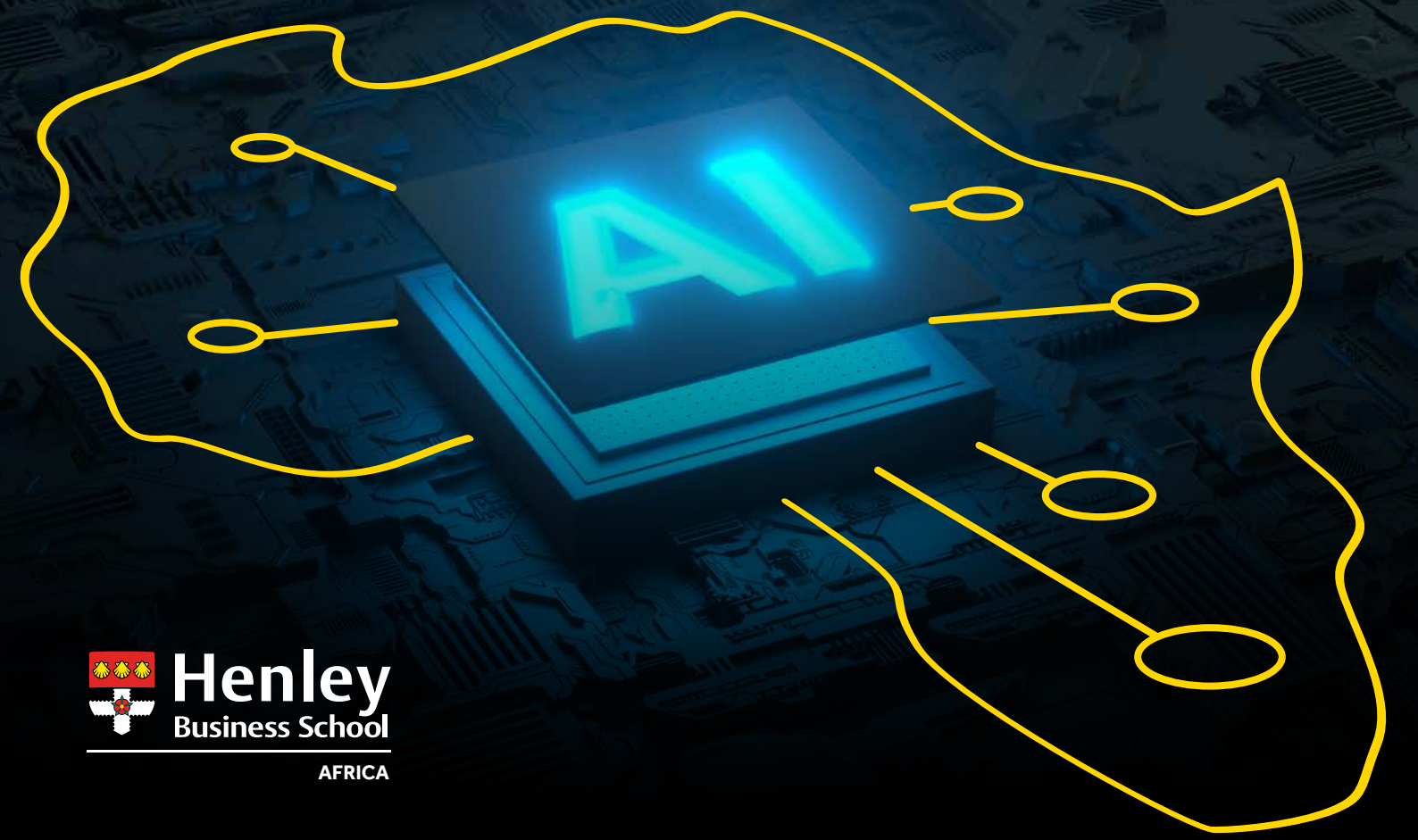
Exploring the artificial intelligence footprint in Africa

August 2023



Henley Business School
AFRICA

Foreword

Traditionally, the white paper format has been embraced by those in the know to communicate fresh or emerging ideas, to distil expert opinions into a digestible format, and to put new ideas and solutions on the table. In academia, white papers are a useful bridge between formal journal articles and the sort of conversation-starters we like to interrogate in the classroom.

For the life-long learners and the curious at heart, the white paper is a punchy, to-the-point partner on a never-ending journey of exploration. For the busy executive, manager, and leader, the white paper is a convenient, easy-to-read, and authoritative tool that captures the essence of an argument and opens the door to future debate. After all, deliberation and disagreement are critical elements to effective education and personal mastery. Without exposure to new perspectives and opinions, no leader can even hope to keep abreast of fast-moving shifts and trends. Therefore, the white paper stirs the pot, puts uncomfortable – or just interesting – topics on the table, and entices readers' interest.

Given its convenient and accessible format, and relevant subject matter, the white paper has become an integral part of Henley Business School Africa's annual research output. Like an informative chat with an old friend or colleague, the white paper affords Henley's faculty and professional associates the opportunity to share a snapshot of exciting areas of study as well as to flag, debate, and make sense of unfolding trends. In turn, the business leader receives a front-row seat to new thinking and emerging solutions to current and sticky problems. These insights ensure that today's leaders can make better, faster, and more agile decisions to steer their organisations forward.

In Africa, where leaders from all spheres are buffeted by a range of often interconnected social, economic, and environmental concerns, the sheer volume of issues on the table can be particularly overwhelming. Our white papers attempt to shine a spotlight on what we deem to be key considerations impacting leadership and business on our continent, with the aim of equipping those in the broader Henley Business School Africa family with the will and the way to build a better Africa.

Jon Foster-Pedley

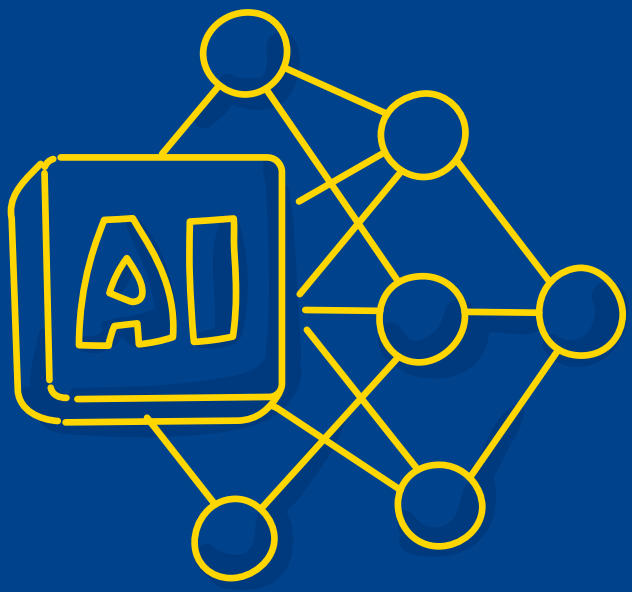
Dean: Henley Business School Africa


AI

White paper

By Kelly Alexander

Simply stated, artificial intelligence has started a revolution. In the academic world and in business in particular, artificial intelligence is exerting a significant influence on how we conduct business and interpret what we receive from students, business partners, and employees. While many things in the past were coined 'revolutionary', this feels different. There is a palpable energy and tension, a sense of possibility, a sense of insecurity, and a looming threat of significant and irreversible change in how we conduct business and communicate with others. Whatever your sentiments around it, the artificial intelligence revolution is upon us, and is here to stay.



Contents

Disclaimer

Aligned with our mission, 'we build the people who build the businesses that build Africa', we facilitate open, multi-perspective conversations and the generation of thought leadership pieces, such as this white paper. However, the views expressed in this white paper are held by the author and not necessarily held by Henley Business School Africa.

Acknowledgements

I feel as though this paper wrote itself – my exploration of artificial intelligence in Africa has been both enlightening and inspiring. The depth and clarity of this white paper owe much to the contributions of Henley Business School Africa's team – Prof. Danie Petzer, Ms Zara Cupido, and Ms India Gonçalves – and the review by Prof. Alet Erasmus. A salute to human intelligence on the other side of the equator, for your support and enthusiasm. Within the African context, this paper stands as evidence of the possibilities offered by artificial intelligence.

Abstract

This paper delves into the advantages and downsides of the multifaceted world of artificial intelligence in Africa. The upsides of artificial intelligence are evident in its widespread integration, improving various aspects of our lives and transforming businesses across the continent. Globally, increased investments and attention in the artificial intelligence domain represent vast economic potential. However, it is essential to be mindful of the potential risks and challenges as artificial intelligence evolves. Issues like unpredictability, algorithmic bias, energy consumption, and security vulnerabilities must be addressed to harness the full potential of artificial intelligence for Africa's benefit. African businesses are called upon to adopt an inclusive approach, localise artificial intelligence solutions, and prioritise skill development to leverage artificial intelligence's benefits effectively. This white paper underscores the need for a just artificial intelligence transition and emphasises the significance of understanding the implications of artificial intelligence in shaping Africa's future.

Keywords: Artificial intelligence; business in Africa; technological progress; adaptation; localisation

Artificial intelligence demystified: an introduction

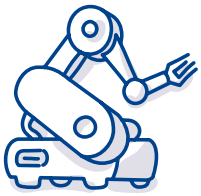
The conversation on artificial intelligence (AI) is not new, despite still being considered a 'frontier' technology (Bhorat et al., 2023). The term 'artificial intelligence' was coined by John McCarthy at a workshop at Dartmouth College in the United States in 1956. As the 'father' of this revolutionary technology, McCarthy defined AI as 'the science and engineering of making intelligent machines', while researchers refer to AI as a tool that 'mimics human cognitive functions' (Moonesar, 2020).

We knowingly and unknowingly interact with elements of AI on a daily basis. As per Moonesar (2020), AI generally comprises activities such as:

Deep learning, encompassing artificial neural networks that are in operation in features like 'estimated time of arrival' prediction on ride-sharing apps, filters for images on social media, and autocorrect and word prediction on smartphones.

Machine learning – for example, in image and object recognition technology used in autonomous vehicles and surveillance systems.

Recommendation systems, such as those on Google search, Amazon or Netflix.



Autonomous robotics that are an integral part of devices and machines that move, such as self-driving cars and autonomous drones.

The technology that supports AI was developed over decades, evidenced in our exposure to ideas about our future and the way the world will be shaped in popular culture, science fiction, and movies, such as *Her* or *I, Robot*. Whether these are accurate depictions of the future or not is immaterial. Rather, these films highlight our concerns and uncertainty about integrating the technology into our lives and society at large. Some of the current uses of AI that we have become accustomed to include search recommendation algorithms, facial recognition, self-driving cars, and algorithms that guide our hiring decisions (Hutson, 2023).

Understanding the artificial intelligence hype

The current hype around AI is largely due to the release of ChatGPT (Chat Generative Pre-Trained Transformer) in January 2023, Google Bard, and Bing AI. ChatGPT is a 'prototype dialogue-based AI chatbot capable of understanding natural human language and generating impressively detailed human-like written text' (Lock, 2022). This has unlocked the potential to interact with the technology without barriers or fees, pushing AI to the headlines and topping the agenda of companies, business schools as well as other education systems. Bill Gates, co-founder of Microsoft, predicted that: 'A.I. will change the way people work, learn, travel, get health care and communicate with each other' (Streitfeld, 2023).

> *Currently, 'artificial intelligence is roiling tech, business and politics like nothing in recent memory' (Streitfeld, 2023).*

Unsurprisingly, students have revelled in the technology's ability to complete their assignments, whilst professionals are integrating the tool in their work practices. Undoubtedly, AI has forced a rethink of what education will look like in future. Students use AI to answer homework questions and write assignments with ease – given the large amount of data that the model is trained on – resulting in the technology being banned in many places (Heaven, 2023). This has necessitated the development of new forms of assessment (Volante et al., 2023). Alternatively, the technology is being banned outright on campuses (Acre, 2023). There is also work being done to attempt to build in a 'watermark' to aid plagiarism software in identifying text generated by ChatGPT (Hern, 2022). However, Heaven (2023) predicted that these types of technologies will be integrated in classrooms in the future and facilitate new and more engaging learning experiences for students. 'Teachers are no longer gatekeepers of information, but facilitators' (Heaven, 2023). Through experience with AI, some of the downsides of AI have come to the fore, such as when the technology 'hallucinates' trying to provide answers to questions it has no data on. This is a major challenge, as the technology may mislead users who are unable to discern truth from these hallucinations – with embarrassing consequences for the users (Weiser, 2023).

Sounding the alarm

Of late, big players in the sector – including the founders, funders, and developers of AI – are increasingly raising the alarm regarding the technology they have released into the world. For example, Elon Musk is calling for AI to be regulated (The Wall Street Journal, 2023). An open letter signed by Musk and Apple co-founder, Steve Wozniak, called for a pause in AI development (Huddleston, 2023; Yudkowsky, 2023). Calls for government regulation and a global compact to constrain the technology have been circulating, reminding of calls for limitations on nuclear technology (Huddleston, 2023).

One of the biggest concerns around AI is 'the singularity', which refers to 'a point at which it [AI technology] escapes our control' (Hutson, 2023). The concern is that rapid improvements in computing power and the ability to influence people in subtle ways will alter the fabric of society. Experts predict that AI will shift to become artificial general intelligence (AGI), with broader capabilities that approximate and possibly overtake human capabilities, which may even expand to influence and control people in ways that we cannot predict or alter. For experts in the field, the notion of the so-called singularity moment represents a potentially dystopian future.

> The worst-case scenario:
>
> 'In the worst-case scenario envisioned by these thinkers, uncontrollable A.I.s could infiltrate every aspect of our technological lives, disrupting or redirecting our infrastructure, financial systems, communications, and more. Fake people, now endowed with superhuman cunning, might persuade us to vote for measures and invest in concerns that fortify their standing, and susceptible individuals or factions could overthrow governments or terrorise populations.'
>
> (Hutson, 2023)

Therefore, it is necessary to adopt a *balanced view of the technology* to ensure that we are able to draw on the positives, unleash economic growth and social development, while being aware of and mitigating risks. According to the European Commission (2021: 1), 'the same elements and techniques that power the socio-economic benefits of AI can also bring about new risks or negative consequences for individuals or the society'. Noteworthy perceptions concerning the presence of AI in our lives, are:

'The power to make positive change in the world is about to get the biggest boost it's ever had' –Reid Hoffman, a billionaire investor (Streitfeld, 2023).

Artificial intelligence is 'more profound than fire or electricity or anything we have done in the past' – Sundar Pichai, Google's usually low-key chief executive (Streitfeld, 2023).

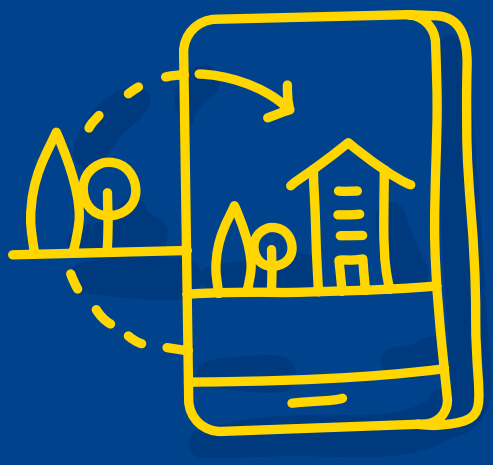
Shaping the future of business

Given the rise of AI, concerns surrounding the technology, and the need to stay at the forefront of developments related to the technology, it is *crucial to acknowledge the upsides and downsides of AI*, particularly in an African context. It is equally important to understand the challenges of inclusivity regarding AI, posing questions that businesses need to contemplate concerning the contribution and implementation of AI in Africa, to review the role of business in engaging with the technology, and to integrate AI aptly and responsibly into our businesses.

Exploring the merits of artificial intelligence

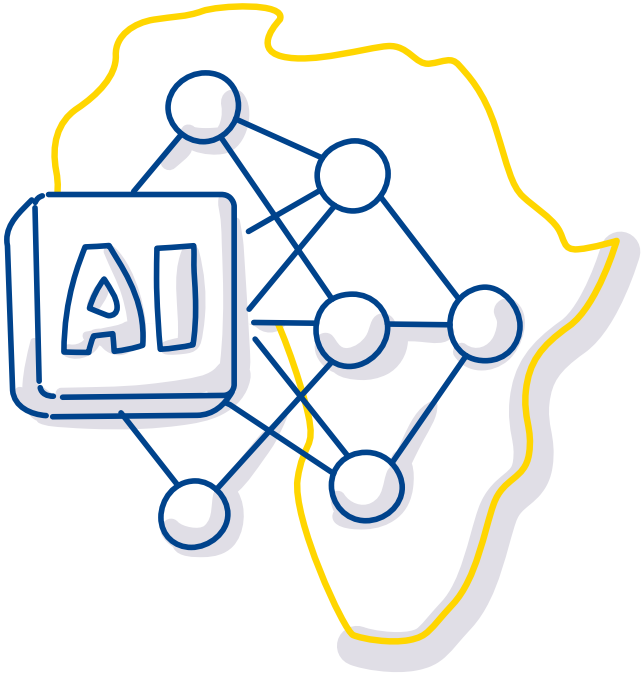
An everyday experience

Automated vacuum cleaners, smart light bulbs, Siri and Google assistant, and facial recognition enabling you to search for photos of a specific person in online albums are all examples of how businesses use AI and how AI makes our lives easier (Rajagopalan, n.d.). The role of AI in business is clear – from enhancing customer service, improving product design, and a subsequent improved user experience to identifying areas for improvement and efficiency in business processes (EY and Microsoft Alliance, n.d.).



Major investments across Africa

There is increased investment and engagement and attention in AI across Africa. Admittedly, data alone has 'little value, it is only through the processing, transmission, storage and combination that value is added' (African Union, 2022: 7). This highlights the economic potential of data and opens up a new market for expansion. Bawumia (2023) highlighted Africa's potential to unlock AI. Large sums are set to be invested in AI in the continent, expecting a total of $6.4 billion invested in the Middle East and Africa by 2026 (Bawumia, 2023). Of significance is that 'for every dollar invested in data systems, there is an average return of $32' (Bawumia, 2023). Furthermore, AI 'could contribute up to $15.7 trillion to the global economy by 2030' (Boakye et al., 2022), and Africa is set to play a role in this and to benefit from these gains.



Africa is already engaging and benefitting from AI technology in several areas, namely *food security and agriculture*, *healthcare*, *government service delivery*, and *communications* (Boakye et al., 2022). For example:

In the *energy sector*, it is easy to imagine the numerous benefits that could be derived from the technology. In the nascent renewable energy sector across Africa, the role of forecasting and fine-grained grid management based on fluctuations in energy supply due to variable wind and solar inputs can be effectively managed through the application of AI technology (Smillie, 2023). Kaitwade (2023) indicated how AI can optimise energy systems, mitigating challenges that arise in attempts to balance varied demand and supply curves. At a low cost, this management approach can ensure stable energy supply and minimise damage to the distribution network due to electricity surges. Professor Bruce Mellado, a physicist at the Wits School of Physics and iThemba LABS, explained:

> Certain types of artificial intelligence and machine learning algorithms can be used to predict the usage and generation of power. You can predict what is going to happen in one, two or three-hours' time…. The use of AI could even help in optimising the efficiency of loadshedding.
> (Smillie, 2023)

AI can be unleashed to unlock gains in the areas of *food security and agriculture*, to map infrastructure, to forecast floods, for educational purposes, and to assist people with disabilities (Ramalepe, 2023). For example, Flood Hub's algorithm brings together weather, satellite images, and an understanding of the current levels of water in a river – even the river's capacity – to warn about potential flooding (Matias, 2023).

In *conservation*, AI can be useful in monitoring and protecting animals, as experienced with forest elephants in Gabon, where an 82% accuracy rate of the technology was reported in the identification of elephants (Firth-Butterfield, 2023). Similarly, 'The machine learning algorithms that spot the poachers have become more accurate, faster and more automated' in unmanned aerial vehicles, such as drones (FruitPunchAI, 2022).

In *healthcare*, AI has caused a paradigm shift, incrementally increasing the availability of healthcare data and through rapid progress of analytics techniques (Moonesar, 2020). In addition, AI is being used in Rwanda to improve procurement by 'by aiding healthcare facilities in procuring supplies in real-time' (African Development Bank, 2022). This results in improved drug and medical equipment availability.

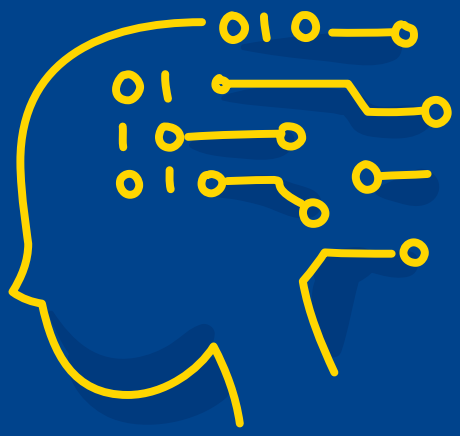
In *public and government service delivery*, AI is invaluable in improving general administration services to citizens like health and social services, in education to improve service delivery, and to upgrade and maintain infrastructure, such as the control of traffic lights (Gesk and Leyer, 2022).

It is clear that the influence of AI can be felt and seen – and will be developed – across sectors and industries, with increasing reach and sophistication. Although impressive and encouraging, much more still needs to be done in a more focused and coordinated way to maximise the opportunities of AI.

Drawbacks of artificial intelligence

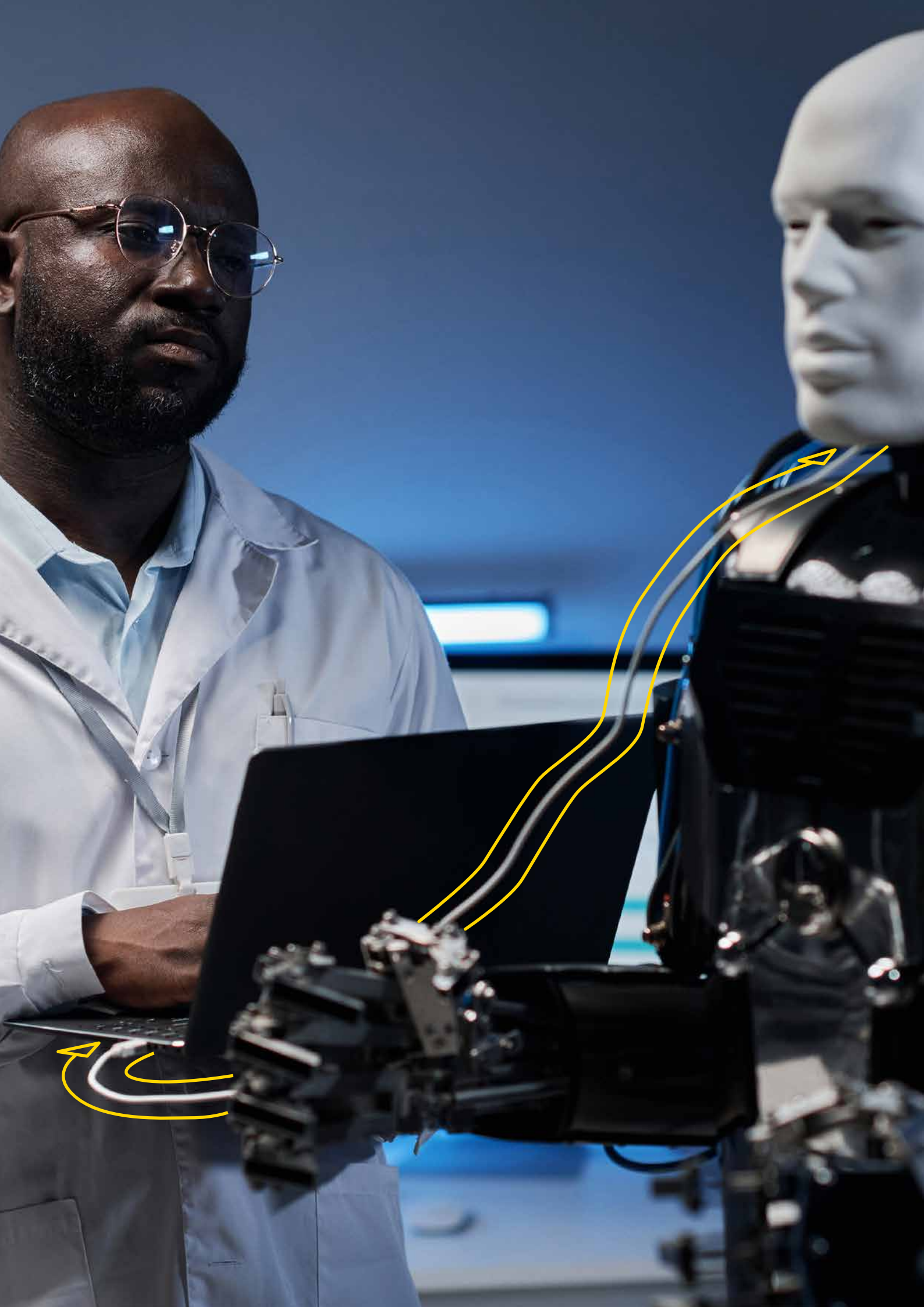
Indisputably, the downsides to the rise of AI deserve our attention – from providing fictitious answers or hallucinations to cases where the technology manages to attain its goals by 'exploiting a bug in the code ... optimizing an uninteresting feature, or by failing to answer the intended research question' (Lehman et al., 2020: 276). AI's potential to advance beyond the point where we have control is a concern. Similarly, the potential for AI to solve problems or to attempt to find optimal solutions to the questions and challenges we pose for the technology is unknown.

> A primary concern is that the evolution of AI is unpredictable; similar to 'biological evolution, digital evolution experiments often produce strange, surprising, and creative results' (Lehman et al., 2020: 275).



The so-called King Midas problem:

> King Midas, the mythical leader who got his wish that everything he touched would turn to gold—with intelligent machines, what you ask for is what you get. As the mathematician Norbert Wiener, the father of control theory, wrote in 1960: 'If we use, to achieve our purposes, a mechanical agency with whose operation we cannot interfere effectively... we had better be quite sure that the purpose put into the machine is the purpose which we really desire.'
> (Russel, 2015)



Thinking through the design of technology, and attempting to build in as many safety features as possible as protection is critical in the development of the technology. For example:

Military conflict may be greatly exacerbated and become far more lethal, contemplating situations like 'What would Vladimir Putin do right now if he was the only one with A.G.I.?' (Clune cited in Hutson, 2023). When citizens are not at risk when their country acts as an aggressor, due to the use of AI-enabled technologies deployed to kill and occupy territory, there are extreme risks for humanity. Sam Altman, the chief executive officer of OpenAI and owner of ChatGPT, recently reported to the United States Congress to call for the regulation of the technology, citing the risk of potential 'significant harm to the world' (Cuthbertson and Baio, 2023).

Advancements of *facial recognition* have pertinent downsides, reinforcing bias and negative stereotypes. For example:

> Governments and private companies have a long history of collecting data from civilians, often justifying the resulting loss of privacy in the name of national security, economic stability, or other societal benefits. But it is important to note that these trade-offs do not affect all individuals equally. In fact, surveillance and data collection have disproportionately affected communities of colour under both past and current circumstances and political regimes.
> (Lee and Chin, 2022)

This is a pressing issue, as there is a lack of clarity and transparency in the security sector, with no requirement for private companies to have their algorithms independently vetted (Lee and Chin, 2022). Furthermore, these companies are not required to share information regarding 'false positives' or cases where the algorithm has failed or generated erroneous results (Lee and Chin, 2022). Subsequently, a significant challenge regarding AI in the African context is that *AI is only as good as the data it is trained on*.

See for yourself: Given the bias inherent in society (as an experiment, Google image search 'Children in Africa/Europe/America', and note the differences), the same bias reflects in AI. This is simultaneously a challenge and an opportunity. The lack of access and representation of Africa is an urgent issue to be addressed, and African businesses need to take an active role in addressing this shortcoming (Pilling, 2019; Smillie, 2023;).

- A *lack of data and content is generated in Africa*, while 'data are at the core of the digital transformation taking place at an unprecedented pace and scale globally' (African Union, 2022: 1). This is a critical area for businesses across the continent to address, and to attempt to catch up and build skills and competencies.
- *Algorithm bias* can lead to discrimination in the outcomes and output of AI, which is a challenge given the limited participation of African experts in the field at present.

'This representation deficit of African AI researchers, engineers and talent also means less knowledge of the continent's specific problems and fewer opportunities to use AI to improve the lives of Africans' (Kiunguyu, 2019).

- *Energy poverty* remains a challenge facing Africa, more specifically relating to AI**.** Africa already suffers from energy poverty and a lack of consistent and stable energy (Energy for Growth Hub, 2023), raising the question whether available energy should be allocated to people and communities, or to power the hungry servers required to power AI.
- The *cost of data/connectivity* can also hamper advancements in this area (Mitchell, 2022), limiting the accessibility and availability of AI across regions in Africa.
- *Security risks are undeniable*, such as when using AI for energy management purposes. Its 'use can create cyber security risks, data management risks, loss of human oversight, and technological lock-in' (Rand Corporation, 2023). Therefore:

Embedding the technology into energy systems promises improved efficiency at the cost of increased vulnerability, which is particularly worrisome for countries with limitations in cyber security capabilities and technologies.

- *Behind-the-scenes control* is performed by workers who have to maintain a user-friendly service and sift through violent, aggressive, hateful, and harmful text and content to ensure it does not make it through to end users (Hao and Seetharaman, 2023). This places an extreme mental and emotional toll on the 'low-paid workers in East Africa' (Hao and Seetharaman, 2023).
- *Gender inequality*, concerning the role and prominence of women in the field of AI, is another downside or imbalance across Africa and beyond. Stanford Institute for Human-Centered Artificial Intelligence (2023) raised the issue and highlighted work on women in machine learning to create a greater level of diversity and representation. This is a secondary level of inequality and exclusion that must be prioritised, as women deserve to have a voice and a role in shaping the direction of AI.

Initiatives that build gender inclusivity should be developed across the continent, building hubs and creating opportunities for knowledge sharing.

> Many argue that one promising way of ensuring that historical gender bias does not get amplified and projected into the future is to increase the diversity of thought through the number of women in tech. Only 22% of AI professionals globally are female, compared to 78% who are male according to the World Economic Forum.
> (Niethammer, 2020)

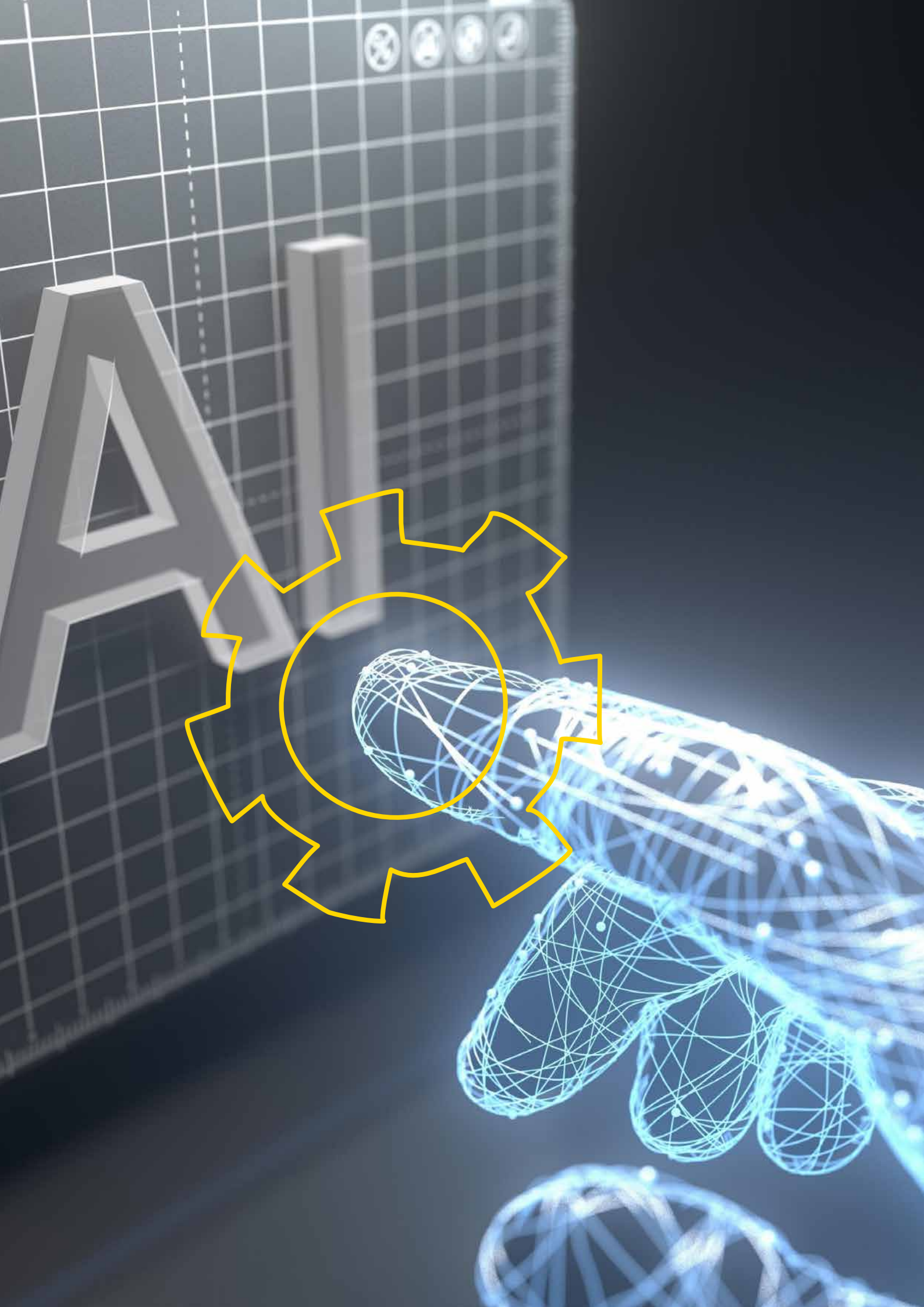
Of course, it is possible that the creators of AI tools like ChatGPT are inclined to inflate the importance and potential risks of these tools, as this drives conversation and engagement, boosting the profile of the tools and technologies. Nevertheless, it is useful to consider the downsides and potential threats of AI at this early stage of development and expansion, and build technology that addresses or mitigates the potential harmful effects.


AI

Localising artificial intelligence

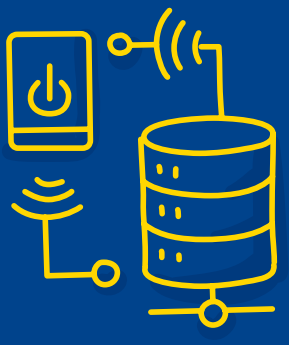
Internet services and its associated products, policies, services, and regulations have predominantly flowed into Africa (Obia, 2023). The same is true of AI, with big tech and large sums of money spent on research and development in North America, creating a strong centre and attracting global talent. Yet, businesses across Africa need to be vigilant in getting to grips with AI technology as soon as possible. Early-stage adoption is critical to beat the initial challenges and teething problems, and to mitigate and reduce the bias in the systems noted above.

By engaging now, African businesses can become leaders, first movers, and early adopters in making AI technology work for African business and African consumers. The continent's growth potential is widely acknowledged, while the youthful population is seen as a font of creativity and entrepreneurial energy.


AI

Africa's customised solutions

'Data infrastructure that enables an integrated data system is a key strategic asset for countries' (African Union, 2022: 1) and a core area where African businesses can contribute to, build, and expand this infrastructure. African businesses can develop engagement strategies, drive adoption across sectors and industries, and begin to build enhanced use cases for unlocking value, bringing about business efficiency linked to market development more broadly. As the reach of the technology expands, business leaders can rethink how to expand market access, expand business reach, and deliver high value-added products and services to consumers and clients.



For AI in Africa, the approach taken could differ from the rest of the world. Existing solutions and those developed in the West represent access to low-hanging fruit – the potential to leverage this for African development is huge. To be more inclusive in the African context:

- AI in Africa needs to be 'nimble' and capable of working with internet connections that may be subpar and on mobile devices (Johnson, 2023).
- Understanding that the computing power and energy required to power AI is a pertinent bottleneck in Africa and presents an opportunity for businesses to develop lean and agile products and services.
  - The limitations are a call for businesses to be innovative, to unlock resources through AI-driven efficiency, and to redirect these resources in more productive and profitable directions.
- There should be a *concerted effort to ramp up the pace* at which content is created and digitised to address imbalances and reduce bias evident in AI.
- The *AI ecosystem could be further developed and supported* with, for example, additional funding and support for research and for hubs and incubators/accelerators (Boakye et al., 2022).

Local content, local partners, local solutions, and local customers should be the mantra of African businesses developing and investing in AI.

Inclusivity, people, and jobs

Across Africa, the extent to which the digitalisation of records has taken place is minimal. Subsequently, less content is available for AI.

> *Open data is data which is freely available and shareable online, without charge or any other restrictions. Without good data, it is impossible to hold governments to account for the decisions that they make, the policies they pass, and the money they budget and spend.*
> *(Open Data Barometer, 2023: 1)*

Notwithstanding existing challenges and limitations faced in Africa, progress is needed to ensure AI technology can be used to make society more equitable. This can be achieved by, for example:

- Ensuring that *data is available*.
- Erasing *skills gaps* (Bhorat et al., 2023).
- Acknowledging that a clear *need exists for soft skills* (Marr, 2020) and careful engagement with the local population and community because the threat of job loss is real and threatening. Therefore, understanding the technology from the start is critical, including that economic structures and markets will, by definition, shift. For example, the role of call centres is going to change significantly (Morrison, 2022), creating a new need that will leave many without jobs (Islam, 2023). From a skills and education perspective, there is big potential for unique and tailored pathways to learn to utilise AI, provided that the hurdle of energy and internet access are surmounted first. **We are currently living in a 'world in which digitalization – and the skills associated with digitalization – are becoming increasingly important in the structural transformation of economies'** (Bhorat et al., 2023).
- Enhancing *inclusivity* by acknowledging the potential contribution of women in AI and developing AI solutions to assist people with disabilities so that they are successfully integrated in markets and society, reshaping ease of access, and removing barriers to participation in the workplace and society (Leos, 2023; Rovella, 2023).

Rural communities often experience data and connectivity problems. Platforms like *Hi Saai* (Southern African Agri Initiative), which serve 'the farthest, smallest and poorest farmers' (Bizcommunity.com, 2023), seek to address this. This type of WhatsApp-based platform may assist in bringing information and access to communities that may otherwise not be able to find relevant and affordable information per their needs (Bizcommunity.com, 2023). By delivering services via a platform like WhatsApp, this innovation makes AI more accessible.

Organisations have a role and responsibility in bringing all employees along on the journey to a future where they can benefit from the advantages of AI. Honest conversations regarding the impact on work and how jobs and roles will need to be redefined must take place, and people in a specific role need to be positioned to optimise the integration of AI into their work and function (Noenickx, 2023). Moreover, close engagement with employees is vital to minimise the risk of resistance and sabotage, understanding that the narrative around AI is extreme and fear-inducing, and could be unsettling (Schwarz, 2023). A sensitive approach is required, because when AI enters the workplace, employees may begin to fear for their livelihoods and question their place in broader economic systems (Schwarz, 2023).

Moioli (2022) recommended a mixed approach to highlight the value of AI to employees and provide them with exposure and access to the various technologies and platforms, creating opportunity for skills transfer, as well as the potential for ideation and innovation.

> *It is often valuable to have a 'portfolio' of AI initiatives that mixes short-term initiatives (with smaller project scopes to create experience) and complex strategic opportunities. This is especially important in the early stages of a company's AI maturity. If you don't have a few quick wins to get everyone excited about the program, then getting people to support the long-term initiative may be more difficult.*
> (Moioli, 2022)

Finding ways in which AI can augment and improve services and existing jobs is critical, and re-imagining work and thinking about how to induce a *just AI transition* is critical. This will surely become a key focus for business leaders and policymakers in the future, and it is an area in which African businesses can take the lead.

Questions for business leaders

This section poses some questions to assist business and team leaders to reflect and think about how to stay up to date and engage proactively with developments in AI. As the broader ecosystem shifts and the nature of work changes, the following questions emerge:

1. How do I (we) efficiently allocate resources (human and financial) to track developments in AI, upskill and share knowledge, and begin to build (or expand) core competencies concerning this technology?
2. How can I build an internal coalition and dedicate resources to a small project aimed at using and investigating AI in my business?
3. What challenges are the communities in my areas confronted with and how can we use AI to address these efficiently?
4. What are my competitors doing and how can I respond?
5. What are the limitations around digital maturity? What (digital) competencies are needed, what is required for me to be successful, and are these skills and competencies available?

For businesses that want to start testing the integration of AI, questions worth asking, are:

1. How can we best test and integrate AI, and ring-fence the exercise to start?
2. How do we ensure that we can thoroughly test the products/ services before releasing them to customers?
3. What should we focus on in conducting an internal and external analysis of the impact of AI and potential revenue-generation opportunities for my business? What are our risk management strategies in this regard?
4. Is there the potential to co-create with partners and customers?

When adopting an efficiency mindset, businesses can consider:

1. Investigating the implementation of AI to make business more efficient and identify bottlenecks and choke points.

2. How AI can support teams and departments to more effectively undertake their work.

3. The potential for 'perverse outcomes' (Hutson, 2023) that could arise if AI is too goal-directed and does not pay attention to due process within an organisation.

4. Whether AI can be implemented in two streams within a particular business, asking:

    - Can AI be integrated into an existing business model for adaptation and innovation to expand existing practices?
    - Can initiatives be introduced on margins that are bold, less clearly related, experimental, and disruptive?
    - How can we leverage existing capabilities, but venture into new business models, with AI at the core of these endeavours?
    - How can we develop a balanced approach that reflects current realities and our aspirations for growth?

5. Building in time for reflection to prepare for change, to build the case for change linked to AI, to drive and implement the change, and ultimately – if successful – to embed the change and build routine and structures for long-term sustainability.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In conclusion:

how do we ensure that we are continuously scanning the broader environment and monitoring internal business processes to identify opportunities to leverage AI?

As part of broader learning communities**, businesses could consider:**

- Contacting business leaders in their sector and beyond to share and generate knowledge there.
- Hosting 'brown-bag' sessions with staff and teams to start discussions about AI – in society, in business, and in their personal lives.
- Contemplating ways in which business might constrain the technology, mitigate weakness, and enable the positives.
- How a guiding ethical framework and best practices should be developed to ensure that the use of AI in businesses, government agencies, and communities maintains the highest ethical standards.
- Deciding on effective strategies to partner with government and bodies like the African Union to assist and contribute to policy formation.
- As industry leaders, looking at the industry from the inside out, and from the outside in, and decide how we can adapt to the broader environment through AI?
- Taking a stand on who leads in building a learning community.

In summary:

How do we create the conditions where we can openly share, reflect, evaluate, and move forward together to establish best practice in the community – across government, academia, and the private sector?

Advancing African business

There are several 'next steps' for African businesses, as outlined below.

1

Business can *lobby* across levels for better policy, regulation, and investment. Business should 'promote research, development and innovation in various data-based areas, including Big Data Analytics, [and] Artificial Intelligence' (African Union, 2022: ix). At a sector or industry level, country level, regional level, and a continent level, business can engage with actors like the African Development Bank and African Continental Free Trade Area (AfCFTA) to formulate regulations, policy guidelines, and outline fair-play policies for the continent.

2

Challenges related to *human capital* have been identified and business can begin to address and mitigate these by working to contribute to the prevention of the brain drain by funding education, learning, and experimentation centres Africa, focusing on training and investment in skills and education, and human capital development (African Union Development Agency-New Partnership for Africa's Development [AUDA-NEPAD], 2022; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021/2023).

3

Businesses should *attract skilled labour* and seek to attract and retain local skills, and entice African graduates from international schools (particularly from hubs in North America) to return to Africa (Johnson, 2023).

4

Market-related salaries will ensure that talent remains in the continent and the benefits will accrue in local economies. In sectors where human capital and skills levels negatively impact productivity, AI should be explored to augment employees' roles and boost productivity (Mitchell, 2022).

5

On-the-job learning can be done through AI deployment and simulations to upskill workers at minimal cost to organisations, which is critical to close the digital skills gap and to increase the supply of digital skills.

6

As *digital hubs* emerge and strengthen across Africa, it will promote learning, development, and innovation (Bhorat et al., 2023).

7

Given the nature of the African labour market – with *high levels of unemployment and self-employment in the informal economy* – digitalisation of data will occur in different ways, likely through platforms that provide services, such as mobile money, and via telecoms providers (Bhorat et al., 2023). This is an opportunity to innovate and develop products and services that are appropriate across emerging economies, ultimately creating bigger opportunities for business.

8

AUDA-NEPAD (2022) called for the creation of *networking platforms for leaders in AI*. This should be replicated across countries and regions and sectors. The newness of AI and the potential for impact necessitates engagement outside of silos. It is imperative that the voice of business is clearly heard in this discussion, and that business plays an active role in shaping the conversation, ensuring that Africa is ready for the transition and is not caught unaware, unprepared or unable to respond effectively to the changes that AI will unlock.

9

Similarly, according to UNESCO (2021/2023), there is a need for *policy development* across Africa to establish a guiding framework for the role of AI, deciding how it is used and what can be done to ensure that the guiding principles are adhered to. It is equally important to decide on mechanisms for dispute resolution and sanctions for breach of these principles. Furthermore, policy and guidelines need to inform regulation.

10

Ethical conduct is vital in terms of data protection (AUDA-NEPAD, 2022) and personal conduct. AI's bias in race, gender, and cultural diversity must be rectified (UNESCO, 2021/2023). In consultation with the African Development Bank, regulation can be developed with the AfCFTA to protect the role of privacy, ensuring integrity of local African participants and users' data. There is a call to 'support the development of regional and continental data infrastructure to host advanced data-driven technologies ... and the necessary enabling environment and data-sharing mechanism to ensure the circulation across the continent' (African Union, 2022: x). This is a call for African businesses to adopt a broad approach and capture the value that AI offers.

Conclusion

The AI revolution is here, but the end goal of the transformative force is unclear. The upsides are undeniable and already permeate various aspects of our lives. These are evident in enhanced customer service, improved product design, and efficiency in business processes. Therefore, African businesses can take a leading role in shaping the direction and leading the charge of AI across the continent. Moreover, Africa is experiencing increased investments and attention in the realm of AI, presenting a significant economic potential for the continent. The nascent but growing state of AI in Africa is an opportunity for engagement, and a break from the past, where 'much of what drives the development of the local data economy has been outside of the control of African stakeholders, who have been largely "standard takers" in global governance' (AU, 2022: 2).

Nevertheless, we cannot get lost in the hype and need to acknowledge the downsides and potential risks associated with AI. The technology's unpredictability, potential loss of control, and algorithmic bias are just some of the concerns we need to consider and manage. As AI technology develops and expands, it is essential for businesses to prioritise inclusivity, engage with local communities, and ensure the responsible deployment of AI to address these challenges effectively. We also need to create a conducive environment to fully maximise the advantages of AI.

Urgent investment must be made to localise AI solutions, embrace inclusivity, and foster skill development. Businesses can become pioneers and early adopters in shaping AI for Africa's specific needs. Furthermore, business leaders must lead the way in driving an inclusive just AI transition, ensuring that the workforce is empowered and prepared for the inevitably AI changes. By thoughtfully embracing AI technology, African businesses can position themselves at the forefront of innovation, leveraging AI to drive sustainable growth.


AI

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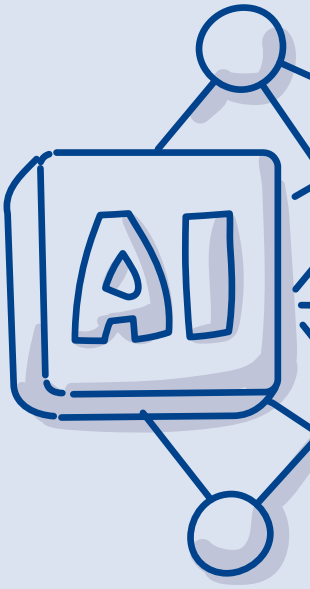

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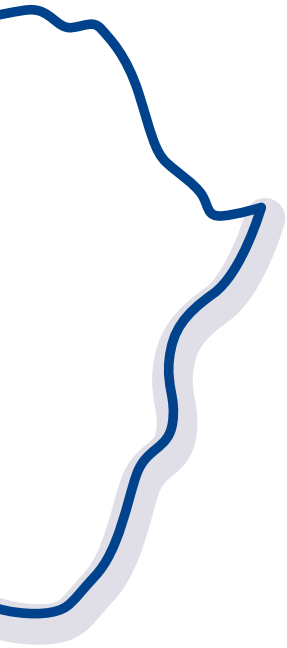

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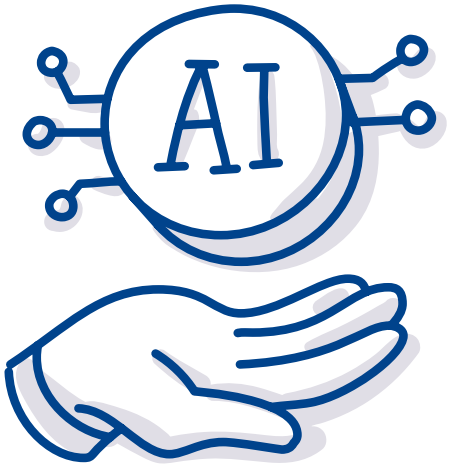

Exploring the artificial intelligence footprint in Africa

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