. The gap is correlated with broader differences in socio-economic development between rural and urban regions in Euro-Mediterranean countries and globally. The most significant divide is in Morocco, where there is a staggering 35% difference in the share of internet users between urban and rural areas, according to 2016 ITU data.

During a pandemic, underlying inequalities in access to the Internet become more significant as they modulate the health hazards for different segments of the population. Telecommunication networks can play a critical public safety role, especially as a tool for disseminating the right information and guidelines. Hence, digitally excluded communities are more vulnerable to the virus. For reasons that are not yet clear, southern Mediterranean countries registered, at the time of writing, fewer COVID-19-related casualties than their northern counterparts. But in general, communities and societies with weak access to ICTs face higher risks in the face of pandemics than those with extensive access to networks and public safety systems.

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Digital inequalities also represent a significant threat to the non-sanitary consequences of the health crisis. Online activities including e-commerce, e-learning, e-conferencing or digital cash transfers, which contributed to keeping a share of economic activity afloat during the lockdown in advanced economies, were not accessible to large chunks of the populations living on the southern shores of the Mediterranean.

Internet Usage Patterns

Beyond access to the Internet, there are important divergences in internet usage patterns across and within Euro-Mediterranean countries. Internet usage patterns refer to the type of activities carried out online by internet users. In southern Mediterranean and other developing countries, internet usage is mostly done through mobile phones for person-to-person communication and social media consumption.

Despite its benefits in improving communication, this dominant usage pattern has not achieved significant gains in productivity, efficiency and innovation. A study on ICT integration in Tanzania and Kenya indicated that while ICTs are being adopted rapidly in East Africa, including in agriculture, these tech-

nologies are often only used for communication purposes, instead of deeper forms of information processing, resulting in modest productivity gains (Foster et al., 2018).

Online shopping remains very scant in the region, as indicated in Chart 10. Only 1% of Egypt's total population engages in online shopping, while this ratio is 75% in Germany. Variations in levels of education interfere in internet usage practices. Purchasing or ordering goods and services on the Internet or carrying out e-banking is more widespread among tertiary-educated users in the world, including in Arab countries.

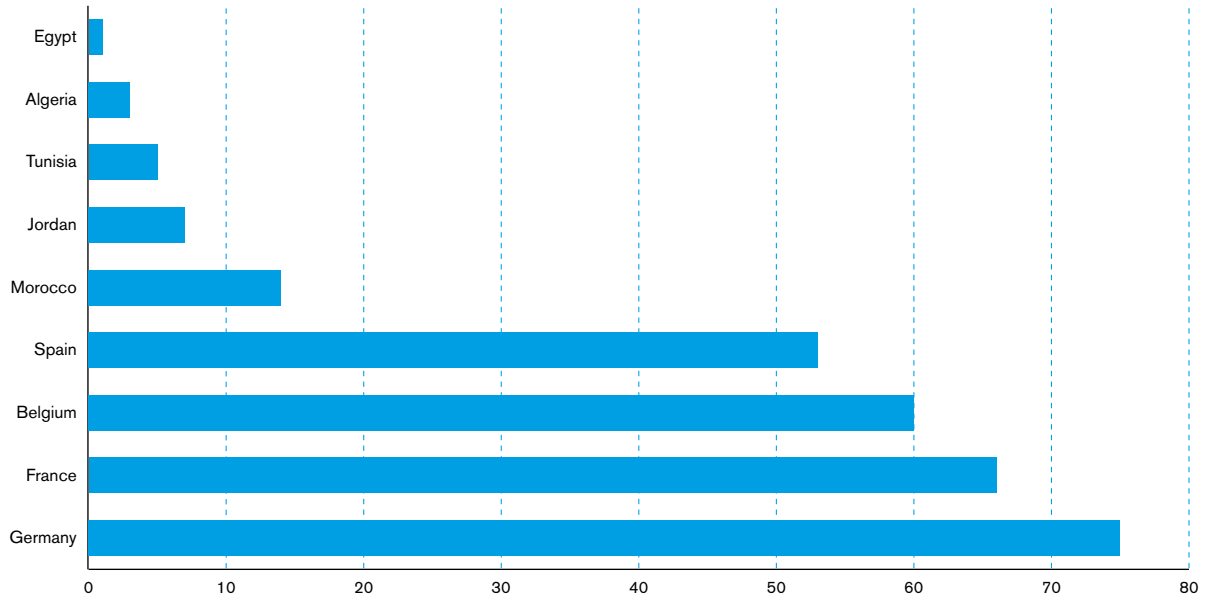
The low rates of banking ownership play a major role in the anaemic use of e-commerce in southern Mediterranean countries. Currently, it is estimated that 70% of adults in the region have no account ownership. Fintech solutions, through the creation of platforms for mobile and online money payments, can participate in consolidating local financial services. Fintech in Egypt is so far the most advanced market in North Africa with over 40 players. With the comprehensive Startup Act it recently adopted, Tunisia is seeing progress in its fintech ecosystem. Yet despite some advances, the fintech scene in the region remains under-developed, and it is far from meeting the needs of the millions of unbanked people.

Importantly, the lack of readiness of southern Mediterranean fintech startups and other digital players during the pandemic, means that large digital platforms, often owned by technology corporations from advanced economies, will further entrench their dominant market position. Mega-digital platforms can leverage their scale to lock in their competitive technological advantage, weakening the capacity of less advanced businesses in poorer economies to learn, catch up and innovate (See Mann and Lazzolino, 2019)

Bridging the Digital Divide in a Post-COVID-19 World

The coronavirus outbreak has hastened the move towards the digital economy, and changes in behaviour are likely to have lasting effects well after the pandemic. But as discussed above, there are still wide variations in the readiness of individuals, businesses and societies in the Euro-Mediterranean zone to embrace a more digitized future. Without the right policy interventions, existing digital asymmetries are in danger of widening further. Below are a few policy recommendations to enhance digital equity.

CHART 10 **Internet Shoppers as a Share of the Population**



Source: UNCTAD B2C E-Commerce Index 2019.

Investing in Digital Infrastructure

To bridge the digital divide, it is vital that southern Mediterranean countries improve their international connectivity and national backbone infrastructure. It is expected that improving digital infrastructure will lead to generalized uncapped data volumes for both mobile and fixed broadband at a quality and pricing equivalent to countries on the northern shores of the Mediterranean.

Internet exchange points (IXPs) are a critical type of infrastructure, with the potential of improving the quality and affordability of the Internet in southern Mediterranean countries. Currently, Algeria, Tunisia and Libya do not have any IXPs, which means that their domestic internet traffic is exchanged through points outside their national borders, through satellite or across Mediterranean submarine fibre cables passing through several international hubs to reach their destination. This results in reduced internet speed and discourages hosting content locally, some of the key factors hindering the development of a dynamic local digital ecosystem in the region. More IXPs would enable faster, more affordable and reliable broadband access. Similarly, data centres can reduce southern Mediterranean countries' consumption of the international bandwidth and boost the resilience of their national networks.

Improved digital infrastructure will be vital for rolling out 5G networks and using emerging technologies such as the Internet of Things (IoT), artificial intelligence (AI), blockchain and robotics. Investment in a globally competitive infrastructure to support the transition to a digital economy should be a top priority for policymakers. Nonetheless, these upgrades will require large investments, hence the need for multi-stakeholder cooperation to establish and support digital infrastructure development initiatives.

Promoting Digital Literacy and Technological Capabilities

Although conditions to ensure physical access to the Internet are essential, they are not sufficient alone to achieve the "full benefits" of digital technology. Improving education and learning lies at the heart of measures aimed to narrow digital inequalities. Nurturing digital skills is, in part, the job of schools and universities, where the foundations of lifelong learning and technological literacy are laid. Primary and tertiary education in the poorest countries of the Mediterranean are often obsolete and lack digital literacy training. In a post-COVID-19 world, comprehensive reforms in educational systems will be of crucial importance for building the digitally savvy workforce of tomorrow.

Beyond traditional educational systems, governments and civil society actors have a crucial role in promoting lifelong learning, ensuring that all, especially those in danger of exclusion, have the chance to develop ICT skills and understanding. Linguistic issues are central to people living in North Africa and the Middle East, given the dominance of the English language in the digital sphere. Recent data generated by the web technology survey platform, "W3techs," focuses on language distribution in the top 10 million websites, and finds that only 0.9% of these websites are in Arabic. Putting an end to digital exclusion requires developing more digital content in Arabic.

For young people in southern Mediterranean countries to reap the full benefit of the digital economy, they need to be trained to become not only technology users but technology producers

That being said, improving digital literacy will not be enough to bridge the digital divide. As the production and processing of digital data capture an increasingly substantial value in the global economy, the question of who gets to produce data, process it and commercialize it becomes crucial for thinking about the nature of economic development in the digital age. Hence, for young people in southern Mediterranean countries to reap the full benefit of the digital economy, they need to be trained to become not only technology users but technology producers. In this vein, it is essential to strengthen innovation ecosystems by boosting cooperation between universities, research centres and the private sector. With the digital divide expected to be more qualitative in the future, enhancing digital capabilities will have a positive impact on the qualitative usage of the Internet and increase the socioeconomic returns associated with it. As part of the Union for the Mediterranean,

digital catch-up strategies in a post-COVID-19 world ought to invest in human capital development, through training programmes, scholarships, technology transfer and best practice. Closing the skills gap will require focusing on women, rural citizens and other marginalized groups.

Reforming Digital Regulatory Frameworks

Regulatory reforms play a central role in bridging the digital divide. Promoting competition in the telecommunication industry has long proven to reduce internet prices (Stiglitz, 1999). In the Maghreb, however, national telecommunication operators hold monopoly positions in their respective markets. In contrast, other developing countries that opened the telecommunication sector to competition saw a decline in broadband prices. By fostering a digital-friendly business environment, regulatory reforms can improve ICT affordability and enhance social and economic welfare for all stakeholders.

Beyond their core mission of defending a country against cyberthreats, cybersecurity laws improve the use of the Internet, by creating a secure, dynamic and inclusive digital space. Morocco, Tunisia, Algeria and Egypt have all enacted cybersecurity laws, but these lack proper privacy and data protection components. The lack of sufficient means to protect internet users may lead individuals, administrations and companies to shy away from digital tools and services, with significant developmental consequences. Moreover, the failure to protect people, especially the most vulnerable among them, against cyberattacks and cybercrime will jeopardize the benefits afforded by internet access, causing material and privacy loss.

In environments with weak data protection frameworks, location-tracking applications used to monitor the spread of the COVID-19 pandemic raise serious concerns regarding privacy and human rights protection. Recent reports from Algeria and Morocco indicate that incumbent regimes leveraged digital technologies to control political opponents and spy on journalists and social activists. EU Member States should increase their engagement with southern Mediterranean countries, to set up shared standards that promote cybersecurity, data protection and human rights.

Conclusion

In a post-COVID-19 world, business-as-usual is not an option, as it may leave the less digitally equipped even further behind. More efforts are required to bridge the digital gap between the two shores of the Mediterranean and between individuals within each country. Creating mechanisms to subsidize digital infrastructure development, building digital skills and technological capacity, as well as promoting inclusive and fair digital regulatory standards, will undoubtedly help reduce digital inequalities. If these policies are coupled with broader strategies to build competitive knowledge economies, it could shield citizens in the Euro-Mediterranean zone from the looming threat of automation, lead to new employment opportunities, wage increases, and enhanced access to medical care, and education. This will pave the way for a more prosperous and fulfilling future for people living on both shores of the Mediterranean.

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