REGIONAL VIEWS
ON THE FUTURE OF WORK

# SUB SAHARAN AFRICA

FUTURE OF WORK IN THE GLOBAL SOUTH

REGIONAL PERSPECTIVES ON
THE FUTURE OF WORK:

# SUB-SAHARAN AFRICA

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# REGIONAL VIEWS ON THE FUTURE OF WORK: THE INFINITE SHAPES OF THE FUTURE

Digitalization, artificial intelligence, and related technologies are undoubtedly changing the way we approach our social and economic lives. By allowing us to produce –both old and new– goods and services in novelty ways, technologies are not just transforming production processes, but the very essence of jobs in the workplace. At the technological frontier, robots and software are carrying out many tasks that used to belong exclusively to humans. Far from that frontier, the developing world struggles to adopt and adapt new technologies while avoiding job displacement and technological anxieties.

Such deep transformations force us to think about what comes next: will robots end up filling the already scarce jobs in the Global South? Will technology exacerbate or help us tackle social gaps? Lots of efforts are directed to capturing elements of how the future of work will look like.

However important these questions are, there is an inherent limitation in trying to predict a future that “is coming". This approach reduces our capacity for collective action and transforms it into a mere response to this "otherness" that is approaching. In reality, however, the shape of the future is continually evolving, as our collective past and present actions result in new reconfigurations and (dis)equilibria. There is room to create the future we want for the developing world: taking ownership of the Global South’s transformational capacity is the first step towards this goal.

Two important factors need to be embraced in the quest of shaping the future of work in the Global South: context and complexity. History proves that countries can take advantage of the window of opportunity open by technological waves. Still, there are no unique formulas for success. Technology does not appear in a vacuum, but within specific cultures,

TECHNOLOGY

SKILLS

DEMOGRAPHY

LABOR INSTITUTIONS

INEQUALITY

institutions, and histories. The combination of these and other dimensions hold specific keys to unlock development processes.

With the principles of context and complexity in mind, between June and August 2021, 80 regional experts participated in the "Dialogues on the future of work in the Global South". This series of events, coordinated by CIPPEC and hosted by the African Economic Research Consortium, the Economic Research Forum, Just Jobs Network, and Red Sur, were a first step towards developing a vision for the future of work from an inter-regional Global South perspective.

In these dialogues, academics and field experts engaged in a double cross-fertilization process: they discussed key questions for variety of relevant themes – including technology, skills, institutions, demographics, and inequality– while approaching them from the regional perspectives of Sub-Saharan Africa, the Middle East and North Africa, Latin America, and Asia.

This document –as well as three companion papers covering other Global South regions- seeks to present key messages and policy recommendations emerging from these discussions. On the one hand, it is intended to take stock of the main dimensions shaping the future of work in the Global South. On the other, it is an open invitation to move from the plane of predictions to that of the imagination and future-building. It can serve as a powerful tool to reframe the discussion by adding Global South perspectives.

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# 1. INTRODUCTION

The Fourth Industrial Revolution (FIR) is characterized by significant breakthroughs on the technology front, be it Artificial Intelligence (AI), machine learning, or robotics. FIR has also resulted in a huge shift to online daily activities by various stakeholders, which has, in turn, led to new ways of perceiving work and a re-think of the traditional approaches to education and training. Unfortunately, these breakthroughs come with the risk that some stakeholders are being left behind. Hence, the proliferation of recent papers and reports on the future of work by academics, governments, the media, policy makers and other stakeholders is not surprising. For example, the World Bank devoted its 2019 World Development Report exclusively to the future of work (World Bank, 2019). The World Economic Forum and the Organization for Economic Cooperation and Development (OECD) have also released some recent reports on the future of work (e.g., World Economic Forum, 2016; 2020; Lane and Saint-Martin, 2021). Other regional development agencies (the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, and the Inter-American Development Bank) have also produced insightful reports on the future of work in their regions (African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, and the Inter-American Development Bank, 2018).

According to both the traditional and modern growth theories, improved technology is one of the main pathways for enhancing economic growth through productivity growth (Zhao, 2019). This raises the issue of whether the technological breakthroughs associated with FIR have the potential to raise productivity in Sub-Saharan Africa (SSA) and what the necessary pre-conditions are.

There is little doubt that the efficacy of these technologies depends on a convoluted mix of economic, social, institutional,

and international factors. Considering potential regional differences in these factors, it makes sense to take a closer look at the impact of these technologies on specific regions, with the ultimate objective of introducing regional comparisons. One good aspect of the regional approach is that different regions can learn from the experiences of others, thereby shortening uptake time when compared to earlier adopters of such technologies. The fact that this paper is part of a bigger study on the future of work in different regions in the Global South makes regional comparisons between the SSA situation and that of other regions possible.

The COVID-19 epidemic has also accelerated the rate of change that characterized FIR. The loss of millions of jobs in SSA owing to the COVID-19 pandemic has brought in new dimensions that ought to be considered in the discussion of the future of work in the region. The main challenge is what we can do in post-pandemic by way of inclusive and sustained job creation in the face of such pandemic-related job losses. Will the emergence of new technologies help or hurt SSA on the jobs front and other fronts considering both its benefits and the potential for economic, social and political disruption? Is there a technological divide? Are there feasible solutions to precarious working conditions associated with the rapidly expanding gig economies? Will new technologies lead to more secure and higher earnings in informal employment or faster formal sector job growth? Should the formal and informal sectors be treated differently? Should SSA governments bear the full responsibilities or is there room for public-private partnerships to ensure that things work? We believe that these are some of the many important questions that ought to be answered if SSA is to recover from the post-pandemic job losses. These questions were purposely posed at the five roundtables on the future of work in SSA with the aim to document and synthesize the context of this situation in SSA and to identify some clear policy messages in the face of heterogeneity among SSA countries[1].

[1] See the recordings of the "Dialogues on the Future of Work in Sub Saharan Africa" in the FoWiGS website: https://www.youtube.com/channel/UC3zQIgK3L-uAkUnKof1leTw/videos

SSA, like other regions, is not shielded from the positive and negative impacts of technological innovations on the future of work. Some have noted that SSA is in an advantageous position with respect to the adoption of new technologies given its growing young population who are potentially more amenable to change. However, the growing youth population also creates some challenges with respect to how best to prepare these youths for the labor market. Will new technologies help in this regard? If not, what are the policy options to ensure that they can take full advantage of the new technologies?

It has also been noted that SSA countries, and other less developed countries, have the advantage of developing late, thereby giving them the option of simply borrowing the technology without having to incur exorbitant innovation costs. Available statistics reveals that SSA has high rates of adoption of certain technologies (e.g., mobile phones) with nearly half a billion people subscribing to mobile services at the end of 2019, projected to increase to more that 0.6 billion by 2025 (GSMA, 2020). At the same time Africa is behind the developed world in many areas as far as usage is concerned (e.g., bandwidth usage, etc.) owing to a convoluted mix of country-specific factors (e.g., literacy, affordability, culture, lack of infrastructure, etc.) that can limit the transformation from access to use (UNCTAD, 2018; Choi et al., 2020; Njuguna and Signe, 2020). For example, as UNCTAD (2018) noted, one plausible explanation for SSA's lag is the slow evolution of innovation policy.

Several other aspects of SSA's situation are particularly noteworthy. First, certain technological innovations have worked in certain countries (e.g., the digital financial system in East Africa). Second, as we will see below, Africa is still behind with respect to adoption but should not and cannot fall behind. Third, the digital divide is by gender, age, region (rural/urban) and disability status, among others. That said, there are several other aspects of the impact of technology on the future of work in SSA that deserve attention to better

understand and devise better policies that can pull SSA countries out of their current problems.

The focus of the present report therefore is on SSA's experience with technologies and their implications with respect to the future of work in the face of a demographic transition. As we will see below, many useful insights on the future of work in SSA emerge from this report. We also believe that the issues raised will bring together hitherto fragmented knowledge on the future of work in SSA, which will make for good comparisons with the situation in other regions around the world.

The rest of the report is structured as follows: In Section 2, we discuss the contending issues under the broad headings of skills, technology, labor market institutions, demography, and inequality (the convoluted mix of factors mentioned before). In Section 3, we discuss the way forward for SSA considering the issues raised in Section 2 and Section 4 concludes.

# 2. CONTENDING ISSUES ON THE FUTURE OF WORK IN SSA

## 2.1 Skills Development

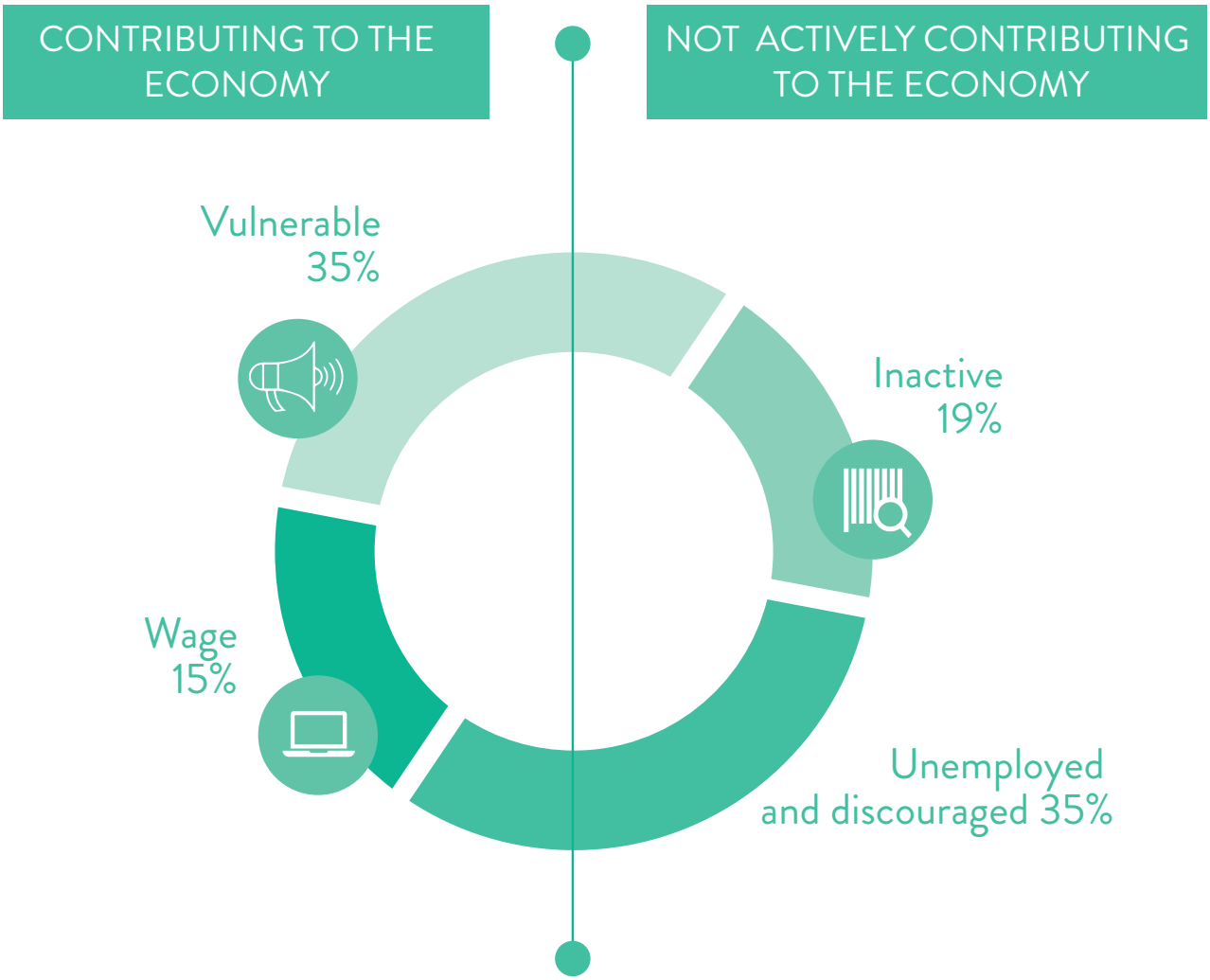
The critical challenge of unemployment, particularly among the youths in developing countries, continues to rally both international and regional communities. Profound youth unemployment is more widespread in Africa given several causes, including the supposed youth bulge which will continue to grow in the foreseeable future (Irwin et al., 2018).

For instance, SSA has the world's fastest growing population with the size of the age cohort 15-24 years predicted to grow to 265 million, up from 126 million between 2010 and 2050 (Brooks et al., 2013). The African Development Bank (AFDB) in 2016 stated some worrisome statistics in this regard, viz. "out of Africa's 420 million youth population (aged 15-35 years), one third is in vulnerable employment, another third is unemployed and discouraged, with only about 15% in wage employment" (Figure 1). Also, about one in five youths were not in employment, education, or training (NEET) in 2019, a state which has been increasing steadily since 2012, mirroring the global trend of unemployment (ILO, 2020). The situation calls for serious concern given that about 11 million young Africans are being released into the labour market annually, with only a quarter of this total likely get into paid jobs (Jayne et al., 2014), leaving many youths unemployed.

The intense changes continuously witnessed in the global workspace, coupled with the increasing use of digital technologies, may only serve to widen this unemployment gap if youths in developing countries are ill-prepared for the changes. Thus, although the use of digitalization increases productivity, lowers the cost of production and barriers into export markets (Bangaa and te Velde, 2019), it still raises concern on the possibility of "jobless growth" where productivity

gains may not result in large-scale employment (Rodrik, 2018). One of many postulations in the youth employment literature has identified skills, including soft and cognitive skills, as limiting factors in the quest for employment (Irwin et al., 2018). In essence, to successfully navigate the emerging technology and digital driven global economy, youths need to be proactive and develop relevant skills. This is important because the changing nature of work is gradually replacing the demand for less advanced skills with complex problem-solving skills. According to the report by the World Economic Forum (2016), social skills, content skills, cognitive abilities and process skills will constitute a growing part of the core skills requirement for jobs across all industries. Routine tasks that do not require much flexibility in behavior and thinking or that can be easily codified are becoming less popularized and are gradually at a higher risk of automation. For example, the future of work in SSA may become susceptible to non-routine work tasks where 41% of all work activities in South Africa will be automated, as are 46% in Nigeria, 44% in Ethiopia and 52% in Kenya (World Bank, 2016; Chui et al., 2017). However, these scenarios are subject to the necessary conditions for automation (e.g. technological feasibility of innovation, cost, social acceptance, etc.) being met by the countries involved (Chui et al., 2016).

**FIGURE 1**
**YOUTH EMPLOYMENT STATUS IN AFRICA, 2015**




Source: Author's elaboration based on African Development Bank (2016).

However, this window of opportunity may not be fully utilized given the low labour cost and the large stock of ill-equipped workers. There are already reports of skills mismatch by employers who, despite the rate of unemployment in the region, still experience considerable difficulty in finding workers with the right skills. An important typology of skills mismatch is over education or underemployment, which exists when a person takes a job that does not reflect his or her training or educational qualification. According to the World Bank STEP surveys in urban areas, about 40% and 25% of the labour

force in Ghana and Kenya reported that their educational qualification exceeds their present job (Handel et al., 2016). A striking finding from the survey, however, shows that the most underutilized skills are those related to digital technology. For example, Karuitha (2020) revealed a significant digital infrastructure and skills gap in Africa with about 5% and 50% of the population having uninterrupted access to internet compared to over 80% in North America and Europe. This gap pervades other sectors of the economy and more importantly in education, with only about 39% of university students in Africa report registering for online classes during the lockdown period of the COVID-19 pandemic. In effect, education seems to be poorly correlated with labour productivity, which may partly explain the reason why employers may be reluctant to hire well-educated individuals with no extra skills, apart from the conventional ones developed in their courses of study (African Development Bank, 2019). The problems of absorbing educated youths into SSA's mainstream labour market have been linked to the educational system, whose overall quality has been adjudged as poor with learning outcomes (measured using standardized tests) for children being worse off than their peers in other regions (World Bank, 2018; Arias et al., 2019).

Looking beyond the inability of Africa's youth and school age children to acquire skills implies looking at other sectors that impact on the ability to take up skills. The impetus to seek education and skill depends on the acquisition of other life opportunities such as food, health care and other welfare enhancing opportunities. Hence, the outcome of these sectors has shown to have indirect impact on learning and skills acquisition of young ones (Pridmore, 2007; Suhrcke et al., 2017; Wang and Fawzi, 2020), with education also having a positive impact on subsequent health outcomes (Zajacova and Lawrence, 2018). However, the weakness of these sectors, especially those concerned with health and nutrition, have had negative impacts on educational outcomes, chiefly at an early age, but with consequences for future learning (Sorhaindo and Feinstein, 2006). The low capacity to deal

with shocks has also resulted in a regression of learning abilities in the main low-income economies in Africa. The major recent health shock produced by COVID-19 revealed how vulnerable African economies are, even within the health and education sectors (Omang and Angioha, 2021; Human Rights Watch, 2021). Youth education and skills acquisition was also affected as the International Labour Organization (2020) revealed. The curricula of over 70% of youths who study alone or combine work and study was disrupted by the closure of schools, training centres and universities because of COVID-19. The report further showed that 65% of the young people expressed that the transition from physical to online and distance learning adversely affected their learning and assimilation abilities since the majority were unable to access the necessary digital technology and/or had the skill to navigate successfully. The situation is much worse among youths in African countries who study in an environment where the infrastructural and digital gap is more pronounced. The pandemic evidently increased the inequities in education and other socioeconomic outcomes in Africa (Amorighoye, 2020; Kpae, 2020). The consequences of the inability to access skills at all levels of learning across many African countries, as well as differences in the outcomes within the countries, have been associated with the continuous deepening of the digital divide existing across countries and regions.

In addition, note that many vulnerable groups exist and have remained vulnerable in education and labour market outcomes in Africa. Again, a case in point is the effect of COVID-19 pandemic which was found to have deepened these vulnerabilities with women facing the increasing double burden of managing both paid work and the unpaid care of their children and household because of the widespread school lockdowns (ITU, 2021). Other vulnerable youths, such as people with disabilities or internally displaced persons, are also adversely affected in terms of limited access to both learning and decent work opportunities (ITU, 2021).

## 2.2 Technology: Artificial Intelligence, Infrastructure, and the Platform Economy

As noted above, FIR is characterized by significant breakthroughs as far as new technologies are concerned, including Artificial Intelligence, robotics, machine learning, and the internet. According to Webster and Verachia (2021), there is potential for SSA countries to gain from technological change by doing certain things the right way. However, Cirera et al. (2021) analysis of the Firm-level Adoption of Technology (FAT) survey for one SSA country, Senegal, reveals significant within-sector and between sector differences in technology adoption. Furthermore, the obstacles to adoption differ by firm size, with the top four being lack of finance, lack of capabilities, lack of demand and uncertainty, and government regulation. Poor infrastructure also featured among the major obstacles to adoption. The fact that SSA cannot afford to fall behind makes it necessary to explore the appropriate strategies surrounding new technology adoption in the region.

There are many potential benefits of new technology in SSA. The advantages cover all sectors of the economy with far reaching effects on growth and sustainable development. These include but are not limited to the reduction of corruption and capital flight through easy payments, the reduction of unemployment since new jobs are created locally, improvements in the incomes of the stakeholders by improving skills, increasing value added in manufacturing, the promotion of access to education/training, healthcare and ecommerce, opportunities to introduce new business models, the reduction of human-to-human contact to increase formality by lowering the cost of doing business, etc. Other benefits of technology include the facilitation of the transformation from the informal sector to the formal sector such as the use of cloud computing since it makes the transition processes easier, bearing in mind that some businesses choose to be formal given the multiple types of informality. New technology can also raise the productivity of unpaid work at home (e.g., more efficient

shopping). Technology also makes it easier to identify people and businesses and promote e-formality. Cloud computing is useful for small enterprises that do not have the resources to invest. Assuming that new technology introduces new products, jobs can then be created through new products. For example, as noted by Choi (2020), the digital payments platform M-Pesa resulted in a net jobs gain in Kenya. If new technologies make firms more efficient, then more jobs could be created under certain circumstances.

However, the lack of skills is an important barrier to technology adoption in SSA. This is based on the premise that technological change typically affects low skilled workers the most, especially since they do not have the capacities to upgrade skills to take advantage of the opportunities. The negative impact of technology on jobs can be minimized by making provisions for the displaced workers, e.g., putting into place appropriate retraining programs for displaced workers. As Santos (2016) and Millington (2017) note, among others, a good public policy response in SSA and other regions would be to equip everyone in the skills that the new technology complements and not only the displaced workers. Also, as noted by the World Economic Forum (2020), the successful implementation of technology-induced job transition will involve the cooperation of many stakeholders including companies, governments, professional services, technology firms, labour unions, and community organizations.

SSA also faces many other barriers to the adoption of technology. For example, Njuguna and Signe (2020) identify the lack of skills, governance problems and the lack of infrastructure as some of these barriers in Africa. The main challenge is to identify these barriers and create an enabling environment (e.g., intuitive technology such as apps that allow employees to learn as they work).

Nevertheless, Africa's banking and financial services sector, and, indeed, most job sectors have the potential to greatly benefit from sophisticated technologies (AI, machine learning, etc.). The digitalization of financial services has the potential to create jobs and promote financial inclusion and has proven successful in some East African countries (e.g., M-Pesa in Kenya).

The following technologies are recommended for SSA: (1) Simple, cheap, inclusive and intuitive technologies (e.g., applications) that allow people to learn by doing as they work rather than reading the textbook, and emphasize inclusive productivity growth involving many people since trickle down does not work; (2) Digital technologies; (3) Data intensive technologies that make data available to clients and are inexpensive; (4) Managerial technologies; and (5) automation technologies with built-in provisions for displaced workers.

## 2.3 The Gig Economy and Labor Market Institutions

The "gig" economy, named in relation to the various parts that make up a gig, represents a job system where organisations depend largely on freelance, independent, and short-term contract workers rather than on permanent employees (de Stefano, 2015). The gig economy has mainly thrived on the connection between client and customer or employer and employee through online platforms. As Webster and Verachia (2021) document, more than 600 million Africans are now online. Furthermore, there was a substantial 37 percent growth in the number of digital platforms operating in Africa between 2018 and 2019, with South Africa having most of such platforms (more than 140) and Kenya experiencing the fastest growth rate of 71% between 2018 and 2019. Other countries (e.g., Ghana, Nigeria, Uganda, Rwanda, Tanzania, and Zambia) also experienced significant increases in the number of digital platforms.

The expansion of the gig economy in SSA can largely be ascribed to greater access to the internet. The potential for the growth of the internet in SSA, and hence the growth of the gig economy is still very high considering that less than half of Africa's population has access to the internet as of 2021. Johnson et al. (2020) report that in 2018 the gig economy provided income to 4.8 million people across 7 African countries. The gig economy has increased significantly over time in several other SSA countries (e.g., Uber in South Africa and Ghana). The three preconditions for success of the digital economy in SSA include digital infrastructure, digital devices, and digital knowledge. Hence, any policies for future success should pay particular attention to infrastructure, devices, and knowledge. The gig economy requires significant investment in infrastructure. Given that the gig economy is linked to informality, any discussion relating to the gig economy must go hand in hand with the discussion of informality.

The digital economy provides several benefits in Africa, including facilitating the process of formalisation, for example, by making registration easier, as well as providing a platform that provides youths with greater opportunities to market their products and generate income. There has also been anecdotal evidence that in some countries the gig economy is beneficial to some SSA stakeholders but detrimental to others. For example, the mobile technology ride-sharing service, Uber, has brought substantial benefits to consumers and tourism operators but has also displaced local passenger transport workers (Jackson, 2017; Mourdoukoutas, 2017; Park et al., 2020; Giddy, 2021).

Vast evidence reveals that the gig economy in SSA is characterized by low employment quality and precarious working conditions (i.e., long hours, below minimum wage, and no benefits), although one could argue that precarious working conditions existed before then. Some research shows limited evidence that the gig economy has improved the quality of work, e.g., Uber drivers/customers feel comfortable and achieve some flexibility with respect to working hours. The gig

economy is also characterized by the problem of inequality to access equipment (e.g., 80 percent of SSA population has access to mobile phones), to infrastructure (access to internet) and geography (rural vs. urban). M-Pesa (a financial application) has been disruptive in a positive way by improving savings, access to loans, entrepreneurship, all of which are linked to better finance through the mobile platform.

Work on digital platforms poses many regulatory challenges with respect to precarious working conditions (long hours, below minimum wage, no benefits, etc.) as noted above. Hence, regulatory reform is key to ensuring long-term gains in the face of short-term disruption. More specifically, there is a need for a national policy to protect workers (extend protection to informal workers) given that it is not possible to organize bargaining without a formal employer as the possibility of a formal trade union does not exist. Given the regulatory difficulties authorities face in certain jurisdictions (e.g., Uber threatening to leave certain jurisdictions), the coordination of regulatory efforts to require minimum standards of work across jurisdictions may be required.

The absence of formal employer-employee relationships in the gig economy complicates collective bargaining for better working conditions owing to the absence of a traditional union. One possible strategy involves the workers organizing themselves by creating locally based digital groups such as WhatsApp groups to support one another. These groups should form the nucleus of social bargaining with the platform. This is already happening in some countries, e.g., South Africa. Recognition and decriminalization of the informal section is also a precondition for organizing workers in the informal sector. Once informality is recognized, they can be brought in through associations with leaders who can negotiate with the governments and other stakeholders. Given that moving from informality to formality can be costly, one strategy is to allow informality to grow to a certain stage and then bring them in through associations.

Technology can help reduce or manage informality by facilitating the transition from informality to formality, e.g., by facilitating registrations and identifying businesses that want to transition from informality to formality. Any discussion of this transition should recognize that formality is also going on in the informal sector. It is dangerous to increase formality at all costs.

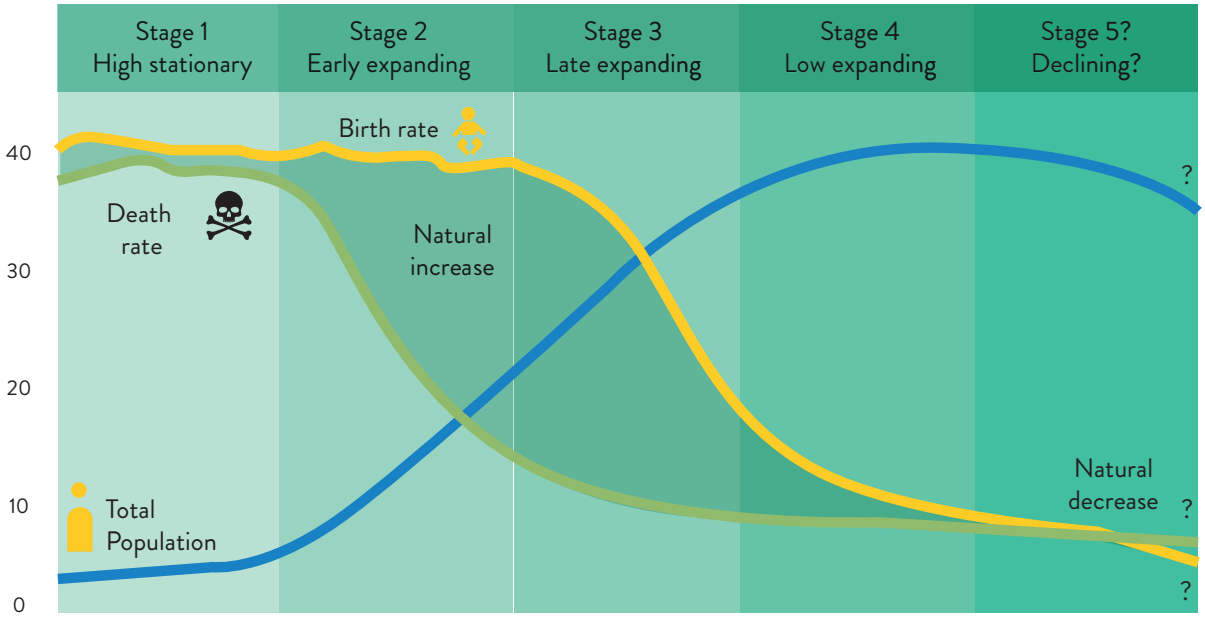
## 2.4 Demography and the Labour market in Africa

The population council (2020) indicates that Africa's population is expected to double from 1.2 billion in 2020 to 2.4 billion in 2050. The United Nations (2015) projects that the proportion of the under 25 population in Africa is expected to exceed 60% by the year 2030. Such a pronounced increase in the share of the working age population could lead to an economic crisis in SSA if the economies of the member countries weaken. There is already evidence of the inability of SSA countries to absorb the growing labour force. For example, the African Development Bank in 2016 estimated that although 10-12 million young people are released into the labour market yearly, only 25% of this population can be absorbed. This exceptional population dynamics can be to the advantage of Africa, if their economies are properly integrated into the global value chain; however, there is a continued concern for the future of work considering the unique demographic transition going on in the continent.

The main feature of a demographic transition (Figure 2) is a combination of improved human capital development, chiefly health care services, education, sanitation, gender equality and other factors to reduce the mortality rate, and concurrently lower fertility rates. This trajectory is meant to

bring about a demographic dividend, featuring improved per capita resources, reduced youth dependency ratio, increased urbanization and industrialization, as well as improved GDP per capita in African countries. A demographic transition presents a potential opportunity for the African continent to develop rapidly and enter a period of prosperity. Interestingly, Africa's demographic transition has led her to a low mortality rate stage with better and more available heath care services and awareness of safer living practices. However, the birth rate has remained high, and thus the population is growing at a relatively faster pace than the decline in the mortality rate. It seems that the same breakthrough that has reduced the mortality rate has enhanced the increasingly high birth rate in a continent with an affinity for high fertility. Coupled with the culture and religious characteristics of the African region, there has been no clear decline in the fertility rate (Götmark and Andersson, 2020). In fact, it was noted that many countries in SSA have stalled in their demographic transition because their fertility rates have remained the same over many years. Some countries have even witnessed higher fertility rates over the periods. These are the characteristics of the second stage of the demographic transition process. The challenge facing Africa in general is, however, the stalling of many countries in this second stage. Using data from the National Demographic and Health Surveys (NDHS) over several years for countries in SSA, it appears that only a few countries have been able to make efforts at transiting away from the second stage with a number seemingly regressing (Madsen, 2013; Kebede et al., 2015), with Niger likely to be termed as a country that does not seem to have even started the process of demographic transition at a fertility rate of 7. This phenomenon is posited to continue for at least another two decades until Africa can transition past the second stage in the demographic transition. Thus, fast-tracking this transition would be highly advantageous within the African continent (Sachs, 2015).

## FIGURE 2:
### FEATURES OF DEMOGRAPHIC TRANSITION STAGES




Source: Grover (2014).

Compared to countries in Europe and the Americas, which have been able to develop rapidly because they have controlled for both the fertility and mortality rates, Africa has still found it difficult to moderate its fertility rate unless policies are put in place to support it. Asia has perhaps the largest population in the world and was on the same trajectory as Africa in the 1900s. However, a series of actions backed by strong political will has allowed countries such as China and Japan to moderate the fertility rate while their economies grow. At present, the fertility rate is less than 2 in Europe and America, with Asia fluctuating widely from 1 in Singapore to 5 in Afghanistan (CIA World Fact Book, 2020; OECD, 2020). It seems that Seychelles and Mauritania are two African countries that have successfully transited through the demographic transition process. However, as has been seen in many developmental debates, Africa does not seem to fit the mold of the expected demographic transition characteristics of many continents. Africa is also experiencing variants in the demographic transition with some of its countries proceeding

faster than others in the demographic transition process. This raises a concern for the types of policies needed to assist the transition process in the continent.

The unique characteristics of Africa related to the second stage of the demographic transition have consequently put African countries in a precarious position – that of an extremely large youth population in comparison to the other population groups. This so-called youth bulge represents a middle bulge in the population growth curve where over 60% of the African population faces instability. According to the demographic transition concept, this bulge, made up of the productive age group, should drive the process of bringing about the demographic dividends by providing the productive workforce that would drive the economy (Canning et al., 2015). However, it appears that the labour market and indeed the resource frontier is not large enough to accommodate them. Thus, while the supply of labour continues to increase, the capacity of Africa's labour market to absorb this labour force is weak. In fact, studies on the youth bulge and employment have shown only a slight reduction of about 0.7% in employment gain with a10% reduction in the youth bulge (Newhouse and Wolff, 2014). This then intricately ties the capacity of the labour market, on the one hand, and the continued prosperity of Africa, on the other, to the success of the demographic transition process.

The challenge of demography and a productive labor market is therefore not only a problem of the excess supply of labour. Rather, the absorptive capacity of the labour market in Africa appears to be too weak to live up to expectation (Fox et al., 2020). About 10-12 million people enter the labour market on an annual basis to meet a labour space of 3.2 million people (African Development Bank, 2016). Again, the African labour market is mainly informal in nature, labour intensive and low paying, with limited prospects for a sustained job life; consequently, underemployment thrives on the continent. The underemployment phenomenon is on the rise with an increase in the number of educated youths. There is a shift in the type

of job requirement with sharp moves away from the informal sector to more formal and technology driven opportunities, but which are scarce. Young girls and women are even more vulnerable, with lower educational outcomes and access to reproductive agency (Kebede et al., 2015), leading to vicious cycles of poverty, a low age at first birth, lower educational attainment, and negative employment outcomes. The above therefore calls for a compendium of policies and action points targeted at a holistic view of the problem.

On the one hand, there is a drive to hasten the demographic transition to a state of manageable fertility rate commensurate with culture, religion and available resources. On the other, we can see the impetus to expand the capacity of the labour market to absorb the teeming productive age group. Concurrent and timely policies related to education, health care provision, awareness, and globalization are key to making Africa reap the demographic dividends of its population.

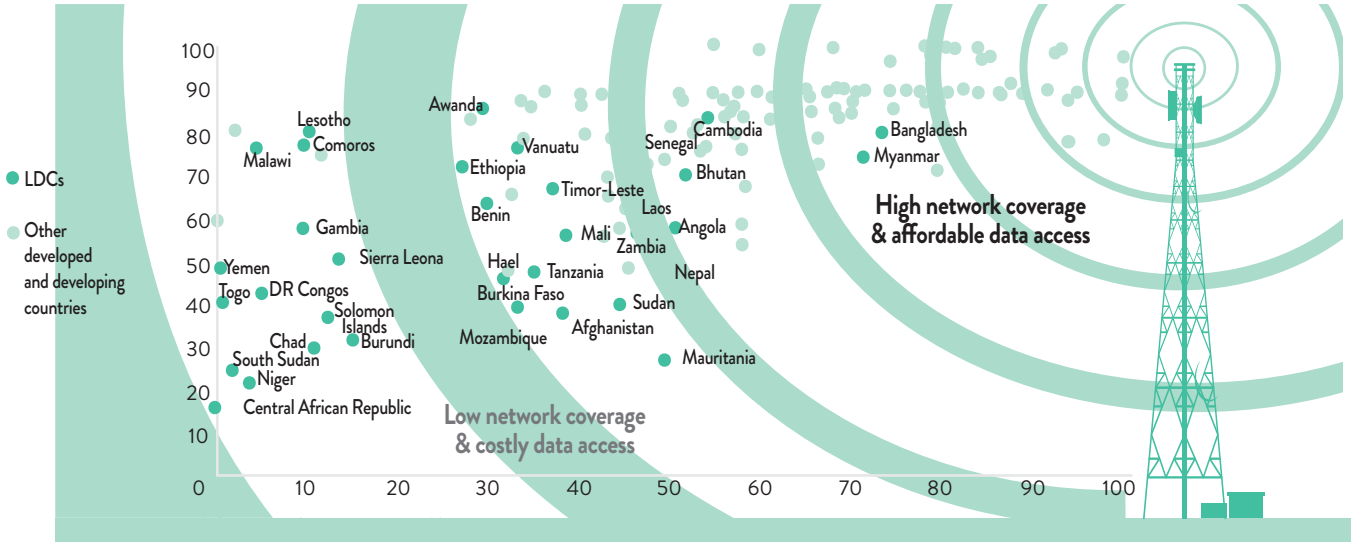
## 2.5 The Digital Inequality and Labour Market in Africa

Considering that the global future of work will be dominated in no small way by the working demography of Africa, it is important to contextualize structural changes that may influence the direction of this demography. One of such issues is the extent of inequalities and extreme fragmentation of the African society. Inequality is derived from the demographic structures including sizes, categories, and transitional stages. The socioeconomic inequality in Africa unfortunately permeates other sectors of the economy, with massive consequences for the labour market. The inequality in access to and utilization of digital technology represents a real threat to the future of work and ultimately sustainable development in Africa. Hence, the digital divide could be both a cause and effect of poverty and inequality (Akanbi and Akanbi, 2012).
According to the OECD (2002), the digital divide is the

division between individuals and households at different socioeconomic levels regarding their chances to access or use information and communication technology. It is thus a ratio in penetration rates between groups of people in terms of access to and utilization of digital technology. In simpler terms and within the African context, the digital divide is the gap between those who have access and those who do not have access to computers and the internet, as well as the difference in the usage of such technologies. With only about 27% of people on the African continent counting with access to internet in 2018, the digital divide is huge (Calderon et al., 2019).

A quick look at the 2019 and 2020 reports of the International Telecommunications Union (ITU) (2020) shows that Africa lags in almost all the dimensions considered. Although the number of internet users increased between 2005 and 2019 in the developed world (51% to 87%), the developing world (8% to 47%), and Africa (2% to 28.2%), the number of people without internet remains the highest in Africa and Asia. Considering the broadband subscription from 2007 to 2019, fixed broadband increased from 18% to 33.6% for the developed world, 2% to 11.2% in the developing world and from 0.1% to 0.4% in Africa. International bandwidth usage per internet user and mobile cellular subscription in 2019 registered 189% and 128% for the developed world, 91% and 103% for the developing world and 31% and 80% for Africa. Also, in terms of the rural-urban divide, in 2019 the number of individuals using the internet was 87% against 81% for the developed world, 65% against 28% for the developing world and 28% against 6% for Africa. Thus, African countries are falling behind many countries in terms of access to and utilization of digital technology (See Figure 3 for UNCTAD's April 2021 internet coverage data of LDC and HDCs).

## FIGURE 3
### INTERNET COVERAGE AMONG LEAST DEVELOPED COUNTRIES AND HIGHLY DEVELOPED COUNTRIES




Source: UNCTAD calculations based on data from GSMA Intelligence 2020.
Notes: The network coverage indicator is constructed by aggregating normalized data on the percentage of population covered by 2G, 3G, 4G and 5G network. The mobile data affordability indicator is the cost of usage allowance of 500MB as a per cent of monthly GDP per capita; data (in logarithm) are then normalized and "inversed", so that a higher score means more affordability.

The most vulnerable people identified in the digital divide are also many and varied. They include women, youths not enrolled in Education, Employment or Training (NEET) programmes, the disabled, those in conflict areas and the poor. A report by the ITU (2020) shows that although women are increasingly gaining access to mobile phones and some form of internet connectivity, they are still grossly under-represented in the IT world. The 2019 and 2020 ITU reports indicate that in 2019, internet penetration was 86% for men and 81% for women in the developed world, 49% for men and 40% for women in the developing world, and 37% for men against 20% for women in Africa. The internet parity score between 2013 and 2019 increased from 0.94 to 0.98 for the developed world, decreased slightly from 0.84 to 0.83 for the developing world and recorded the worst performance in Africa where the decrease was from 0.79 to 0.54.

Other divides in the digital society are related to race/ethnicity, age groups, rural versus urban, household structure, firm size, language, and different other measures by which individuals are classified in the economy (OECD, 2001). Unfortunately, the trend in economic development is such that access to and utilization of digital technology could be the required springboard for these groups of people to integrate into the mainstream economy (Hernandez and Roberts, 2018).

The main barriers to accessing and using digital technology seems to stem from the inadequacy and inequality in access to education (Digital Divide Council, 2021). The consequence is a significantly low level of human capital base which severely affects the development of an absorptive capacity for higher level job markets as defined by digital technology. For instance, SSA is reported to have the highest exclusion rate in terms of education, with up to one-fifth of primary school and one-third of secondary school aged children out of school (UNESCO, 2021). Low level technology literacy and skills constitute a significant barrier to the effective use of internet and meaningful participation in the digital society. In a 2021 report by UNICEF, school age digital connectivity was under 20% for African countries, except for South Africa which recorded a borderline 20% for school age connectivity at the lower secondary school level. Applying technologies requires specific knowledge and skills which are limited in Africa despite the burgeoning youth population. This implies an educational system that is unsuited to the changes obtained in the work environment.

The inability of African nations to develop technology skills is also related in no small way to a low level of investment in research and development. When compared to the rest of the world, R&D in Africa, excluding South Africa, is the lowest in terms of expenditure and number of researchers. More specifically, available data from UNESCO reveal that investment in R&D falls below 0.3% which is about 800% and 300% below those of the developed and developing countries, respectively. Investing in internal R&D does not only generate

local knowledge but it also enhances the development of local capability and absorptive capacity.

Again, stemming from socioeconomic inequality is the issue of affordability and the lack of sustained access to digital technology. In most of Africa, the poverty level is so high that obtaining a mobile phone is the least of concerns in the face of food shortages. This is evident in the digital divide between Africa as a low-income continent and other developed continents in which internet use has been persistently low over the years. For example, internet connectivity was just 0.7% in low-income countries, while it was 94% in high income countries at 2006 (ITU, 2006). Considering that much of digital technology is not a public good, the cost of access and utilization may therefore be out of reach for the poor in Africa. This exclusion from the digital world, however, continues to perpetuate poverty and inequality, which then deepens the already fragmented socioeconomic divides in many of these countries across gender, ethnicity, income, and even rural-urban spaces. Other causes have to do with the high level of corruption, low human capital base, an inadequate fully developed infrastructure, a high level of inequality, and the lack of social capability. These shortfalls affect the ability of African countries to adopt emerging technologies.

## 3. FUTURE OF WORK IN AFRICA: THE WAY FORWARD

This section provides some insights into possible ways in which the future of work in the global south will become sustainable and able to absorb the teeming labour supply. We investigate this from the development of skills at the early childhood stages to strengthening the demographic transition process and reducing the inequality in the labour market, especially as regards access to digital technology.

## 3.1 Skills Development

Strategies to bridge the gap in the African labour market is presented in three main dimensions –early childhood education, career counselling, and skill acquisition, among others.

### Early childhood and formal education

Closing the digital gap and improving the future of work in Africa calls for improvements in the composition and quality of human capital so that the core skills to match work requirements are developed not just for today but for the possible work disruptions that may occur. Following the report by World Economic Forum (2017), the pipeline of future skills in Africa can be put in place if the educational curriculum is designed in such a way that emboldens critical and innovative thinking, emotional intelligence and creativity while accelerating more digital and STEM (science, technology, engineering, and mathematics) literacy to successfully leverage new technological inventions. Accordingly, foundational skills, particularly at the early childhood development stage, should be fostered. Children need to develop basic skills early on, integrating core skills like ICT, soft skills and technical skills as an integral part of their learning process through the harmonization of the design of school curricula with specific skills. Skills development through formal education is critical to narrowing the gap in the digital divide and increasing the employability of both present and emerging workforces.

Therefore, the strategic focus of developing countries should be on how to increase access to primary education, higher completion rates and improve a flexible and current pedagogical knowledge and skills of teachers both at the primary and secondary levels (Bangs and te Velde, 2019). The above is key given that the reflections from many reports

suggest that the educational system in SSA is not prepared for the changes in the global economy that will disrupt the familiar landscape of available and future jobs. To this end, the 2019 World Development Report recommends policies that focus on early childhood development, tertiary education, lifelong learning programs that provide opportunity for reskilling, higher-order skills, socio-behavioral and adaptability skills, as well as foundational literacy and numeracy skills (World Bank, 2019b). This is particularly important in SSA, where the development of foundational skills is lagging, and the quality of education is sadly low. However, the focus should not concentrate on children alone, as working adults require more complex skills and should therefore be integrated into the learning process through training and retraining on or off their jobs. Distance learning education acquired through online and hybrid models provides an effective channel for improving the skills of the adult population whose learning process might require more flexibility (IFC, 2019).

## Development of functional Career centers in educational institutions

Another key mechanism to deliver abilities needed for the future of work, as emphasized by the participants at the round table, is the development of functional Career centers in educational institutions. This could begin with counselling centers at the secondary school levels to guide the course contents. The problem of skills mismatch is largely being reported by employers across SSA given the changing nature of work engendered by technological advancement which cuts across virtually all sectors of the economy. Students, who are most often disconcerted when it comes to making career choices, should be groomed early enough to tread career paths that are needed to fit into 21st century jobs. The Survey by IFC (2019) revealed that basic digital skills such as web research, online transactions and email communication are

essential requirements for a future-ready workforce while the top skills which are considered intermediate and advanced will include digital marketing, data analytics and machine learning or artificial intelligence (AI). The career centers can provide the platform for bridging the information asymmetry gap early on, where students are brought up to speed with the new technological shift bringing about a change in the nature of work. This will include providing adequate guidance in career choice, skill development and training.

## Apprenticeships and vocational training

Equipping African youths with the right skills for a digital and technology driven economy also requires investment in other types of informal education, like apprenticeship and vocational training. School graduates in search of their first jobs will experience an almost smooth transition from school to work if given adequate training opportunities and vocational education that include in-work apprenticeships and on the job experience (ILO, 2010). According to a new report from AFDB, employers also benefit from apprenticeship as it provides a relatively low cost of attracting and retaining talented people, plugging skills gaps and introducing new ideas into their firms (ICEF). For vocational education, the prospects of Technical Vocational Education and Training (TVET) have been quite popular for its role in producing individuals who are well skilled and adequately prepared for dynamic engagement that reduces the risk of skills obsolescence in their places of work (Cavanagh et al., 2013). The aim of the TVET is to equip students with basic foundational skills which include both cognitive skills and non-cognitive soft skills to improve their employability and earning potentials. For example, the outcomes of the study conducted by the British Council on youth employment programs and labour market policies that rely on TVET systems show that 60% of unemployed women and youths in Armenia were able to secure permanent jobs,

while labour productivity of participating firms increased by 426% in Ghana and salaries of TVET graduates increased by 214% in China.

In a bid to increase the effectiveness of apprenticeship and vocational trainings in their central objective of right skills development among youths in Africa, there have been calls to improve on TVET through the lens of the informal sector (UNESCO, 2012; Adubra and Afeti, 2014). They suggest that a large percentage of training received particularly by small- and medium-scale enterprises come from the informal sector and are based on the report by ILO (2007); 80% of the skills training in some countries (85-90% in Ghana and 80.3% in Morocco) come from the sector. The informal system of training is more flexible than the school based TVET, which is rigid in terms of age restrictions, admission criteria and the use of foreign language for teaching. The informal system in turn has been faulted for being slow to incorporate emerging skills or technologies into their curriculum as they hold onto traditional and generic systems of training. Yet, it remains the most dominant means of skills acquisition for youths. There is, therefore, a need for a paradigm shift from TVET to a more inclusive and holistic system (UNESCO, 2012) of Technical and Vocational Skills Development (TVSD) which will act as an informal sector training system in terms of administration and training of the participants (Maiyedun et al., 2017).

## 3.2 Technology

Skills mismatch is one of the main impediments to technology adoption in Africa (Choi, 2020; Njuguna and Signe, 2020). Hence, we need to rethink education and training. In the short-term, SSA governments should promote the adoption of simple inclusive technologies that facilitate learning by doing and promote formal-informal sector linkages. Simple inclusive technologies that facilitate learning by doing is appropriate for

Africa but there is also room for other technologies depending on the sector and country. For example, Fintech has worked well in some East African countries, especially in Kenya.

There are several other ways in which SSA governments could promote enabling environment for technology adoption. First, considering the problem of lack of infrastructure as noted above, the provision of the necessary infrastructure would provide a partial solution to this problem. Second, with respect to the problem of inclusivity, it is important for SSA governments to devise strategies to make everyone benefit from technology. In this regard, the success of digital financial services in Kenya is evidence that well designed policies with respect to inclusive technologies can yield desired results. Also, considering the differences in technology adoption by firm size and by sector as noted above, it is important for SSA governments to identify the most appropriate technologies for specific sectors and types of firms. For example, small firms may not need AI but can apply simple technology, e.g., Fintech. Third, with respect to the problem of lack of skills, education and training should be part and parcel of government policy in SSA with respect to technology adoption. For example, SSA governments should provide big data and machine learning training to promote effectiveness bearing in mind that skills are important, but conditions must also be favourable. Fourth, considering the vast evidence adduced in the literature that trust in government is key to technology adoption (e.g., Bahmanziari et al., 2003; Belanger and Lemura, 2008) it is important for SSA governments to take appropriate measures to build public trust since trust in government. Fifth, it is important for SSA governments to pay special attention to negatively disruptive technologies such as cryptocurrencies and engage in regional coordination efforts focusing on what to do with such technologies. Finally, considering that data nationalism is part and the parcel of the discussion on new technologies it is important for SSA governments to understand the implications of data flows across national and regional borders with the goal of devising the best policies either nationally or in collaboration with the regional stakeholders.

The wide diversity of SSA countries makes it necessary to adopt a variety of policy options that fit within the context of member countries, considering many factors – one of which is cost.

## 3.3 The gig economy and labour market institutions

As was noted above, the gig economy is growing fast in SSA, but its regulation poses a challenge in the absence of formal employer-employee relationships. Several policy directives have been highlighted in Section 2.3. Hence, the active intervention of SSA governments is necessary to devise an appropriate regulatory framework but it will require a dialogue with both members of loose associations representing gig workers and the employers (e.g., discussion on social responsibilities of employers).

It is also imperative that SSA governments address several aspects of the enabling environment which are critical in a digital economy. For example, the governments issues surrounding inequality in access to the internet and appropriate policies with respect to infrastructure, devices and knowledge should be addressed. Also, it is critical that SSA governments carefully consider the issue how best to regulate the gig economy, e.g., national, or regional level, bearing in mind that some sort of coordinated regulation involving several jurisdictions may be more effective.

For the sake of ensuring that the youth derive much benefit more from the gig economy, it is important for SSA governments to provide training to the youths on the usage of these platforms and remove the stigma around technical training. This will involve a reform in the education system. In this regard, the digital platform might be part of the solution (could make reforms faster). Vocational training should

be conducted (targeted) to make supply equal to demand. Also, the entire education system should be tailored to meet labor demand. In this regard, one possible strategy, which has already been adopted in Canada, is for post-secondary institutions to offer micro credentials that are short programs designed to help people to rapidly upgrade their skills or to retrain people who have lost their jobs.

Given the close association between the gig economy and informality, there are several issues surrounding informality that deserve careful re-examination. First, it is important for SSA governments to endeavor to fully understand the root causes of informality e.g., poor governance (private sector expansion) as a reaction to regulatory problems and the high cost of compliance. For example, LaPorta and Schleifer (2014) argue that targeted policies (e.g., immigration, education or training) aimed at growing the formal economy will eventually lead to the shrinking of the informal economy. Second, it is important to recognize the need for the co-existence of the formal and informal sectors in SSA. Hence, the need for policies that acknowledge and decriminalize informality and support the co-existence of informality and formality, as well as the existence of many types of informality was also repeatedly mentioned. Third, there is need for changing attitudes towards informality (informality does not necessarily mean lower income and poverty). Fourth, it is important for SSA governments to carefully consider the policy options aimed at reducing informality and expanding formality. In this regard, one possible policy option is the use of incentive schemes. For example, lower interest loans or lower taxes for the formal sector may help promote formality.

## 3.4 Demography and the Labour Market

Several policies and strategies need to be intentionally put in place to prepare the labour market for the changing conditions in the future of work. In general, this entails creating

opportunities using education and the labour market, as well as empowering the youths with appropriate technology and skills to match labour market requirements. The strategies are expected to enhance the ability of employers and individuals to make the right decisions. On the one hand there is the employer's decision regarding whom to hire, the type of skills required, and ways to develop the work environment so that it is remunerative and fulfilling. On the other hand, individuals need to make decisions about the type of educational attainment they need for their desired jobs such as how to develop required skills, how to get information and how to demand a better work environment. This also requires giving laggards a second chance by providing access to services that can help restart their individual and economic lives through counselling and training, especially in soft skills such as communication and critical thinking.

## Meeting the job needs

The institutional framework to transform the labour market should be properly structured in understanding and creating comparative advantages, as well as modifying the environment and using industrial policy, while taking into consideration the public good potentials of private technology. The labour market's growth potential in terms of job creation in Africa is likely to become increasingly large over time and it is imperative to structurally change the system to prepare the labour market. There are both demand- and supply-side policy strategies to put in place in this regard.

On the demand side, countries are expected to build a strong economic base by concentrating on some drivers of growth and job creation. This entails, among other things, the need to modernize production systems within the work environment (Ramdoo, 2015). One is developing the manufacturing industries as a major avenue for future jobs in SSA. This will

involve the modernization of the production processes and upgrading enterprises to increase their competitiveness. The need for this scale of industrialization is to improve workforce productivity, while simultaneously expanding the productive capacity of the process. However, modernizing the production system must derive from increasing development of local production intervention systems to sustain the new production system. This can be done by establishing local research capacities, improving, and modernizing the local processing of primary products.

Another key factor is the development of infrastructure by building transport facilities and services, strengthening the telecoms industries and strategies, improving the quality of internet services. Also important are the provision of inputs, establishing national champions, improving business climate, promoting local manufacturing systems by public procurement, using local processing methods in the agricultural systems, as well as improving electric power supply. Closely related to this is the development of a viable research and development system. Within the African context, it is important to develop local content R&D. Again, this highlights the importance of the creation of science for suitable informal activities, and the decentralisation of development processes to incorporate local content (Okumu et al., 2019). The provision of these infrastructures, resources and capacities is the basis for a sustainable and potentially positive digital economy to which Africa must necessarily subscribe to fit into the global workspace. Digitizing the African workplace must happen in tandem with the global system of works (Abdychev et al., 2018). At present, digital technology is changing the face of work in the African continent by disrupting production processes and making previous skills redundant (Dutz et al., 2019).

## Digitization of the African Workspace

The access to and utilization of technology has, however, proven to be key for development. Therefore, positioning the workplace to adopt and equip with digital technology will increase competitiveness of the workspace in the global value chain. It has the potential to expand the workspace, thereby providing more opportunities to absorb the teeming labour supply.

In the global workspace outlook, digitization is the elephant in the room that can no longer be ignored across countries. The implication for Africa is thus to ensure that its labour market does not become totally obsolete within the global outlook. Digitization, with its tendency to improve the productivity of capital and labour is gradually reducing the demand for labour in many workspaces. Despite the need for some labor-intensive activities in Africa, harnessing the power of digital technology will significantly accelerate growth and development by improving product and process innovations on the continent.

One of the consequences of low digitization and technology uptake in the African space has been the brain drain of top intellectuals to developed economies where they are able to access technology and utilize their skills appropriately. This has further deepened the continent's skills gap (IOM, 2004). However, far from being a discouragement, the diaspora could also be harnessed to bring about economic development in Africa through certain channels of human capital development, democracy and productivity (Gnimassoun and Anyanwu, 2019). Hence, encouraging the participation of the diaspora in the development process and economic diplomacy could be a factor in shaping the African workspace; where they invest in priority sectors using advanced knowledge, they have gained from digitized economies. However, Africa has a price to pay to encourage the diaspora to invest in digital technology for its workspace. First is the need to improve

governance in a bid to ensure that digitization investment is not destroyed by prevailing poor business environments in many African countries. This will also involve the engagement of the private sector and civil societies for business structures and accountability (AUC OECD, 2021).

The African Union (2020), in its Digital Transformation Plan for Africa, has stated that the African business environment must be made conducive to allow for industrialization through digital technology by the year 2030. This will be achieved by a combination of legislations, regulations, policies and laws that would encompass the digital space at both country and regional levels. The need for national policies on digital technology will also encompass such regulations to protect investors and their property rights, especially small- and medium-scale digital start-ups. Moreover, governmental support for investment in TVET must include digital technology as a main component of its curriculum (African Union, 2021). Finally, the monitoring and evaluation has to be built into digital technology policies in Africa. This is a means of measuring the impact of using digital technology on the economy so as to reveal patterns of growth, inequalities and gaps that must be filled. This will ensure that the downsides of digital technology in labour markets are easily recognized and affected sectors are strengthened.

Contingent to the size of the informal sector is the need to promote the development of cooperative societies to facilitate access to services, inputs, and technology. The effect of social networking in moderating employment and labour gain has been documented (Nordman and Pasquier-Doumer, 2015). Social networks serve to build collective action that increases the capacity to transfer technologies and participation to marketing and better prices.

### Mitigating the effect of the youth bulge

On the supply side, it is imperative to modify the educational system to upgrade skills to match work requirements in the future of work. This entails appropriate schooling and training; and it is the gamut beginning with early childhood education up until the tertiary education. School curriculum must be flexible and the subject of innovation on an almost instant basis. On the supply side there is also the need to cope with and mitigate the impact of the youth bulge. On the one hand, there are several family planning interventions that limit the fertility rate and eventually lead to an optimal level of fertility that corresponds to the available resources. Closely related to the issue of fertility decline is the need to maintain gender equity in skills acquisition in society. The requirement of this is to ensure that young girls have just as much an opportunity to access an education as boys. The need to close the gender gap in the labour market has a far-reaching effect on the demographic transition process and its anticipated dividends. When girls and women have opportunities to be educated and gainfully employed, the likelihood that they improve the educational outcomes of their offspring is much higher (Brookings, 2020). Thus, policy prescription to combat the consequences of a youth bulge involves improving job readiness through schooling and training, creating jobs, enacting an active industrial policy and family planning interventions.

## 3.5 Closing the Digital Divide: Strategies and Interventions

Closing the digital divide is perhaps the most important process that must be put in place within the African workspace. This is not a disjointed process of single strategies, but concise, concerted efforts to include an array of solutions.

## Increase Digital Literacy

The most imperative solution to bridging the digital divide is to increase digital literacy, which would cut across all socioeconomic groups within the African society, thereby engendering the process of inclusiveness (Garuba, 2013). This could be achieved by introducing Information and Communication Technology (ICT) syllabuses into the school curriculum in formal educational institutions. Locally led ICT literacy modes could also be developed in the communities or using mobile ICT schools as can be found in some countries in SSA (UNESCO, 2015). In so doing, there is a need to implement policies to address inequality in literacy among various groups within society. Note that the digital world is dynamic and, hence, has to ensure that there is a commensurate speed of adjustment in the continued growth of a digital world without being intimidated. An encompassing stakeholder participation in bridging the digital divide cannot be overlooked. The governments of African economies need to work with all stakeholders involved to deliver the growth of ICT use. This could be done by providing operational incentives to ICT entities. These entities include but are not limited to the government agencies and parastatals, schools, mobile network providers and NGOs. Concerted efforts on all fronts are key to promoting inclusiveness in access to and utilization of digital technologies. For example, the use of mobile phones is increasingly on the rise in Africa with 4G LTE connectivity expanding and the introduction of 5G, such that mobile broadband users may reach up to 72% of users (Ericsson, 2020). This was promoted in part by lower prices to purchase such mobile devices and various payment promotion plans.

## Inclusive Policy in Education and Skills Acquisition

Africa must promote inclusive growth and poverty reduction policies, especially among marginalized and underrepresented

groups, to support technology adoption and skills. This will give such cohorts an opportunity to access and use digital technology within their reach. There is a need to maintain a gender focus in bridging the digital divide (OECD, 2018). This can again be achieved by a concerted effort to prioritise ICT education, especially for girls and women in collaboration with other stakeholders. Developing concrete policy actions that will foster the involvement of girls and women in the digital economy is a step in the right direction. This is because women spend a lot of time on unpaid childcare and lower remunerative employment. Thus, there is a need to erase gender stereotypes, especially as regards parental and childcare barriers that reduce women's opportunities. This will facilitate women's labour participation in society as much as the quality of the jobs they obtain. This can be done by equipping women with opportunities for more self-organization and management and communication, while encouraging them to enroll in related courses and thus be incorporated into the work force and close the wage gap. There is also a need to harmonise regulatory frameworks across institutions and regions in technology use, market entry, data security and other forms of digital technology. Harmonization can jumpstart research, investment and bridge the gap by enhancing digital literacy. This must also have a gender underpinning in helping girls and women participate in ICT use.

Again, closing the digital divide means ensuring that digital technology is affordable across sectors and societies in Africa. The high cost of access is perhaps a general problem in getting digital technology to people. There is, therefore, a great deal of good that will derive from driving down the costs of access to digital technology in Africa. Even though digital technology is not a public good, its affordability will increase uptake and ensure a more sustainable use for economic development. This will also largely reduce Africa's existent inequality.

The other dimension of bridging the digital gap is related to skills and skills acquisition in the educational system. A key to this is to develop a flexible educational system that flows

with the changing technological advancements. What digital skill strategy requirement does Africa need to break out of the digital divide trap? This starts from monitoring the evolving set of global digital skills and incorporating such strategy in the national education program. Contextualize skills and training programs within cultural and social norms and tailor them to the 4th industrial revolution. Have all stakeholders work collaboratively to deliver this. Vocational education and training may also need to be reorganized and linked to the formal education system.

On a continental space, and according to a position by the New Partnership for Africa's Development (NEPAD) at a meeting in GENEVA (Geneva, 17–28 February 2003), the chairman of the e-Africa Commission (now e-program), President Abdoulaye Wade of Senegal, stated that there is a need for Africa to have a Digital Charter. The aim is to develop the African digital system such that the continent can harness its potential. To this end there are two main programs currently in place – the e-school initiative and the NEPAD ICT Broadband Infrastructure Network (NEPAD, 2015). There may be a need to seek support for this initiative by adopting the G20's goals of developing skills for work program and ensuring that the skills are used. Conversely, and based on a structured system, the G20 economies should also be encouraged to commit themselves to, say, targeting enrolment of women and marginalized groups in STEM courses, presenting awards and prizes to these groups, as well as helping to create sponsor marginalized groups and awareness programs to drive access to and use of digital technologies in Africa.

## Data and Monitoring Systems

The last dimension is related to data and its uses. The imperative to bridge this divide rests on monitoring the extent of the digital divide across the various socioeconomic groups

within society. It will be useful to ensure that the divide is bridged among the older generations who have not had the opportunity to acquire technical skills, especially in rural areas. The strategy to generate data to foster evidence-based policy related actions is vital to closing Africa's digital divide. This data could provide evidence to help the underrepresented groups accelerate their access to the digital economy.

Bridging the digital divide in the first instance entails understanding how wide the gap is before finding ways to close them. To achieve this, data and monitoring systems are key components of the digital system of any country or region. Measurements, scorecards, milestones, and other metrics will need massive data flows to understand and set the pace in the bid to make the digital world more inclusive. The data requirement is important to understand the use and density of digital technology across Time and Space (regions, countries, sectors, individuals). Measurement indicators will require information on:

- The distance (including geographical) between regions, countries, sectors, groups, and individuals in accessing digital technology
- The economic gap as a result of differential access to digital technology
- The availability of digital technology infrastructure and ICT devices and networks
- The number of accesses to ICT devices
- Growth in internet bandwidth and connectivity
- Growth in income (micro and macro levels) with corresponding use of digital technology

Development partners such as the OECD and UNCTAD have explored the effect of the information revolution on trade, GDP, education, livelihood, and labour; comparable indicators are indispensable to empirically compare the density and use of digital technology. One provided by the World Bank Orbit.com offers an overall outlook of the digital space – Infostate, with indicators such as Availability of ICT, access to internet networks, ICT skill sets, nexus between skills and access

to ICT. Such information is fed into e-policy reforms and interventions (Sciada, 2003).

The African Union in cooperation with the OECD has a statistical database with indictors for monitoring the trend in the digital workspace of Africa and the rest of the world (AUC OECD, 2021). However, in-country data agencies must buy in to provide micro level data for country level interventions within the digital space. Available data in Living Standards Measures Surveys (LSMS) have some indicators of ICT availability and use, which can serve as the base from which dedicated surveys can be commissioned.

## 4. CONCLUSIONS

This report examined the future of work in Sub-Saharan Africa in the face of FIR. The report is thus a synopsis of the experience of SSA in its quests for technology uptake within the framework of its demographic transition, institutional, governance and economic base. While it seems that the global community is moving forward in technology use in the working environment, SAA lags in both adoption and utilization. The extent of this digital divide is far reaching in scope encompassing gender, ethnicity, age, sector, rural/urban, disability, etc. This has had and continues to have significant impacts on the labour market in terms of employment (including unemployment and underemployment), employability, equity, labour productivity and economic development. We therefore identified some contending issues in the future of work in this regard.

The educational system in Sub-Saharan Africa is potentially archaic in its approach to education within the ambit of the technology driven labour market. Educational outcomes are still unequal in the region, with many individuals, especially females and rural dwellers, unable to access quality education

that would change the narratives in the labour market. The inability of the educational sector to adopt technology has also been shown to greatly disadvantage graduates in the emerging digitally driven labour market. This would appear to explain the large number of youth unemployment in the region. We recommend that educational systems across Africa be revamped from the Early Childhood stages to the university levels in such a way that digital technology is incorporated at various stages. The need to incorporate digital technology speaks to an adequate infrastructure. Beyond adopting digital technology, however, it is imperative to ensure equity in educational outcomes, especially among girls and women to initiate a virtuous cycle of education and work outcome that results from their education. Again, we must consider adopting certain technologies in the African labour market and potentially adopting more complex ones. From this comes the term the "Gig Economy", that is, an economy that is mainly operated online. Given that the gig economy is mainly linked to informality, African economies need to refocus and incorporate the largely informal systems into the emerging workspace. This would harness the high potential for technology utilization in the work sector through digital infrastructure, digital devices, and digital knowledge.

The aim is to facilitate the formalization of the workspace for a sustained phase and expand youths' opportunities to generate and market their products.

The demographic transition in SSA clearly has a different trajectory than expected in the traditional framework. Most African countries appear to be stuck in the 2nd phase of the transition, with consequences for a bourgeoning youth population in what is termed "the youth bulge". The dividends expected of a demographic transition have therefore eluded many African economies since available resources have been grossly insufficient at absorbing the teeming youth population effectively. We realise that the present challenge in Africa's demographic transition goes beyond an exploding supply of labour. Rather, the absorptive capacity of the African labour

market is grossly inadequate amidst weak institutions and policies. It is important to put in place policies and strategies to intentionally increase the capacity of the labour market to provide employment for the available labour supply. These should embrace plans on both the supply and demand sides of the labour market for informed decision-making. This includes training and retraining, the development of soft skills, the reduction of information asymmetry, as well as an encompassing economic development drive.

We also found that despite the increasing adoption of technology globally and in Africa, there is still a large digital divide in the continent. The divide has been identified across age, gender, sector, educational level, and disability space. Chief among the reasons for this divide is the inadequacy of training and education in that regard. The imperative to close these gaps is important if Africa is going to benefit from the technology driven future of work. This would generally rest on the development of skills to uptake and utilize the digital technology. At the same time, the provision of the necessary institution, infrastructure and policies would help sustain the process.

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## 7. ABOUT THE FOWIGS INITIATIVE

The Future of Work in the Global South is an initiative supported by the International Development Research Centre (IDRC) and coordinated by the Center for the Implementation of Public Policies Promoting Equity and Growth (CIPPEC). It aims at understanding the implications of technological change on jobs from a Global South perspective bringing data, knowledge, and policy frameworks to build evidence-based narratives on the future of work in developing countries.

## 8. ABOUT THE PARTNERS

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CIPPEC is an independent non-profit organization that works on building better public policies. We promote policies that would make Argentina more developed, more equal, with the same opportunities for all and solid and efficient public institutions. We want a fair, democratic and inclusive society, where everyone has the possibility to grow.

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The African Economic Research Consortium (AERC) is one of the most active Research and Capacity Building Institutions (RCBIs) in Africa. Established in 1988 as a public-not-for-profit organization, The AERC strengthens local capacity, human and institutional, to promote sound economic management in sub-Saharan African (SSA) economies, through a programme combining economic research with postgraduate training in economics, supported by an interactive communications and policy outreach. The AERC Strategic Plan 2020-2025 focuses on improving quality of AERC products, from graduates to research outputs, that will generate a momentum for its own sustainability and create an appropriate platform for policy influence across SSA.

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