

# Digitalisation and youth employment in Africa

AIV report 115 19 June 2020



### Advisory Council on International Affairs



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# Summary



On 26 April 2019 the Advisory Council on International Affairs (AIV) received a request from the Minister for Foreign Trade and Development Cooperation to advise the government on 'how the coming waves of digitalisation and automation will impact on employment and job opportunities for young people in Africa, and how Dutch development policy can respond'.

The Minister for Foreign Trade and Development Cooperation has published three policy documents with a direct bearing on the subject of the request. The policy document 'Investing in Global Prospects for the World, for the Netherlands' (18 May 2018) highlights youth employment in Africa as a priority for foreign trade and development cooperation policy (BHOS). The Digital Agenda for Foreign Trade and Development Cooperation (3 June 2019) focuses on digitalisation in developing countries. Finally, the recent 'Youth at Heart: young people at the heart of Dutch development cooperation policy', published in February 2020, is highly relevant to the subject of the request. The AIV has used these policy documents in formulating its response to the request for advice.

Digitalisation will not automatically lead to less work for young people in Sub-Saharan Africa in particular. Though it will bring opportunities, it also comes with risks. This report first outlines the geopolitical context and global developments in digitalisation that define the situation in Sub-Saharan Africa. The second chapter explores the world of young people in Africa and outlines the opportunities digitalisation can bring. Chapter 3 describes what conditions will have to be met if digitalisation is to create work for young people. Chapter 4 explores the situation of girls and women, and how their labour market participation can be increased. Finally, chapter 5 looks at how the Netherlands can contribute to job creation through digitalisation in Sub-Saharan Africa.

These chapters answer the four subsidiary questions posed in the request for advice:

- 1 What opportunities and risks will the next wave of digitalisation bring in terms of the economic prospects of the rapidly growing numbers of young people in Africa?
- 11 What scope exists in Africa to maximise opportunities and minimise risks in terms of employment?
- III How can the government shape a policy that supports Africa in the process of digitalisation for the benefit of youth employment? What kinds of education and training offer the best prospects in this respect? What role might collaboration with Dutch knowledge institutions, companies and civil society organisations play?
- IV What specifically can we do to improve the economic status and digital skills of women and girls?

The conclusions and recommendations are set out in brief below.

### Geopolitical aspects of digitalisation in Africa and the involvement of the European Union

The digitalisation of society and the economy has accelerated during the coronavirus crisis. Employees are working from home, and education has gone online, including in Africa. But this trend does not include everyone. Only a quarter of the population of Sub-Saharan Africa has access to the internet, while half the global population is now online. The main obstacles are a lack of electricity and connectivity. This is about to change, however. Big tech companies like Google and Facebook are ready to close the gap, with plans not only to provide services as online platforms, but also to build internet infrastructure with embedded services. The 2Africa project, led by Facebook, will greatly increase the number of people with access to the internet from 2023 onwards, not through mobile connectivity, but via a subsea cable. In addition, China is positioning itself to supply Africa's 5G infrastructure. Mobile networks (Vodafone and Orange are 2Africa partners) or satellite broadband will provide access in inland regions. However, there is a risk in all this. These largely external providers have business models based on data extraction, and African countries do not have adequate regulations in place on data protection and information sharing. To most African users, the internet is already synonymous with Facebook. This undermines net neutrality and competition through vendor lock-in. The monopoly of just a few players on the internet market is a matter of concern, particularly if they dominate information input, output and infrastructure. The European Union (EU) is trying to protect citizens and businesses with legislation, and is already or potentially an important partner for African governments on these issues. It is vital that the EU strengthen its strategic position in Sub-Saharan Africa, and work with countries in Africa to get a grip on the internet, enabling governments to strengthen their sovereignty in order to protect their citizens and businesses.

### Opportunities and risks for young people

In Africa – which more or less bypassed the landline stage – the mobile telecommunications revolution appeared to hold great promise, giving Africans access to information and services. Would Africa be able to leapfrog into the Fourth Industrial Revolution? Africa in particular would benefit from the jobs created by this revolution. The International Labour Organization (ILO) calculated that by 2030 potentially half of the working population of Africa could be involved in the digital economy in some way or other. But this optimism is now being called into question. The biggest growth in jobs will be in the informal sector – not the best place to make a secure and decent living. Most young people start their career in the informal sector and never escape it. Even in a growing economy like Kenya, 90% of the working population are subject to the vagaries of the informal sector. Young people do not have an easy time on the job market, and are more than three times as likely to become unemployed as those aged over 25.

#### Four conditions that must be met for young people to participate in the digital economy

This report describes four obstacles that must be addressed to enable young people to take part in the digital economy (in the long run). Firstly, young people have limited access to technology and the internet. Secondly, a lack of security means people have little confidence in the digital economy. Thirdly, young people do not have the right skills to work in the digital economy. And finally, work exists mainly in the informal sector. Young women are particularly vulnerable because their rights are not always properly protected, meaning they have less access to training, services and loans.

Young people are not deterred by these obstacles. Around 2007, M-Pesa – which allows those who cannot afford a costly bank account to make electronic payments – was invented in Kenya. Fintech (an emerging industry that uses technology to improve financial services) has since grown rapidly in Africa, thanks to the combination of mobile internet and low-tech offline tools like radio and text messaging (SMS). This kind of local innovation has allowed digitalisation to promote inclusive development in Africa, albeit in its own particular way. The key aspect of this creativity is that digital technology is used to improve work processes in the traditional economy, raising incomes – and thus leading to more jobs – in sectors like food production and healthcare.

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# Recommendations



### How can the Netherlands help meet these four conditions?

One positive factor lies in the fact that the Netherlands is already actively engaged in efforts to meet these four conditions (accessibility, security, skills and better work). The Netherlands supports a large number of activities that relate in one way or another to youth employment and digitalisation. But the challenges of youth unemployment are complex and the digital divide is too wide for the majority of young people to bridge. What is the best way for the Netherlands to pool its strengths and resources to generate a more sustainable impact? Such an impact can only be achieved with due regard for African ownership.

The AIV considers that the Netherlands should prioritise promotion of youth employment in the digital economy in a European and multilateral context. Examples of efforts include the Digital Moonshot initiative, which the African Union is actively participating in, World Bank Connecting for Inclusion: Broadband Access for All<sup>1</sup>, the EU External Investment Plan (EIP)<sup>2</sup> and the initiatives of the African Development Bank (AfDB).

The AIV advises the Dutch government to:

### Recommendation 1

### Safeguard universal access to the internet as a public good (the commons) so that the market for all private and public use is protected, with a strengthening of European and multilateral cooperation.

European approach Shaping Europe's Digital Future should be better linked to cooperation with African countries in the new European Multiannual Financial Framework (MFF 2021-2027). The monopoly of the large platforms on the provision of services via hard infrastructure, such as cables and broadband, must be regulated internationally and on the African market; the same applies to net neutrality. This is a vital prerequisite for the development of a healthy digital economy in Sub-Saharan Africa. Embedded technologies that give external parties like Facebook – which in that part of the world is almost synonymous with internet – exclusive access to data is a matter requiring particular attention.

### Recommendation 2

### Provide support for the strengthening of digital regulation in Africa.

Most African countries have no rules for the protection of personal data. Public data, including medical data, goes to parties for whom they have economic or political value, but this produces no added value for Africa. The Netherlands is well positioned to offer expertise on harmonised European legislation for the protection of personal data, and reliable access to and storage of digital data on site, for instance using the FAIR format (Findable, Accessible, Interoperable and Reusable). This is essential for a secure and thriving environment for online activity, in which data ownership is properly organised.

### Recommendation 3

## Focus on a sectoral approach that is sustainable, and offers practical solutions to create the necessary conditions for participation in the digital economy.

This concerns energy supply and connectivity through mini-grids and off-grid solutions, and digital hub networks that produce easily accessible local content and apps. This will allow the internet to



penetrate deep into the continent. In a sectoral approach all partners are involved in developing and building capacity in the sector. Dutch knowledge of this approach – in which the Netherlands is very experienced – should be further expanded.

### Recommendation 4

# Focus on establishing an open and secure digital environment to build confidence in the digital economy.

Young people are making themselves heard, but there is still a lack of awareness. Integrate Dutch efforts in areas where the Netherlands is already strong: capacity-building to guarantee an open and secure internet, strengthening the rights of young people, and highlighting the 'do no harm' principle. Education must focus more strongly on the ethical aspects of digitalisation, an open net and internet security. The Netherlands could make a major contribution to efforts to guarantee online freedoms for young Africans, an area in which NGOs have a lot of experience.

### Recommendation 5

### Provide support for improved digital literacy, by stepping up collaboration with knowledge institutions on teaching and research.

Curriculums need to be modernised to incorporate digitalisation. Vocational education must be improved and popularised and online education needs to be further developed. Strengthen cooperation with African partners in the pre-vocational and vocational sector, to provide lowthreshold access to vocational training. Strengthen the multidisciplinary knowledge and research capacity of African knowledge institutions so that they are able to guide developments in IT in Africa and strengthen ownership. Increase exchanges between African and Dutch students and companies. The Netherlands could build on its experience with the tech talent pool by expanding efforts in fragile states.

### Recommendation 6

Focus on guidance for young people in the informal sector when they first venture onto the labour market and as they gradually formalise the status of their business or microbusiness, so that they have a better chance of decent work and can consolidate the growth of their business.

Step up efforts to introduce a living wage in international supply chains, through voluntary agreements or public-private partnerships (PPPs). Focus support on sectors where the Netherlands has something to offer and which attract a lot of interest in Sub Saharan Africa, such as food, healthcare and finance.

### Recommendation 7

# Focus on abolishing discriminatory practices that are an obstacle to the participation of women and girls in the digital economy.

This includes obstacles to access to loans, land ownership, access to education and healthcare, sexual and reproductive rights, participation in public administration and access to justice. Digitalisation broadens the gap between strong and weak groups in society. The AIV strongly advises the Netherlands to continue investing in a policy of pursuing gender equality in all development cooperation activities.

### Recommendation 8



The role of government in the development of standards in this regard must be strengthened in order to promote synergy between consistent activities in a system approach. This works best if partners commit to cooperate for the longer term and on a larger scale. The basic principles underlying such efforts are the Sustainable Development Goals and the adding of economic value in and for Africa through sustainable integration in global chains.

### Recommendation 9

# Encourage use of public-private finance where scalable initiatives cannot be left to the market or to the government.

This can serve as a lever and a catalyst. Guidance is offered by the OECD principles of boosting innovation and covering specific risks (with guarantees where possible), making startups bankable and scaling up projects by mobilising private finance.



# Geopolitical and infrastructural context of digitalisation in Africa

Much has been written about how digitalisation can help to solve complex problems from a 'tech optimism' perspective – a trend that has in fact existed since the Industrial Revolution. In recent years the digitalisation of the economy has accelerated rapidly all over the world. Remote working, electronic payments and online shopping are now an integral part of daily life. In countries like the Netherlands, which has a well-developed digital infrastructure and the network capacity to process large amounts of data simultaneously, remote working has proved possible on a large scale during the COVID-19 crisis. Vital parts of the economy have been able to keep going to some extent during lockdown. On the African continent, too, digital solutions have proved possible in many places during the crisis, and this has increased use of and trust in digital solutions.

### Digitisation, digitalisation and the digital economy

The term digitisation refers to the technical process of converting analogue information to a digital format.<sup>3</sup> The automation of work processes and scanning of documents are examples of digitisation in companies. The goal is to increase efficiency and productivity and reduce costs. The term digitalisation refers to the socioeconomic processes that this development in digital media and structures has prompted in the modern world. Digitalisation is defined as the restructuring of many domains of social life around digital communications and media infrastructures.<sup>4</sup>

The impact of digital communication and digital structures on people today is described as the Fourth Industrial Revolution. Technologies like artificial intelligence (AI), robotics, cyber-physical systems, the Internet of Things, nanotechnology, biotechnology and 3D printing are the defining features of this revolution, blurring the lines between different industries and the physical, digital and biological domains.<sup>5</sup>

This report mainly uses the term 'digital economy.'<sup>6</sup> This is an economy in which digital technologies are used. The core of such an economy, and what distinguishes it from other economies, is its ability to bridge geographical distances, the key role of platforms and networks, and the use of data.<sup>7</sup> It has three dimensions: I) the ICT sector, including the infrastructure (hardware, software, networks, etc.), falls within the narrow definition of the digital economy; 2) round this there is a shell of e-business (company processes) and e-commerce transactions (online buying and selling of goods and services).<sup>8</sup> This includes the platform economy, the sharing economy and the gig economy; 3) the broadest definition of the digital economy includes industry 4.0 and the data-driven economy. This dimension also encompasses sectors that use digital resources, like agtech in agriculture and precision technology using drones, and also fintech (financial technology) in almost all sectors – a rapidly growing industry in Africa.

The Digital Agenda for Foreign Trade and Development Cooperation points out that digitalisation entails a host of opportunities for inclusive development and improved rights, but that it will not automatically lead to inclusive outcomes.<sup>9</sup> Digitalisation must not be seen as simply the latest slogan, or a shortcut to economic and social development, but rather as a new context which impacts on work.

In this context there is talk of the potential for leapfrogging, whereby countries catch up through technological innovation. Leapfrogging can result in people gaining access to digital resources while still lacking basic services such as sanitation.<sup>10</sup>

The transition from the Third to the Fourth Industrial Revolution is in full swing in the United States (US) and Europe, and it is also well under way in Southeast Asia.<sup>11</sup> Things are more complicated in particularly Sub-Saharan Africa, however, where certain aspects of the Second and Third Industrial Revolutions have not yet been achieved everywhere.<sup>12</sup> The analysis by Rodrik<sup>13</sup> concerning economic growth prospects and attempts at structural transformation – the process whereby the bulk of economic development shifts from agriculture to industry and then to high-quality service provision – gives more insight into the situation. He concludes that such attempts will not have any chance of success unless – in addition to focusing on change and upscaling in the sectors concerned – they also strengthen the basic principles of economic and social development. Rodrik highlights four factors: I. strengthening human capital, 2. the presence of economic and social institutions and infrastructure, 3. access to global markets and 4. access to public and private foreign investment. Only then can rapid and sustainable growth be initiated, providing the basis for improvements in the labour market and an increase in the demand for secure work. However, any failure to take all the basic principles into account will cause irregular, unequal or slow growth.<sup>14</sup>

Thus far, digitalisation has done little to improve the circumstances of vulnerable groups in Sub-Saharan Africa. This is due among other things to a lack of skills (see chapter 2), but also to a lack of ICT infrastructure and of good national legislation, data protection and international agreements on the digital economy.

### 1.1 Limited internet coverage

The limited infrastructure in Sub-Saharan Africa is one of the biggest obstacles to speeding up digitalisation. The problem lies in the capacity of the digital cables and channels available, and in the infrastructure for data storage. Connectivity is via broadband networks and internet exchange points. Regions and cities on the coast generally have a better infrastructure because of their connections to subsea cables. The digital divide runs along these and many other lines, including that between urban and rural areas.

### The importance of a conducive ecosystem: Kenya

The rapid development of the ICT infrastructure in Kenya could be related to the government's relatively favourable attitude to technological innovation in general, and information technology in particular. This example of best practice appears to be difficult to emulate in other contexts, however. It had been set out in the Vision 2030 strategy, which Kenya adopted during the previous president Mwai Kibaki's term in office. Between 2005 and 2010 a Kenyan equivalent of Silicon Valley – known as Silicon Savannah – was developed near Nairobi. This technology ecosystem provided the basis for Kenya's leading position today. According to the African Leapfrog Index (2019) Kenya is in the 'paving the way' category.

According to the International Telecommunication Union (ITU) in 2019 only 28.2% of people in Africa were using the internet.

# Three quarters of Africa's 1.3 billion people are not online

Use of 2G mobile telephone networks is almost universal, but cable networks on the African continent lag behind. According to the World Bank, almost one billion more people in Africa will have to gain access to the internet in order to achieve the goal of universal access.<sup>15</sup> At least USD 100 billion in investment will be needed to achieve good, affordable internet access in Africa, according to World Bank calculations.<sup>16</sup>



Figure 1 - Percentage of the population not using the internet. Source: ITU.

The subsea cables are strategically sensitive, as they only provide access in coastal areas. Remote inland areas and countries in the middle of the continent, in the Central African region, need to be connected to the cables by other means. The most common way of providing access in Sub-Saharan Africa is via the dense network of mobile telephone operator masts. Satellites are another alternative, and Google (Alphabet) has even used balloons to reach remote areas.

Facebook leads the ambitious 2Africa project, along with MTN GlobalConnect of South Africa, France's Orange, Telecom Egypt, Britain's Vodafone, China Mobile International and the Mauritiusbased West Indian Ocean Cable Company. A subsea cable is to be laid around the continent to connect Europe with Africa. This will multiply current internet access capacity. The project is due for completion in 2023 and will form the backbone of connectivity in African countries. Inland cables should give the rest of the continent's population access to the internet, with 2Africa acting as a gateway. This will create a monopoly on the key infrastructure – a matter for concern as, given the scale of the project, it is unlikely that any parallel (competing) channels will be created.

China could use 2Africa to introduce the now contested 5G network to Africa. It could also acquire access to data via Chinese applications. China is already heavily involved in the digitalisation of

Africa, as well as being the second-biggest financer of exports, after the EU. It is investing heavily in economic cooperation with countries in Africa, but it is doing so under different conditions than Europe. China regards the African continent as an interesting source of natural resources, as well as a market for its products and a location for production.<sup>17</sup> In geopolitical terms, it is worth noting that the 2Africa cable will tie the continent more closely to China in an economic and digital sense, on the politically sensitive 5G network, a development made possible partly by the greenfield situation – a near complete absence of regulation – in African countries. Cheaper and cheaper products and services are coming onto the market, mainly from India and China – countries that are accustomed to producing at low prices for customers with little purchasing power.

The global digital economy is now heavily concentrated in two countries. American tech giants and China have a market share of approximately 90% of the market capitalisation of digital platforms.<sup>18</sup> Europe's share of the platform economy is 3%, and Africa's 2%. The US and China are taking on a major role in the infrastructure on the African continent.<sup>19</sup>

AlV report 113 'Regulating online content. Towards a recalibration of the Netherlands' internet policy' includes a technology world map which presents a striking image of the commercial weight of these continents (see report 113, figure 4). The European – let alone the Dutch – contribution to this new architecture is tiny, however. This could have implications for Europe's strategic position in the near future.

North America	Asia	Europe	Africa
Apple: 1.4 trillion			
Microsoft: 1.3 trillion			
Amazon: 1.0 trillion			
Alphabet: 988.7 billion			
Facebook: 575.5 billion	Alibaba: 554.2 billion		
Salesforce: 161.7 billion	Tencent: 458.8 billion		
Netflix: 151.4 billion	Samsung: 281.2 billion		
PayPal: 133.6 billion	Meituan: 74.4 billion		
Uber: 61.9 billion	JD.com: 55.05 billion		
Airbnb: 35.0 billion	Baidu: 42.8 billion	SAP SE: 160.1 billion	
Twitter: 25.2 billion	Pinduoduo: 40.9 billion	Spotify: 26.0 billion	Naspers: 73.1 billion

Biggest platform companies by continent (in USD)

Continent's share of total stock market value:



Source: based on The Economist 2020

A multilateral framework creates perspective. The World Bank and other organisations are working on the entire spectrum of digitalisation in Africa, but they are focusing mainly on the hard infrastructure, with ambitious programmes like the Digital Moonshot initiative, which also has Dutch support. It provides a broad multilateral framework in which the partners are working with the African Union. The goal is to double broadband capacity between 2019 and 2021, and to provide the entire continent of Africa with affordable, universal digital access by 2030.



## African countries risk being crushed between Asian public-private players and Western tech giants

The Digital Moonshot initiative offers participation and ownership, partly via the African Union, and it is a largely publicly financed alternative to the 2Africa privately financed model. This will allow data ownership by the data subject to be better regulated than in projects where suppliers demand data lock-in.<sup>20</sup> Access to data as a public good (the commons) is a central principle of this programme, in which data becomes the private property of the individual entrepreneur and protection of personal data can be properly regulated. This requires major financial investments, however, and the question is whether this is in fact feasible.

The internet does not serve all people and countries equally. Regions and countries that are not on the coast are at a disadvantage. 'Last mile' connectivity requires an energy supply combined with forms of internet access that do not involve cables. This can be achieved using mini-grids and off-grid structures, in which sustainable energy is generated, and interconnectivity is provided in small, separate networks better suited to the distances and geographical challenges on the African continent. Dutch organisations have a lot of experience of helping to fund and establish such structures, and the World Bank is now also investing in infrastructure adapted to the continent.<sup>21</sup> These stand-alone sources of energy and internet access also create conditions in which young people, too, can develop economic activities in rural areas, reducing the need to migrate to the city.

Ownership also depends on data centres. This is a matter receiving attention in Europe, too. The GAIA-X project, for example, focuses on European cooperation for supercomputing in European data centres. This is also important in Sub-Saharan Africa. Although African data centres and cloud services have almost doubled in capacity since 2014, they are still highly dependent on an unreliable electricity supply.<sup>22</sup> As a result, overseas data centres are generally used instead, compromising on access, price, efficiency, data ownership and data sovereignty. Google and other providers are investing in data storage, particularly in South African and Nigeria, but such investments are desperately needed in other African countries too. Decentralised databases enable secure data storage in the country itself. Chapter 3 includes an example of a Dutch company building data centres of this kind in Africa. They are under local jurisdiction, thus potentially helping to enhance the government's faith in digital data. This also applies to sensitive data, such as medical records, which fall under the responsibility of the ministry of health.

### 1.2 National legislation and data protection

Digital security starts with defining data protection and data ownership. If these things are not in order, the basis will not be secure. Stewardship of data is not yet properly organised in Africa, resulting in 'limited capacity and a deep mistrust, digital illiteracy, inadequate infrastructure,

and minimal investment in data science training<sup>2,23</sup> There is severe criticism of the way big tech companies override sovereignty and ownership. 'The benefits of network effects, where the value of a network grows quadratically with the number of participants (Metcalfe's law), have led to some digital platforms acquire [sic] state-like characteristics. They govern their digital domain through state-like means of punishment and reward, adjudication of disputes, and moderation of content. Subsequently, these digital platforms engage in state-like negotiations (e.g. Facebook's proposed introduction of Libra currency). These positions are based upon the privatisation of semi-automatically captured data. This capturing is negotiated, executed and monitored for contractual and legal compliance that is based upon norms and values mostly foreign to many African communities. US-centric standards, corporate responsibilities, the primacy of "markets", and, most significantly, an unapologetic profit motive govern the modelling of leading, contemporary digital platforms.<sup>24</sup>

These companies are able to exploit the situation because the necessary legislative frameworks have not been fully developed in most countries in Africa. In Europe, too, key legislation has only been passed in recent years, thanks in part to the General Data Protection Regulation, which entered into force in 2018, and serves as privacy legislation in European countries. The GDPR is also a way for the EU to make its presence felt, highlighting the fact that the protection of citizens is its key concern, unlike in the US, where data is regarded as the commercial property of companies, or China, where data is seen as the natural domain of the state, which uses it to wield influence.

The Digital Agenda for Foreign Trade and Development Cooperation points out that the three big power blocs – the US, the EU and China – have strongly differing views about protection of personal data and privacy. The European model is strongly influenced by socially liberal political values which dictate that those to whom the data relates are the natural owners of the data. This substantially limits what companies and the state can do with data. Relations between state, citizens and the private sector in the digital society are to a large extent defined by EU regulations.

The EU has taken an important step towards defining data in the commons, data that belongs to the public domain. This includes data produced in research, but also government data and medical data. At the moment, much data is lost, unfindable, or cannot be read by computers. One of the first steps towards open data and knowledge sharing is to apply the FAIR data principles, creating digital data objects that are Findable, Accessible, Interoperable and Reusable for both humans and machines.<sup>25</sup> This creates a legislative framework for the use and the protection of data. It also ensures high-quality data, because it remains in its original location: a decentralised data network. As such, the data also remains under the jurisdiction of the location where it was produced. A harmonised network structure ensures it can be used to respond to queries submitted via the internet.

The United Nations Educational, Scientific and Cultural Organization (UNESCO), a participant in the Digital Moonshot initiative, focuses on education, science and guidelines for data management where the key concern is the ethics of data ownership. In this context, UNESCO encourages open education and science. In the fight against COVID-19, UNESCO has once again highlighted the importance of open science, education and communication and the FAIR principle, in an attempt to present an alternative vision, which also takes account of the cultural and historical context in Africa. 'That narrative appears to invoke the same innuendoes as those cited by colonialism. No wonder Kwasi Wiredu argues thus: "We live in times marked by a certain [...] anomaly in a cultural flux characterised by a confused interplay between an indigenous cultural heritage and foreign cultural legacy of a colonial origin. Implicated at the deepest reaches of this cultural amalgam is the superimposition of Western conceptions of the good upon African thought and conduct". The statements by Wiredu are critical in this digital age. The data extraction by commercial, opaque transnational companies and non-accountable non-African institutions from African environments seems to be threatening sovereignties in the African continent. These statements by a respected African, thus, challenge us

to re-imagine and rethink data mining in Africa by outsiders, to make sure that it is not "part of the colonial legacy exerted towards plundering, siphoning and expatriation of African riches".<sup>26</sup>

Digital healthcare is one area of application for this 'data internet' with African ownership. The sector produces a lot of data in parallel. The data goes back to the owner of the digital platform and there is no interaction between data from different applications. A FAIR data structure would allow it to be linked in such a way that data security and privacy are safeguarded. This is an appealing option for African countries because they can manage the data themselves and use it for other applications without any data being lost (it does not 'disappear' to Silicon Valley). This method has been used during the COVID-19 crisis to analyse data on the virus and its effects, using FAIR Data Points installed in Tunisia, Uganda, Kenya, Ethiopia, Nigeria and Zimbabwe.<sup>27</sup> The East Africa Community (EAC) lobbied for FAIR data in opening up data in the healthcare sector (Digital REACH Initiative). FAIR also stands for Federated AI-Ready, and it opens the way for the use of artificial intelligence, for example in order to locate and predict outbreaks of coronavirus more effectively. These efforts, which originated in the Netherlands, determine European policy on the data commons – data as a public good – and have attracted international attention.<sup>28</sup>

The Netherlands and Europe have a lot to offer in terms of creating the right conditions for digital business: legislation, data protection and online security

The African continent must not lag behind in terms of governance when it comes to data protection and security, because this is an important prerequisite for confidence among digital entrepreneurs. Lack of security and confidence has a major impact on companies and entrepreneurs operating in the digital economy. Commercial information can be stolen, and doing business online is not always safe. Entrepreneurs struggle with low customer confidence in the products and services offered online.

It is in Europe's interest for African countries to fall in line with European legislation for digital governance and protection of citizens, and the conditions required for data storage.

Finally, when considering the geopolitical aspects, the AIV notes that both the request for advice and the report itself refer to 'Africa'. The AIV is aware that Africa is an immense continent whose size and complexity are often underestimated. The land mass has a surface area equal to that of China, India, the US and Europe combined.

Nor is the context for regulation a simple matter. The continent has 54 sovereign states, most of them with a considerable land area, little infrastructure, and major differences between them. There is great variety in terms of circumstances and context, national policy, quality of governance and the national capacity to shape the necessary policy, as well as in the sometimes associated interest of international partners in supporting that policy. Such support can only be efficient, effective and sustainable if it is provided in the form of demand-driven, customised efforts that are closely aligned with local needs and opportunities.

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Figure 2 - The 2Africa cable being laid around the continent Source: 2Africacable.com



# Opportunities and risks for the new generation

The main question addressed by this advisory report is whether, when and where the Fourth Industrial Revolution will lead to growth in Africa's digital economy. The ongoing 2Africa initiative to improve the continent's connection with the internet will bring opportunities, as described in chapter 1. One particular issue is whether growth in the digital economy will be inclusive, and what opportunities and risks it will entail for youth employment. This is an urgent matter, as the United Nations (UN) expects the population of Africa – which currently stands at 1.3 billion – to double by 2050. Sub-Saharan Africa has the youngest population in the world (average age 19).<sup>29</sup> Over 60% of the population are under the age of 25<sup>30</sup> and this proportion will only increase as the population grows.<sup>31</sup>

According to the World Bank's World Development Report 2019, between 1991 and 2017 only 10% of the working population in developing countries was employed in manufacturing.<sup>32</sup> This proportion is unlikely to increase and attract investment, as labour costs in the more developed countries in Africa are already too high to be competitive in the global manufacturing industry.<sup>33</sup> In Africa, the focus is above all on supplying cheap raw materials, food and labour. At the same time, there has been a diversification of production in Asia, mainly a shift to technology-intensive sectors.<sup>24</sup> On the African continent, the jobs that are currently gaining in popularity are those of food expert, 3D designer and data centre employee as well as jobs in the creative industries, education and healthcare. In the long term, there is potential for growth in jobs in the ICT sector, infrastructure, sustainability and new forms of work.<sup>35</sup>

### Ethiopia's rapidly growing economy

From 2010 to 2019 Ethiopia was the world's fastest growing economy. Rapid economic growth can stimulate demand for young people's labour, but growth alone is not enough. One important ingredient of Ethiopia's success was the Agricultural Development-Led Industrialization (ADLI) strategy launched in 1995, which featured investment in agriculture and an increase in soil yields for successful industrialisation and development. This raised rural incomes and demand for produce. ADLI was later incorporated into the Sustainable Development and Poverty Reduction Program (SDPRP), which included long-term programmes in healthcare, education, roadbuilding and other sectors. This demonstrates that a poor African country that sticks to a development strategy it has developed itself and requests external support (which was not forthcoming initially) can make progress in reducing poverty.

Long-term investment can increase the demand for labour (and therefore young workers), but Ethiopia still has a long way to go in terms of the digital economy, according to the African Leapfrog Index (2019), which has called for action to narrow the digital divide in Ethiopia. This will require investment in basic infrastructure. With more providers and competition, internet access can be made more affordable for the average Ethiopian. With only 15% of the population online in 2018, poor 3G and 4G coverage, and little use of digital payments (6.9%), there is plenty of scope for digital growth. No investments have been forthcoming yet, however, due to the state monopoly in the ICT sector, which can be explained by the fear that sovereignty will be undermined if digitalisation is not adequately regulated by the government. The vast majority of economic activity takes place via small and micro-enterprises in the informal sector, which are widespread in Sub-Saharan Africa, including in the digital economy.



### What opportunities exist?

In considering the opportunities and risks of digitalisation for youth unemployment it is important to explore the assumption that African economies can leapfrog into the Fourth Industrial Revolution. Leapfrogging can have positive effects. Countries in Sub-Saharan Africa would benefit from the latest technological developments. Robotisation could, for example, provide a cheap solution to certain institutional and geographical obstacles faced by African entrepreneurs. In rural areas a long way from urban centres, or where roads are almost impassable, drones can provide a solution for deliveries and other activities (see text box on Rwanda in section 2.1). Although most drones are imported, they could eventually be produced locally.<sup>36</sup> Digitalisation thus provides various opportunities, including for small enterprises, to make production of goods more efficient and profitable.<sup>37</sup>

### New professional group: the iWorkers

A relatively small group of workers in Africa – mostly highly educated men working in urban areas in more developed countries – earn their living as software developers in the digital economy, or in related professions. This relatively privileged group work at companies or in shared office buildings in cities like Nairobi, Johannesburg and Lagos, but these professions are also on the rise in cities in fragile regions like Benghazi and Hargeisa. The same applies to young workers referred to as 'tech talent', many of whom work internationally. They are reaping the full benefits of the digital economy.

This is also true of the entrepreneurs who use social media like Facebook to market their products and services, and sometimes sell them through a webshop, i.e. e-commerce. Platform workers form a ring around this, some of them earning a reasonable (albeit irregular) income, for example by offering their services on online forums as freelancers, drivers or deliverers in the gig economy (online work economy). This economy is characterised by a great diversity of activities that are arranged and processed online on internet forums, and which can be provided either remotely (crowd work) or locally (on-demand economy).<sup>38</sup> The gig economy can create a lot of jobs, thus impacting on the quantity of jobs, helping to achieve Sustainable Development Goal (SDG) 8.3.

According to a rough estimate by the Mastercard Foundation, by 2030 iWorkers could account for over 10% of the working population. The ILO found that potentially half of those working in the informal sector will benefit from the digital economy. This is true only if the digital economy is interpreted broadly, to include all the ancillary jobs in the 'old' economy around it. This figure then comes to almost 170 million out of a total of 417 million workers.

Although there is still a considerable gap between the proportion of men who have a smartphone with mobile internet and the number of women who do – the Mobile Gender Gap is 41% on average<sup>39</sup> – it is precisely this group whose position could be improved by the digital economy.<sup>40</sup> Khan recently conducted a study for the Dutch-supported INCLUDE Knowledge Platform on young African women and their opportunities and obstacles as regards work. It found that the mobile telecoms industry has improved gender equality by increasing access to opportunities, information and services by mobile phone. This suggests the effect of digitalisation will be positive, with a much broader impact, affecting not only those who work in the ICT sector.<sup>41</sup>

A study of gig workers in South Africa, Kenya, Nigeria, Ghana and Uganda has shown that workers with good skills can earn higher incomes in the online work economy than in the traditional

economy. It is clear that full use is being made of these opportunities all over the continent. Estimates from 2019 show that there are already over 300 technology hubs in 42 African countries.



### What are the risks?

The key question is whether and how more young people can find work through the digital economy. Young people are already more likely to be unemployed, and their numbers are expected to double within a few decades. At the moment, in the economic structures of Sub-Saharan Africa young people, particularly young women, are among the groups suffering the greatest financial insecurity and with the lowest incomes.<sup>42</sup> The unemployment figures among young people are as much as 300% higher than those for older workers.<sup>43</sup>

Although more and more young people are active in the digital economy, and the number of young women in the sector is growing, the figures come nowhere near those in developed countries. There is only limited digitalisation in African economies, and only a small proportion of the economy currently displays features of a modern technological system.

### Participation in the digital economy is currently open only to those at the tip of the social pyramid

Four obstacles warrant a specific mention. First, young people still have only limited access to the internet and technology.<sup>44</sup> Second, there is a lack of security, and therefore also of confidence in the digital economy. Third, young people lack the skills to work in the digital economy. And finally, the work is often in the informal sector (due to a lack of decent work) where there is little legal protection. These issues are examined in greater depth below.

### 2.1 Better access to internet through local innovatione

Chapter I described how the limited ICT and energy infrastructure is hampering connectivity. Investments fall well short of what is required because of the high risks in these sectors, as described by the World Bank in its report 'Digital Dividends'. Although internet access remains expensive, and Western smartphones unaffordable, young Africans are nevertheless benefiting from the digital world, through local innovation, affordable devices and the availability of more accessible information (local content) on the internet.

### Local innovation

The internet is becoming increasingly accessible to young people thanks to local innovation. People are using available and affordable resources through practices known as sharing and blending. A culture of sharing exists in many places in Sub-Saharan Africa.<sup>45</sup> Sharing of mobile phones often happens within families, with the man of the house generally owning the device. The sharing of devices, subscriptions and SIM cards occurs mainly in slums and rural areas. In this use-based model, the key factor is how intensively a particular device is used after it is purchased, not the fact that it is purchased in the first place. Amartya Sen (1985) said, 'What matters for well-being is not just the characteristics of commodities consumed, as in the utility approach, but what use the consumer can and does make of commodities'.



Figure 3 - Digital divide affecting young Africans: four obstacles. Source: AIV

Until recently, the vast majority of telephone calls in South Africa were made on a shared phone, a practice also referred to as the shared-access model. Local entrepreneurs sell call time from specially equipped premises with a mobile network connection (James, 2018).

On the African continent older technologies are often combined with new technologies, such as ICT, a practice known as blending. There is a greater emphasis on intermediaries who form a bridge between the technology and its consumers.<sup>46</sup> Often, new technologies are combined with radio or mobile phones, which are much more popular than other devices in Africa. 'In 2003, the rate of subscriptions was only 60 per 1,000 inhabitants in Africa, whereas by 2013 the rate had increased to 742 for the same number of inhabitants, an increase of more than twelvefold. They hold multiple SIM cards and mobile devices.' (James, 2018)

These creative ways of benefiting from digital resources are often a solution for poorer sections of the population, in particular. The literature inspired by tech optimism has so far devoted little attention to contextual innovation such as blending and sharing, and other innovation, whereby products and services are adapted to align them with the needs of the target group and the context. A number of examples are described in the boxes below and in the following chapters.



### Agtech in the African context

Context-relevant innovation in agriculture holds great potential for Africa. In East Africa, in particular, apps have been developed to keep farmers informed of the latest weather forecasts and market prices. This makes them better able to decide when they should plant what crops, and where they can best sell them. One example is the Tigo Kilimo app, launched in Tanzania in 2012, which is also useful for the majority of farmers who do not have internet, as it sends offline SMS messages. The Connected Farmer programme in East Africa also sends the latest market prices to farmers' mobile phones, so that they can seek out the best markets and times to sell their produce. They then receive digital payments with a receipt.<sup>47</sup> Elsewhere in Sub-Saharan Africa, too, rapid innovation is occurring in the agtech sector. Google's artificial intelligence (AI) machine learning platform TensorFlow enables farmers to use their mobile phone to diagnose crop diseases. In 2019 the company established its first AI lab in Sub-Saharan Africa.<sup>48</sup>

### Affordable devices

In view of the everyday reality of the average African user, devices and software are purchased at the lowest possible price, with a number of conditions (generally different from those applying in developed countries) being of particular importance. They include the ability of the hardware to withstand high temperatures. Young people working in the informal sector (an estimated 90%) certainly have a small budget. Chinese ICT providers have succeeded in acquiring a relatively large market share in mobile phones, partly because they have made major investments in local development of products tailored to African customers, which are resistant to dust and high temperatures. Studies have found that Chinese companies operating in African countries invest large sums in local technological research and development. 'Nearly half of Chinese firms in Africa have introduced a new product or service to the local market, and more than one-third have introduced a new technology. Examples include Huawei's efforts to introduce 4G telecommunications technology across Africa, including for the M-Pesa system in Kenya, and China's StarTimes Broadcasting Company's investments in digital television satellites for the African market. Mobile phone manufacturer Tecno embeds advanced technology in smartphones that can be sold for less than USD 50, and cater specifically for African consumers with adapted content. In Ethiopia this was the first brand to add a keyboard in Amharic, Ethiopia's official language. In 2018 Tecno already had a market share of between 25% and 40% in several African countries. Its strategy is to hire and train African staff. Tecno now also has a market position in West Africa, including in the large Nigerian market.

### Mara smartphone: made in Rwanda

One of the fast and ambitious frontrunners when it comes to digitalisation in Africa is Rwanda, where the government has been pursuing a proactive ICT policy for almost two decades. It works continuously to improve accessibility, security, and skills among young people. Since 2007 the young generation have been benefiting from the One Laptop Per Child initiative (see also section 3.3 on how to integrate skills relevant for the digital economy into education). To make the internet more accessible, Rwanda has had its own smartphone developed. Known as Mara, it is intended to ensure that poor families also have access to the internet. To this end, the Connect Rwanda Challenge has been launched in collaboration with telecoms giant MTN. The government is also building a platform called E-Soko (not to be confused with the Ghanaian app Esoko). This government website, which shows the latest market prices, allows producers to sell their goods without the need to use an agent, reducing costs and ensuring they earn more, and are able to invest more. In this way, the government stimulates employment in the food industry. In terms of healthcare, Rwanda leads the continent when it comes to use of drones, for distributing medicines in remote areas, for example.



There is a great deal of political will in Rwanda to become a leader in other fields, too. The government welcomes investors interested in working together to address the challenges. According to the 2019 African Leapfrog Index, for example, only 30% of the population were connected to the internet.<sup>49</sup> The index put Rwanda in the 'punching above its weight' category, partly because the infrastructure (including the electricity supply) is still inadequate. Furthermore, Rwanda has a relatively low score for online freedom, a vital prerequisite for young entrepreneurs to succeed in the digital economy.

### More accessible information on the internet

Finally, another factor is important for the accessibility of the internet to young Africans. Apart from a small, privileged, well-educated group, most young Africans have low levels of digital literacy (see 2.3 on skills). One of the drawbacks for African internet users is the lack of local content. Young Africans are supplying more and more content, and encouraging others to make more active use of the internet. This applies to software developers, but also to web editors who share text and concepts on existing websites. The internet is still mostly used for social media and gaming, or less innocent forms of entertainment such as gambling. It has yet to come into its own as a source of information in regions of Africa that still have limited access.

### 2.2 Lack of online security and confidence in the digital economy

Working in or with the digital economy (remotely, in other words) requires confidence on all kinds of levels. Products can be offered for sale in online stores, as part of e-commerce. But how do consumers know that a product really looks like it does in the picture, that it will be delivered, and that it will work? African e-commerce entrepreneurs face high levels of mistrust among consumers, who are reluctant to pay up front. There is little legislation in this area, and both entrepreneurs and consumers or customers do not feel they are protected by the law, and will be unable to seek redress in the courts if necessary. Besides practical problems at e-commerce level for both entrepreneurs and consumers, digitalisation also has a considerable impact on the relationship between the state and society at macro level.

### Limited information on digital risks

Citizen, business and consumer trust in digital services is closely linked to cybersecurity. This is a growing problem. Apart from the widespread hacker networks that operate out of various Africa countries, poorly secured networks, devices and software in Africa itself are a root cause of this problem. Although cybercrime is increasing as a result of digitalisation, African governments do not prioritise it as they should. This will partly be due to a lack of awareness of the risks. 'Awareness of risks in cyberspace amongst citizens of African countries is in its infancy (...)'.<sup>51</sup> Campaigns designed to raise awareness of security are a rarity. There is a low level of digital literacy in general, and staff involved in digital services in all kinds of organisations – including banks – tend to underestimate the problem.

#### Internet blackouts

Confidence in the internet is undermined further by governments which, for security reasons, intervene in access. Some governments, mindful of the Arab Spring, fear the mobilising effect that young people on social media can have. Digitalisation gives young people the opportunity to call the government to account (e-vigilance), for example using social media platforms like WhatsApp, Instagram, Twitter and Facebook. Politicians, activists and citizens use these platforms to market themselves. Representatives of vulnerable groups (such as women and minorities), in particular, use the internet to campaign for better living conditions and against digital repression – sometimes successfully.

But in some countries there are problems with online freedoms of users, a criterion used by the African Leapfrog Index (2019). Sometimes, the cost of certain services (initially offered for free), like WhatsApp, is suddenly increased. There are also blackouts, when all internet traffic is blocked – and not only in countries with authoritarian regimes that restrict human rights. In 2018, for example, African governments shut down the internet 21 times.<sup>52</sup> Such blackouts or restricted access are an obstacle for all users, but they have a particularly destructive impact on those who work in and with the digital economy.

### 2.3 Skills remain inadequate despite improvement

The relationship between digitalisation and employment requires the creation of a different kind of job, and changes to education to nurture the skills these new jobs require.<sup>53</sup> This section considers how young Africans can acquire the skills necessary in a digital economy – and underlines how important it is that they do so.

A great deal of literature has been published in the past few years exploring the future of work in general. Both optimistic and pessimistic long-term scenarios have been presented. The latter have been prompted by concerns about technological developments, and the suggestion that phenomena like automation will gradually make human labour obsolete. The loss of jobs to robotisation and automation is expected to have a major impact on the labour market in Sub-Saharan Africa, given the fact that in many countries a large proportion of current labour is replaceable by machines: 41% in South Africa, 44% in Ethiopia, 46% in Nigeria, 48% in Mauritius, 52% in Kenya and 53% in Angola.<sup>54</sup> In the short term, however, it is important that new jobs be created and that people learn the skills required in the future labour market. By way of illustration, it was found that in South Africa an estimated 39% of core skills for jobs in 2015 would be different by 2020.

### Limited basic skills

Research by the Brookings Center for Universal Education has shown that 61 million African children do not have the most elementary reading and numeracy skills. A recent UN report on the Human Development Index (2019) states that African schoolchildren lack even basic capabilities, while advanced capabilities are in fact needed in order to participate in a digital society.<sup>55</sup> They include problem-solving abilities, the ability to think critically, and also the emotional and social skills needed to work in a team. Education and the role it plays in society will need to be transformed in order to prepare young people for a future in jobs where technology plays a key role.<sup>56</sup>

### Factors that affect acquisition of skills

Overall, the number of children and young people attending school has risen. It is expected that by 2030 52% of young people will have had secondary schooling – as opposed to 36% in 2010.<sup>57</sup> However, an increase in level of education and number of years in school is no guarantee that young people will have more chance of finding work, let alone of finding work in the digital economy. A job in this sector requires a certain mix of skills, which is not necessarily determined by the number of years a person has spent in education. The focus has wrongly been on the number of pupils in school, rather than on any parallel concern for what they actually achieve there. A study by James<sup>58</sup> has shown that other factors influence the strengthening of children's basic skills. This can range from help from parents to motivation by teachers, as has been shown by research conducted in West Africa. Improving skills and making primary education accessible is not only a matter of educational resources and curriculums; basic provisions like clean water, basic healthcare and a sufficient calorie intake are also vital to children's development.

In the context of the Sustainable Development Goals (SDGs) the UN has started measuring not only years in education, but also the skills that pupils acquire. This marks an important step forward. Education budgets are still, however, largely based on quantitative data relating to the number of children attending school. The quality and relevance of education need a major boost. According to the UN 64% of primary school teachers on the African continent have no relevant training.<sup>59</sup> In short, broader education reforms are needed, beyond a focus on specific levels and subjects.

### Vocational education is unpopular

Schoolchildren who are able (and allowed) to continue in education are generally encouraged by those around them to go on to academic study, which mainly involves acquiring theoretical knowledge. Such qualifications barely increase their opportunities on the African labour market. Studies have shown that a permanent job with the government is widely regarded as the highest level a young African can achieve. Privileged young people study for a degree that allows them to obtain such a job. But these jobs are few and far between. If they do not succeed in this sector, the formal private sector is a good second choice. But there, too, the chance of obtaining a permanent contract is very small.

### What children learn at school does not match what the digital economy expects from them

If, instead, they go to a vocational college to learn a trade, and consider the option of starting a business, there are relatively few teachers there with the necessary professional experience to help increase their relevance to the labour market, and particularly the private sector. To work in the digital economy it is, for example, important to know the reality of working online, particularly for anyone aspiring to start an online business. A teacher with practical experience of this is vital in such cases, because developments happen so fast in this field that it is difficult to learn this from a book.

Kenya – alongside South Africa – leads in this respect, and has launched various initiatives aimed at training young people and helping them develop ICT skills, and at supporting hubs and incubators. Kenya is thus also a favourite priority country for a large number of programmes relating to the digitalisation of education and youth employment, and as such remains a 'donor darling'. The countries that need support more badly, such as fragile states, generally attract less attention from donors – with the exception of the Netherlands, incidentally, which works with fragile states through focus regions.

### 2.4 Insecure, precarious work

Although more and more young people are obtaining a qualification, and mastering the required advanced skills, there is still little to no work that can be regarded as decent. Decent work – as included in the objectives of the International Labour Organization and the SDGs – is about the quality of jobs, as well as productivity. It means that workers' rights are protected by legal frameworks: working conditions are safe, fair and equal, there is social security to prevent poverty and fairly distribute care responsibilities, and social dialogue on workers' rights and working conditions is possible.<sup>60</sup>

The formal sector is small in most African economies. Besides the public sector, it includes registered companies (generally larger companies). It should be noted that work in the 'formal sector' is also no guarantee of continuity of income, certainly not for women. In most African countries the law discriminates against them and they – like men, incidentally – have no right to unemployment benefit or any other social security provisions if they lose their job.



### The persistent informal sector

Young people in Sub-Saharan Africa mainly work in the informal sector. This includes all kinds of jobs in various sectors: day labourers on farms, market traders in provincial towns, but also entrepreneurs in the digital economy. In terms of aspiration, entrepreneurship comes at the bottom of the list, and is known popularly as 'working poverty'. In farming, in particular, entrepreneurship is a big word, but it is largely a matter of survival, and is almost never the free choice of the person concerned. Working in or with the agricultural sector is also seen as failure, particularly for those with an education.

Nevertheless, young people do not always aspire to a job in the formal economy, because their new company or micro business would have difficulty paying government taxes. These entrepreneurs often pay a kind of informal tax, such as the market trader who pays a local policeman for a market stand. Official licences and papers are expensive, furthermore. In short, the barrier to formalising a company is high, in terms of cost at any rate.

Officially, therefore, these young entrepreneurs have few obligations (apart from the informal tax), but they have even fewer rights, and are therefore in an extremely vulnerable position. The number of young people in the urban informal economy is rising very rapidly, not only because of demographic pressure, but also as a result of migration from rural areas. Africa has the fastest growing urban population in the world, and the Organisation for Economic Cooperation and Development (OECD) forecasts that by 2050 a billion people will be living in cities. The city attracts people for various reasons, one of the most important of which is better work. But the likelihood of young people finding work there is in fact small. The urge to move to the city might be reduced if they could earn a more stable income locally, in the food industry or farming (see 3.4 on how digital work can be made better and more decent).

International organisations like the World Bank often refer to the platform economy and the growth in digital jobs as a way out of poverty, hailing their great potential, flexibility and freedom. But platform economy workers have to use their higher income to cover greater expenses, such as internet access, which can be expensive due to the lack of competition among mobile and internet providers. The autonomy associated with gig work – working when and where one likes, and being one's own boss – is often also seen as a great benefit. Flexibility and freedom are not guaranteed, however, and differ according to the background and experience of the worker.<sup>61</sup> As flexible workers they are as dependent as those with employment contracts. If they have it in them, they might evolve into startup entrepreneurs themselves, hiring gig workers or employing staff.

The informal sector is a structural problem in Africa, and it also exists within the gig economy. In 2019 the Oxford Internet Institute published a report on uncertain terms and conditions of employment, based on extensive research in several countries in Africa concerning the great stress that the uncertainty of flexible working conditions causes. Although people would rather work than be unemployed, the precariousness of the work, and the general question of whether it is decent work, are problematic (this relates to the quality of jobs, SDG 8.8). The potential for flexible job opportunities can mask the uncertainty and the physical and psychological impact on workers.

The platform economy also affects workers' ability to negotiate with their employers, because they have to mobilise in a different way. 'It is crucial to understand how their subjective perception of bargaining power affects their bidding, ability to demand higher wages, their understanding and awareness of online labour market competition, access to local alternatives, the potential cost of disrupting the production process and also their ability for collective action.'<sup>62</sup> Trade unions could play a constructive role in this matter, as suggested in chapter 5 on cooperation.

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### Digital financial services for young people

If young entrepreneurs are successful they often need capital to allow their small business to grow, but they do not generally qualify for bank loans. Banks often pay lip service to inclusive financing, but in practice they make stringent demands. Firstly, a company has to be registered, and thus part of the formal economy. Secondly, it must have collateral, such as property, in order to qualify for a loan, but micro-businesses rarely own buildings or land. Often, the business eats into its founder's personal financial buffer. In the case described below, digital tools helped in such a situation – an example of a different type of innovation that can lead to more work and income for young people.

On the African continent, the fintech sector is growing fast (see the text box below), because the traditional banking system is unable to meet the needs of either private individuals or companies. There are barely any branches outside urban areas. Young people in particular cannot afford a bank account, and the interest on loans is sky-high. Mobile payment apps are therefore an ideal alternative for the majority of the population.

### Fintech in the African context: three examples

Financial technology (fintech) is one of the key elements of the digital economy. It encompasses all digital innovations and technology-enabled business models in the financial sector.<sup>63</sup> Such innovations can create new products and services, and make it possible to offer financial services to those who cannot afford a bank account. But if they are not adequately protected, they can lead to privacy violations, and even theft.

Technological innovations that are important for fintech include cryptocurrencies and blockchain, new digital advice and trading systems, artificial intelligence and machine learning, peer-to-peer lending, equity crowdfunding and mobile payment systems. Three examples are described below.

BitPesa is a digital payment platform that allows international payments to be made using blockchain technology, including between countries in Sub-Saharan Africa. It was established for members of the diaspora in 2013 to circumvent the high costs of sending money to their families (via Western Union, for example), but it has now evolved into a platform with more than 6,000 users all over Africa.<sup>64</sup>

The Egyptian fintech company dopay aims to break the cash cycle for less well-off workers in emerging markets. It offers a business-to-business service to small and medium-sized enterprises (SMEs) and large companies in Egypt, which allows employers to digitalise their salary payments. Employees without a bank account receive their pay immediately on a personal dopay account which comes with a bank card that allows them to withdraw cash, giving them access to their salary 24/7.

Agri-wallet is a fintech company that provides online savings accounts and loans, linked to farm inputs and markets. The technology links digitalisation of the supply chain with the introduction of financial products that can be easily implemented as modules for small groups of products. The farmers and organisations require limited digital skills, and the Agri-wallet is therefore accessible and scalable for this group.

Cash still dominates even in countries with a higher level of digitalisation, like Kenya. It accounts for over 70% of payments, according to the African Leapfrog Index (2019). There is therefore still great potential for expansion of online payments.





# Four conditions required for young people to participate in the digital economy

Policy to support digitalisation in Africa for the benefit of youth employment must meet the conditions set out in the previous chapter: accessibility, security and confidence, digital skills and better work. This chapter considers in relation to each of these conditions 1) how support for digitalisation in Africa can be made more appropriate to the context and the target group and 2) how awareness of the political dimension can be raised, with a focus on governance as a crucial element of the ecosystem.



Figure 4 - Four conditions required for young Africans to participate in the digital economy. Source: AIV

### 3.1 Making digital work more accessible



If young people have better access to the internet, they can do business in the digital economy. The Netherlands can build on multilateral initiatives to help expand use of the internet – only slightly over a quarter of the population in Sub-Saharan Africa currently uses the internet. Besides ensuring better coverage, there are a number of other ways of promoting actual use of the internet among young people: cheaper Wi-Fi, devices and software, and also sharing of subscriptions and smartphones, and blending – benefiting from information on the internet offline using low-tech communication technology. The development of more accessible content and apps, and local fintech and agtech applications can also help.

**Multilateral efforts to improve connectivity, ICT infrastructure and last mile energy access** Multilateral channels can be used to focus on opportunities in the electricity and telecoms markets, so that investments can be made in collaboration with the private sector. Many multilateral initiatives are working on this, including the World Bank Connecting for Inclusion: Broadband Access for All initiative. In 2018 the World Bank's portfolio included 28 projects directly aimed at digital development, with a total commitment of USD 1.28 billion. In addition, digital development components are increasingly being incorporated into projects in other sectors, such as transport, education, health, agriculture and public sector management. The EU is also making its contribution. Under its External Investment Plan (EIP) it has been investing since 2017 in sustainable energy, and connectivity and digitalisation.<sup>66</sup> The funding comes from the European Fund for Sustainable Development (EFSD). The African Development Bank Group (AfDB) also has a number of projects that focus on digitalisation.

### Dutch ICT company PAIX building data centres in Africa with blended finance

Internet in Africa is slow not only due to a lack of cables, but also because the data has to take a 10,000-kilometre detour ('latency'). Data centres are important for quick and reliable internet, which in turn attracts investment and creates jobs. The Dutch ICT sector is only too aware of this, as its geographical position has enabled the Netherlands to become the most important gateway for data traffic in Europe. The country's 189 data centres have boosted business and jobs in Amsterdam, where tech giants like Adyen and Booking.com have their headquarters.

Dutch company PAIX (Pan African Internet Exchange) builds and manages data centres in Africa where companies can store data or rent computing power. Several African governments had previously attempted to build data centres themselves, but their efforts were unsuccessful.

Founder Wouter van Hulten took over a data centre in Ghana and is now completing another in Kenya. These Dutch-style data centres are popular, as they are 'carrier neutral', which basically means they are neutral territory. This is important to competing telecom providers who often do not trust each other or the government.

PAIX was able to cover certain risks using public financing from the Dutch Good Growth Fund (DGGF) and FMO, the Dutch development bank. This loan helped attract private financing. Private equity participation in the company suggests these are scalable initiatives that can be left to the market.

Access to energy is a vital element of a climate conducive to digitalisation and employment. Over 600 million people in Sub-Saharan Africa have no access to electricity. Companies regard the absence of a reliable electricity supply as a major obstacle to growth. Investment in centralised or decentralised energy infrastructure is a vital means of addressing this problem. Large sums of money need to be mobilised to improve access to the internet and electricity. Public money can serve as a catalyst for the scaling up of initiatives like this, in order to attract private money, if the risks in the sectors concerned are being mitigated together.

### Entech and connectivity in the African context

One example is d.light, whose goal is to produce affordable solar energy solutions for people who do not have access to a reliable electricity supply. The company was set up to reduce the use of kerosene and offer alternative lighting solutions to households and small companies in Africa. As the biggest manufacturer of solar lighting and solar home systems (SHS) d.light supplies energy to more than 64 million people. In terms of connectivity, it is working on a co-investment in Mawingu Networks, a wireless internet service provider that uses solar-powered base stations to provide affordable internet connections to people in the most remote locations who have no access to fibre optic infrastructure. Mawingu connects homes and companies via its own network of masts and fibre optic cables. It also creates public Wi-Fi hotspots in hundreds of communities where customers can log in with pay-as-you-go-accounts.

Source: FMO (via MASSIF) in Energy Access Ventures Fund (EAVF)

All in all, digital innovation and development depends on the time; whether the innovation meets the needs of the specific group; the place (the geographical location and how it can be used); and the requirements of the ecosystem – in other words, what conditions are in place.

### Encouraging more accessible local apps and information through hub networks

Digital solutions to social and economic challenges can be offered via hub networks that provide a digital ecosystem. This combines cheap internet with the upskilling of users through platforms, hubs and knowledge institutions.

This is for innovations by developers that tie in seamlessly with the needs and opportunities of young, illiterate people with little purchasing power in rural areas (data-light and tech-light apps and services like agtech for agriculture and fintech for access to capital).

### Young Africans manage to benefit from the internet in highly creative and innovative ways

In the short term, it is also important that online content be made more accessible. Young Africans stand to benefit most from direct support for African initiatives. Any efforts to promote youth employment must focus on the needs and limitations of young people, in line with the first Principle for Digital Development: design with the user. One of their needs is the lowest possible price for internet access and devices. There are further conditions that products and services must meet, such as the potential for blending and sharing. Companies wishing to operate on these markets must therefore invest in local research & development (R&D), and expect tough competition from China

and other Asian providers who, given their own recent past, have more affinity with low-income markets and consumers.



The Netherlands was an early active supporter of African tech hubs like NairoBits, which started teaching young Kenyans to program two decades ago.<sup>67</sup> Now there are numerous initiatives supporting African innovators. One example is Afrilabs, a pan-African network founded in 2011.

### 3.2 Making digital work more secure and trusted

Young people wishing to use the internet to maximise work opportunities are hampered by the lack of internet security. Better security could also increase the rest of the population's confidence in ordering and buying online. This confidence is essential for young entrepreneurs in e-commerce. But a secure digital environment is also vital for young people voicing their call for social change. So the government's focus on capacity-building for an open and secure internet is good, but it must occur in accordance with the 'do no harm' principle, and come with a guarantee of online freedom for young Africans.

Poorly secured products and services are cheaper than those from the West. Efforts to help African countries make their digital economies more secure and enhance cybersecurity must be based on their reality. Support for cybersecurity, intellectual property and privacy must be appropriate to the situation on the ground.

## More capacity-building to guarantee a safe and open internet, but in accordance with the 'do no harm' principle

Digital work is not without risk for young people, not only because of unsecured devices and software, but also because the law offers little protection. Tim Berners-Lee, the founder of the internet, hopes to provide better safeguarding of online data ownership with his SOLID initiative.<sup>68</sup> There are large gaps in legislation when it comes to cybersecurity, and on other issues too. Companies run great risks because their brands, products and services are not adequately protected.

The rule of law is important for trust in digital forums. The Global Forum on Cyber Expertise (GFCE) is a global platform where governments, international organisations and private companies can exchange best practice and expertise on cyber capacity-building.<sup>69</sup> The Netherlands is a member, and hosted a forum meeting in The Hague in 2015. According to the Digital Agenda the establishment of the GFCE has boosted international capacity-building for fighting cybercrime and ensuring cybersecurity, data protection and e-governance. Further capacity-building to improve the resilience of countries in Africa is important for an open and secure internet. However, it is important to guard against the risk that promoting a secure digital environment will violate the rights of potentially vulnerable or threatened individuals. Even aid organisations can unwittingly put young people at risk if the digital data (and metadata) they have gathered on them falls into the wrong hands. The do no digital harm principle is particularly important in the supply of cyber surveillance services or products. This basically means that external help must not create division, and it is important to be aware that help can have negative effects and undermine certain groups – in this case young people.<sup>70</sup>

### More online freedom for young Africans

A secure digital environment is essential for young people who want to make their voices heard, calling for social change, for example. Young people's data and online freedoms must be protected. It is up to African governments not to curtail the online rights of their citizens. This is an absolute prerequisite for sustainable development of digital work. The Dutch government actively contributes to the Digital Defenders Partnership, which provides emergency support to individuals and local civil society organisations all over the world that are under digital threat, and to the Internet Governance

Forum (IGF), which is attempting to outline an international legal framework, including digital rights for citizens.<sup>71</sup> In this respect, too, the rights of young people are a specific focus of attention.<sup>72</sup> To safeguard fundamental rights online, the Netherlands is already working on building and promoting an international legal and normative framework for the cyber domain. Internet blackouts are monitored by organisations like Access Now, with its iconic #keepiton campaign. Such activities deserve continued support.

Local initiatives to enhance transparency, like the Présimètre project, are also interesting.<sup>73</sup> This EU-funded programme in Burkina Faso is an online platform that uses civil society's technology and networks to monitor government activity. It is designed to increase transparency, hold the government to account and strengthen cooperation between the government and civil society. The sectors involved include health, education, food security, water and sanitation.

### 3.3 Integrating skills relevant for the digital economy into education

To support the process of digitalisation to the benefit of youth employment, it is important to consider which types of education and training offer the best prospects. There is a significant gap between the skills required in the digital economy – not only digital skills, but also personal skills like problem-solving abilities – and what children actually learn at school. It is important first of all that curriculums be modernised and that teachers be retrained, including in digital risks. Online education could also be promoted, and vocational education improved and popularised. Finally, the Netherlands could build on efforts to expand the tech talent pool in fragile states.

### Modernise curriculum and retrain teachers, including in digital risks

Modernisation and reform of the education sector is one of the biggest challenges facing the continent of Africa. Education there lacks some important prerequisites because there have been so many funding cutbacks in the past few decades that schools often do not have enough resources. This was a result both of structural adjustment programmes and of declining interest in education among donors.

Digital skills must be interpreted in the broad sense in the curriculum. We referred above to the security risks on the internet and the fact that people are not fully aware of them. It is important that pupils are taught to recognise the risks as part of the school curriculum, preferably by specialised teachers who are familiar with the digital economy. Furthermore, digital skills must not only be approached as a technical matter, and they must be combined with general skills – reading, writing and the soft skills needed to be an entrepreneur and to work in the digital economy.

Digitalisation is often associated with purchasing devices so that pupils have access to the digital world. There is a notion that hardware provides the best means of preparing young people for a digital world, as in the One Laptop Per Child programme, implemented in Rwanda since 2007 (see text box above). Administrators and schools do indeed tend to request capital-intensive programmes, but they do not always lead to better skills, nor to preparation for work in the digital economy. The focus has to be on comprehensive reform of education with efforts to address all factors that have a bearing on learning digital skills in the broad sense, including the role of teachers.

In implementing current policy, through initiatives such as the Global Partnership for Education and Education Cannot Wait, which focuses on education for girls, the Netherlands has encountered a number of obstacles that necessitate more political commitment. The Coalition for Digital Intelligence has developed a framework to serve as a basis for future education programmes, in the context of which the Netherlands can exert influence on governments to institute educational reform.

### Promoting online education

Distance learning has grown rapidly on the African continent, and online education has received a boost since schools closed due to the COVID-19 crisis.<sup>74</sup> However, African educational institutions have not yet gone online in large numbers. This is because of a lack of hard infrastructure, and the high cost and poor quality of internet connections. But teachers' lack of experience in teaching online is also a factor. Education continues, however, using a combination of old and new technology, known as blending. Information is, for example, disseminated from internet hubs via low-tech offline means like radio, the most popular medium in Africa,<sup>75</sup> and mobile phones, which are also popular. Given this reality, the focus must be on developing locally accessible apps and information, as mentioned above in the section on accessibility.

### Edtech in the African context: Wizzy Digital Courier in South Africa

Schools in remote rural areas have no internet coverage, or cannot afford internet access. Local innovation in educational technology helps. In this system, a school drafts questions r an internet search which it phones through to another school where there is a central computer. An intermediary then bridges the physical distance by uploading the search results from the central computer onto a USB stick. This is a very cheap solution based on an asynchronous ICT infrastructure. There is connectivity, but not in real time. This way of sharing internet access works well in rural areas, where there is plenty of time to bridge physical distances. Such an approach does however require individuals (albeit a relatively small number) who can actually absorb information from the internet.

#### Quality and popularity of vocational education must be improved

The education sector in Africa needs to undergo a metamorphosis in order to focus education and training on the needs and the context, and on preparing young people for future work. The new programmes funded by the Netherlands acknowledge this challenge, which is reflected in the title of the recently appointed Ambassador for Youth, Education and Work. Multilateral and bilateral efforts on the part of the Netherlands support young people in their transition to the world of work.

### New programmes for education and youth employment funded by the Netherlands<sup>76</sup>

### **Bilateral:**

Challenge Fund for Youth Employment (CFYE): decent work for 200,000 young people in focus regions

Local Employment in Africa for Development (LEAD) Programme: helping young people start their own business

Orange Corners Innovation Fund (OCIF): training, networks and facilities for young entrepreneurs

Nexus Skills and Jobs: helping young people transition from education to decent work or a better income; run via embassies

### Multilateral or multi-stakeholder:

Partnership for improving prospects for forcibly displaced persons and host communities (PROSPECTS): working on opportunities in education and work with the UN and other multilateral organisations

Youth Entrepreneurship and Innovation Multi-donor Trust Fund: part of the African Development Bank's Jobs for Youth initiative

Generation Unlimited: development of skills to benefit the job market via multi-stakeholder partnership



Vocational education is still often sidelined in African education systems. Although positive steps have been taken towards improving vocational education, it is important that the content and quality be measured regularly against the skills required, and that budgets are allocated on the basis of results (performance-based education).

Popularising vocational education and linking it to jobs also brings opportunities. There must be an emphasis on campaigns highlighting successful entrepreneurs as role models. This should be incorporated into curriculums and teacher recruitment. Donors are currently providing a lot of assistance in terms of training and mentoring young entrepreneurs, but in practice these efforts are fragmented. There is also a risk of capacity substitution (whereby international NGOs have bigger budgets for training than the schools themselves, and it is left up to them), while it is in fact public education that would benefit most from good teachers. Such programmes must be better integrated into educational institutions, however difficult this proves to be. Teachers must be retrained and better paid.

An intensive campaign is needed to persuade young people to opt for a future in the food sector. Education must be linked to the needs of the labour market – knowledge of agriculture and food security – in order to maximise the benefits to young people. To overcome young people's resistance (they believe that 'farming is not profitable', and wonder 'how can I when I don't own any land?'), role models are needed here, too, in the form of good teachers with practical experience. The Dutch organisation for internationalisation in education (Nuffic) has already started on the quality improvement element, through the Orange Knowledge Programme, which is mainly for higher professional education such as that offered by the HAS university of applied sciences in Den Bosch.

### Expanding the tech talent pool in fragile states

Numerous initiatives exist to train and support young Africans as technology leaders, involving mentors, angel investors, incubators, accelerators, co-working facilities and venture capital funds. Google is collaborating with Andela, an International Finance Corporation (IFC) fund providing early stage capital, which aims to teach digital skills to 15,000 young Africans. The assumption is that capital always follows talent. The World Bank is also focusing on expanding the tech talent pool, in order to attract capital and investment in digital technology.

Certain countries, like Kenya and Rwanda, have developed a strategy of focusing strongly on the services sector, particularly the digital economy. Here, tech is seen as a job opportunity, to be invested in. This is not only a matter of entrepreneurial opportunities, but also jobs in companies. It is important to work with employers to ensure young people develop, so that they can be offered sustainable employment.

Kenya has undertaken many initiatives to align young people's skills with the needs of the digital economy. The Generation Unlimited (GenU) programme prepares youngsters from the age of ten for work in the digital economy, as part of Vision 2030 (see text box on Kenya above). The Kenyan government is keen to gain insight into how young people's knowledge and skills (their employability) relates to what employers need. With a good idea of the gaps, education can be reformed accordingly, and vocational education can be given a boost. Digital platforms have also been developed for jobs, as well as virtual incubators for startups, like Ajira, whose slogan is 'The Future Works Online'.<sup>77</sup> The African Development Bank (AfDB) and Microsoft have launched the 'Coding for Employment' initiative, a digital training platform that helps strengthen young Africans' digital skills, no matter where they are on the continent.<sup>78</sup>

There are also interesting initiatives in states regarded as fragile, such as Libya and Somalia, some of which have been running for years, as in the example in Somaliland described below.

## **A**° **v**

### Incubators in fragile states with Dutch investment: Somalia

Tech incubators exist not only in the cities where one might expect to find them, like Lagos and Nairobi, but also in Bamako (Impact Hub Mali) and Hargeisa, the capital of Somaliland (Innovate Ventures). The Hargeisa incubator was launched by the Africa House, set up in 2014 by Dutch Somalilanders with the help of the NGO Spark. A number of passionate diaspora IT experts, including Warda Dirir, who works for IBM UK, organised the first big tech startup competition in Somalia, the Muhandis Challenge. Innovate Ventures grew out of this. It is a hub for tech companies which continues to grow with the help of the Dutch Venture Capital for Africa (VC4A) community.

The success of the hub is due partly to the strong entrepreneurial culture in Somalia, and Somalis' creativity in an environment where access to IT is a major obstacle (it is expensive and unreliable), and online security is poor. Thanks in part to Dutch public-private investments, this initiative has enabled hundreds of young Somalis to take their first step onto the labour market as tech startup entrepreneurs.

Source: Innovate Ventures https://www.innovate-ventures.com/about\_us.html

### 3.4 Better and more decent digital work

Digitalisation is a potential way of creating jobs, improving working conditions and raising production capacity and incomes (agtech, entech, fintech). However, for many the reality is very different, as they are continually seeking to secure new contracts, and the social isolation of the work can exacerbate already high levels of stress and mental health problems. This can have a profound impact on young people, particularly if they suddenly lose their work with no explanation. It is therefore important that young people are given help to register their company and make sure it grows. There are also sectors where new opportunities have arisen thanks to digital applications, such as agriculture, healthcare and the financial sector.

### Help young people register and grow their business

Young entrepreneurs often do not appear in the statistics because they work in the informal sector, where there are more job opportunities for them. Digitalisation can help their small businesses become part of the formal sector, however. Once they have formal status, it cannot be denied that young people contribute to the economy and also have rights. It needs to be established how the economic activities of young people in the digital economy can be incorporated into the official figures. The economic activities of young people working in the digital economy are more visible than the activities of those in the traditional economy.

Factors that impede the growth of small businesses in the digital economy are the fact that they are not recognised as companies, that potential clients lack confidence in the digital domain and that they do not qualify for loans. A recent report, *Digital Commerce and Youth Employment in Africa*, looks in depth at the opportunities that digitalisation offers these small businesses. Formalisation happens step by step, and is not irreversible, which is important for entrepreneurs who do not have sufficient confidence in the government. With an affordable smartphone an entrepreneur can often promote their microbusiness on social media and make and receive payments via fintech. If business is good, they can apply to the government for permits and licences and take on staff. If the company can grow, the entrepreneur can pay sales tax or VAT, hire someone to help with the bookkeeping, and register the company. Formal status entails certain rights and obligations which differ from one country to another. The business will then finally appear in government statistics, though this also depends

on the capacity of the authorities. Only then will the entrepreneur be able to open an official bank account in the name of the company. Digitalisation helps young people shorten and smooth the path to formalising their company, opening the way for further growth, which is essential for the creation of jobs for other young people.

Of course this is not only the case in the ICT sector and the narrowly defined digital sector, but also in other sectors where digitalisation creates new possibilities, such as healthcare, farming and the financial sector.

### Healthcare: new jobs in remote areas

Digitalisation is a driving force for new jobs in the healthcare sector. Several large-scale services have been established to equip health workers in remote areas with digital tools that allow them to provide prevention, diagnosis and treatment services remotely. They help both with the health services themselves, and with payments and record keeping. These roles, which were previously unpaid, are now being transformed into services for which a charge is paid, giving population groups that were difficult to reach access to healthcare. This also has a positive impact on the autonomy of women (including their financial autonomy) in terms of healthcare. Good cooperation between investors, companies and the government could help further advance these services.

### M-Health apps in the African context

PharmAccess and Philips have been working together for many years in countries like Nigeria and Kenya to reach more women via IT applications. However, this public-private partnership has encountered problems with accessibility and the gender gap. Cees Hesp (director of mHealth Research Labs at PharmAccess) said that access to healthcare is often regulated through traditional leaders. M-Tiba, a mobile phone-based platform for healthcare and finances, was developed to expand women's access to healthcare. This was an important step, particularly in terms of their financial independence. 'We asked why they liked the mobile health wallet so much – they said "it keeps the money from my husband!" It is important to build on locally applicable innovation. Christoph Castellaz (Business Leader, Primary/Community Care at Philips) said of working via IT in remote areas, 'You can have the finest application, but if there's no Wi-Fi network it won't work'.

From: health and technology panel at the European Development Days 2018 organised by Pharmaccess

### Farming: a living wage in international value chains

Now that African countries are having more difficulty importing food since the slowdown in global trade, higher productivity and quality in domestic agriculture have become even more pressing issues. Agri-entrepreneurship remains a promising sector, where agtech presents lots of opportunities. In the African context it is mainly a matter of combining old and new technology.<sup>80</sup> This could make the food sector more attractive to young people, who for decades have been migrating to the city in large numbers to escape the poverty of rural areas, particularly in the low season (see section 2.4 on insecure, precarious work). Agri-entrepreneurship does not have to involve running a farm; it can also be providing services or trading in the food industry. If this provides a good income, it could attract more young people, as digital technologies make a number of aspects more efficient and attractive.

A living wage is an issue that is rising up the agendas of trade unions, NGOs and companies in international food production chains. Under the Voluntary Agreement on Food, for example, a banana project has been launched, to which a large number of Dutch supermarkets have signed up, including the two biggest chains, Albert Heijn and Jumbo. The project is being implemented

by the Sustainable Trade Initiative (IDH). The aim is that, by 2025, participating supermarkets will source their bananas mainly from plantations which pay a living wage for the proportion of their production intended for the Dutch supermarkets. In other words, Dutch companies can play a key role in breaking the poverty cycle. The salary matrix has already been tested by companies in various productions chains, for produce like bananas, mangos, avocados, flowers and tea. It also serves as a management instrument to assess the difference between what workers receive in payment (both in kind and in cash) and estimates of a living wage for the region. The tool will also enable companies to negotiate prices on the basis of context-specific, up-to-date information on living wages, and develop a plan in collaboration with their main stakeholders to introduce a living wage throughout the entire production chain.

### Financial sector: quicker access to capital via fintech

Opportunities differ from one country to another, but seem to have been enhanced by the impact of the COVID-19 crisis. Mobile payment is on the rise not only in regions that were already ahead, like East Africa (particularly Kenya), North Africa and South Africa, but also in francophone West and Central Africa. Telecoms company Orange has offered a payment application for years, but people did not trust it and preferred to pay in cash. Only recently has use of the app taken off.<sup>St</sup> In some African countries the agricultural sector generates 35% of gross national product (GNP), but receives only 4% of financing. Providing access to finance therefore helps with the introduction of technologies like remote sensing, robotics, big data and artificial intelligence into small-scale agriculture. One example is the Mastercard Farmer Network, where data on farms is shared. This data allows better estimates of risk and costs to be made, using a credit scoring model. New agreements are made concerning the sharing of risk and rewards. The goal of the innovation is for farmers to gain access to more affordable finance. The DigiFarm platform shows that this type of fintech, in particular, can help give the agricultural sector a more modern image among young people, and thus make it more attractive as a career.





# Enhancing participation by women and girls

Investing in girls is both in the public interest and a driver of economic growth – a fact that is acknowledged by governments, civil society and the private sector. If digitalisation is also to benefit young women economically, a specific approach must be taken. It is very important to focus on strengthening women's digital skills, starting with ensuring that girls attend (and finish) secondary education. At secondary school, those who are interested in becoming entrepreneurs can works towards a future in the digital economy. More and more opportunities are being created here, but are not yet reflected in the official statistics, as women work mainly in the informal sector. It is very important to reach those women and help them put their business or microbusiness on a formal footing, so they have more chance of growing. Access to finance is vital to raise their productivity and income.

### Increasing girls' access to secondary education, and ensuring they do not drop out

Girls require specific attention when it comes to the skills and education discussed in the previous chapter. SDG 5 focuses on girls' major disadvantage when it comes to education. They are much more likely to drop out of school, and often do not even make it to secondary school. This has a highly negative impact on their ability to benefit from the digital economy. A study of secondary school students in Sub-Saharan Africa found that one extra year of primary school for girls could increase their future wages by 17.5%, each extra year of secondary education adds a further 12.7%, and each extra year of tertiary education could lead to an extra increase of 21.3%.<sup>82</sup> What is required to ensure this happens differs from one context to another, but the factors that influence the acquisition of skills listed in chapter 2 are also very important in this respect. In short, policy must be focused on improving young girls' access to secondary education, and ensuring they complete it, as a step up to future employability.

### Encouraging young women to become digital entrepreneurs

More and more governments, donors and organisations seeking to improve the economic status of girls and young women are looking to the digital economy. Rightly so, as the mobile telecoms industry, which has grown enormously in Africa over the past two decades, has improved women's position (Khan, 2020). This has made highly-educated professions in science, technology, engineering and maths increasingly popular among young women, particularly in North Africa (see text box on Libya below).

However, relatively large numbers of women work in formal sectors where the most jobs are being lost due to automation (for instance clerical work in offices). There are currently only a few women in the official workforce in ICT sectors. To prevent women from remaining unemployed after completing their education – the aspiration gap – those who have entrepreneurial talent must be encouraged to start businesses. Where the terms and conditions for women in platform work are not always good, launching their own startup can give them more opportunities. Research has shown that the combination of skills training, coaching and financing through donor programmes can be helpful in certain circumstances.<sup>83</sup>



The digital economy is now one of the three focus sectors of the African Development Bank's Jobs for Youth in Africa Strategy (AfDB, n.d.-b). Collaboration between the International Telecommunication Union, UN Women and the African Union Commission (AUC) also led to the African Girls Can Code Initiative (AGCCI) (2018-2022).<sup>84</sup> The programme involved a four-year project that aimed to bring together young women from several countries in Africa to get them interested in ICT as a career option. UN Women is also involved in Mozilla Clubs (2016), which trains women in digital skills.<sup>85</sup> The project, which focuses on women and girls in both formal and informal settings, has been rolled out in Nairobi and Cape Town, and will eventually be implemented in 25 countries.

Young women could potentially drive the digital economy, provided they are prepared properly and given adequate access

Guidance for young women in fragile states is a matter requiring particular attention. The example below, on Libya, shows that it is important that what young women learn matches what companies need. There also has to be an underlying revenue model, otherwise incubators will not survive for long. Entrepreneurs are better placed to teach young women how to negotiate with clients, how to acquire contracts and how to market what they do. Women in the informal sector need a network to strengthen their position with clients, and an incubator provides such a network. In this way, incubators can help promote better work in an insecure sector. It is however important to bear in mind that working in fragile states requires a context- and conflict-specific approach, and that this kind of small programme is difficult to scale up using a uniform approach.

### New tech startups for young women in Libyan warzone

A young entrepreneur from Benghazi, the scene of constant battles between militias and against IS, decided to set up an IT company where he would also teach young people to code, to train future employees and potential business partners. He was also successful in attracting young women to learn programming skills. He had three goals: to create jobs, promote equal opportunities and offer a future away from terrorist groups. Despite death threats from extremists, he persisted, with no support from the local or national government (in so far as it exists in Libya). One factor in his success lies in the fact that the hub was not launched in a top-down manner by an external party, but is a bottom-up initiative by an entrepreneur who aligned it with the needs of participants and businesses. It was also driven by an intrinsic motivation to succeed – to provide jobs and a life free of terrorism. The startup is part of a broader trend among young women to come together in tech startup hubs in Benghazi.

**Strengthening measures to combat gender discrimination and improve access to financing** Women's lack of access to financial services remains an obstacle to economic growth in many African countries. In rural areas, in particular, young women wishing to save and borrow have to resort to microfinance institutions (MFIs), informal savings and credit groups like Village Savings and Loan Associations (VSLA) and Savings and Credit Cooperative Societies (SACCOS). This is prompted by their need to separate funds for domestic and business purposes, as explained below using the example of healthcare.

One big problem is that banks do not manage to reach women in the right ways. Discrimination is still a factor in this. Women are disadvantaged when it comes to land ownership, and so have no collateral for loans. Given their systematic disadvantage, they have reduced access (if any) to

healthcare and protection of sexual and reproductive rights, which is important because it allows women to organise work and childcare better. Women often have little control over their finances, and are therefore unable to invest properly, or monitor their investments. In 2014 Access Bank in Nigeria launched a successful programme, the W Initiative, which focuses on offering customised banking services (both financial and non-financial) to female clients. Mentor programmes and health services specifically target women and women entrepreneurs. The participating women and their families gain access to a broad range of opportunities, including loans and credit facilities, as well as access to the W-community where they can obtain information on family and financial matters.

### Women obtaining credit using digital tools: two examples

In a rural area of Kenya an enterprising young female farmer, Mercy, tried to obtain a loan from a bank to buy fertiliser to produce a better crop. However, the bank charges high rates of interest. This is quite common in the Kenyan financial system. She had never had an account, and had little documentation on her farm's turnover. Furthermore, she had only a small area of land, which was not enough for collateral. Tulaa, an agtech startup founded in 2007, offers digital end-to-end solutions for farmers to enable them to buy the products they need, on credit, and also provides advice for a small fee. The IDH Farmfit Fund (amounting to a total of EUR 100 million, contributed by Rabobank, ABN Amro, Unilever and the Dutch and US governments) made a financial contribution to Tulaa that enabled it to work with an alternative credit score model whereby satellite data is combined with information on farming practices and, together with demographic and psychometric data, is used as a basis for loans. The system has provided over 110,000 farmers with loans. Mercy was one of them. She has increased her productivity by 50% since then, so that she can now not only cover her daily living costs – lifting her out of poverty – but also purchase more land and expand her business.

In cocoa exporting Côte d'Ivoire the Sustainable Trade Initiative (IDH) has for several years been cooperating with the agri-industrial multinational Cargill, NGO Care and microfinance organisation Advans in the Farm and Coop Investment Program. Key figures in the community make women aware of e-wallets and how they can use their smartphone for all kinds of financial transactions, like saving, and also to receive bonuses directly from Cargill. Thanks to the initiative's collaboration with local banks, 3200 Ivorian women gained access to an official bank account in 2019. The goal is to give 10,000 women access to banking services and loans.

But access to capital is not only important for women who work in the traditional economy. Financing for technology startups increased almost tenfold between 2012 and 2014, and it would be good if more female entrepreneurs could benefit from this (Dekker et al., 2018). To give access to larger groups of female entrepreneurs in the digital economy, policy must focus on actively countering gender discrimination, and financial institutions must be encouraged to take measures to promote equal access for men and women.



# How the Netherlands can help create the four conditions

This final chapter considers how we can jointly promote youth employment in Africa. The first section looks at Africa's progress in terms of Rodrik's factors for structural transformation, and identifies a number of systemic challenges. The second section considers whether Dutch public and private investment in youth employment and digitalisation in Africa actually helps. The third section sets out a number of principles based on the systemic challenges. The chapter closes with a look at the potential for collaboration with the Dutch private sector, knowledge institutions and NGOs.

### ▶ 5.1 SDG 8 as a basic principle: decent work

The year 2020 should be an important year for young people in Africa in many ways. The SDG 8 target for decent work (8.6) reads as follows: '*By 2020 substantially reduce the proportion of youth not in employment, education or training*'.

At the start of 2020 the situation still looked relatively good for Sub-Saharan Africa. Ethiopia was number 5 in the IMF's World Economic Outlook Database list of fastest growing economies (see box in chapter 2) and Ghana was at number 18. Only a generation ago, half the population of these countries lived in extreme poverty. After two decades of growth this proportion had halved – an outstanding achievement. In terms of SDG 8 – 'Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all' – the sustained economic growth element had certainly succeeded. But was that growth inclusive and – one step further – did it promote youth employment? Rodrik's analysis as described in chapter 2 provides a useful framework, emphasising four factors that prevent growth from being unequal, irregular or slow.

Economists tend to focus on promising sectors, and on scaling them up, with a view to achieving quick results in terms of job creation. The minister's request for advice also mentions such sectors, like the commercial services sector, which was discussed at length in chapters 2 and 3. Fintech, e-commerce and of course ICT all fall within the services sector, and provide job opportunities for young people. However, these opportunities cannot be fully exploited if the basic principles of economic and social development are not strengthened at the same time. Two factors that Rodrik mentions are vital for estimating the opportunities for youth employment: strengthening of human capital and improvement of institutions.

In terms of human capital, many good initiatives have been launched on the African continent, starting with increasing the proportion of children who attend primary school. However, the foundation underlying this – the public education sector – was not strong to begin with, and has been hit hard by cutbacks. Furthermore, education does not adequately meet the needs of the labour market. This makes the step to the world of work difficult for young people, as evidenced by the large numbers of jobseekers. The majority of young people move from rural areas – from smallholdings

- to the city. In economies undergoing structural transformation, these jobseekers are eventually absorbed by manufacturing or the services sector, as happened in Asia. Though demand for labour in these sectors has increased in countries with rapidly growing economies like Ethiopia and Rwanda, young people rarely find a job in the formal sector, with a salary and employee rights. In most African countries youngsters end up living in slums and working in the informal sector where, as described in chapters 2 and 3, productivity is typically low.

Here, the second factor that Rodrik mentions – the weak social and economic institutions in African countries – comes into play. They perpetuate a vicious circle: with a lack of work, there is barely any social safety net; young people have little or no access to capital because banks only serve the tip of the market; and they have very little legal protection in the absence of a properly functioning state governed by the rule of law, exercised by regulatory and executive bodies. The COVID-19 crisis has made access to good education and work even more difficult. In short, it seems that 2020 will not be the year young people had hoped for, and the SDG 8 goal of decent work seems more remote than ever.

The other two factors that Rodrik highlights as important for structural transformation and increased demand for labour – access to global markets and public and private foreign investment – have also been impacted by the crisis.

Sub-Saharan Africa was a small player anyway in terms of access to global markets, but its share of global trade has actually fallen since the 1970s, from 4% to 2% in 2005.<sup>86</sup> Trade within the region increased, however, at least until 2019. According to the United Nations Conference on Trade and Development (UNCTAD) this growth was in fact mainly accounted for by industrial products. It remains to be seen when – and even whether – regional trade will return to the same level as before the COVID-19 crisis.

The crisis has also had an impact on public and private foreign investment in Africa, including from the Netherlands. The developments are discussed below in reference to the challenge presented to African policymakers and the international community in the UN's Human Development Report at the end of 2019: 'What used to be 'nice-to-haves', like going to university or access to broadband, are increasingly important for success, but left only with the basics, people find the rungs knocked out of their ladder to the future'. In other words, the question is whether and how the Netherlands can help create the conditions for youth employment through digitalisation.

### 5.2 Does Dutch public and private investment help?

For some years now, the Netherlands has been contributing to improved internet access digital security, as well as skills and better work, from its development cooperation budget and via EU channels. The text boxes in chapters 2 and 3 describe a number of examples in the following areas:

- I Fintech, which facilitates access to electronic payments and makes e-commerce possible;
- 2 Entech, which generates sustainable energy for economic and digital activity in remote areas;
- 3 Edtech, which makes distance learning possible in rural areas;
- 4 M-Health apps that enable women to arrange their healthcare themselves;
- 5 Agtech, which enables farmers to obtain loans to buy fertiliser and seed, for example.

In these examples, digitalisation is not the main objective; digital technology is used to optimise work processes in certain sectors. The Netherlands also funds programmes for education and youth employment, an overview of which is presented in chapter 3. It includes two examples of incubators in fragile states established with Dutch support to improve the economic status of young women.

It is not possible to give a comprehensive list of all these activities. Each organisation, including those that receive grants, has a great deal of scope to determine its own priorities in terms of location, content, finance and processes. This results in a high degree of fragmentation as regards focus and funding, which is often spent on small-scale activities at the startup and development phase, with little or no consideration of the potential scalability and sustainability.

It is vital for youth employment in Africa that the phenomenon of 'projectitis' or 'pilotism' – the fragmentation of activity – be eliminated, as policymakers have wished for some time. The continent already lags behind when it comes to digitalisation. As discussed earlier in this report, this is caused mainly by the fact that certain essential conditions are not being met: accessibility (e.g. connectivity and energy), security (legislation protecting users and their data) and skills (such as awareness of online risks, extra focus to help girls catch up, and vocational education). Until these problems have been resolved, digitalisation and – more especially – the associated grown in jobs will not flourish. Furthermore, the fruits of economic growth do not always benefit young people, especially girls. Extra efforts are therefore needed to make this growth more inclusive, efforts that could be guided by the principles set out below.

### 5.3 Principles for addressing systemic challenges

When making strategic choices on policy and partnerships for youth employment and digitalisation, it is important to bear a number of principles in mind. They are not new, but it is worth applying them more strictly.

### A. Align with African ownership and oppose monopolies

The digital infrastructure on the African continent is monopolised by the large platform companies of two countries, the United States and China. The monopolistic character of these companies is a matter of concern, as it means that data, services and value creation flow away from Africa, and therefore bring no economic value to the continent. The platform companies are also now focusing all their attention on the basic infrastructure, as a result of which they are set to take control of almost the entire digital industry, with no competition. It is very important that the internet be protected as one of the commons, and that net neutrality be preserved. Cooperation between Europe and African countries is vital in this regard (see recommendation I). Given the tough nature of this issue, the AIV would advise that the World Bank-led multilateral Digital Moonshot initiative be strengthened. This would give the African Union greater ownership.

Europe focuses strongly on legislation to protect the public's rights on the internet, the main pillars of which are protection of personal data and data ownership. The EU's General Data Protection Regulation (GDPR) – and legislation on the protection of data in accordance with the FAIR principles – serve as a benchmark and offer a lot of potential for strengthening data ownership in African countries (see recommendation 2). Governments' facilitating role in promoting innovation through standards and harmonisation must be stepped up.

The digital economy will become broadly accessible only if decentralised services are put in place, in the form of energy supplies and connectivity, through mini-grid and off-grid solutions and digital hub services. This could facilitate digital employment for young people in rural and remote areas (see recommendation 3).

**B.** Support inclusive development and structural improvement in the position of young people One challenge associated with investing in the right conditions for youth employment, which include an energy supply, hard infrastructure and legislation, is that these things do not automatically create better prospects for young people, even in a country with a young population. Unless consideration is given to the specific challenges young people face, such investments tend to benefit older generations, in line with the prevailing social norms in Africa, as highlighted by the Youth at Heart strategy. The Digital Agenda also highlights norms which, especially when it comes to digitalisation, certainly do not always favour girls and young women. The 'do no harm' principle must be actively promoted, and ethical aspects of the internet actively protected (see recommendation 4).

It is therefore good that the minister intends to explicitly consider opportunities and challenges for young people in trade (and other) policy and programmes. It is important that young people are actively involved, too, and not only in development cooperation policy. The position of young Africans seems to be less of a concern for the private sector, which views young people more in economic terms, as human capital, either suitable or unsuitable for certain work, and often leaves the improvement of their position and skills to others.

It is not unusual for programmes to work around national and local authorities and other strategic actors because working with them is thought to be difficult or delay progress. As a result, such programmes create grant-dependent parallel structures which cannot eventually be transferred. This is particularly true in education (including vocational training), an area in which many international NGOs are active because public education systems do not function properly. But this does not absolve the organisations in question of their duty to embed their activities in the public sector, because privatised education is not an option for the majority of the population. This is particularly important when it comes to keeping girls in secondary education (see recommendation 5). It is therefore better to focus efforts on reforming the national education sector.

### C. Make financing sustainable and scalable

Chapter 3 describes opportunities for promoting youth employment via or with the aid of digitalisation. The Netherlands is actively involved in creating all four preconditions – accessibility, security, skills and better work – via several routes. The bilateral development cooperation programme and the multilateral programmes can be reinforced through diplomatic channels, and diplomats are well placed to facilitate cooperation within sectors.

The food industry is an interesting sector for Dutch businesses. Digital technologies can be used here to improve work processes and make local farming more profitable. Role models – particularly successful food and agriculture entrepreneurs – can play a prominent role in attracted young people with talent. This creates opportunities for regional production chains to restore local food security. Dutch PPPs can play a role in this, helping to incorporate African countries into sustainable chains. Extensive experience has been built up in Africa through PPP programmes like the Sustainable Enterprise and Food Security Facility (FDOV) and the Sustainable Development Initiative (IDH), and voluntary agreements (in the food and other sectors, called 'convenant' in Dutch) have prompted initiatives focused on the African continent. However, the focus on young people is a relatively new thing, and therefore still requires special attention. (see recommendation 6).

Gender discrimination is one of the main reasons why women and girls are disadvantaged when it comes to access to services and work. The AIV advises the Dutch government to retain this issue as a key focus of its policy in all existing cooperative programmes (see recommendation 7) so that the Netherlands can continue to exercise the significant influence on this issue in development cooperation.

The AIV would also recommend that the Netherlands seek out and join promising initiatives already under development that encourage collaboration between all actors who have a role to play in creating good-quality jobs (the 'Dutch Diamond'<sup>87</sup>): the authorities, knowledge institutions, the private sector, financial institutions and NGOs. It can do so via funding, and also by exercising diplomatic and political influence, which is vital, particularly in cases where governance proves to be

a stumbling block. It could join forces with like-minded donors and partners working towards the Sustainable Development Goals (see recommendation 8).



The question as to whether the examples set out in chapters 2 and 3 are scalable is a justified one. Scarce public funds can be used most effectively by focusing on long-term impact, and with the goal of developing the local capital market and mobilising as much private financing as possible. Blended finance<sup>88</sup> can work as a catalyst for scaling up infrastructural and energy initiatives. For success, the risks in the sectors concerned must be tackled jointly, as they are connected with the nature, scale and location of the activities. In general, the availability of money for investment is not a problem at a global level, though mobilising these resources is a cumbersome process, and occurs on only a relatively small scale.

It would appear that the different time horizons of different partners in a public-private partnership are a key factor in this. Now that international companies, in particular, are showing much more interest and involvement in sustainable development and are willing to invest in it, it is vital to explore whether and how customised, workable solutions can be found. This is also a job for development banks. The OECD has developed principles for blended finance with the goal of using ODA funds as effectively as possible to mobilise from private capital the trillions of euros needed for the SDG 2030 agenda and the Paris climate goals (see recommendation 9).<sup>89</sup>

### ▶ 5.4 Cooperation with the private sector, knowledge institutions and NGOs

The Dutch government has deliberately started to expand its role as a facilitator between different parties which can – and indeed must – contribute to solutions. This is based on the 'Dutch Diamond', whereby the authorities work with the private sector, the financial sector, knowledge institutions and civil society organisations in the Netherlands and in partner countries. This was examined in more detail in AIV advisory report 99. How this approach can be used in digitalisation for youth unemployment is explored below.

### Dutch private sector

The private sector is a key player when it comes to creating jobs for young people, as – on the labour market – it represents the demand side. It can also inject private capital for the broader sustainable development effort required in this context. The government can play a facilitating role, creating frameworks within which the private sector can operate. Conditions like net neutrality are part of these frameworks.

Human capital is an important factor in the private sector's investment decisions. One frequent complaint is that young Africans do not yet have the digital and other skills that are required. The private sector should play a role here by working with the local vocational education sector to ensure young people's education better prepares them for the needs of the labour market. The private sector is already involved in expanding the tech talent pool in the more developed countries in Africa, but the challenge now lies in more fragile states, where there is also a lot of talent.

### Dutch financial sector

The financial institutions have a particular role to play for the benefit of youth employment in Africa. As the continent of innovative fintech, Africa is in great need of inclusive financing. Young women, in particular, are poorly served by loan products and investment banks should step up their efforts in this area. The AIV advises the government to involve the private sector and financial institutions at an early stage, to ensure the conditions that make projects bankable are incorporated in the approach from the outset. To get African governments and authorities on board, efforts must be made to set out a strategy for a sector, including basic arrangements concerning the form and manner of cooperation.

### Dutch knowledge institutions

Knowledge institutions also have an operational task when it comes to education. For many years, Dutch organisation Nuffic has coordinated international student mobility, which could be further expanded, given the great interest and enthusiasm that exists in Africa. This is more difficult to achieve in fragile states and francophone countries, however. Distance learning – preferably online – could help, provided knowledge institutions convert their experience into context-specific applications. In the context of youth employment, there is great demand for both basic and advanced vocational education.

There is also great demand for information on education. Authors like Baldwin and Schleicher have described the skills needed for future work. The Human Development Report 2019 translated this into advanced capabilities required for the future labour market, but it remains to be defined what this means for the different contexts in Africa.

Once this has happened, knowledge institutions can develop a country-specific approach for the reform of education. Collaboration on data management with African knowledge institutions has acquired a new dimension in the FAIR programme, designed to embed digitalisation in administration regulations similar to those of the EU.<sup>90</sup>

Few interested partners have come forward so far in the Netherlands. One obvious explanation for this lies in the fact that vocational training in the Netherlands is not very internationally oriented. The programme for young professionals is a good way of promoting mobility, albeit at intercompany level. Vocational education that trains students in a broad range of relevant skills in a particular field is the most likely to result in sustainable labour market participation. However, given the lack of availability of good-quality general vocational education in Africa, investment in teaching specific knowledge and skills required for specific economic activities will continue to be necessary for the time being. This implies that companies themselves will have to incorporate this kind of job-oriented training into their business models, possibly with financing or cofinancing through PPPs.

There is a great need for cooperation with knowledge institutions on academic research and higher education. In terms of research, this sector has an important responsibility when it comes to young people and digitalisation. After all, the internet needs to be shaped in a secure way and data ownership needs to be ensured in practice. Collaboration between universities is vital, and must be expanded.

### Dutch civil society organisations

Dutch trade unions could focus on capacity-building for their local counterparts, with a view to mobilising young people in the informal sector in support of better terms and conditions of employment.

Civil society organisations in the Netherlands have a great deal of experience when it comes to strengthening sectors like healthcare, agriculture, energy, sustainable trade and financial support. This is very valuable, both for the Netherlands' image abroad and for broad, sustainable impact on these sectors, which are important to the Netherlands. Together with the private sector, civil society organisations and their local partners could focus more attention on learning by doing, using role models.

Not only youth organisations, but also organisations working for human rights and other rights need to be able to do their work safeguarding fundamental freedoms, including online. Campaigning for more awareness of digital risks is also an important responsibility for civil society organisations, which can prompt the government to raise awareness. NGOs can also help donors apply the 'do no harm' principle and the 'digital do no harm' principle, which are not only relevant to humanitarian assistance.



The AIV has come to the following conclusion. The challenges related to youth employment and the digital divide that young people face are so complex that one is justified in asking how the Netherlands can best pool its efforts and funding. One positive factor is that the Netherlands is already active in all areas (accessibility, security, skills and better work) connected to youth employment and digitalisation in some way or other. In conclusion, it can be said that the success and sustainability of the Netherlands' efforts will be determined to a large extent by time, place and whether or not the necessary conditions, such as ownership, good governance and sustainable finance, are in place.



Figure 5 - The Gall-Peters projection of the world map is an equal-area projection, as opposed to the other maps of the world and Africa in this report which use the more common Mercator projection.

# Notes

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- <sup>15</sup> See: Broadband Commission, Working group on Broadband for all : a 'Digital Infrastructure Moonshot' for Africa and International Telecommunications Union (ITU), ICTs to achieve the United Nations Sustainable Development Goals.
- <sup>16</sup> Ibid.
- <sup>17</sup> See in this connection also AIV report III (2019), China and the Strategic Tasks for the Netherlands in Europe.
- <sup>18</sup> United Nations Conference on Trade and Development (2019), Digital Economy Report. Value Creation and Capture: Implications for Developing Countries., Geneva.
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- <sup>20</sup> A lock-in makes clients dependent on a particular supplier for products and services, because they are unable to change supplier without substantial costs or inconvenience.
- <sup>21</sup> See also: off-grid energy initiatives by SNV Netherlands Development Foundation, FMO Entrepreneurial Development Bank and Humanistic Institute for Cooperation with Developing Countries (HIVOS) and article in PV Magazine (2019 Nigeria to install new PV mini-grids as domestic off-grid sector surges.
- <sup>22</sup> See note 15 on Digital Moonshot for Africa by the Broadband Commission.
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- <sup>27</sup> For background see: African Open Science Platform.
- <sup>28</sup> For background see: San Diego Supercomputer Center and Virus Outbreak Data Network (VODAN).

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- <sup>30</sup> The term 'young people' generally refers to people aged 15-35. However, organisations like the International Labour Organization (ILO) use the term for the 15-24 age group. In the report, where this age group is meant, this is indicated in the text.
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- <sup>37</sup> Ayentimi, D.T. & Burgess J. (2019), Is the fourth industrial revolution relevant to sub-Sahara Africa?, *Technology Analysis & Strategic Management*, 31:6, p. 647.
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- <sup>43</sup> Solutions for Youth Employment (S4YE) (2019), Digital Jobs for Youth: Young Women in the Digital Economy, p. 4.
- <sup>44</sup> According to the GSM Association by the end of 2018 239 million people had access to the internet in Sub-Saharan Africa, which equates to 23% of the population. This proportion is growing rapidly, and according to the International Telecommunication Union was up to 28.2% in 2019.
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- <sup>49</sup> The African Leapfrog Index (2019) is part of the Digital Evolution Index, designed by the Fletcher School at Tufts University. The index tracks how digital technologies can translate to inclusive growth. It considers not only work and jobs in the digital sector, but also the institutional drivers that make this possible, on the basis of best performance benchmarks in Africa.
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- <sup>51</sup> Bada, M., Von Solms, B., & Agrafiotis, I. (2019), Reviewing national cybersecurity awareness in Africa: an empirical study p. 1.
- <sup>52</sup> Mo Ibrahim Foundation (2019), Forum Report: African youth: jobs or migration?, p. 38.
- <sup>53</sup> World Economic Forum (2017) p. 9.
- <sup>54</sup> Ibid.
- <sup>55</sup> Human Development Report (2019), Beyond income, beyond averages, beyond today: Empowered lives. Resilient nations. Inequalities in human development in the 21st century.
- <sup>56</sup> See: World Economic Forum (2017) and the World Bank's World Development Report (2019).
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- <sup>66</sup> For background, see EU External Investment Plan: Jobs, Growth, Prosperity.
- <sup>67</sup> Nairobits: School for Digital Design was initially funded via the Cultural and Development Programme of the Dutch embassy in Nairobi; now several Dutch organisations are involved in the school.
- <sup>68</sup> For background see the Solid website.
- <sup>69</sup> See: Global Forum for Cyber Expertise.
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- <sup>71</sup> For background see the Internet Governance Forum.
- <sup>72</sup> Ibid.
- 73 See: Présimètre.
- <sup>74</sup> Schoolchildren and students who do have good internet access sometimes use MOOCs offered by schools and universities elsewhere in the world, but they are often not applied to the context, and are in that sense not very accessible for young Africans.
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### Appendix I

## Request for advice



Skills report by the World Economic Structures and prospects. The Tunne of 500s and Skills report by the World Economic Forum and the *World Development Report 2019* describe how the world of work is set to change in the coming years. Many routine and lowpaid jobs will disappear as a result of robotisation and automation. This will not necessarily lead to higher unemployment, but rather to different types of jobs requiring more cognitive skills and a higher level of education. As knowledge, technology and data increasingly become crucial factors of production, this may lead to greater inequality between rich and poor, between the poorly and highly educated, and within and between countries. The topic of this request for advice is <u>how the coming waves of digitalisation and automation</u> <u>will affect employment and job opportunities for young people in Africa</u> and how Dutch development policy can respond, building on the policy document on foreign trade and development cooperation (BHOS) entitled 'Investing in Global Prospects'. Your report may also play a role in implementing the Digital Agenda for Foreign Trade and Development Cooperation, to be presented to parliament this summer.

On the one hand, the rapid automation of production processes will mean that the availability of cheap labour will play a smaller role in manufacturing companies' investment decisions. Africa can thus only partly benefit from an increasingly prosperous Asia.<sup>2</sup> Another question is whether Africa, in light of its digital lag, will be able to catch up quickly enough to benefit from the new economic structures. Education and other forms of training aimed at strengthening digital skills will be crucial factors here.

On the other hand, digitalisation offers opportunities for achieving the SDGs and creating new jobs and types of employment. Digital hubs and startups are already appearing in several African cities. Digital applications, for example in the agricultural sector, offer opportunities. New information services and products are emerging which can lead to better business decisions and higher profits. New business models may develop, for example in the platform economy. Young people in particular find this appealing and use the opportunities offered by these applications.

The government therefore requests an advisory report from the AIV on the following questions:

- With a view to improving economic prospects for the rapidly growing young
  population in Africa, what opportunities and risks does the next wave of digitalisation
  pose?
- In what areas is there scope in Africa for taking advantage of the employment opportunities offered by digitalisation while limiting the risks?
- How can the government shape policy that will support Africa's digitalisation process
  with a view to boosting youth employment? What types of education and training
  offer the best prospects in this regard? What role could cooperation with Dutch
  knowledge institutions, businesses and civil society organisations play?
- In this regard, what can specifically be done to improve the economic position and digital skills of women and girls?

I look forward to receiving your report.

Yours sincerely,

Sigrid A.M. Kaag Minister for Foreign Trade and Development Cooperation

<sup>1</sup> Transition and Inclusive Development in Sub-Saharan Africa, IOB 2018. <sup>2</sup> See for example Joseph Stightz, "From Manufacturing Led Export Growth to a 21st Century Inclusive Growth Strategy for Africa' (2017); Dani Rodrik, "Premature Deindustrialization" (2015); ACET, African Transformation Report 2017: Agriculture Powering Africa's Economic Transformation (2017).

### ► Appendix II

# List of persons consulted

In preparing this report, the AIV spoke to a number of experts. The AIV is very grateful to them for their insights and contributions.

• Dennis Acquaye

Africa Works!' programme manager, Netherlands-Africa Business Council (NABC)

- Tegawende Bissyande Cybersecurity expert, University of Luxembourg
- Laila Bouallouch Sustainable Economic Development Department (DDE), Ministry of Foreign Affairs
- Marleen Dekker
   Professor of Inclusive Development in Africa at Leiden University, Coordinator
   of the INCLUDE Knowledge Platform
- Caroline Figueres
   Consultant and former managing director of the International Institute for
   Communication and Development (IICD)
- Nick van de Giesen Chairman of the Delft Global Initiative
- Jochem de Groot Corporate Affairs Director, Microsoft Nederland
- Wouter van Hulten CEO, Pan African Internet Exchange (PAIX)
- Jean Pierre Karabaranga Ambassador of Rwanda to the Netherlands
- Jan Klugkist Strategic Policy Unit (ESA), Ministry of Foreign Affairs
- Martine Koopman Independent ICT for development (ICT4D) expert
- Daniel Mah
   Vice President, SES Satellites
- Petra van Schayik, CEO, Compumatica
- Corien Sips
  - Social Development Department (DSO), Ministry of Foreign Affairs
- Martin Vliem
   National Security Officer, Microsoft Nederland
- Tjeerd de Vries Office for International Cooperation (BIS), Ministry of Foreign Affairs
- Vincent Wintermans Project coordinator, UNESCO
- Rob Winters Managing Director, East Africa office, Rebel

Finally, the AIV would like to thank the international students, including those from Africa, who shared their views on this topic with the executive secretary.

Appendix III

# List of abbreviations

AFDB	African Development Bank
AI	Artificial intelligence
AIV	Advisory Council on International Affairs
BHOS	Foreign Trade and Development Cooperation
COVID-19	Coronavirus disease 2019
DGGF	Dutch Good Growth Fund
EAC	East African Community
EIP	External Investment Plan
EU	European Union
FAIR	Findable, Accessible, Interoperable and Reusable
FMO	FMO, the Dutch development bank
GFCE	Global Forum for Cyber Expertise
ІСТ	Information and communications technology
IFC	International Finance Corporation
IGF	Internet Governance Forum
ILO	International Labour Organisation
ITU	International Telecommunications Union
NGO	Non-governmental organisation
Nuffic	Netherlands Universities Fellowships for International Cooperation
OESO	Organisation for Economic Co-operation and Development
PAIX	Pan African Internet Exchange
PPP	Public-private partnership
SDG	Sustainable Development Goal
UNESCO	ited Nations Educational, Scientific and Cultural Organisation
UN	United Nations
US	United States

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