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DIGITAL SKILLS IN AFRICA
Prospects for AU–EU Collaboration
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13.1 Introduction
The current global political climate seems the most appropriate to foster cooperation between the European Union (EU) and the African Union (AU) with regard to digital skills. The EU’s Comprehensive Strategy with Africa adopted in 2020 prioritises digital skills in three of the five thematic areas: the partnership for digital transformation, in which digital skills are emphasised as one of the four core priorities; the partnership for sustainable growth and jobs, and the partnership for migration and mobility. In particular, the partnership for digital transformation proposes several policy recommendations and actions that seek to mainstream digital skills, promote digital and transversal skills in education curricula, and facilitate digital skills development across all sectors (AU–EU Digital Economy Task Force, 2020). Similarly, the AU–EU task force recommendations, which broadly correspond with those in the Digital Transformation Strategy of the AU, privilege “digital skills and human capacity” as one of the five foundational pillars (African Union, 2020).

Besides the AU and EU, other global actors like the OECD and the World Bank have proposed new approaches to digital skills with implications for Africa’s economic development and transformation (IMF, 2018; Bashir and Miyamoto, 2020; AUC/OECD, 2021; OECD, 2021; IFC, 2021; Bashir et al., 2021). While the OECD focuses more on digital skills for employment and jobs, the World Bank’s perspective adopts a broader approach that includes education and literacy. The World Bank’s Digital Economy for Africa initiative includes digital skills as one of the five foundational pillars, which are broadly similar to, but not identical with, those of the AU strategy. Addressing the digital divide is also central to realising Africa’s Agenda 2063 and realising the Sustainable Development Goals (SDGs) both in Africa and globally (Mare, 2021). Other organisations,
such as the United Nations Broadband Commission, also identify digital skills as one of the enablers to overcome the digital divide in developing countries, including countries in Africa. According to a large-scale consumer survey conducted by the Global System for Mobile Communication Association (GSMA), the lack of digital literacy and skills is one of the greatest obstacles to increasing mobile internet usage in Africa (GSMA, 2019).

The conclusions, policies, and strategies from the above institutions suggest an apparent consensus that the lack of digital skills poses serious obstacles to the digitisation of African economies and societies. This constraint impedes not only the use of digital technologies and tools in the production and consumption of goods and services, but also the creation of new types of jobs in the digital economy. The apparent consensus would also lead to the conclusion that digital skills could be an arena for cooperation not only between the EU and Africa (Daniels et al, 2020), but also with other actors such as the World Bank. However, despite statements of declarative intent, policies, frameworks, and strategies, we argue in the remainder of this chapter that the appropriate conditions do not yet exist for meaningful cooperation in the area of digital skills.

### 13.2 Barriers to Cooperation in Digital Skills

Digital skills are fundamental to the digital transformation of societies. They are crucial to the appropriation of digital technologies; even when physical and material access to these technologies increases, lack of digital skills determines the extent and type of usage of digital media (van Dijk and van Deursen, 2014). Nevertheless, lack of conceptual clarity about the precise meaning of “digital skills” undermines the validity and feasibility of the various recommendations and actions suggested to remedy the current situation in Africa.

#### 13.2.1 Conceptualisation of Digital Skills: Current Discourse

Conceptual ambiguities around digital skills permeate recent high-profile policy reports of the EU and AU, two of which we highlight as examples. The first is the report of the Digital Economy Task Force (DETF), set up by the EU and AU, which proposes three “layers” of digital skills, each spanning a spectrum from basic to advanced: “digital skills for all”; “21st century skills in education” and “skills for ICT professionals, digital entrepreneurs and public institutions”. The second is the AU’s Digital Transformation Strategy (DTS) (AU, 2020). The strategy highlights two sets of skills, taken from the Pathways to Prosperity Commission report (Pathways for Prosperity Commission, 2019). The first set, “digital skills”, comprises advanced digital skills and engineering knowledge, as well as “digital literacy” for general workforce. The second set, “digital complementary skills”, appears to be a list of many skills, including socio-emotional skills, communication, language, creativity and adaptability; somewhat akin to the “21st century skills” referenced by the AU–EU DETF.
This lack of conceptual clarity, as explained in the preceding paragraph, is not unique to the examples and reports discussed above. A recent report by the International Telecommunication Unit (ITU) on Digital Skills includes “algorithmic literacy”, three levels of digital skills (relating to the use and creation of digital tools), and “human-based computation skills”, involving the combination of machine computing with human thought (ITU, 2020).

The different approaches and frameworks illustrated above reflect the problems relating to defining a new set of skills that, just a few years ago, were not recognised as core competences of the workforce or an essential part of literacy for the population. Understandably, concepts regarding digital skills have evolved with the increasing penetration of digital technologies and digital information in the economy and society, the variety of digital devices and the development of the internet. Martin and Gudziecki (2006) traced the evolution of the conceptions of computer or ICT literacy, information literacy, media literacy, and communication literacy, among other literacies in the “pre-digital” era, which have influenced the emergence of concepts relating to digital literacy and skills. Over the years, the conception of digital skills has evolved from “ICT skills”, which focused on technical competences related to the use of computers and software application, to include multiple literacies as well as reflective competences. The use of ICT for creative purposes has also been increasingly stressed. In this regard, Ito et al. (2008) contend that children’s participation in society does not only require the ability to access “serious” online information and culture, but also the ability to creatively participate in recreational and social activities online. Reflecting this trend, a recent review compares 13 digital literacy frameworks, drawn mainly from Europe across five areas: operational and technical; information and cognition; digital communication; digital content creation; and strategic (Iordache et al., 2017).

Meanwhile, technical competences themselves have been widened to encompass a variety of devices, software, applications, and, more generally, the use of digitally available information. The emergence of new general-purpose data-driven technologies and Artificial Intelligence (AI) that are finding applications in multiple sectors has raised the demand for both user (general consumer/workers) and developer skills in these areas. Finally, threats to safety and privacy caused by the interconnectedness of infrastructure, devices, and data flows require a basic level of citizen and workforce competences that need to be incorporated into a definition of digital skills.

A further distinction arises between the digital literacy competences for the general population (as citizens in a digital society) or workforce and the specialist competences for ICT professionals and technicians. The latter are normally developed through formal education and training programmes at the post-secondary level (in technical-vocational institutions or engineering programmes).

Conceptual clarity about the types and definitions of digital skills would help to identify practical areas of collaboration between the EU and Africa in
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Developing these skills. Recent work by the EU and the World Bank provides a roadmap for African countries to adopt a meaningful framework on which to develop digital skills programmes. The EU’s Digital Competence Framework for Citizens (DigComp) is a milestone in the development of a general digital literacy competences framework targeted to citizens, building on the earlier DigEULit project and careful review of several frameworks. It focuses on five domains, twenty-one competences, and four levels of proficiency (ranging from foundational to highly specialised). Several versions of DigComp have been updated, with the latest revision, DigComp 2.2, starting in January 2021 and possibly ending in early 2022. As of 2020, the DigComp framework was being used in 16 EU countries, guiding the development of curricula in education and training, student assessment and by employers to assess the competences of students. Additionally, the framework provides “the conceptual basis for the calculation of the digital skills part of the European Digital Economy and Society Index”, which tracks the evolution of EU member states in digital competitiveness (European Commission, 2020a, b). The DigComp framework was subsequently adapted by UNESCO as the Digital Literacy Global Framework (DLGF), incorporating two additional domains that were considered relevant for developing countries (UNESCO, 2018).

The World Bank, through its work on the Digital Economy, has further developed this framework to distinguish explicitly between digital skills for digitally literate citizens (to access services and participate in a digital society) and digital skills for the workforce. The latter are broken up further into digital skills for the ICT and ICT-enabled sectors, and the general workforce in all sectors (Bashir et al., 2021; World Bank, 2021). For digital literacy and digital skills for the general workforce, the World Bank adopts the UNESCO/DigComp 2.1 framework, while for the workforce in the ICT sectors, it recommends adopting specialised frameworks for engineers and technicians, such as the EU e-competence framework as a benchmark. In most countries, however, there are specific national frameworks for engineering- and technician-level programmes; the EU e-competence framework, with the required adaptations to local contexts, can be used to benchmark these programmes.

Another line of evolution has been the development of digital skills frameworks for specific occupations within the general workforce (that is, excluding the information technology sector). With respect to the EU DigComp framework, two groups of occupations have attracted the most attention due to their importance for the digital economy and for digital society: civil servants and teachers. For example, Spain has launched a training programme targeting public employees. The programme’s content and assessment are aligned with the DigComp competences and proficiency levels. Relatedly, the EU has developed DigCompEdu, a digital skills framework specifically designed for the teaching profession, which informs the professional training and continuous upgrading of teachers (Redecker, 2017). These frameworks have in turn been adapted by other countries in the EU.
### 13.2.2 The Digital Skills Ecosystem

The rapid evolution of concepts and definitions highlights two other aspects which differentiate digital skills from other types of skills or competences. The first is that digital skills cannot be acquired without access to digital technologies, considered in a broad sense. Relatedly, it is vital that relevant concepts and frameworks are regularly updated as technologies evolve. The second is that digital skills are closely intertwined with other key skills, without which meaningful digital skills cannot be acquired. These aspects have important policy and programmatic implications in the African context.

The acquisition of digital competences requires access to devices, applications, digital content, and a certain level of connectivity. In advanced economies, this broader ecosystem has developed rapidly, making the instruments for acquiring digital competences accessible to the majority of the population, even if there are still significant inequalities between population groups in levels of access. This is especially true in educational institutions, thereby ensuring that the younger generation and new entrants into the labour market have the foundational digital skills required of all citizens. However, this is not the case in Africa, especially sub-Saharan Africa, where the most common device may be a simple mobile phone with low speed and unreliable connectivity, and limited access to the internet. Acquiring anything but the most rudimentary digital skills in such a context is challenging.

Many primary and secondary schools have no computers and limited or no connectivity. Teachers often lack basic digital skills and tools while local digital content is not readily available in most countries (Owusu-Ansah et al., 2018; Quaicoe and Pata, 2020). The programmatic implication is that the development of the digital skills ecosystem and digital skills programmes in the African context requires urgent attention. As an example, whether Massive Open Online Courses (MOOCs) can be used to impart digital skills to 300 million Africans by 2025 – an objective of the AU Digital Transformation Strategy – depends not only on the availability of the course content, but also on access to devices and affordable internet.

A practical challenge arising from the close link between digital technologies and digital skills is that digital skills frameworks will need to be regularly updated in order to retain their practical relevance for education and training providers. The slow response time of education and training systems in Africa to changes in industry practices, with respect to digital skills, has been a long-standing problem, which is likely to be aggravated by the digital transformations underway. Addressing this challenge requires capacity building in relevant ministries and regulatory agencies, but also more nimble processes for approving education and training programmes.

### 13.2.3 Digital Skills Competences

Digital skills are related to other core skills. And the fact that related core skills are not adequately imparted in the education and training systems in Africa also
poses a challenge. The World Development Report (World Bank, 2019) distinguishes between three types of skills – cognitive skills, socio-emotional skills and technical skills – which are interrelated and reinforce each other (especially cognitive and socio-emotional skills). Digital skills are related to these types of skills, and indeed depend on certain cognitive skills such as foundational literacy and numeracy, as well as socio-emotional skills. In the African context, where children and young people sometimes lack foundational literacy and numeracy even after completing primary education, and a large section of youth are outside the formal education system, digital skills cannot be imparted on their own (IFC, 2019, 2020, 2021). In European countries, on the other hand, a young person or working adults who have not acquired “digital skills” in school can be taught these skills through short-term programmes.

It follows that foundational digital skills programmes for young people in Africa, delivered outside school, would need to include foundational literacy, numeracy and socio-emotional skills. In such context, digital skills programmes delivered within schools will be successful only to the extent that foundational skills are also strengthened. The programmatic implications are that imparting digital skills within schools requires careful integration with upgrading of curricula and teaching within schools and training institutions. Meanwhile, delivering digital skills to young people outside the school system requires innovating the content of the programme and the delivery models involving the private sector.

13.3 The State of Digital Literacy Programmes in Africa

Digital skills programmes can be delivered through formal education and training systems, as an integral part of the curriculum, and through informal means outside the education system, through short-duration courses. This section presents data on the current status of both types of programmes, which should form the basis of future EU–Africa collaboration. The review focuses on sub-Saharan Africa (SSA).

As discussed in the previous section, the delivery of digital skills programmes requires an ecosystem. The lack of basic infrastructure, connectivity, devices, and trained staff limits the delivery of meaningful programmes (Bashir et al., 2021; Daniels et al., 2021; Dosso et al., 2021). However, paucity of precise data on these parameters for most African countries, especially in primary education, continues to pose a major challenge both in deepening understanding of the issues and in designing and implementing appropriate policy and programme interventions. As a result, school education systems provide limited training in digital skills, even at the secondary level (Quaicoe and Pata, 2020). Most primary and secondary school leavers will have no formal training even in foundational digital skills. Extensive levels of investment are thus required to enable even basic levels of internet connectivity and digital devices in school education.
Even South Africa, which has a relatively well-developed school infrastructure and high level of internet penetration, has struggled with providing broadband to schools. South Africa’s official policy for providing broadband access in the country, known as South Africa Connect, published in 2013, set a target of having all schools connected at 10 Mbps and 80% at 100 Mbps by 2020. In 2018, less than 20% of schools had connectivity for teaching and learning (University of Chicago Law School, 2020). Even those which had some level of connectivity often lacked the required high-speed and reliable connection and an adequate number of devices; the latter was often due to the lack of secure building infrastructure. The roll-out of the policy was hampered by difficulties in procurement, delays in decisions regarding the technology, and lack of technical expertise at the school level. Further, the adoption of ICT in education does not depend on infrastructure alone. Other factors such as governance models, the capabilities and skills of teachers and learners, the e-culture in place in the relevant institutions, and the levels of implementation matter (Ramoroka, 2021).

There is limited publicly available information on digital skills programmes in Africa outside the education system. The World Bank’s Digital Economy country diagnostic reports completed between 2019 and 2021, each of which has a chapter on digital skills, have been the most comprehensive survey to date of the supply of digital skills programmes (World Bank, 2020). These reports provide information on digital skills programmes being inside and outside the formal education system by private providers and NGOs (World Bank, 2020). Although somewhat uneven in their coverage, mainly due to the lack of the availability of systematic data, these studies highlight important findings. The reports confirm that digital skills programmes within school education are limited, for the same reasons cited above.

Outside the formal education system, there are several digital skills programmes delivered by private providers, but they operate on a small scale and are limited in their coverage. The World Bank reports (World Bank, 2019; 2020) provide information on digital skills programmes from 21 countries, and are currently the most exhaustive survey of privately provided digital skills programmes. Analysis of the programmes undertaken for this study shows that just 37 programmes could be identified in the assessed countries; no programmes were identified in three countries. Most of these programmes are linked to entrepreneurship programmes or other projects. The programmes offered by the private sector are often not clearly related to any digital skills competency framework, making it hard to assess what level of digital skills is provided. Additionally, there is no information about the quality, effectiveness, or costs of these programmes. There is no systematic assessment of digital skills. The most common form of assessment is the International Computer Driving License (ICDL). While this is available in a few countries, it has several limitations since the assessment is at a computer centre and tests skills related to use of desktops/laptops.

A recent GSMA report, which researched digital skills needs, indicated that Ghana has a large number of informal training programmes, often linked to
entrepreneurship initiatives. However, in line with the World Bank assessments discussed above, the report found that the programmes are concentrated in a few large urban centres, have relatively small coverage (of several hundred people), focus on intermediate to advanced level digital skills, and use a classroom and computer-based delivery mode (GSMA, 2021).

There are several national and regional initiatives led by large technology companies, such as Google’s Digital Skills for Africa programme. Despite its name, the programme focuses on a narrow range of foundational-level digital marketing competences and is delivered online. The lack of publicly available information on the coverage, effectiveness, and impact of such programmes and others implemented by smaller, local organisations renders it difficult to develop evidence-based public policy to scale up approaches that have been successful.

In SSA, there are no specific large-scale initiatives to build the digital competences of important occupation groups identified earlier, such as teachers and civil servants. Training of teachers is impeded by the same factors as that of students: the lack of a functioning digital ecosystem in education. The training of civil servants is an important precondition for building digital leadership capabilities in organisations (or institutional) levels, which are essential to bring about the broader digital transformation agenda of the government (Daniels, 2015; AU, 2020; Daniels et al, 2021). The lack of systematic digital skills training of civil servants and staff in the ministries, agencies, and relevant bodies concerned with education and skills training is of special concern, as it impedes the design, management, and implementation of policies, regulations, programmes, and projects related to digital skills training of the population and workforce.

The gaps in the digital skills capabilities of civil servants and government staff in ministries and agencies are reflected in the absence of national digital transformation policies in many SSA countries, and specifically policies related to digital skills. Many SSA countries still have to either formulate their digital strategies or articulate a framework for digital literacy and skills into their policies. In general, education sector policies follow the traditional approach of providing “ICT in education” – that is, the use of technology in education, rather than a focus on key digital skills that young people should acquire for current and future jobs (Blignaut et al., 2010). A few countries have emphasised the role of digital skills in their digital transformation strategies, among them Ethiopia, Kenya, and Nigeria. Even so, these strategies do not clarify the types of digital skills to be developed. For instance, Kenya’s “Digital Economy Blueprint” states that the focus area of the digital skills pillar is “to develop the digital skills training framework from primary to university” but lists the objective “to increase the number of graduates having been trained in Advanced Digital skills” (GoK, 2019, p. 62). These include areas such as AI, machine learning, robotics, the Internet of Things, and so on. The skills to be developed for school children, out-of-school youth, the workforce, and citizens as a whole are not mentioned.
13.4 The Demand for Digital Skills in Sub-Saharan Africa: A Potential Enabler to Drive EU–Africa Collaboration

A strong market demand could influence private training providers and African governments (in their capacity as policymakers as well as providers of public education and training) to adjust and upgrade their digital skills programmes. Indirectly, this also generates an interest for greater cooperation with external actors. As digitisation spreads across sectors, the demand for digital skills is likely to increase due to two factors: (1) an increase in the total number of jobs requiring diverse levels of digital skills and (2) a shift to jobs requiring digital skills, combined with a reduction in jobs not requiring these skills. A recent study of the arrival of fast internet in 12 SSA countries, between 2006 and 2014, finds that employment increased, primarily in higher-skilled occupations (although there was also an increase in the employment of less-educated workers) (Hjort and Poulsen, 2019). This increase in employment is due to a growing number of firms in sectors using ICT, as well as due to greater use of the internet to improve productivity in existing firms. Although the study does not explicitly examine digital skills, it suggests that the increase in higher skill occupations may increase the demand for digital skills essential in the use of digital applications.

The introduction of the mobile payment system M-PESA in Kenya indicates how job losses and job creation may affect different sectors (Choi et al., 2020). Direct job losses in the banking sector were estimated to be about 6,000 between 2014 and 2017. However, the total number of jobs increased in the same period through an additional 70,000 mobile payment agents, and indirect job creation in other sectors through access to credit and cost reductions enabled by digital financial services. The study suggests that the adoption of digital technologies “has the potential to have a better impact on lower-skilled and lower educated workers in SSA than it does in higher-income regions” (Choi et al., 2020, pp 2-4). This is because the relatively small size of the manufacturing sector reduces the risk of large-scale job losses through automation of tasks in manufacturing. Another factor is that adoption of certain digital technologies (such as use of the internet and social media for communications and marketing, digital financial services, and digital platforms for e-commerce and hiring) requires relatively low levels of education and skills but could still lead to productivity improvements and expansion of small enterprises.

A likely scenario is, therefore, that digital technologies may impact sectors such as retail through e-commerce and the “gig economy” through digital labour platforms, rather than manufacturing through robotics and 3D printing. A corollary of this is that the level of digital skills required in most new jobs is likely to be at the basic/foundational level. Information on e-commerce platforms and the jobs they generate is not readily available. The role of digital labour platforms in Africa is still relatively small. Out of the global investment in digital labour platforms between 1998 and 2020, Africa, Latin America, and the Arab states together received only 4% (ILO, 2021). Further, digital labour
platform workers in Africa tend to be employed on location-based platforms (for example, taxi and delivery services) rather than web-based platforms (through which workers perform specific jobs such as graphic design, website design, and programming tasks). The former tends to employ lower-skilled workers who require basic digital skills.

An example of a location-based platform is Uber, which has an estimated 150,000 active drivers in Africa as a whole. Local ridesharing platforms have also emerged, but job numbers are not known. A case study of Uber workers in Tanzania found that the digital skills required by drivers included the ability to use the smartphone features, especially using maps for navigation, online safety, e-payment, and online communications, while other skills such as problem-solving and critical thinking were also important (ITU, 2020). Uber itself offers just six hours of training, usually in one day, focused on the essential job-specific skills. The majority of drivers acquire skills on the job or through peer learning, but many lack the ability to read maps or communicate online.

Web-based online work is yet to take off in a significant way in Africa, except in a few countries such as Kenya and Nigeria. Digital infrastructure (that is to say, reliable, fast, and cheap broadband access – supported by physical infrastructure, especially reliable electricity in the case of Nigeria) is the main limiting factor. As countries invest in these infrastructures, the digital skills requirements of platform workers are likely to rise.

While most of the demand for digital skills is likely to be at the foundational level, higher-level digital skills are required to build and maintain the digital infrastructure, as well as the nascent modern manufacturing sector. There is evidence that the manufacturing sector is growing in parts of SSA and several countries, such as Ethiopia, Kenya, Ghana, Nigeria, Rwanda, and Senegal (UNIDO, 2021).12 And that countries in this group are making efforts to attract FDI in manufacturing, setting up industrial parks, and so on.

A more systematic study on the demand for digital skills in the region was undertaken by the IFC in 2021. Using the methodology outlined in an earlier study for Ghana (IFC, 2020), but with revisions that incorporate the digital skills frameworks suggested in the World Bank work on digital skills mentioned above, the study covered Cote d’Ivoire, Kenya, Mozambique, Kenya, Nigeria, and Rwanda (IFC, 2021). Thus, it could estimate the demand for digital literacy skills at different proficiency levels as well as the demand for specialised skills for the ICT-enabled sectors. About 57 million jobs are expected to require digital skills in these five countries by 2030: about half the jobs in Kenya, between 35% and 45% jobs in Cote d’Ivoire, Nigeria, and Rwanda, and about 20% in Mozambique. About 2 million of these jobs will be in the ICT and e-commerce sectors. The demand for skills is therefore primarily for general digital literacy skills, and especially at the foundational level (70%) and at the intermediate level (23%) (IFC, 2021).

Hence, the demand for digital skills is not mainly from narrowly defined ICT professions. Instead, it stems from more generic occupations and for basic-level
digital literacy skills. This is not to underplay the importance of the skills for the ICT professions: although this represents a relatively small proportion of the digital skills demand, in absolute numbers. Nevertheless, we note that the requirement for advanced digital skills is substantial (two million jobs). Therefore, an upgrade in the capacity of higher education and technical training institutions is essential to deliver job-relevant training.

13.5 Conclusion: In Search for a Meaningful AU–EU Cooperation on Digital Skills

This chapter set out to show why the appropriate conditions for a meaningful AU–EU cooperation in digital skills do not yet exist. Three impeding factors were identified: first, there is a lack of conceptual clarity regarding the precise meaning of digital skills, as reflected in the digital transformation strategies of the AU and various African countries; second, provision of digital skills training depends on creation of an appropriate ecosystem, including connectivity, devices and content, which are lacking; and, third, there are significant gaps in the coverage and quality of education and training programmes resulting in lack of foundational literacy, numeracy, and other cognitive skills that are essential for imparting digital skills. The current supply of digital skills programmes in the formal education system and through private providers in informal settings is relatively small, especially in sub-Saharan Africa, and covers only a small range of digital skills. Scaling up digital skills programmes both within the education system and outside will require addressing these constraints.

There is no doubt that the demand for digital skills will increase. The likely evolution of African economies will require generic basic digital literacy skills for workers in the informal sector and small enterprises, supplemented with literacy and numeracy skills where required, as well as some higher-level digital skills for the ICT professions. The focus of public policy should be to implement mass digital skills training at various levels – basic/foundational and advanced – in the interest of encouraging broad-based productivity improvements through adoption of digital technologies to drive the overall digital transformation of the economy.

A meaningful basis for AU–EU cooperation in digital skills can draw upon the EU’s strengths and experience in developing digital skills frameworks that identify the competences and proficiency levels required for the workforce and citizens. These need to be adapted to African contexts and occupations; work done by the World Bank and others in this direction can also provide the basis for this cooperation. Another pillar of AU–EU cooperation could focus on developing the ecosystem for digital skills development, including infrastructure; access to connectivity, devices, and digital content; as well as an enabling policy environment. Even foundational-level digital skills training, in the African context, has to be linked to other basic educational competences, such as literacy and numeracy.
Notes

3 See also, for example, WEF (2020), Africa needs digital skills across the economy - not just the tech sector, https://www.weforum.org/agenda/2020/10/africa-needs-digital-skills-across-the-economy-not-just-tech-sector/
5 “The Digital Economy and Society Index (DESI) is a composite index that summarises relevant indicators on Europe’s digital performance and tracks the evolution of EU Member States in digital competitiveness”. “The DESI Index addresses five main areas, Connectivity, Human capital, Use of internet, Integration of digital technology, and Digital public service” - https://eufordigital.eu/library/digital-economy-and-society-index-desi-2020/
6 The lead author has been involved in developing the DE4A. See Digital Economy for Africa (DE4A) - https://www.worldbank.org/en/programmes/all-africa-digital-transformation.
10 https://learndigital.withgoogle.com/digitalskills
12 In the second quarter of 2021, “an expansion of manufacturing output was recorded in many African countries, such as South Africa (39.3%), Rwanda (30.2%), Senegal (22.6%) and Nigeria (4.6%)”. Source: See also: https://www.un.org/en/observances/africa-industrialization-day

References


