

https://dspace.org/

Digital pervasiveness and divisiveness: the role of an African government in enabling healthy digital futures

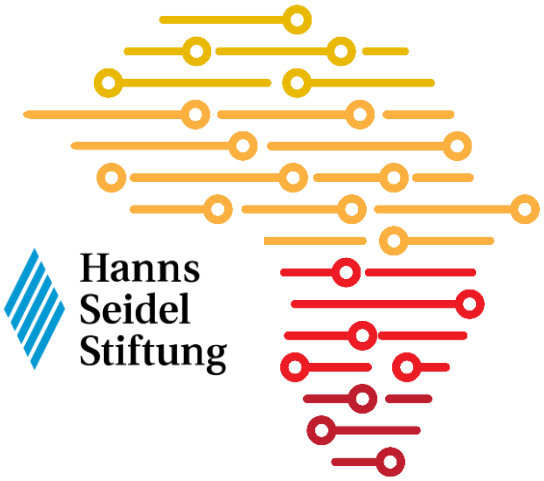
Bashir, Iman; Oyewale, Fisayo

2023-09
University of the Witwatersrand, Johannesburg
https://hdl.handle.net/10539/37669

Downloaded from a DSpace repository. https://dspace.org/

Tayarisha Working Paper Series | No: 2023/006

African Governance in the Digital Age



Digital pervasiveness and divisiveness: the role of an African government in enabling healthy digital futures

Iman Bashir and Fisayo Oyewale

September 2023

WITS SCHOOL OF GOVERNANCE
UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

TAYA RISHA
African Centre of Excellence in Digital Governance

Digital pervasiveness and divisiveness: the role of an African government in enabling healthy digital futures

Iman Bashir
Next Generation Foresight Practitioners,
School of International Futures, Nairobi, Kenya
email: imanbashir95@gmail.com

and

Fisayo Oyewale
Next Generation Foresight Practitioners,
10 Adedoyin St., Palmgrove, Lagos, Nigeria
email: fisayooyewale@gmail.com

Abstract

Africa has been said to be left behind during the past industrial revolutions. In the face of the fourth industrial revolution, in which digitalisation plays a key role, technology is seen as pervasive (according to African digital futures), especially in its cross-sectorial application and everyday use. The use of digital tools and applications remains driven by growing interconnection, intelligent automation and interoperability, which continue to influence digital innovations and divides. Studies revealed disparity in the statistics regarding mobile internet connectivity for the already connected, coverage and the usage gap. The coverage gap was most pronounced, further widening the digital divide beyond location and affordability. Without addressing the issues of access, affordability and regulation, existing inequalities, digital vulnerabilities, political and ethnic divides escalate further. Research has also shown that open data in the continent contributes to government transparency, accountability and public innovation. However, few open data initiatives actively promote inclusion and equity. This research explores the diverse perspectives of digital age themes, alongside the opportunities, risks, paradoxes and techno-determinism, to analyse the efforts of African governments to digitally transform the continent. This paper further builds on the African digital governance project, which explored the value of data, ownership, policy and digitally enabled political participation. This essay explores the continent's ability for collective transformation, using the 5D model of appreciative inquiry, and suggests several points of view for escaping the status quo.

Keywords: Digital pervasiveness, futures, data, diversity and inclusion, governance.

Introduction

The fourth industrial revolution (4IR), characterised by the Internet of Things (IoT), high levels of connectivity, big data, artificial intelligence and more, continues to disrupt existing landscapes and the status quo.

Technology and digital transformation, in particular, are increasingly embedded in our daily lives, allowing people a rare opportunity to reconsider and reimagine their methods of production, delivery and consumption. This era is revolutionising how we live, define, relate, create, consume and even destroy systems and values. With digital transformation and artificial intelligence, for example, global operations and services shift from physical labour to people—machine combinations and automation (*4IR-Ready Manufacturers Develop Both People and Technology*, n.d.).

Africa is said to have been left behind during the previous industrial revolutions and experienced increasing socio-economic marginalisation, especially during the third industrial revolution. Thus, the question of what Africa should do differently in the era of 4IR to benefit the continent begins to emerge.

Acknowledging the pivotal role that technology and digitalisation play in Africa's development, the continent's reliance on technology imports continues to have an adverse impact on the people. Some imported innovations do not fully address the needs of African contexts, leading to digital dongles and further exploitation of data by foreign innovators (Fabayo, 1996). The fluid nature of digitalisation, the connected ecosystem of information, and borderless data sharing across platforms ensure the widespread use of technology in diverse sectors, hence its pervasiveness.

As a result of the ubiquitous use of digital solutions in different aspects of life, issues such as data privacy, ownership, protection, cybersecurity, and cyber-jurisdiction call for African digital governance (Srasra, 2022). Despite digital pervasiveness and the extensive use of technology across the continent, the threats of digital inclusion and divide are being combated, especially in low-income and marginalised communities. According to The International Telecommunication Union (ITU), Africa is one of the regions with the lowest rate of internet usage, a significant gender gap in mobile phone ownership, and the lowest internet and mobile broadband penetration rates compared to other continents, at roughly 28% and 34% respectively (ITU Datahub, n.d.).

Existing socio-economic differences across the continent are exacerbated by other factors that hamper access to the internet, data and computers, namely affordability, literacy and a lack of electricity. Shortcomings in digital infrastructure further widen the divide. In addition, some existing digital innovations do not take African contexts into account when designing solutions, and indigenous African languages and identities are overlooked, leading to a demand for homegrown innovations and the localisation of digital governance.

Although the transformative potential of digitalisation in Africa has been further highlighted by the increased use of information and communication technology (ICT) in problem-solving and innovations across the continent (Signé, 2020). M-Pesa, a money transfer platform with an inclusive model to provide financial solutions in Kenya, is an example of homegrown technology that caters to the needs of African people (Bateman et al., 2019).

To fully harness the opportunities and potential of the digital age on the continent, while safeguarding against digital and data exploitation, robust digital governance tailored to an African perspective is important. In this paper, we explore and answer the following questions:

- What does a healthy digital governance system look like to young Africans on the continent?

- Who governs and what is governed digitally?
- How should digital governance be demonstrated in Africa?

In 2021, at the height of the COVID-19 pandemic, young people from various African countries were brought together virtually for a project on African digital futures. They described what healthy digital futures and governance would look like in 2050 through stories, scenarios, visions and artefacts that were developed, using foresight tools and methods.

This paper builds on the digital futures project by discussing the role of African governments in enabling healthy digital futures, highlights the concerns of citizens, and proposes a number of recommendations.

African digital governance futures project (NGFP, 2021)

Conversations about technologies, big data and digital tools are more pressing than ever, especially since the COVID-19 pandemic has made many people reliant on digital tools for work and livelihoods. Regulating these technologies is imperative, especially for African societies, given the potential for both a positive and negative impact on individuals and societies.

In 2021, a group of 22 next-generation change makers and African futurists was convened by Next Generation Foresight Practitioners (NGFP), an initiative and practice arm of the School of International Futures (SOIF). The change makers explored data governance in Africa across digital privacy, identity, inclusion, security and artificial intelligence, using a group futures process. The project aimed to steer provocative conversations on data-driven technology developed and used by various communities in Africa.

The group, which was further divided into Kenyan, Nigerian, and Pan-African teams, conceptualised 11 stories (visions) of the future that describe scenarios and artefacts in the 2050 time horizon. The three cohorts focused on the role of technology in addressing environmental issues, direct democracy, and social experience through visions entitled; 'The Green Party of Kenya Manifesto', 'Journey to 2050', and 'Unplug Africa'. They also described the characteristics of healthy digital societies, incorporating a range of themes for different stakeholders including governments, technologists, legislators and individuals. Some emerging themes and insights from the futures project included data as a collective resource for the public good, data to support good governance, the enabling of local data governance, the pervasiveness of technology, and diversity and inclusion.

Visions and stories for healthy digital governance

Our future world

This vision touches on the use of data as a tool to connect and empower people, while driving inclusivity rather than division. The authors identified the wide range of data usage as well as the potential for misuse, especially in disrupting decision-making. The need for data governance to safeguard data usage was therefore emphasised. Africa is recognised as a community-centric continent, and governing data to foster transparency and accountability was seen as a way to better promote synergy among African communities, despite richly diverse cultures. *(Brian Wamukota & Roselyne Wanjiru)*

All animals are equal

This vision is characterised by inclusion, transparency and equity, despite adopting the title of George Orwell's 1945 novel, *Animal Farm.* The authors highlighted community, trust, connectivity, and digital penetration in remote communities as features of the vision. Citizens were seen to have a voice in how their data was used, while corporations provided essential services, and government maintained systems and control of data use. *(Saraphina Ambale & Shem Omasire)*

Tree of Humanity awarded to African game changers once again

The authors of this vision told the story of Afrocentric and human-centred innovations that were led by and designed for Africans in 2050. Some of the innovations discussed included 'Level Up', which addresses the threat and excesses of existing technologies, and the 'Impact Quotient Measure', which promotes Africa's spirit of Ubuntu (humanity to others). The story also described the intersectionality of sectors such as bio-finance and chemical mobility, showcasing Africa as a pioneer at the forefront of certain technologies. The vision of this African future symbolises the need for healthy digital governance to foster inclusivity, innovation and technology for good, despite the pervasiveness of technology globally and across the continent. *(Jesse Forrester & Marizanne Knoesen)*

Tribes of the future past

The author identified the role of personal agency among individuals in contributing to the future of Africa and its innovations, describing a typical African dream. This story also touched on digital ubiquity, highlighting the concept of an African smart home that could monitor the health of individuals. Technologies such as the 'Museum of Experience' enabled young Africans to experience the past, such as apartheid in South Africa, and connect with their history. The potential to misuse technology, resulting in a pandemic and the collapse of social values, was also discussed, recognising the need for robust digital governance to be put in place well ahead of 2050, as the continent begins to develop its own technologies. *(Mutsa Samuel)*

Futurica

Digital pervasiveness was described by the author as a theme where the entire world was seen as a digital sphere, permeated by data. Africa was no exception. Although the brain drain was envisioned to be non-existent in the continent, a digital and values crisis as a result of the exploitation and manipulation of data, created a significant challenge for Africa. Good data governance is seen to be central to innovation, with the author describing Africa as a global inspiration in solving the digital crisis. *(Rahma Ben Lazreg)*

Unplug Africa

This vision examined technophobic situations such as the destruction wreaked by humanoid robots as well as a digi-peace approach modelling of African knowledge globally. The expansion of digital footprints was seen to lead to technology overload, digital obesity and e-waste. Reflecting on the COVID-19 pandemic, and the widening digital divide, the author envisions a humane digital society led by virtual citizen action groups. Policies instituted by African governments are perceived as ways to take control of our digital destinies. *(Nancy Muigei & Oluwaseun David)*

Feminist future: What a wonderful world

This vision is centred on a feminist framework that ensured fairness in access and opportunities. Electoral processes were digitally powered and remote communities enjoyed access to digital resources and infrastructures. The authors emphasised data protection, while online data polling by citizens yielded dividends for all stakeholders, as grassroots initiatives mattered. Transparency and accountability in governance were also enabled by digital processes. *(Gideon Olanrewaju & Zainab Yunusa)*

Journey to 2050

This vision describes the pervasiveness of technology in all aspects of lives, from the widely used crypto e-wallet, and self-driving cars, to exclusive reliance on solar technologies. Existing systems were people-centric and citizens actively contributed to governance and policy-making. With all states being data-driven, the digital divide was almost non-existent, elections were held digitally with transparency guaranteed. The authors envisioned data governance to guard against data extraction and to ensure that innovations included minority groups. *(Chiagozie Udeh & Fisayo Oyewale)*

The Green Party of Kenya Manifesto 2030

This vision describes how environmental action and decentralised access to information empowers citizens. There was a call to shun tribal politics and focus on collective national challenges such as climate change and how to tackle it. The youth in this vision formulated legislation and ensured its implementation through an online *Parliamenteen*. The authors pictured the State as powered by renewable energy, while governance and politically-related responsibilities were communal. *(Frank Ogolla & Iman Bashir)*

Towards vision 2050

This vision builds on the use of the internet and social media as a tool to amplify voices and fight for social justice. An alternative scenario was considered where the #endSARS protest against police brutality in Nigeria led to healthy digital co-existence and the fall of political apathy. A new form of governance that promoted open-door policies and decentralisation was also envisaged. Technologies were designed with and for citizens, blockchain technologies enabled transparency, and educational curricula accommodated innovation. *(Fasoranti Damilola & Memunat Ibrahim)*

The future of AI and tech

This vision believed that African norms and cultures in the digital era would be preserved through good data governance. Due to digital pervasiveness in all aspects of operation, and the growing use of technology, unemployment skyrocketed. The authors expressed how roles changed due to technology, which then necessitated upskilling, while technologies such as augmented reality were adopted as innovations to boost the economy. In this vision, governance prohibited the sale of data and implemented policies to protect individuals' private data. The authors described the government as having mandated ethical data collection and storage. (*Charles Umeh & Stephanie Itimi*)

Methodology and design

For the purposes of this study, a two-pronged research paradigm was followed: VERGE Analysis and Appreciative Inquiry.

VERGE analysis

The data governance created by the African storytellers was put through the VERGE analysis to analyse the five research domains. VERGE is a tool for framing and exploring societal transitions. The framework is made up of six domains of human experience: Define, Relate, Connect, Create, Consume, and Destroy. These domains produce detailed and vivid depictions of life as experienced by actual people, which is why it was critical in this analysis.

The **Define** matrix enables us to look at the concepts, ideas, and paradigms we use to define ourselves and the world around us. The **Relate** domain deals with the social structures and relationships that govern people and create organisations. The researchers analysed the stories through a lens of the people and institutions in digital governance and how they are interconnected, each with a role of their own. The **Connect** domain encompasses the technologies and practices used to connect people, places and things. The relationships and stakeholder created by the storytellers are based on reality. The **Create** domain concerns the technology and processes through which we produce goods and services. The stories created various pieces of technology to build aspects of the scenarios. These pieces of technology emulate reality and offer problem-solving solutions that can be utilised to create innovations in real life. The **Consume** domain focuses on the ways in which we acquire and use the goods and services we create. The characters use various products to reflect their interaction with digital frameworks in the same way that people interact with technology. The **Destroy** domain speaks to the ways in which we destroy value and the reasons for doing so. Several risks and concerns, such as data insecurity and brain drain, were raised in the stories and are real-life issues that stakeholders should3 be cognisant of.

Data analysis

Trends on the focused themes

The VERGE analysis of the data governance stories yielded valuable lessons based on the VERGE domains of Define, Relate, Connect, Create, Consume and Destroy. The central theme being that the digital landscape is a useful tool for humanity. Some narratives define technology as a means to an end, while others define it as a simplification tool or an enabler. The implication of these stories is that technology and digitalisation are useful tools that deliver optimum benefits to users. This approach emphasises people-centred decision making, shifting the focus from the technology itself towards its human-centric aspects. The analysis of these data governance stories also brought to light the need for technological policies that place humane technological research at the centre of decision making. This recognises the responsibility of decision makers to not only make sound decisions but to maintain a people-centred approach when creating policies.

The stories all focused on the intersectionality of digital issues; no one story placed digital health in a silo, however, they all acknowledged the interconnectedness of a healthy digital landscape with other socio-economic issues. The story ‘Towards Vision 2030’ raised issues about cultural preservation in the digital age, highlighting the how and why of technology in preserving African heritage. This story makes governance authorities responsible for promoting the development of technologies that align with social, cultural, and historical issues. (‘Towards Vision 2030’)

Although the stories were localised to reflect an African context, they nevertheless centred on ensuring global standards were met with regard to data access, use and dissemination. The narrative within 'Our Future World' recognises the African theme of oneness and unity that traverse community boundaries. This translates to global standards whereby the world created in the story manages to maintain an African identity while meeting global minimum standards in data protection. This story assigns government authorities the responsibility of ensuring that minimum standards are met and even exceeded across the continent, at the same time striking a balance between maintaining an appropriate perspective for Africa while upholding international data handling standards.

Some stories raised concerns about the dangers of poor digital governance. For example, stories in the 'Tribes of the Future Past' highlighted digital terrorism as a threat to the continent. The digital age carries the risk of widening the gap between marginalised and privileged segments of society even further, however, the stories emphasise that with proper governance, the technology itself can serve as a bridge between these groups.

Themes of inclusion and diversity in gender, economic status, age, and identity also emerged, with many stories placing good governance at the core of increased inclusivity and diversity. The scenarios created all highlighted the role of government in creating value-centric and widespread access to opportunities for marginalised people.

Outputs

The VERGE framework was used to ascertain the role of technology usage and governance in Africa's future, the research underscored the following outputs:

Data is a means to an end and not the destination

The stories viewed the digital landscape as a tool to achieve a desired outcome rather than seeing it as the destination itself. Some stories, such as 'Futurica', view the digital landscape as having human connection as its main purpose. Others like 'The Future of AI and Tech' looked to increase gender equality as technology and AI sit at the centre of all sectoral operations. Therefore, increasing gender mainstreaming can be achieved by ensuring these issues are central to the use and development of technology.

All hands on deck – government authorities, creators of technology and the users of technology

As mentioned earlier, many of the stories placed significant responsibility on government authorities to localise technology to suit African needs and realities. In addition to government authorities, these stories also assigned responsibility to a range of other stakeholders, including individuals, the private sector, and NGOs. This was evident in the 'Tribes of Future Past' story that tasked people with creating African branches of existing NGOs. Approaching digital governance as the shared responsibility of various stakeholders allows for more comprehensive and effective governance.

Digital education plays a role in governance

There is an emphasis on understanding technology to effectively manage it. 'Our Future World' is one such story that highlights the importance of education in not only improving human livelihoods, but allowing for better decision-making regarding the management of technology. The 'Journey to 2050' story also underscores that digital literacy as a basic human right should be part of comprehensive education available to all.

Technology works for the people, people do not work for technology

The stories made it clear that technology was only a resource for communication, convenience, and automation. It was not viewed as a grand entity, but rather as a tool that requires human effort to maintain and improve it. The point of innovation is for technology to work for people in diverse aspects of their lives to the point where it requires no human supervision.

Ownership and brain drain

There was a major concern about ownership of technology in stories where, for example the 'Green Party of Kenya Manifesto' insisted African ownership over their technology. The power imbalance created by not owning the major digital frameworks places the continent at a disadvantage by having to rely on foreign technology for development. It also brings with it the challenge of brain drain, where the most educated young people leave the continent to work directly for the owners of the technology adopted in Africa. The gap left by this skilled labour force cripples development, as well as the economy, and creates a further cycle of overreliance on non-indigenous innovations and technologies. The stories cautioned decision makers to not only create conducive environments for innovation, particularly among the youth, but to put in place strategies to retain the labour force in their countries.

Appreciative inquiry

Appreciative inquiry pertains to the search for the best in individuals, their organisations, and their surrounding environment. In its broadest sense, appreciative inquiry entails the methodical investigation of the factors that give a system 'life' when it is at its most vibrant, efficient, and productive in terms of the economy, the environment, and people. The skill and practice of asking questions that improve a system's ability to comprehend, foresee, and heighten positive potential are important to appreciative inquiry. The slow process of intervention is replaced by the speed of innovation, as opposed to denial, criticism, and spiralling diagnosis.

Appreciative inquiry is based on a 5D model, comprising: definition, discovery, dreaming, designing, and destiny or action planning. Fundamentally, appreciative inquiry seeks to create a positive connection between the entire human race and the vast majority of what is referred to as past and present capabilities, to encourage positive critical thinking and action plans.

The researchers will collect additional data using the appreciative inquiry process to flesh out the future visions of respondents in the original storytellers' group. This methodology will also allow the group to elaborate on what an effective data governance system in Africa would look like.

Model analysis

The 5D model (Definition, Discovery, Dream, Design, and Delivery) was used to elaborate on the perspective of the stories. The authors were asked about their introduction to foresight/futures thinking and what had attracted them to foresight as a practice. The authors' response was that their

first actual contact with foresight was in the African digital governance stories they had created during the project. The authors said that the stories had an impact on them as they created a fresh approach to exploring the future.

By exploring alternative futures that shape decisions and actions taken in the present to achieve a desired future, young people on the continent realised that they could influence decision makers in digital futures. Respondents emphasised that in creating stories about their dreams of the future, they felt a sense of agency; they recognised their ability, as individuals and as part of a broader community, to determine their individual and collective destinies.

In the dream, the interview questions were more targeted to the data governance stories and the questions were more precise:

1. What does the future of data governance look like to you?
2. Who is the governing authority?
3. What is the governance authority's role?

The respondents were optimistic about the data governance models being democratised as opposed to the current centralised structures. They stressed the need to give more power to the people and that those at grassroots should have a larger say in governance.

They placed the responsibility for providing platforms, processes, and principles that drive equal participation in the collection, analysis, interpretation, storage, and transmission of data on governance authorities.

The responses acknowledged that the goal is to establish a decentralised data governance system with decision-making power in the hands of the community. However, they also recognised that governance authorities are responsible for regulating, protecting, and safeguarding the collective interests and aspirations of the people, while ensuring that their voices are heard in the process of policy creation and data regulation.

Design is the next step in the 5D model, and the questions posed to respondents focused on creating a plan to realise the dream of young Africans regarding data governance. Financial investments were highlighted as a key mechanism to achieving an effective and equitable data governance future with non-traditional financing mechanisms such as crowdsourcing being considered as an option. To create a decentralised system, the respondents focused on modes of governance that devolved decision making, with a commensurate allocation of funds to grassroots level. The government was also recognised as being responsible for enhancing digital literacy levels in Africa and bridging the digital divide. Lastly, respondents placed the responsibility for moving away from ‘notice and choice’ models of data privacy and the need to protect users more effectively, in the hands of the private sector, subject to government regulation.

The final step in the 5D model is delivery. Here questions focused on how to implement the designs created, who would implement them, and how success would be measured. On implementation of the model and structures envisioned, the systems would require both technologically and data-literate people. To minimise the digital divide, the government needed to improve education, training, and awareness of its people, especially for those in rural areas and marginalised groups. In addition, the community would require access to technology infrastructure such as electricity and internet access, for which the government was responsible. This will enhance connectivity and more effective engagement of the community in decision-making.

The private sector has a role to play in the implementation process by designing structures that are created with people in mind from the outset. The private sector should develop policies that prioritise transparency and accountability with regard to data collection and usage. They should also ensure that the users of their technology have a clear understanding of what their data will be used for, and that they can opt out of having their personal data stored by the technology.

To ensure seamless implementation, the government and the private sector, as the main implementers of the system, should establish public-private partnerships, integrating enabling factors to foster co-operation across all levels of governance. The government was also seen to be a unit with different strata of implementation. The national, regional, continental and local governments each play a distinct role in the effective implementation of governance systems. Ensuring seamless co-operation between these strata would support effective implementation.

Lastly, respondents outlined how success in this governance structure would be primarily measured through levels of awareness and access. Once people at grassroots level understand the use of data, how it is collected, managed and stored, and know their rights in accessing data, then the system can be effectively monitored.

Conclusion

The paper utilised existing stories created by young Africans living on the continent to narrate their visions of an effective data governance framework for Africa, and how to realise these visions.

The methodology used was a combination of a VERGE framework to analyse the stories, followed by the application of a 5D model of appreciative inquiry with some of the authors to gain further insight into their visions for the future.

Common themes that emerged revolved around the role of data ownership, transparency in data collection and usage, and the need for policy creation and implementation to regulate the private sector who play a major role in digital health and security.

The appreciative inquiry model allowed the authors to further explore the structures necessary to realise their visions. The authors highlighted the need for digital education to bridge the digital divide, seamless co-operation among stakeholders, as well as a bottom-up decision-making system where those at grassroots level are able to decide how their data can and should be used.

References

Bateman M., Duvendack M. and Loubere N. 2019. Is fin-tech the new panacea for poverty alleviation and local development? Contesting Suri and Jack's M-Pesa findings published in Science. *Review of African Political Economy* 46(161): 480–495. https://doi.org/10.1080/03056244.2019.1614552

Fabayo J.A. 1996. Technological dependence in Africa: Its nature, causes, consequences and policy derivatives. *Technovation* 16(7): 357 – 270. https:/doi.org/10.1016/0166-4972(96)00013-2

ITU DataHub. (n.d.). Mobile phone ownership - Mobile phone is becoming ubiquitous. https://www.itu.int/itu-d/reports/statistics/2021/11/15/mobile-phone-ownership/ [Accessed on 18 September 2023].

Next Generation Foresight Practitioners (NGFP). 2021. *African Digital Futures*. https://digitalfutures.nextgenforesight.org/

Signé N.N and Ndung'u L. 2020. 8 January. The Fourth Industrial Revolution and digitization will transform Africa into a global powerhouse. https://www.brookings.edu/research/the-fourth-industrial-revolution-and-digitization-will-transform-africa-into-a-global-powerhouse/

Srasra O. 2022. 17 March. Towards an African Narrative on Digital Sovereignty – Digital Society Blog. *HIIG*. https://www.hiig.de/en/african-digital-sovereignty/

World Economic Forum. n.d.*4IR-ready manufacturers develop both people and technology*. https://www.weforum.org/agenda/2021/12/4th-industrial-revolution-people-machines/ [Accessed on 27 October 2022].