AI POLICY BLUEPRINT FOR AFRICA

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TABLE OF CONTENTS

ii. | **AI POLICY** Blueprint for Africa

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EXECUTIVE SUMMARY

The use of artificial intelligence (AI) can deliver extraordinary productivity and development gains for African economies and firms, streamline and scale government service delivery, and help African economies attract foreign investment. Recognizing this, in June 2024, African ICT and Communications Ministers endorsed a landmark Continental AI Strategy and African Digital Compact. A number of African governments have also created their AI strategies.

However, AI use and AI policies are still quite nascent in Africa. Most countries have yet to adopt an AI strategy or policy, and the adoption of key policies conducive to AI such as data privacy and transfer and consumer protection laws, fair use copyright rules, and national AI skilling programs is still a work in progress in the Continent. In addition, while African firms and youth report considerable gains from AI, they also share concerns about data privacy and cybersecurity related to AI use, and about the specter of data localization that would limit access to data for building robust AI models and testing AI models across jurisdictions.

Google's 2024 AI Sprinters report underscores the pivotal role of AI and digital policies in driving AI adoption across African firms, agencies, and economies. The purpose of this report is to build on the AI Sprinters and develop an AI Policy Blueprint for Africa. This Blueprint is aimed at supporting the operationalization of the pioneering work already carried out at continental and national levels in Africa to promote the adoption and use of AI at scale.

Based on survey data with 2,000 African firms, students, and other stakeholders and an analysis of 50 African countries' adoption of pro-AI policies, the Blueprint has four pillars:[1]

- **Infrastructure: Investing in high-speed, reliable digital connectivity and data centers,** including through promoting digital and energy infrastructures and cloud-first policies among government agencies and firms.

- **People: Making all Africans AI-ready, including** through AI skilling initiatives, bolstered STEM education, and AI-related capacity-building for small and medium enterprises (SMEs).

- **Technological innovation: Promoting R&D and adoption of AI technologies,** such as through AI sandboxes and living labs, national AI R&D and startup investments, and cross-border data transfer policies.

- **Policies to promote responsible use of AI,** such as through risk-based AI policies, use of internationally acceptable AI standards among firms and organizations, and responsible use of AI by government agencies.

At the regional level, the AI Policy Blueprint proposes aligning Africa's AI policies with international AI policy and governance principles; promoting internationally interoperable AI standards in Africa; and building and pooling regional AI resources and capabilities, for example by establishing regional AI development centers that attract both local and global companies to develop new AI applications.[2]

In terms of the processes to promote AI adoption and use in Africa, the report proposes three approaches:

- **Continental strategies, regional policymaking, and national implementation.** One way to think about ways to scale AI in Africa is for the African Union Commission to set a continental strategic direction, and for the regional economic communities (RECs) to translate the continental strategy into policies that African countries then implement. At the national level, AI promotion mandates need to come from the highest levels of government and involve all relevant agencies.

- **Multistakeholder dialogues to future proof AI.** Policies and ideas to take advantage of AI evolve over time as AI itself evolves, skills and capabilities to use it improve, new use cases come into view, and the suitability of AI policy and regulatory frameworks are being tested. On their AI journey, African policymakers should future-proof AI policies by regularly consulting with industry, civil society, and academia.

- **Measuring progress on AI adoption.** To chart their path to AI development, African governments can establish specific AI-related targets and track progress in meeting them, for example through an African AI Readiness dashboard. Setting clear, measurable goals will allow governments to concentrate efforts and resources on critical areas where AI can drive development, such as healthcare, education, agriculture, and transport, and where there are market failures that need to be bridged, such as with underserved populations' ability to use AI.

This report is expected to be a living document that will be updated to reflect policy changes and AI adoption gains in Africa, and promote the latest thinking on AI policy to the continent.

INTRODUCTION

T he use of artificial intelligence (AI) can deliver extraordinary productivity and development gains for African economies and firms, streamline and scale government operations and service delivery, and help African economies attract foreign investment. African firms' adoption of AI is growing rapidly, as is the number of AI-driven African startups.

However, the adoption and diffusion of AI and the cloud across African firms, government agencies, and economies is critically shaped by the regional governments' digital policy frameworks. There is an ongoing and robust debate on AI policy frameworks both in African countries and at the regional level. Several African countries have adopted or are working on AI strategies, and there has also been strong progress at the regional level. In June 2024, African ICT and Communications Ministers endorsed a landmark Continental AI Strategy and African Digital Compact.

This report seeks to support these ongoing efforts to promote the adoption and use of AI at scale in Africa, through an AI Policy Blueprint for Africa.[3] This report provides actionable ideas for translating the national and continental AI strategies into policies that promote inclusive economic development. In particular, this report:

- Creates a policy agenda and a model AI strategy for African governments and regional organizations to optimally promote the adoption and use of AI and cloud computing across African economies, building on global best practices.

- Proposes practical measures for African governments, regional economic communities (RECs), and the African Union to enhance African countries' policy readiness for AI, including through specific policy reforms, AI standards, and public-private partnerships.

- Analyzes through survey data with 2,000 respondents the diffusion of AI among African firms, startups, and government agencies, and discusses their gains from AI.

- Develops a framework for policies conducive to the adoption and safe use of AI, analyzes the adoption of these key policies across 50 African countries, and relates AI policy readiness to the adoption of AI by businesses in Africa.

This report builds on Google's 2024 AI Sprinters report which emphasized that AI's promise will not automatically translate into economic growth and opportunity but will require smart policies and concerted action by governments, the private sector, and civil society.[2] This is also the case in Africa. This report seeks to bring about the promise of AI in Africa, through shared actions and savvy policies.[3]

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AI is a historic opportunity for Africa and can aid the Continent in reaching the Sustainable Development Goals (SDGs). African companies, startups, and government agencies are already on their way in leveraging AI for new value creation, customer service, and operational efficiencies. African governments have made progress on strategies and policies aimed to using AI to catapult the Continent onto a new growth frontier.

For Africa to translate the AI revolution into development gains will require strong fundamentals – robust digital infrastructures, an enabling digital policy environment, and skills development among the region's workforces. Taking advantage of AI will also require flexibility and continuous adjustment as AI evolves, new use cases emerge, and capabilities to use AI improve. Promoting AI use at scale will also require continued collaboration and coordination among private sector stakeholders, African governments, and the RECs, as well as with extra-regional economies to ensure Africa's AI economy interoperates with global models.

This section discusses specific national and regional priorities for Africa to harness AI for development, including in light of global best practices and needs expressed in the subsequent sections by African SMEs, startups, students, and other stakeholders to use AI.

A.   National priorities for using AI at scale

As African economies work to harness the AI opportunity sustainable and inclusive economic development, there are several useful principles and policies to follow (figure 1):

3 | **AI POLICY** Blueprint for Africa

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Figure 1 – AI Policy Blueprint for Africa

STRATEGIES	SPECIFIC ACTIONS
1 — **Infrastructure:** **Investing in high-speed, reliable digital connectivity and data centers**	• Defining AI as a national development priority • Closing digital divides and building the infrastructure for AI, including digital and energy infrastructure and data backbones • Promoting cloud-first public sector infrastructure • Promoting government's own use of data for value-adding insights
2 — **People:** **Making all Africans AI-ready**	• Promoting national AI skills initiatives, STEM education, and SME skilling campaigns • Bridging market failures in firms' AI adoption • Incentivizing AI adoption and corporate governance among firms, including through ISO/IEC 420001 standards
3 — **Technological innovation:** **Promoting R&D and adoption of AI technologies**	• Making non-sensitive public and private datasets available for AI R&D • Promoting government agencies' adoption of AI, including through cloud-first policies • Promoting AI sandboxes that enable AI to mature and regulators to learn about AI's potential • Investing in African AI startup ecosystems
4 — **Policy:** **Promoting an enabling policy environment**	• Promoting free data transfer to promote robust and resilient AI models • Adopting and enforcing digital policies that underpin AI use, such as fair use copyright rules, robust cybersecurity policies and practices, and data privacy regulations • Promoting risk-based approaches to regulating AI, and pre-market testing AI applications

4 | **AI POLICY** Blueprint for Africa

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Infrastructure: Investing in AI as national development priority

1. **Defining AI as a national development priority.** Several emerging markets, including in Africa, have adopted ambitious AI strategies aimed to leverage AI for development. Also African SMEs surveyed for this report see AI as a transformative technology for their growth. African governments that are today developing AI strategies should take this same view – consider using AI as a historic opportunity for national development.

2. **Building the infrastructure for AI deployment through closing digital divides and building digital and energy infrastructure and data backbone.** Investment in data centers, energy and water resources, cloud infrastructure, and applied research is critical for meeting African economies' AI aspirations such as training AI models, fueling AI startup ecosystems, and building African large language models. As many of the world's 3 billion poorly connected are in Africa, African governments can promote digitization through partnerships with emerging innovations such as Google's Taara that is connecting people where fiber optic cables and radio spectrum still do not reach, by using beams of light to deliver high-speed, high-capacity connectivity over long distances.

3. **Promoting cloud-first public sector infrastructure.** Cloud computing is essential for governments, local enterprises, and other organizations to deploy AI systems cost-effectively, securely, and at scale. The data and case studies in this report show that African businesses and governments are already working to harness AI for public sector productivity and public service delivery, for example by using machine learning to optimize resource allocation and promote revenue collection. To fully leverage AI for public service, African governments need to adopt cloud-first policies that focus government agencies' minds on adopting the cloud as the workhorse of AI systems and for the seamless storage and processing of vast amounts of data that AI use requires.

Making all Africans AI-ready

4. **Promoting national AI skills initiatives, STEM education, and SME skilling campaigns**. In the Google AI Sprinters, AI-ready workforces have various competency levels: AI Learners with basic AI literacy; AI Implementers who use and adapt AI tools at work; and AI Innovators who can help to shape how the technology evolves using deep technical expertise.[4] African countries need to cultivate all three – and the technical, analytical, and managerial skills for developing AI applications, managing data, securing AI systems, leveraging AI in various industry-specific use cases, and so on. There are many ways to cultivate these skills, such as national AI skills initiatives; training programs for AI practitioners; and public-private partnerships to promote with Africa's business community and universities the right kinds of AI skills demanded by Africa's businesses and startups. Google has promoted an AI First accelerator in Africa and Google.org has made a $15 million pledge to promote AI in developing countries.[5] More collaboration between the public and private sectors is needed to build AI fluency, strengthen STEM education, and increase online learning opportunities, such as AI courses on massive open online learning platforms.

5 | **AI POLICY** Blueprint for Africa

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5. **Bridging market failures in firms' AI adoption.** Surveys in this paper show that SMEs most likely to adopt and invest in AI are also the most productive firms. They benefit from the flywheel effect where AI adoption perpetuates productivity gains and, thereby, firms' ability to further invest in AI use. Meanwhile, firms that are less prepared to invest in AI use cases risk falling behind. Especially smaller firms with limited budgets and capabilities to use AI would benefit from government support and AI jumpstart programs already adopted around the world.

Promoting technological innovation

7. **Making non-sensitive public datasets available for AI research and development, and promote government's own use of data for insights.** Digitized government data is a powerful resource for AI to be deployed to improve public services, generate statistics, and identify emerging problems such as impending health crises or food price hikes. High-quality datasets that represent diverse perspectives, languages, and cultures are essential for training AI models effectively for local markets. To create such datasets, African countries can promote investment in fundamental AI research, including in partnership with the private sector; make non-sensitive public datasets available for AI research and development, for example to improve public services like health care, education, transportation and disaster response; and invest in the infrastructure needed to promote responsible use of data.

8. **Promoting living labs and sandboxes that enable AI to mature and regulators to learn about AI's potential and risks.** As AI technology is nascent and its possibilities and risks are only coming into view, the best ways to encourage the development of AI in the near future is through sandbox-based experimentation, public-private dialogues, and promotion of AI research and use cases.

9. **Managing potential risks created by AI through risk-based policies and testing AI applications for example against cybersecurity risks.** Risk-based AI policies are critical for managing AI systems and focusing resources on AI use cases that have significant implications to public health and safety. Unlike a one-size-fits-all approach, risk-based policies enable policymakers to tailor their oversight based on the potential impact and likelihood of harm of different AI applications. In addition, businesses and governments have a responsibility to test AI applications before they are brought to market. In cybersecurity, a "red-teamer" simulates an actual attack on a system. Similar red-teaming approaches need to be applied to AI applications – and many leading companies that develop AI applications already engage in red-teaming.[4] African governments could partner with African businesses to promote red-teaming.

10. **Investing in African AI startup ecosystems.** Africa has a nascent set of startups with AI-driven business models poised to disrupt such key industries as healthcare, logistics, agriculture, and financial services. The African Union AI Startup Policy Framework helps shed light on the importance of startups for Africa's development, and provides useful guidance for Member States on startup policy development. However, AI startup funding is still very limited in Africa, compared to other world regions. African

6 | **AI POLICY** Blueprint for Africa

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governments could bridge the gap by incentivizing local and global companies to launch AI development centers and incubators, strengthening the AI startup ecosystem, and attracting corporate venture funds and seed and venture capital investors to invest in transformative AI-driven companies.

Creating an enabling policy environment for AI

11. **Promoting free data transfer to promote robust and resilient AI models**. Access to data across markets is vital for resilient and robust AI applications. After all, AI models need diverse datasets unbound by national borders. In addition, AI applications are often replicated across multiple data centers in different locations, making data transfer essential. Ability to transfer data across borders is also critical as AI systems use distributed computing architectures enabled by the cloud, which, in turn, is optimized by crossborder data flows. African countries have adopted data transfer frameworks, some more flexible than others, and could consider adjustments to the more stringent regimes to support AI development. In addition, there is a significant opportunity to promote the adoption of privacy enhancing technologies (PETs) among African firms and governments, in lieu of rigid regulations.

12. **Adopting and enforcing digital policies that underpin AI use, such as fair use copyright rules, robust cybersecurity policies and practices, and data privacy regulations.** AI strategies have been successful when their development is anchored in a clear set of digital policies that promote and secure transactions. This report has reviewed the adoption of these policies across Africa, finding uneven progress; moreover, in practically all African economies, there is a need to better enforce digital regulations. The surveyed African stakeholders highlighted particular concerns with using AI in light of the region's gaps in data privacy and cybersecurity policy frameworks and enforcement.

13. **Instill responsible AI use in African firms through corporate AI governance and standards**. Regulators will have only so many resources to manage how each African business decides to govern AI development and use. There is a need for self-regulation models and training of African companies on corporate governance of AI, and for tools, as rolled out for example in Singapore, for African businesses to review their conformity with AI governance principles.

14. **Adopting the ISO/IEC 420001 standards as globally recognized framework for AI standards**. African economies could also consider promoting among businesses the adoption of standards, especially the ISO/IEC 42001, which standardizes the creation, implementation, and continuous improvements to AI Management Systems (AIMS) within organizations, and promotes the responsible development and use of AI systems. These standards provide a robust framework for responsible ethical AI development and use. Aligning with them would position Africa as a forward-thinking nation in AI governance.

Table 1 builds on this framework, presenting a model AI policy for Africa.

Table 1 - Model AI Policy

MAIN AREA	STRATEGY	POLICIES
1. Infrastructure: Investing in high-speed, reliable digital connectivity and data centers	**1.1 Defining AI as a development priority**	a. Prioritize AI as a foundational technology to drive national development across various sectors. b. Establish clear national AI priorities that emphasize economic growth societal well-being, sustainability, and inclusive innovation. c. Align AI strategies with broader national development goals, focusing on economic diversification, digital transformation, and inclusive growth. d. Recognize AI's transformative impact on small and medium enterprises (SMEs), leveraging it to enhance productivity and economic growth.
	1.2 Building infrastructure for AI deployment	a. Invest in essential digital and energy infrastructure, including data centers and cloud computing platforms, to support the scaling of AI technologies. b. Facilitate the availability of non-sensitive public and private datasets to accelerate AI research and development. c. Promote investment in AI infrastructure that ensures sustainability, resilience, and support for long-term AI development goals. d. Increase investments in computing power and research infrastructure to enable the development and deployment of advanced AI systems.
	1.3 Promoting cloud-first policies	a. Implement cloud-first policies to enable scalable, cost-effective, and secure AI deployments across government and private sectors. b. Utilize cloud computing to enhance public sector productivity, enabling more efficient service delivery and better resource management. c. Encourage the adoption of cloud-based AI solutions to improve the efficiency, flexibility, and scalability of services in both the public and private sectors.

2. People: **Making all Africans AI-ready**	**2.1 Launching National AI skills initiatives**	a. Launch comprehensive AI skills programs aimed at building expertise at all levels of society, from basic AI literacy to advanced technical skills. b. Integrate AI education into the school system, ensuring that the next generation is equipped with the knowledge and skills needed to thrive in an AI-driven economy. c. Collaborate with the private sector to enhance AI education and training, providing opportunities for hands-on learning and capacity building in AI technologies.
	2.2 Supporting SMEs' AI adoption	a. Collaborate with the private sector to enhance AI education and training, providing opportunities Provide targeted support for SMEs to adopt AI technologies, including financial incentives, technical assistance, and training programs. b. Establish AI adoption centers that offer SMEs access to resources and expertise to help them integrate AI into their operations, driving innovation and competitiveness. c. Offer low-interest loans and grants to SMEs to support their AI-driven transformations, ensuring that smaller businesses can participate in and benefit from the AI revolution. d. Encourage the adoption of recognized international AI standards such as ISO/IEC 420001 standards as globally recognized framework for AI standards ensure that AI systems are developed and used responsibly, providing a consistent framework for assessing compliance.
	2.3 Encouraging corporate AI governance	a. Promote corporate self-regulation in AI governance, encouraging businesses to develop and adhere to ethical AI practices that align with international standards. b. Encourage the adoption of recognized international AI standards such as ISO/IEC 420001 standards as globally recognized framework for AI standards ensure that AI systems are developed and used responsibly, providing a consistent framework for assessing compliance. c. Provide training and resources to companies to help them implement effective AI governance practices, ensuring that they can manage the risks and responsibilities associated with AI deployment.

3. Technological innovation: Promoting R&D and adoption of AI technologies	**3.1 Making non-sensitive public and private datasets available for AI R&D**	a. Facilitate access to high-quality public datasets for AI research and innovation, ensuring that researchers and developers have the resources they need to create impactful AI solutions. b. Invest in robust data infrastructure that supports the responsible development of AI technologies, ensuring that data is managed securely and effectively. c. Align government data digitization efforts with AI readiness initiatives, ensuring that public sector data is available and usable for AI-driven decision-making and service delivery.
	3.2 Promoting government 's AI adoption	a. Create leadership roles and committees dedicated to overseeing the adoption and integration of AI across public sector agencies, ensuring a coordinated and strategic approach. b. Encourage the widespread adoption of AI across government agencies, use cloud-first policies to ensure scalability, cost-efficiency, and security. Create leadership roles and committees dedicated to overseeing the adoption and integration of AI across public sector agencies, ensuring a coordinated and strategic approach. c. Leverage AI to optimize public sector productivity, improving service delivery and enabling better decision-making through data-driven insights, for example in education, healthcare, and agriculture. d. Implement AI systems to enhance resource management in public services, ensuring that government operations are efficient and responsive to citizens' needs. e. Establish robust frameworks to ensure that AI systems used in the public sector are safe, secure, and trustworthy, with clear guidelines for ethical use. f. Develop accountability measures to ensure that AI is used responsibly in government operations, with oversight mechanisms in place.
	3.3 Establishing AI sandboxes and guidelines	a. Develop AI regulatory sandboxes that provide controlled environments for experimenting with new AI technologies while allowing for adaptive regulatory approaches based on real-world outcomes. b. Promote collaboration between public and private sectors to advance AI research and address potential risks, ensuring that AI technologies are developed responsibly. c. Support the creation of innovation labs where AI technologies can be tested in real-world scenarios, allowing for the development of practical applications and solutions.
	3.4 Investing in African AI R&D and startup ecosystems	a. Establish AI research and development hubs that foster innovation and advance the development of AI capabilities across the public and private sectors. b. Coinvest with venture funds and angels in AI startups c. Promote AI accelerators and parks, with the private sector

4. Policy: Promoting an enabling policy environment	**4.1 Prompting data transfer**	a. Create flexible data transfer frameworks that facilitate cross-border collaboration, ensuring that AI systems can access diverse and comprehensive datasets. b. Promote the adoption of privacy-enhancing technologies (PETs) that enable secure data sharing while protecting user privacy and complying with data protection regulations. c. Support the development of distributed AI systems that are optimized by seamless cross-border data flows, ensuring that AI technologies can operate efficiently across different jurisdictions.
	4.2 Strengthening digital policy foundations	a. Implement copyright rules that strike a balance between protecting intellectual property and promoting innovation, allowing AI developers to utilize existing works in a fair and compliant manner. b. Enhance cybersecurity measures to protect AI systems from potential threats, ensuring that they operate securely and reliably. c. Enforce robust data privacy regulations to safeguard personal information and ensure that AI systems are developed and deployed respecting user rights and legal standards.
	4.3 Developing risk-based AI regulation frameworks	a. Implement a risk-based approach to AI regulation that focuses on managing the risks associated with high-impact AI applications, ensuring that safety and ethical considerations are prioritized. b. Promote rigorous testing of AI systems in businesses, particularly in high-risk areas, before they are released to the market, ensuring that they meet security and reliability standards. c. Facilitate regional collaboration on AI governance to ensure that AI systems can operate safely across borders.
5. Future-proof AI development	**5.1 Institutionalizing regional multi-stakeholder consultations to future proof AI**	a. Establish consultation mechanisms to discuss AI-related issues with industry, civil society, and academia. b. Engage also policymakers and businesses from other parts of the world, to share their experiences in AI governance and promotion.
	5.2 Establishing specific targets for AI development and track progress	a. Track AI investment, development, and adoption so as to provide an empirical basis for policy dialogues and policymaking. b. Track AI policies to gauge the evolution of the enabling environment for AI use and identify emerging best practices.

11 | **AI POLICY** Blueprint for Africa

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B. Regional strategies for AI adoption

African economies have already promoted common approaches to AI, including through the African Union Development Agency-NEPAD (AUDA-NEPAD) AI Strategy, the Continental Artificial Intelligence Strategy, and the African Digital Compact. As African governments and regional bodies build together toward regional approaches to promoting AI, five principles can be useful (figure 2).

01 Aligning Africa's AI policies with international AI policy and governance principles

02 Prioritizing internationally interoperable AI standards

03 Building and pooling regional AI resources and capabilities

04 Institutionalizing multi-stakeholder consultations to futureproof AI

05 Establishing specific targets for African AI development and tracking progress

Figure 2 – Regional AI Strategy for Africa

1. Aligning Africa's AI policies with international AI governance

The African Union's AI strategy emphasizes the importance of international collaboration to enhance Africa's AI competitiveness globally. There have been many constructive international proposals and initiatives in the past few years to promote responsible AI use for economic growth and development, by the OECD, G20, and G7, among others. Notable work is undertaken for example by the International Organization of Standardization (ISO) and by the U.S. National Institute of

Standards and Technology (NIST) to develop standards for AI. The Global Digital Compact adopted in September 2024 promotes the responsible use of digital technologies for the benefit of all. Continuing to align Africa's AI policies with these and other international approaches and principles will promote the scalability of Africa's AI companies and ecosystems, help drive foreign investment in AI and tech ecosystems, and pre-empt frictions and compliance burdens from conflicting policy approaches.

2.   Prioritizing internationally interoperable AI standards

Establishing interoperable AI standards within Africa is crucial for continental AI development and scalability of AI applications and use cases. These standards should also align with international approaches, to ensure African standards interoperate with those of other economies. One mechanism for promoting this standards work is the African Continental Free Trade Agreement (AfCFTA) Digital Protocol, whose Annex on emerging technologies could prioritize AI standards and promote policy convergence in areas such as data privacy and cybersecurity across African countries. RECs can play a significant role in facilitating the development of common standards and policies that reflect both regional needs and international best practices.

3.   Building and pooling regional AI resources and capabilities

African economies can be stronger and smarter when pooling resources for AI innovation and infrastructures. For example, African countries could pool resources and establish regional AI development centers that attract both local and global companies to create AI applications and promote innovation and investment into AI startups. Joint research projects, such as shared grant programs and PhD training initiatives, can also promote innovation. African countries can also coinvest and share common AI infrastructures, such as data centers and supercomputing facilities. Through the RECs, African governments could establish regional AI sandboxes for testing AI applications and facilitating learning and regional dialogues among regulators on good policies and regulations, in order to promote convergent regulatory approaches. The development community focused on Africa – multilateral development banks, donors, UN organizations and AUDA-NEPAD, among others – can support the operationalization of these programs. For example, development banks can also derisk investments into AI-led startups.

4.   Institutionalizing multi-stakeholder consultations to futureproof AI

Policies and ideas to take advantage of AI evolve over time as AI itself evolves, skills and capabilities to use it improve, new use cases come into sight, and the suitability of AI policy and regulatory frameworks are tested. On their AI journey, African policymakers should future-proof AI policies by regularly consulting with industry, civil society, and academia. Indeed, globally, AI policies have been effective and implementable when they have been crafted among multiple stakeholders such as IT, education, health, trade, and economy ministries, as well as the private sector and civil society actors. These consultations should be institutionalized in Africa, and from time to time engage also policymakers and businesses from other parts of the world, to share their experiences in AI governance and promotion. Such a multi-stakeholder approach could be used in developing both national AI strategies and regional AI standards and policies in Africa.

13 | **AI POLICY** Blueprint for Africa

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5.   Establishing and tracking targets for African AI development

To chart their path to development through AI, African governments should establish specific AI-related targets and track progress on meeting them, for example through an African AI Readiness dashboard. Setting clear, measurable goals will allow governments to concentrate efforts and resources on critical areas where AI can drive development, such as healthcare, education, agriculture, and transport, and where there are market failures that need to be bridged, such as with underserved populations' access to AI. These key performance indicators related to AI, or "AI KPIs", could also include tracking of the policies that affect AI, as done in this report, to promote cross-country learning, enable empirical work on the impacts of various digital policies on AI adoption, and assess grounds for policy convergence. RECs could coordinate these efforts, helping to set regional benchmarks and facilitate knowledge-sharing among member states.
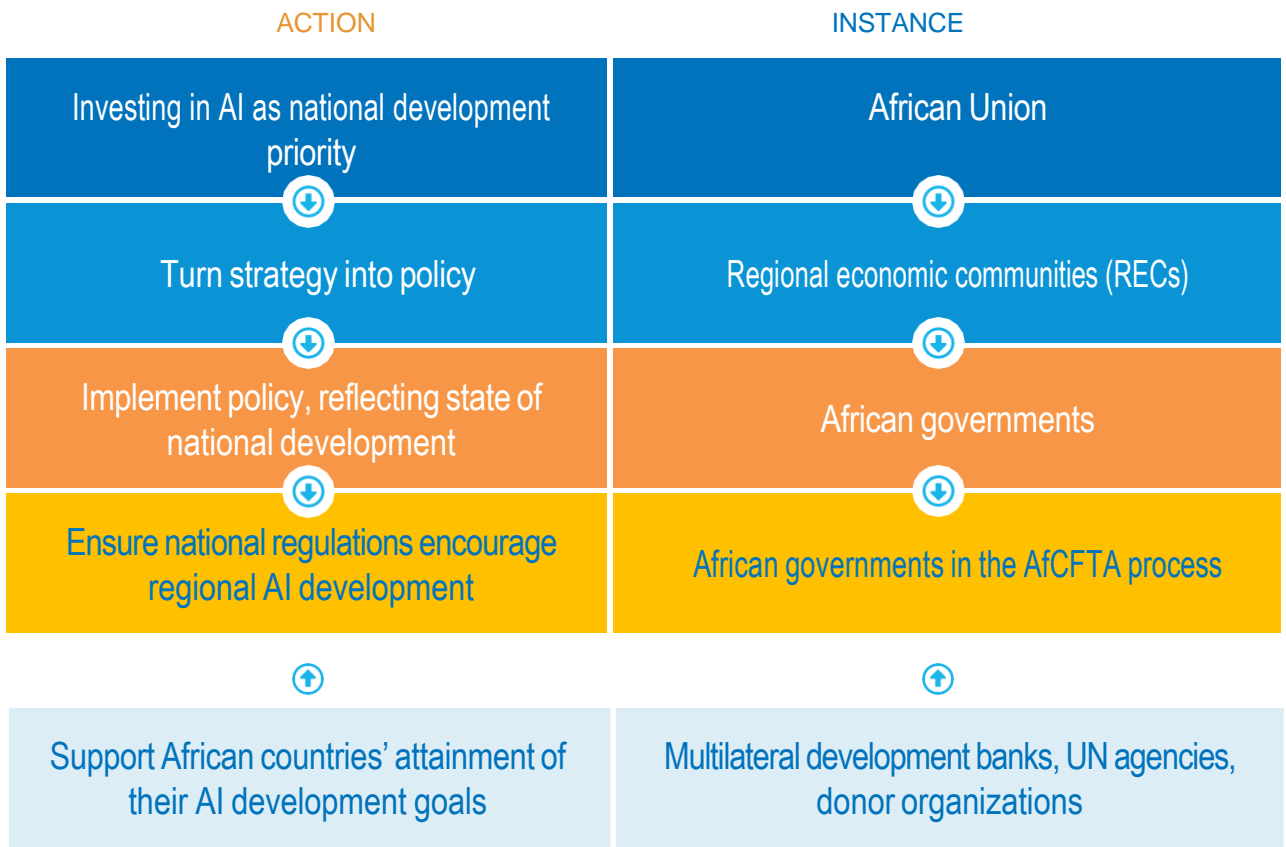
C.   Operationalizing African AI Policies

Promoting safe AI use at scale in Africa requires "all hands on deck" approach, with all entities leveraging their comparative advantages under a coherent regional strategy (figure 3):

- **At the continental level, the African Union plays a key role setting a continental policy direction on AI**, as it has done through the Continental Artificial Intelligence Strategy and African Digital Compact. The AfCFTA process is helping turn the strategies into commitments that remove frictions hindering region-wide AI deployments.

- **RECs can translate continental AI strategies into concrete pro-development policies.** RECs play an essential role in incubating AI policies and measures to promote AI use, promoting the sharing of good practices on AI use among the various member countries, and pooling resources for AI development, from hardware like data centers to software like AI academies that mainstream AI into firms and educational entities.

- **African governments in turn implement AI policies.** At the national level, AI promotion mandates need to come from the highest levels of government and involve all agencies – AI use cases after all span the entire economy. Also all agencies need to be engaged in AI and cloud transformation.

- **Development organizations play a key role supporting RECs and African countries on their AI development,** from financing infrastructure projects for AI such as data centers and energy sources to promoting national AI skilling initiatives and educational reforms and supporting technical assistance for policy reforms on AI.

At each level, multi-stakeholder consultations and public-private partnerships are paramount for ensuring that strategies, policies, and implementation plans reflect the needs of businesses and innovators seeking to translate AI into new value creation. In terms of the process to promote AI, creating new national and regional institutions may often be redundant – mainstreaming AI into existing ones is more beneficial. It is often more effective, both in terms of policies and resources, to use existing institutions to define approaches to AI.

14 | **AI POLICY** Blueprint for Africa

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Figure 3 – Operationalizing AI Strategies in Africa

ACTION	INSTANCE
Investing in AI as national development priority	African Union
Turn strategy into policy	Regional economic communities (RECs)
Implement policy, reflecting state of national development	African governments
Ensure national regulations encourage regional AI development	African governments in the AfCFTA process
Support African countries' attainment of their AI development goals	Multilateral development banks, UN agencies, donor organizations

AI POLICIES AROUND THE WORLD AND IN AFRICA

T he prior section highlighted AI policy priorities for Africa. This section discusses the policies key to promote A adoption and use, and assesses African countries' preparedness to adopt these policies. This discussion, also reflected in [Google's Sprinters study](#), comes against the backdrop of ongoing debate on AI policy both in African countries and at the regional levels.

Several African countries have adopted or are working on AI strategies, and there has been strong progress at the regional levels as well. In June 2024, African ICT and Communications Ministers endorsed a landmark [Continental AI Strategy and African Digital Compact](#). These two milestones bring together a vision for Africa's digital future. In addition, the African Union Development Agency-NEPAD (AUDA-NEPAD) has prepared a [Continental AI White Paper and Roadmap](#).[6] These instruments build on continental digital policies, such as the [African Union's Digital Transformation Strategy (2020-2030)](#) and [Agenda 2063](#).

AI-related policy discussions have been emerging around the world over the past few years, and many emerging economies have already adopted some AI strategies or guidelines. At the international level, there have been many constructive policy proposals and initiatives to promote responsible AI use for economic growth and development. For example, the [Organization for Economic Co-operation and Development (OECD) Principles on Artificial Intelligence](#) promote AI that is innovative and trustworthy and respects human rights and democratic values. The G20's "[G20 AI Principles](#)" detail global policies and cooperation for trustworthy AI systems and pro-innovation regulatory practices.[7] And in 2023, the G7

16 | **AI POLICY** Blueprint for Africa

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embarked on the Hiroshima Process of guiding principles and voluntary codes of conduct for the safe development of advanced AI systems, risk-based AI policies, and technical standards for AI. In addition, the UN General Assembly adopted its first resolution on AI in March 2024, encouraging countries to safeguard human rights and monitor AI risks.

As global and regional debates and strategies advance, there is work ahead on the many policies that critically shape AI development, adoption, and use in Africa. These consist of AI-specific policies, and a range of digital and skilling policies conducive to the development and use of AI. The following sections examine examples of these policies in Africa and around the world, and map Africa's adoption of the various policies to date.

A. AI strategies and policies around the world

One of the first steps that governments around the world have been taking to articulate a vision for AI is to adopt AI strategies, policies, or guidelines. By now over 70 countries have adopted some type of AI strategy, policy, or guidelines.[8] These are typically geared to discussing ways for countries to take advantage of AI for development.

For example, In Africa, Egypt's 2021 AI Strategy is focused on use of AI technologies to support the achievement of Egypt's sustainable development goals, inclusive growth, and competitiveness, and on promoting regional cooperation within the African and Arab region on AI. Rwanda's AI Strategy includes, among other things, sectoral strategies focusing on accelerating responsible AI adoption.

In Latin America, Brazil's National AI Strategy addresses Brazil's development challenges and aims to use AI to promote the country's innovation ecosystem.[9] Since its release, Brazil has established applied centers for AI in areas like smart cities, agriculture, Industry 4.0, and healthcare.

In Asia, the Philippines' National AI Roadmap aspires to transform the Philippines into an AI hub within the Association of Southeast Asian Nations (ASEAN) region.[10] The roadmap delineates strategic priorities for the government, industry, and universities, and establishes the National Center for AI Research led by the private sector.

The United States has taken a somewhat different approach, both by forging voluntary standards with the private sector on AI governance, and issuing, in 2023, the Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence Administration that directs America's federal agencies to take measures to ensure privacy, equity and innovation, and competition in the AI era and has resulted in dozens of actions by U.S. government agencies.[11]

The UK has taken a principles-based approach directing AI regulations to ensure safety, transparency, and redress if an AI system causes harm.[12] The European Union, meanwhile, has issued a prescriptive EU AI Act.

These and other AI strategies and policies contain several instructive policies and approaches conducive to the development of AI. Some examples are as follows.

17 | **AI POLICY** Blueprint for Africa

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AI infrastructure and R&D

- **Promotion of digital and energy infrastructures for AI – and greening strategies and technologies to reduce energy needs**. Countries around the world are building and seeking to attract investment in data centers and digital infrastructures, and working on identifying renewable energy and water resources to meet their AI aspirations. For example, in Brazil, the government of the state of Rio Grande do Sul and Scala Data Centers are developing the $90 billion Scala AI City, which will be South America's largest and most advanced data center and runs fully on renewable energy.[13] Singapore has pioneered Green Data Center Roadmap to ensure sustainable data center development.[14] Many countries are also considering advanced cooling systems that can reduce data centers' need for water and energy and lower the carbon footprint of AI. To be sure, AI, once deployed, can create new efficiencies in energy and manage electric grids, including reducing greenhouse gas emissions and lowering costs.

- **Promotion of research and private sector investment in AI**. Many economies have made investments into fundamental AI research. Germany has committed to double its public funding for AI research to €1 billion.[15] In the United States, the National Artificial Intelligence Research Resource (NAIRR) brings together computational, data, software, model, training and user support resources to promote AI-related research. [16] Innovate UK, the UK's national innovation agency, has a competitive grant process for applied collaborations between AI developers and organizations that apply AI innovation to real-world problems.[17]

- **University centers of excellence**. Many countries are building AI capabilities into their university systems. The UAE has created the Mohamed bin Zayed University of Artificial Intelligence (MBZUAI) as the world's first graduate-level, research-based AI university.[18] Germany is working to create 150 new university labs dedicated to AI research, while South Africa is building AI Centers of Excellence in its university system to ensure AI innovation across academic fields.[19] The AI Institute of the South African Department of Communications and Digital Technologies promotes the uptake of AI and the development of local technology solutions, including through academic institutions that will serve as Centers of Excellence and hubs for the application of AI within each sector of the economy.

AI innovation and governance

- **Promotion of AI's development, for example through sandboxes.** AI is nascent and its potential is enormous across countless use cases that need to be piloted. To that effect, many economies such as the UK, Australia, Singapore, Korea, Germany, and Spain have already set out to launch AI regulatory sandboxes to enable businesses to experiment with new AI products and services and regulators to consider appropriate regulatory frameworks for the various use cases.[20] The European Union has called for

the EU Members to establish "at least one AI regulatory sandbox at national level, which shall be operational by 2 August 2026."[21] Countries have also used AI sandboxes for specific industries: earlier in 2024, the UK launched Airlock, a regulatory sandbox for AI as a Medical Device (AIaMD) products.[22]

- **Risk-based approaches to AI governance**. AI systems and use cases vary a great deal on the potential risk they may pose, and thus rules on them should be calibrated to the level of risk. For example, the European Union's AI Act ranks systems to ones with unacceptable risk, high-risk (such as management of critical infrastructure or transport) and low-risk, such as translation of audio or video content. The UK has taken a more flexible principles-based approach, aimed to ensure safety, transparency, and redress if an AI system causes harm. Risk-based approaches take into account that the underlying technology is not inherently unsafe, rather, the context of use can render the technology risky.

- **Testing of AI applications against cybersecurity risks.** Many national AI strategies also discuss testing AI applications for cybersecurity problems before they are released to the marketplace. Governments have proposed diverse practices. For example, the Singapore National AI Strategy 2.0 promotes public-private partnerships to update cybersecurity toolkits, for example for system owners to enhance their cybersecurity systems to enable secure AI adoption. [23]

- **Self-regulation and corporate AI governance**. As AI use becomes more ubiquitous, there is a growing need to empower companies to self-regulate and establish corporate governance practices for responsible uses of AI. Many countries have published AI governance guidelines for the private sector as well as tools and certificate programs for businesses to implement them. For example, Singapore has created the Model AI Governance Framework and a new Model Governance Framework for Generative AI that at provide practical suggestions that model developers and policymakers to govern AI systems, while Singapore's Infocomm Media Development Authority (IMDA) has developed a tool AI Verify that enables businesses to review their conformity with the emerging AI governance principles.[24] Japan, Korea, and Singapore are promoting businesses' adoption of the ISO/IEC 42001, an international standard that specifies requirements for establishing, implementing, maintaining, and continually improving an Artificial Intelligence Management System (AIMS) within organizations. Korea has created several programs and organizations that offer certification services for ISO/IEC 42001 and support businesses in gap assessments and training to implement AI management systems.

- **Privacy provisions for AI use**. While most countries around the world by now have data privacy and transfer laws, some AI pioneers are crafting policies that enable personal data to be used to train or develop AI systems. For example, Singapore has created Advisory Guidelines on the Use of Personal Data in AI Recommendation and Decision Systems that provide businesses and researchers some exceptions from the

19 | **AI POLICY** Blueprint for Africa

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need to secure user consent for the use of personal data.[25] In addition, Singapore's National AI strategy discusses the need to invest in Privacy-Enhancing Technologies (PETs) to enable data protection and sharing.[26] To further promote the availability of data for AI, governments need to ensure open government data and ensure data privacy laws enable AI systems and large language models (LLMs).[27]

- **Promoting international cooperation in AI development.** Many governments have adopted calls to promote international cooperation in AI policies and AI development. For example, Rwanda's AI Policy calls for international collaboration essential for driving sustainable development in AI and commits the government to establishing international partnerships and measuring Rwanda's AI Readiness against international benchmarks. Korea's AI Strategy calls for strengthening strategic North-South cooperation. Digital trade agreements and chapters for example in UK-Singapore Digital Economy Agreement, Korea-Singapore Digital Partnership Agreement, and UK-New Zealand Free Trade Agreement include commitments to collaborate on safe and unbiased use of AI.

National skills development for scaling AI use

- **National AI skills initiatives and AI in education**. Many economies have adopted national AI skills initiatives aimed at building AI expertise at all levels of society. For example, Rwanda's National AI Policy commits the government to invest in a National Skills Building Program prioritizing AI and data skills and to adjust school curricula for the age of AI, including creating a dedicated Teacher Corps. Pakistan's draft AI Policy calls for a nationwide skills development program with private sector partners for training and upskilling youth and young professionals in AI. Countries around the world are also using AI as a tool for personalizing and enhancing learning. Korea has combined traditional elementary and middle school textbooks with intelligent tutoring systems, extended virtual worlds (metaverse), extended reality, conversational AI, and speech recognition.[28] India's National AI Strategy #AIforAll considers AI a tool for education, for example for using adaptive AI tools for customized professional development content for teachers based on their performance.

- **Mainstreaming AI into education systems.** Many governments have woven AI into the school curricula to enable students to *learn about* AI. For example, the State of California has passed a law to promote AI literacy in schools throughout the state – equipping children to understand AI as consumers and voters, for example.[29] Countries are also equipping teachers to learn about the uses of AI. The UK's The National Centre for Computing Education (NCCE) funded by the Department for Education has several programs for educators, for example to develop an understanding of how AI can be woven into primary computing curriculum, supporting creativity, digital literacy, and the use of IT, and how generative AI should be used in education.[30]

20 | **AI POLICY** Blueprint for Africa

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- **Tooling and training SMEs to test and use AI.** Many AI strategies also have an inclusion objective, to ensure AI development benefits the most vulnerable groups and is scaled across SMEs. One good example is the Finnish AI Region (FAIR) that offers Finnish SMEs free services to leverage and test AI to solve various pain points in their businesses. [31] Australia's AI Adopt Centers help small and medium businesses grow their business through AI, while Singapore's AI Makerspace platform provides SMEs access to various resources for experimenting with AI, such as white-labeled AI solutions, curated datasets, and supercomputing resources.[32]

Government use of AI

- **Promoting the government's adoption of AI.** AI, especially when combined with cloud computing, can revolutionize and scale public sector productivity and public service delivery. Many countries are enhancing public sector through AI. Singapore envisions using AI to drive its "smart nation" work, to promote AI use in healthcare, education, safety, and public service delivery. [33] The UAE has similar objectives, including in areas such as health, energy, and water.[34] Korea's AI Strategy discusses AI as a means to promote personalized and automated services for citizens, automate repetitive administrative processes to improve government efficiency, and support informed and evidence-based policymaking. [35] Granted, governments, just like businesses, need to use AI ethically. Australia has created a specific policy for the responsible use of AI in government agencies.[36]

- **Make non-sensitive public datasets available for AI research and development.** Digitized government data is a powerful resource for AI to be deployed to improve public services, generate data and statistics, and identify emerging problems. Many governments are stressing the importance of generating more data for AI. India has compiled a curated collection of datasets to facilitate AI research, aiming to make it "one of the largest publicly gathered datasets in the world."[37] Rwanda has set up a task force to provide guidance for the public sector to migrate data to digital format and improve the AI-readiness of public data.

B. Emerging regional policy frameworks to use AI

Many emerging economies have, just as the African economies, been working together at regional levels toward common approaches to promoting, governing, and regulating AI:

- **Voluntary AI ethics guide**. In Southeast Asia, ASEAN economies have created a common guide on AI ethics and governance. It promotes AI use and focuses on good governance and risk management, while limiting regulatory burdens associated with the use of AI. Like many ASEAN frameworks, the AI Guide is voluntary, and it is up to the individual ASEAN countries to decide how they want to implement the guidance. ASEAN economies are currently also working toward a Digital Economy Framework Agreement (DEFA), which is expected to contain regional AI governance rules.

21 | **AI POLICY** Blueprint for Africa

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- **Responsible AI use provisions in digital trade agreements.** Asia-Pacific economies have been incorporating AI provisions into digital trade agreements. For example, the UK-Singapore Digital Economy Agreement, the Korea-Singapore Digital Partnership Agreement, and the UK-New Zealand Free Trade Agreement have commitments for collaboration on safe and unbiased use of AI. There are also bilateral AI partnerships, such as the UK's efforts to collaborate with Korea and Singapore on identifying trustworthy AI uses.

- **Governance of AI.** In Latin America and the Caribbean, the 2023 regional Santiago Declaration emphasizes the transformative potential of AI for enhancing productivity, inclusion, and sustainability, while committing signatories to uphold international human rights laws and ensuring that AI technologies are used as instruments of equity and justice.[38] The declaration also advocates for the establishment of an intergovernmental AI council for the region to harmonize AI policies and align them with ethical standards and human rights protections.

C. AI policy adoption in Africa

African countries are well on their way in adopting these types of AI strategies and policies. Algeria, Egypt, Ethiopia, Rwanda and Tunisia have an AI strategy or policy in place, while Ghana, Kenya, Nigeria, and South Africa are working toward AI strategies (table 1, figure 4). The various adopted strategies include many valuable dimensions, such as promoting AI-related skilling, responsible use of AI, and international cooperation in AI (figure 5). Various digital strategies such as those of South Africa and Senegal also discuss AI.

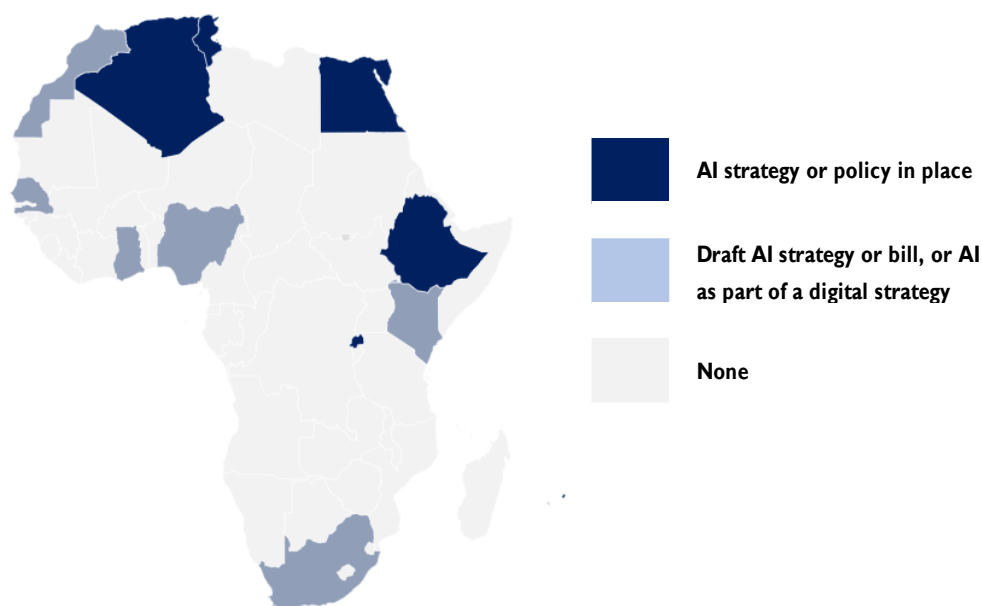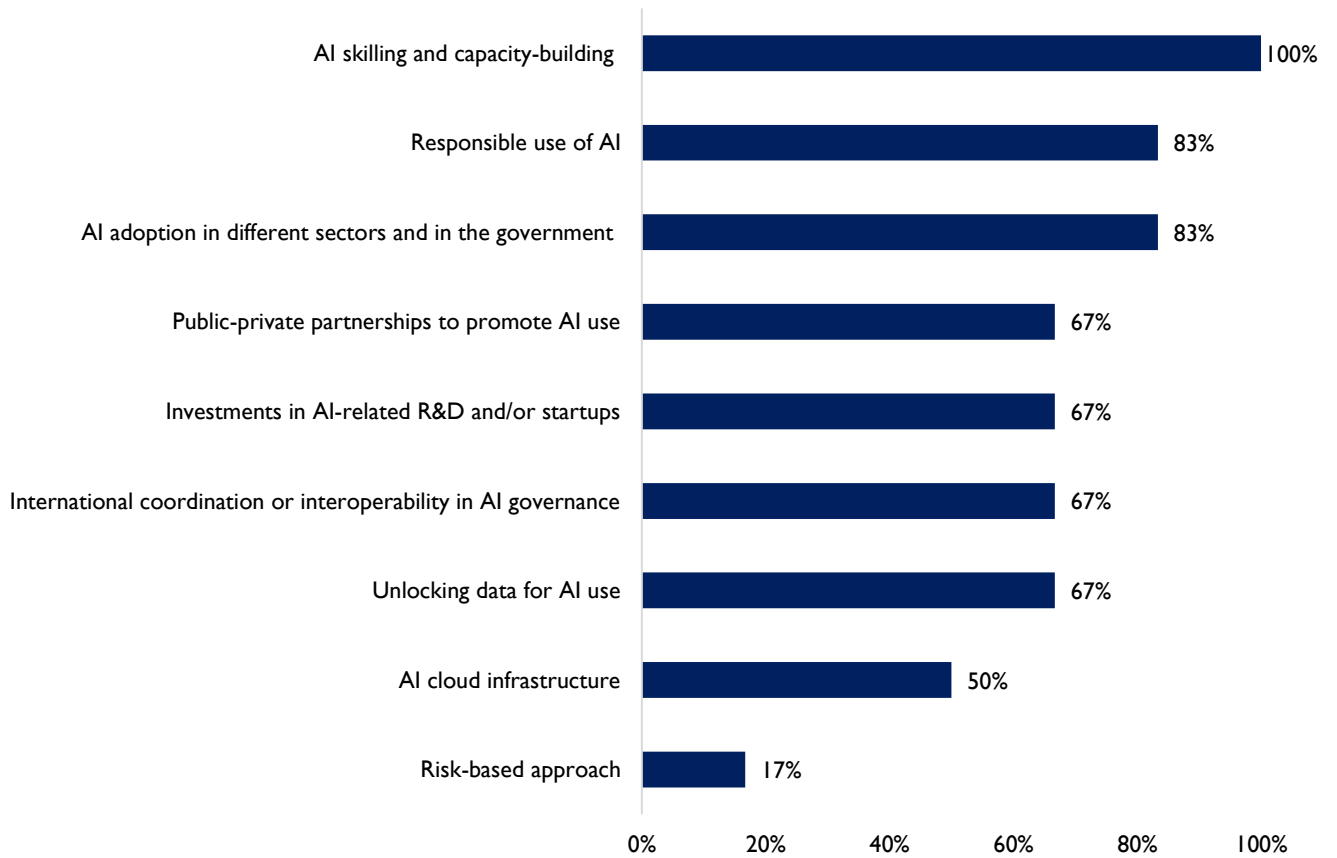**Figure 4 – Map of the adoption of AI strategies and policies in Africa**

■ AI strategy or policy in place

■ Draft AI strategy or bill, or AI as part of a digital strategy

□ None

Figure 5 – Adoption of specific policies conducive to AI use in African AI strategies and policies

23 | **AI POLICY** Blueprint for Africa

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D. Africa's digital policies in enabling AI use

There are a range of digital policies that support AI adoption. These policies can be divided into digital-first policies (such as digital strategy and cloud-first policies); pro-innovation policies (such as fair use copyright laws and open data transfer); policies key to trust and safe use of AI (such as data privacy, cybersecurity, and consumer protection policies); government data management (such as open government data and e-government policies); and digital access and skilling (access to science, technology, engineering, and mathematics or "STEM" education) (table 2).

Table 2 – Digital policies conducive to the adoption and use of AI

AIM	POLICY	RELEVANCE TO AI DEVELOPMENT AND USE
National focus on digital development	National digital strategy	A national digital strategy lays the groundwork for digital transformation across sectors, ensuring that AI technologies are mainstreamed into the economy and public services.
	National cloud first strategy	A cloud-first strategy promotes the adoption of cloud computing, which is essential for scalable AI deployment and processing large datasets and enhancing collaboration.
Pro-innovation policies	Copyright - fair use	Fair use policies are critical for AI development by allowing developers to use copyright-ed material for training AI models without infringing intellectual property rights. This supports innovation by enabling access to a wide range of data.
	Crossborder transfer of data	Policies governing cross-border data transfers are essential for the development and pro-business of AI systems. For example, AI applications are often replicated across multiple data centers in different countries, which enables resilience if one location is disrupt-ed. Free data flows support both AI model quality and uptake. In addition, AI systems use distributed computing architectures enabled by the cloud, which, in turn, is optimized by cross border data flows.
Security	Data privacy	Data privacy policies are crucial for protecting individuals' rights and building trust in AI systems.
	Consumer protection law	Consumer protection regulations, ensure AI applications are safe, reliable, and do not exploit users. These regulations build consumer trust by protecting them from potential harms, such as biased algorithms or data breaches.
	Cybersecurity capabilities	Robust cybersecurity policies help build trust among all stakeholders and safeguard against cyber attacks that could compromise AI systems, protecting both users and the AI infrastructure itself.
	Electronic transactions framework	A well-defined electronic transaction framework is important for AI, facilitating secure and efficient online transactions.
Government digitization	Government data governance	Effective data governance policies ensure that government-held data is managed securely and efficiently, respecting citizens' data privacy.
	Open government data	Open government data policies make government data available for public use, which can be leveraged by AI to create innovative solutions and improve public services.
	Egovernment	E-government promotes a country's readiness to deliver public services digitally, high-lighting areas where AI can enhance efficiency and accessibility.
Skilling and access	Digital skills	Developing digital skills is crucial for harnessing the potential of AI, enabling individuals and businesses to effectively use, implement and innovate AI technologies.
	Promotion of STEM	Promoting science, technology, engineering, and mathematics (STEM) education is vital for building a skilled workforce capable of driving AI innovation.
	Principles to access and use the internet	Clear principles for internet access promote equitable access to information, support in-novation, and safeguard user rights in the digital environment.
	Digital inclusion	Ensuring that all citizens have access to digital tools and the internet is fundamental to leveraging AI for inclusive growth and addressing inequality.

African countries are at different stages of adopting these pro-AI policies. At the regional levels, Southern and Northern Africa emerge as benchmarks in AI policy readiness, and Egypt, Ghana, Morocco, and South Africa, and as regional leaders (figures 6-7). Central and Western African economies have particular work ahead of safety and cybersecurity and overall national digital strategies. Countries that have a particularly robust enabling environment include South Africa, Morocco, Egypt, and Ghana (figures 8-9).

Figure 6 – Adoption of policies conducive to the use of AI, by main policy areas and regional economic community
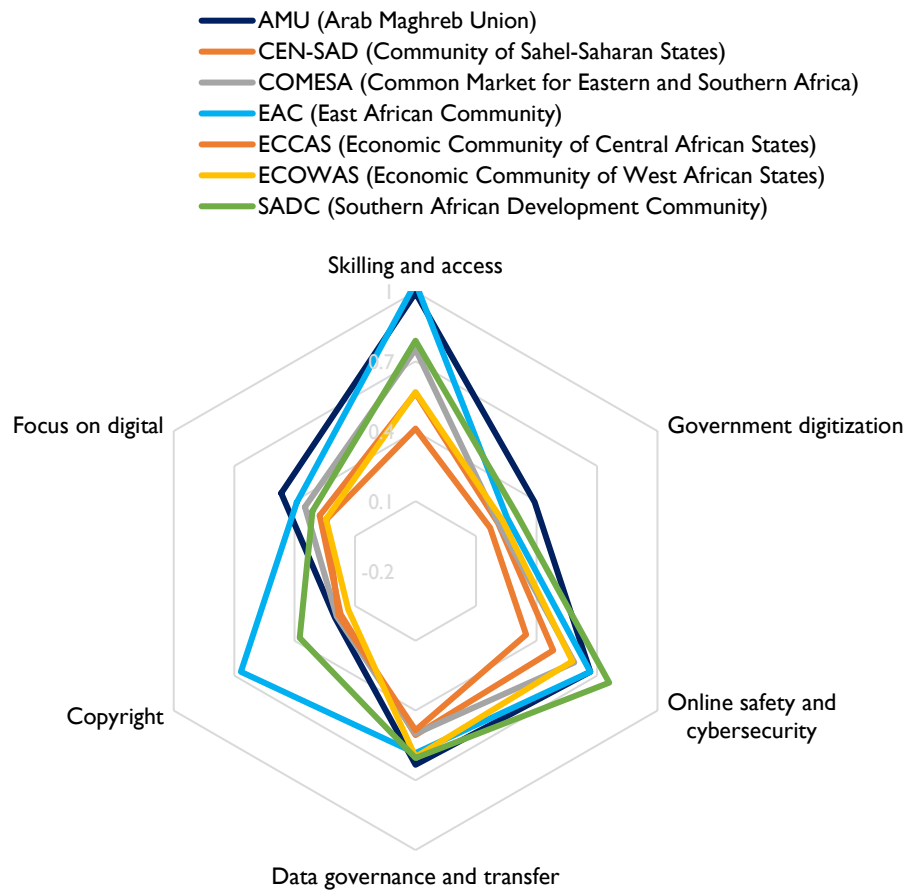
Figure 7 – AI Policy Readiness Index: Adoption of specific policies conducive to the use of AI, by detailed policy areas and main region in Africa (max. 16)

Legend:
- Digital inclusion
- Principles to access and use the internet
- Digital skills
- Promotion of STEM
- Internet connection charge sharing
- Open government data
- E-government index
- Consumer protection regulation
- Cybersecurity capabilities
- Electronic transaction framework
- Data privacy
- Crossborder transfer of data
- Government data governance
- Copyright - fair use
- National digital strategy
- National cloud first strategy
- AI Strategy

Figure 8 – Adoption of policies conducive to the use of AI, by country (darker = more robust)

26 | **AI POLICY** Blueprint for Africa

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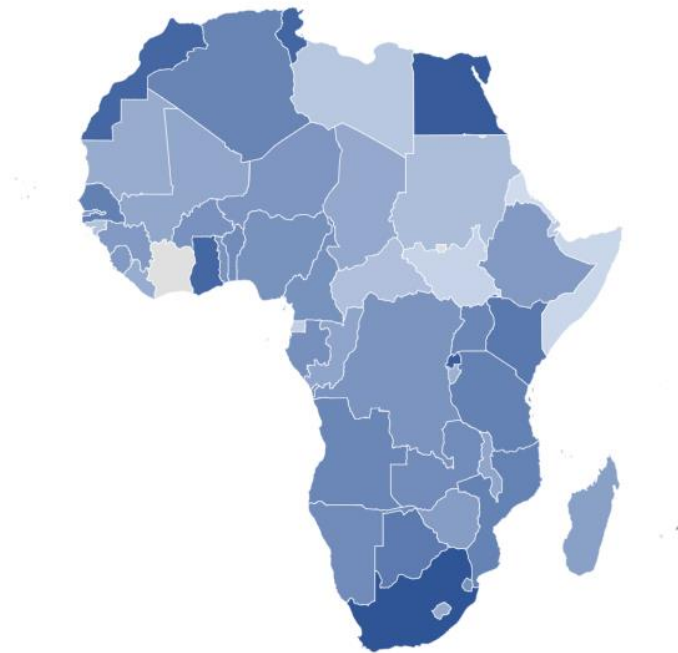
Figure 9 – AI Policy Readiness Index, by country (max. 16)

Legend:
- AI strategy or policy
- National digital strategy
- National cloud first or cloud smart strategy
- Data privacy
- Free crossborder transfer of data
- Fair use provisions
- Electronic transaction framework
- Cybersecurity capabilities
- Government data governance
- Online consumer protection regulation
- E-government index
- Open government data
- Internet connection charge sharing
- Promote uptake of STEM
- Digital inclusion
- Principles to access and use the internet (1-6)
- Digital skills

27 | **AI POLICY** Blueprint for Africa

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E. Relationships between businesses and youths' AI adoption and AI policy readiness

There is great variation in AI adoption and AI policy readiness among countries at the same level of development. Overall, Africa's more advanced countries are in more advanced stages of AI policy adoption (figure 10). However, South Africa is also a strong adopter also when compared to peers at the same level of development, Mauritius and Botswana; other economies that notably outperform their peers at the same level of development include Egypt, Kenya, Nigeria, Uganda, and Ghana.

The AI policy adoption index correlates with data on businesses' and youth's adoption of AI (in countries for which data is available), indicating that countries with pro-AI digital policy frameworks also have higher AI adoption rates (figures 11-12). South Africa, Nigeria, Egypt, and Kenya have led the way on business' AI adoption. These same economies, along with Rwanda, also outperform their peers at the same level of development in the adoption of policies conducive to AI adoption – suggesting an important relationship between AI policies and AI adoption.

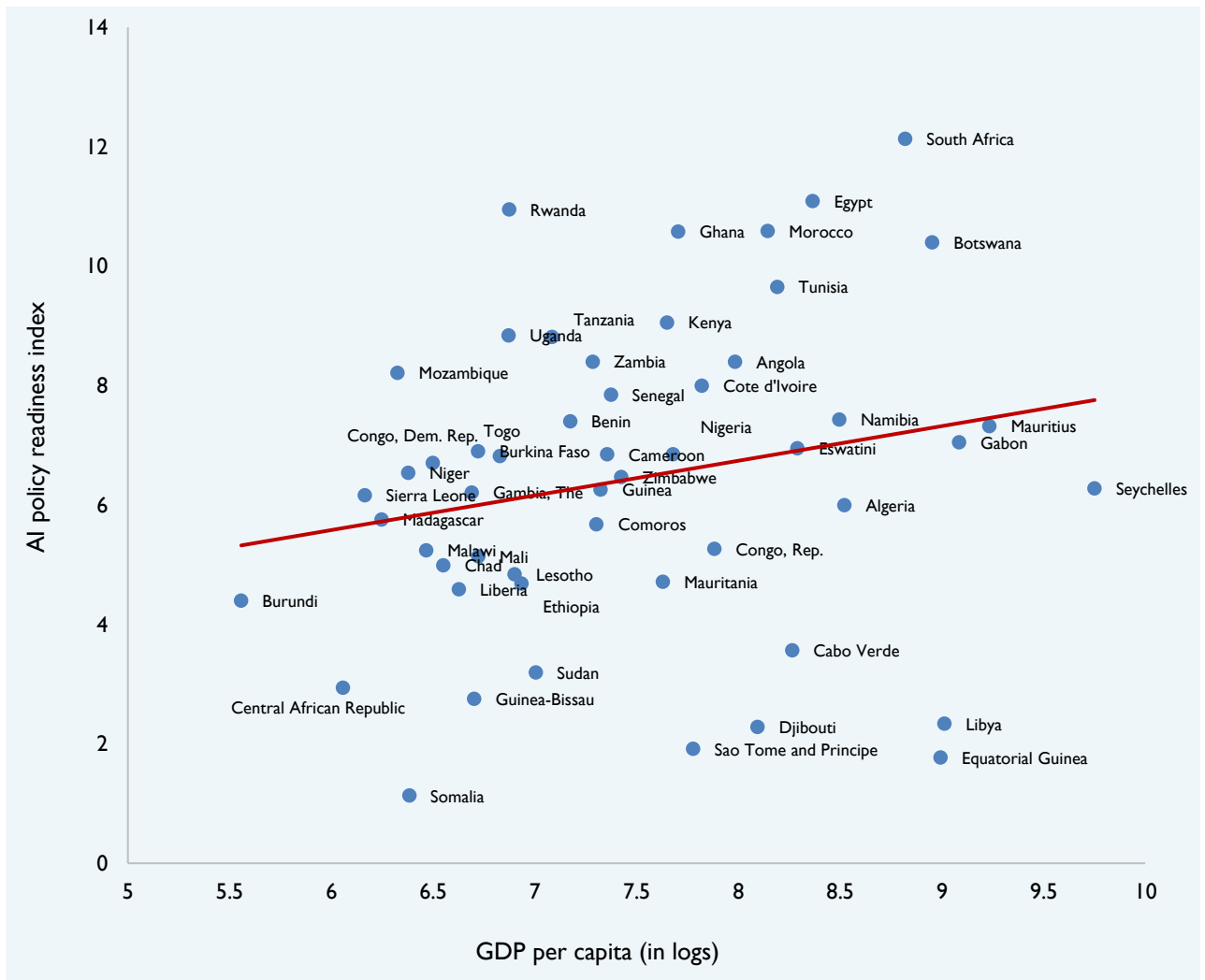**Figure 10 – AI policy readiness by level of development in Africa**

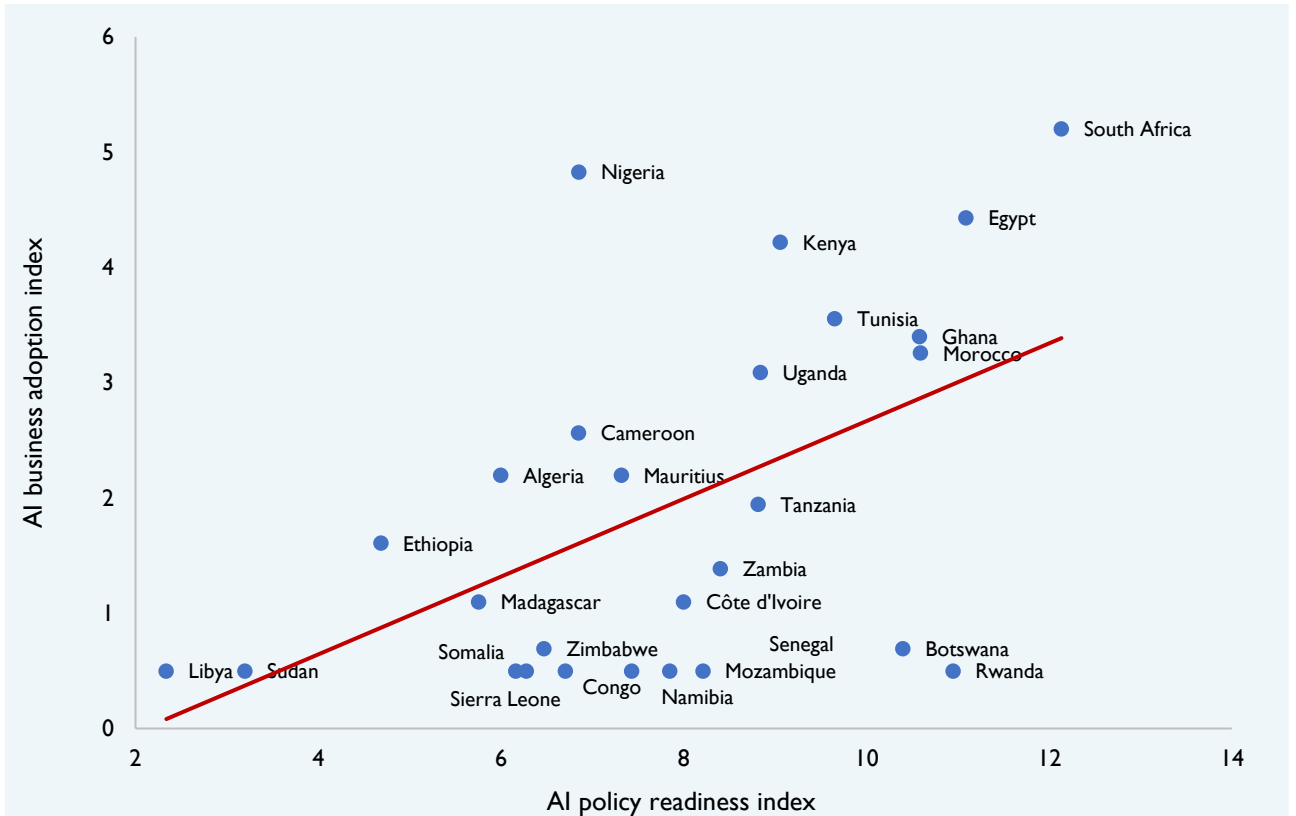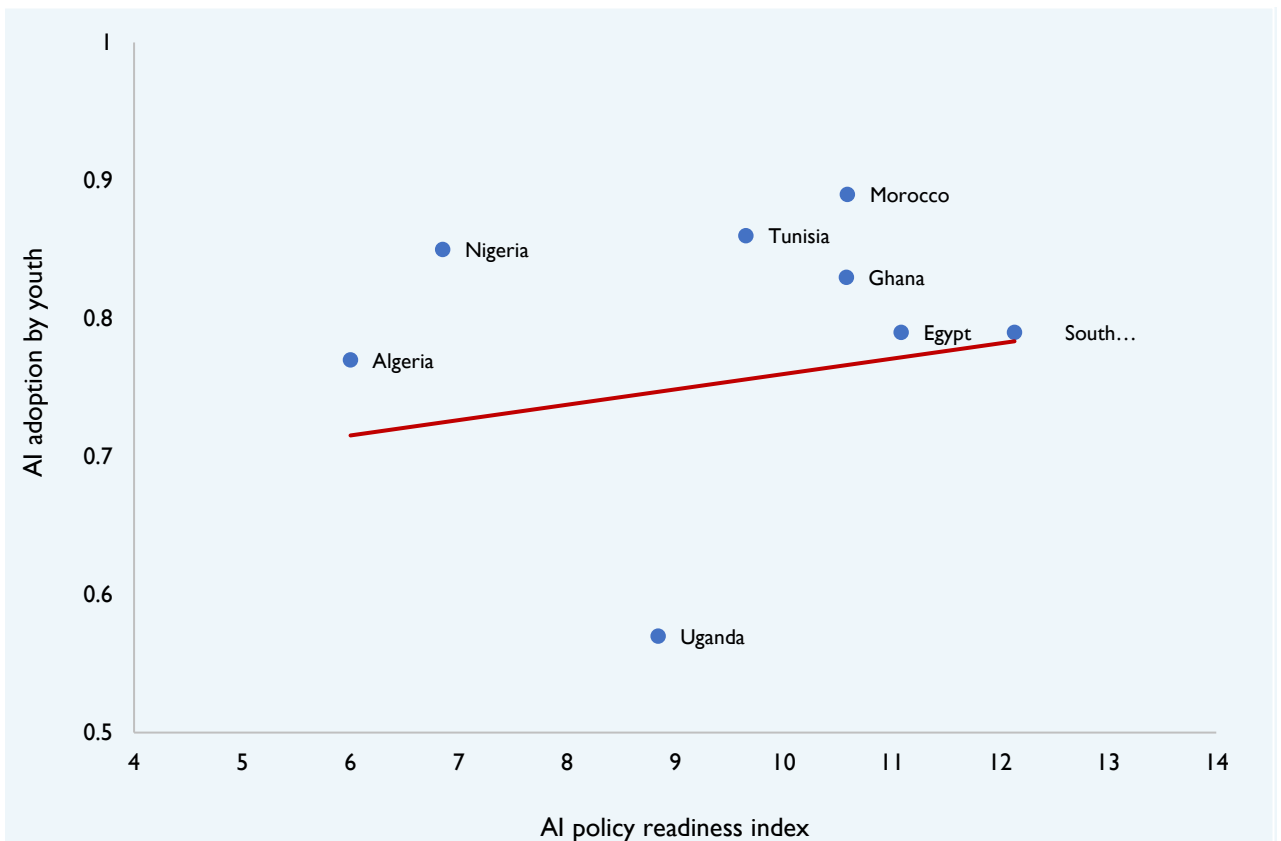**Figure 11 – AI business adoption and AI policy readiness in Africa**

Figure 12 – AI adoption by African youth and AI policy readiness in Africa

29 | **AI POLICY** Blueprint for Africa

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STATE OF AI ADOPTION AND USE IN AFRICA

AI has enormous potential and many potential use cases in Africa. This section assesses AI adoption by African firms, startups, civil society, and government agencies. In particular, we use random sample surveys with 1,000 African individuals and 1,000 small and medium enterprises (SMEs) and startups, and review African' government agencies' use of AI. Appendix I describes the survey samples.

A. How are African SMEs using AI?

African businesses are rapidly increasing their use of AI and generative AI. Over 80 percent of micro and small enterprises have used one generative AI tool or another, as have over 90 percent of medium and large firms (figure 13). Businesses use AI in particular for research and synthesizing, ideation, data analytics, and improving written documents (figure 14); almost a fifth also use AI for coding. In terms of investment in AI, some 39 percent of micro and small firms and 70 percent of medium and large companies invest three percent or more of their revenue in AI; firms that invest most tend to be highly productive and digitized, export-driven firms (figure 15).

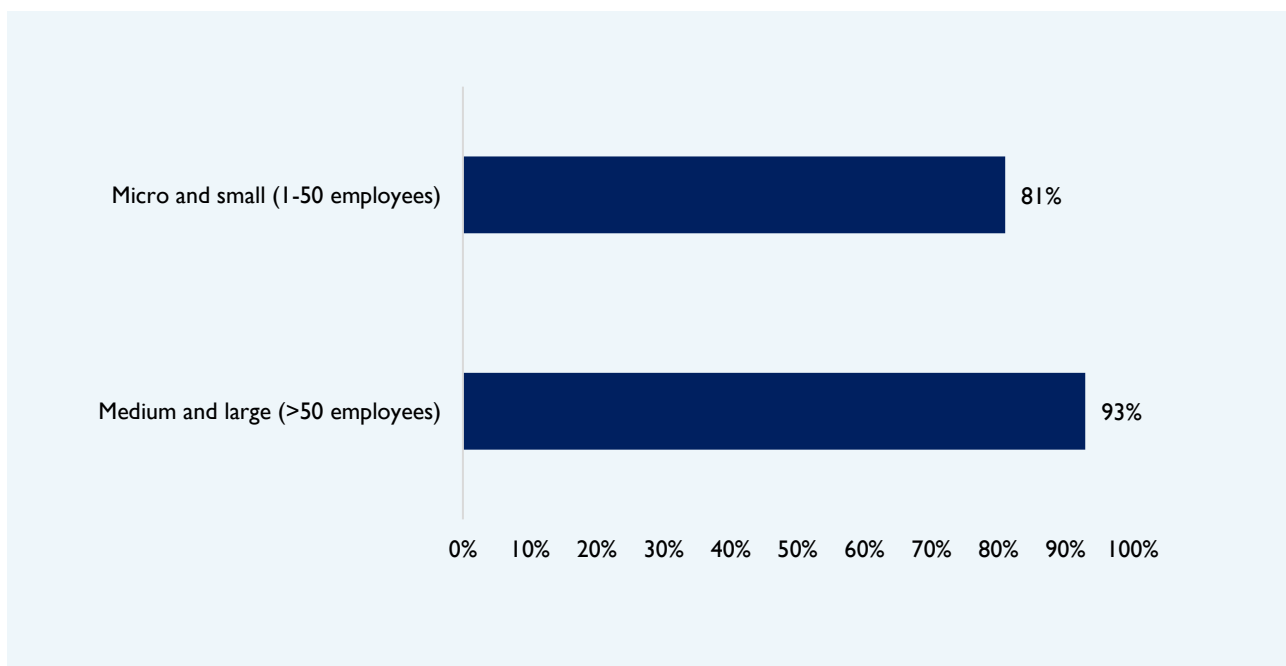**Figure 13 - % of firms using generative AI tools, by size**

Figure 14 – Firms' AI use cases

Use case	Percentage
Research, summarize information, do literature reviews, etc.	62%
Get new ideas	55%
Do data analysis	49%
Improve emails or writing	45%
Do websites, presentations	35%
Translate	34%
Synthesize information like transcripts	31%
Code	18%
Make movies or videos	14%
We do not use	9%
Other	1%
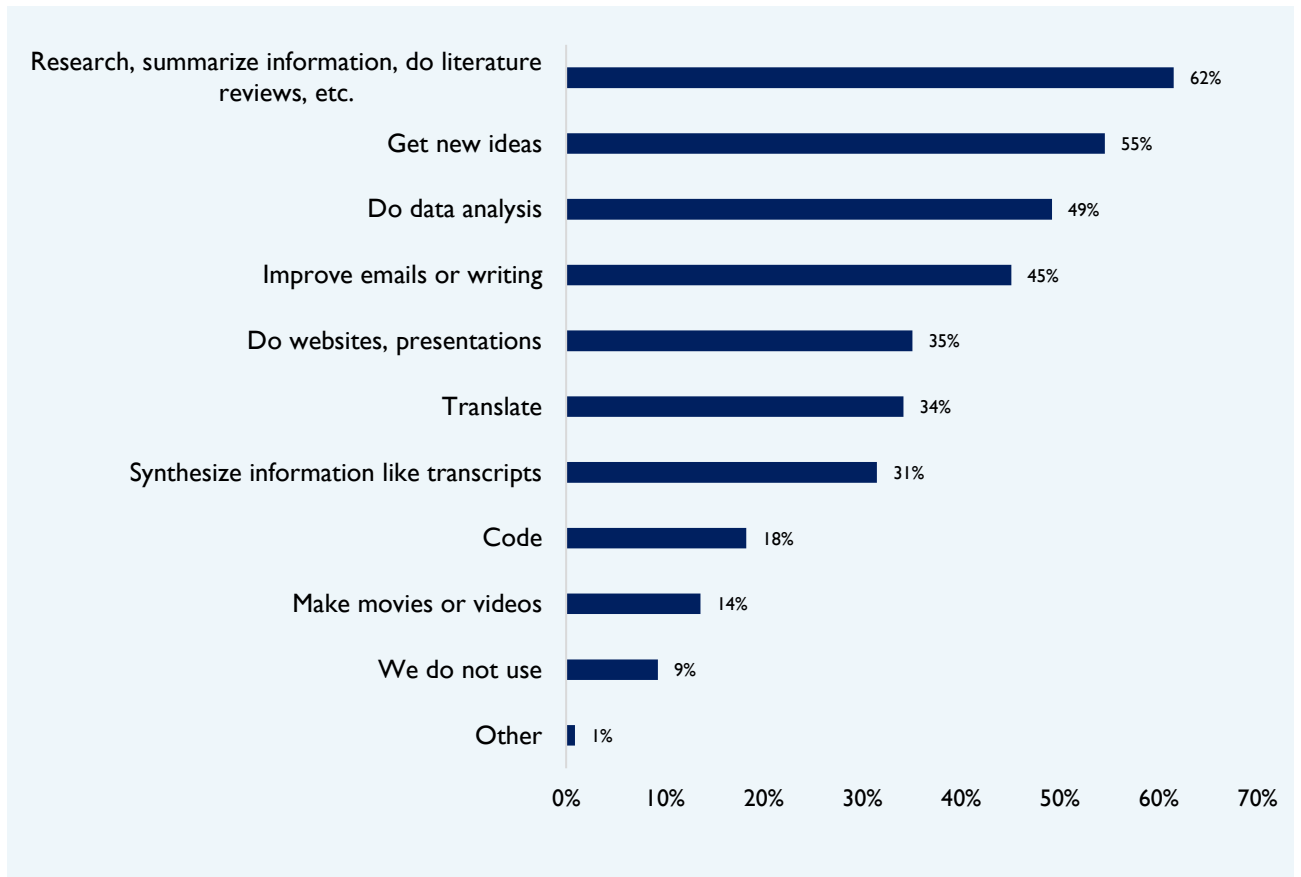
Figure 15 – Firms' intensity of investment in AI, by firm size

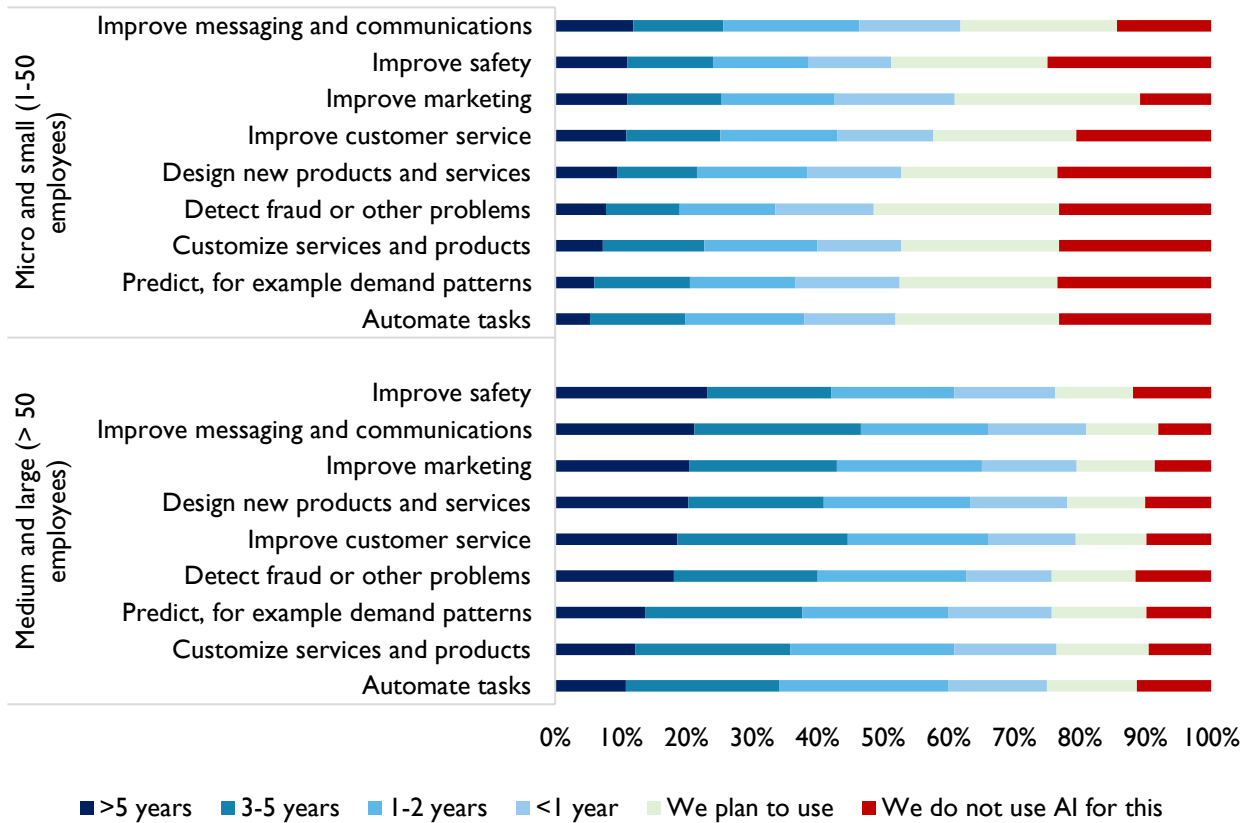| Firm size	0% of revenue invested in AI	1-2%	3-5%	6-10%	>10%
Micro and small (1-50 employees)	24%	37%	25%	11%	3%
Medium and large (> 50 employees)	7%	23%	32%	28%	10%
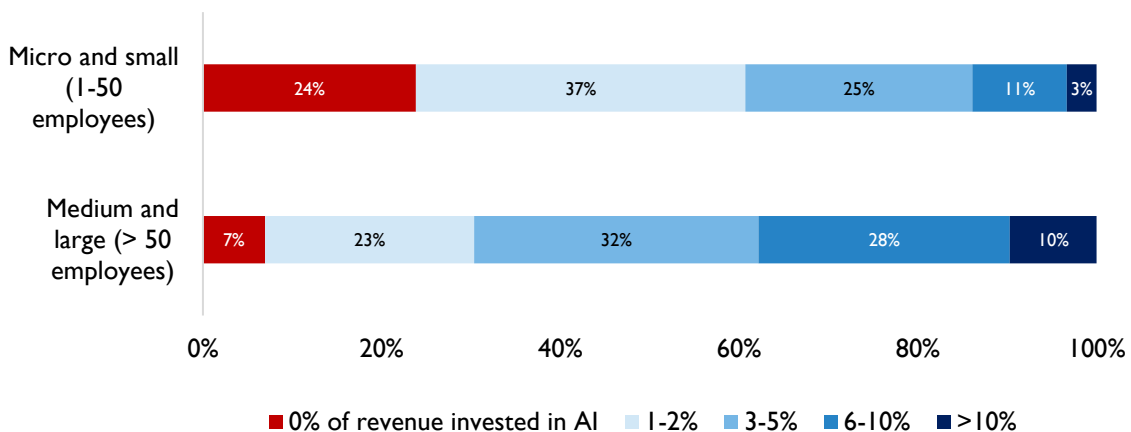
In terms of business functions, micro and small firms report using AI especially intensively in sales and marketing; medium and large firms also use it for finance and operations (figure 16). While most micro and small firms have only recently adopted AI or are planning to adopt AI, medium and large firms have used AI longer, for example to enhance sales and marketing and safety (figure 17).

Figure 16 – Intensity of AI use in business functions, by firm size

Legend:
- Highly intensively - AI does most of the work in this area
- Intensively - AI significantly complements staff
- Somewhat intensively - AI is being used every now and then
- We use only sometimes in some functions
- We do not use

Figure 17 – Firms' years of using AI for various use cases, by firm size

Legend:
- >5 years
- 3-5 years
- 1-2 years
- <1 year
- We plan to use
- We do not use AI for this

African firms and fast-growing firms in particular see AI as hugely promising technology. As many as 41 percent of fast-growing companies see AI as "absolutely transformative" for their businesses and heralding over 20 percent annual revenue gain (figure 18). Some 33 percent of less rapidly growing firms see AI as similarly transformative, while another third believes AI to be a very significant opportunity and generate 10-20 percent revenue gain.

Figure 18 – Firms' view on AI for their growth, by firm growth levels

Firm growth level	Absolutely transformative	Very significant	Significant	Somewhat useful	Not at all relevant
Fast-growth (>10% growth in 2023)	41%	31%	16%	9%	3%
Slow-growth (10% or slower growth in 2023)	33%	35%	19%	12%	1%

■ Absolutely transformative, biggest opportunity so far, equivalent to more than 20% annual revenue gain
■ Very significant, probably equivalent to 10-20% annual revenue gain
■ Significant, equivalent to 5-10% gain
■ Somewhat useful, maybe 1-3% annual revenue
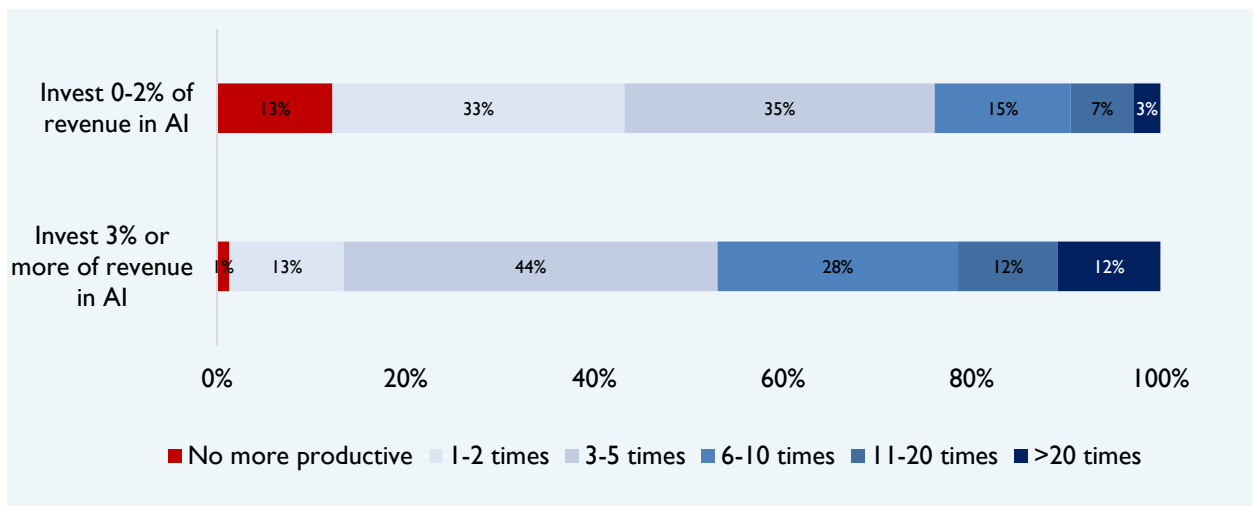■ Not at all relevant

In terms of specific business key performance indicators (KPIs), AI is first and foremost seen to help drive higher revenues; reduce hours worked, thereby enhancing productivity; and promote new customer acquisition (figure 19). Firms that invest considerably in AI reap notably greater benefits. Overall, practically all companies that invest three percent or more of their revenue in AI believe AI is making them more productive and 52 percent believe AI is making them six times or more productive in areas where AI is used, compared to firms that invest less in AI and of which 25 percent perceive similar productivity gains (figure 20).

33 | AI POLICY Blueprint for Africa

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Figure 19 – Firms' view on AI's benefits to company KPIs

	Invest 3% or more of revenue in AI	Invest 0-2% of revenue in AI
Higher profits	57%	36%
Higher revenue	50%	29%
Improve marketing ROI	50%	30%
New customers	48%	37%
Reduce hours worked	47%	45%
Improve cash flow	41%	24%
Diversify into new products and services	32%	27%
Access new export markets	31%	17%
Identify new/better vendors	30%	20%
Streamline workflows and operations	27%	28%
Reduce employees	22%	18%
Increased hiring	16%	6%
Increase hours worked	11%	7%

Figure 20 – Firms' view on productivity gains due to AI, by intensity of AI use

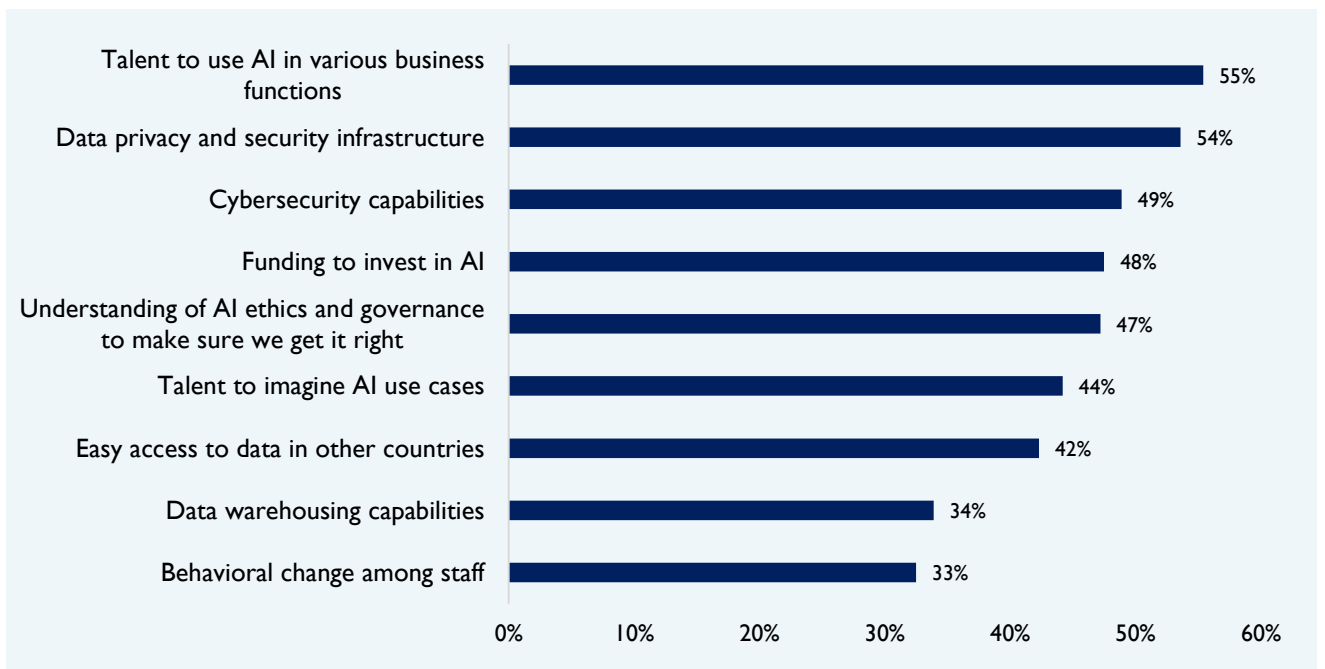|	No more productive	1-2 times	3-5 times	6-10 times	11-20 times	>20 times
Invest 0-2% of revenue in AI	13%	33%	35%	15%	7%	3%
Invest 3% or more of revenue in AI	1%	13%	44%	28%	12%	12%

Both small and large African firms are concerned about data privacy and cybersecurity challenges that emerge with AI, as well as lack knowledge about AI and ways to use it (figure 21). Most companies report needing AI talent across business functions, better data privacy and cybersecurity capabilities, as well as funding to invest in AI (figure 22). Companies are also keen to learn about AI ethics and governance.

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Figure 21 – Firms' concerns about AI, by firm size

Legend: ■ Top concern ■ Major concern ■ Concern ■ Somewhat concerning ■ Not an issue

Figure 22 – Firms' needs to take full advantage of AI

Need	%
Talent to use AI in various business functions	55%
Data privacy and security infrastructure	54%
Cybersecurity capabilities	49%
Funding to invest in AI	48%
Understanding of AI ethics and governance to make sure we get it right	47%
Talent to imagine AI use cases	44%
Easy access to data in other countries	42%
Data warehousing capabilities	34%
Behavioral change among staff	33%

35 | **AI POLICY** Blueprint for Africa

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B. Use of AI by African youth, educators, and other stakeholders

Just like companies, various groups in the African society – students, educators, association leaders, and policymakers – see great benefits from AI for their productivity and creativity, but they also believe young people need more support to use AI as they enter the job market, such as to imagine AI use cases, ensure data privacy and cyber security, and access data, including across borders (figure 23). Most students, educators and business leaders have so far learned AI on their own, from friends and colleagues, and from YouTube (figure 24).

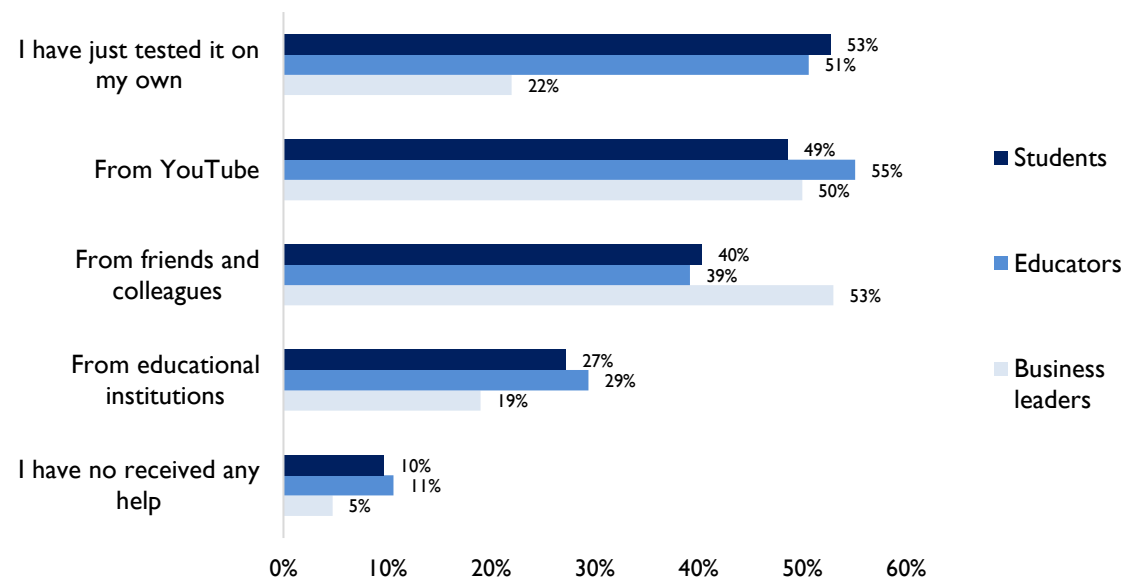**Figure 23 – Perceived needs for Africa's youth to take advantage of AI**
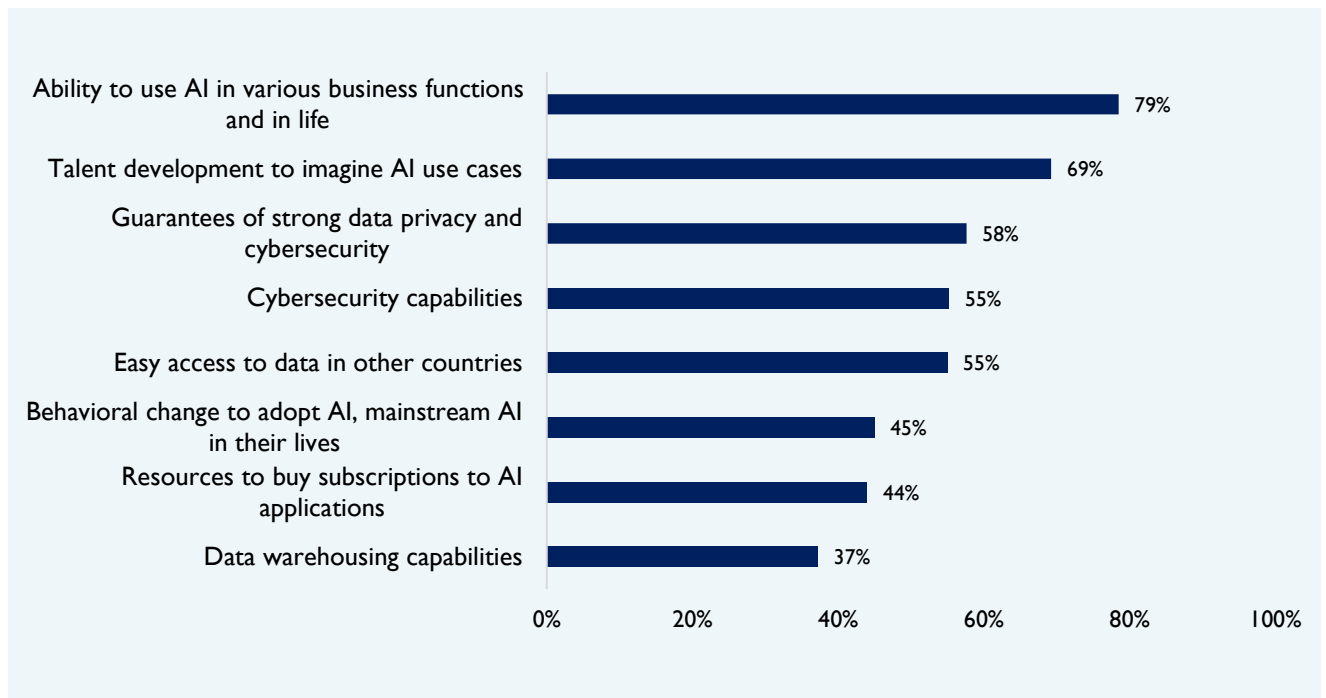
Figure 24 – Sources of support to use AI , by user group

36 | **AI POLICY** Blueprint for Africa

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In terms of national development, almost one-half of the surveyed believe AI will make African societies much more productive and accelerate development (figure 25). However, there are also considerable concerns about hacking and risks around AI. AI is also on balance feared to widen economic disparities.

Accordingly, a considerable majority believes the government in their countries should play an active role in promoting the use of AI, including by putting in place policies that make AI use safe, help young people get AI skills, and promote understanding of what skills are needed in AI era (figure 26). Some 47 percent believe the government should help small businesses take advantage of AI.

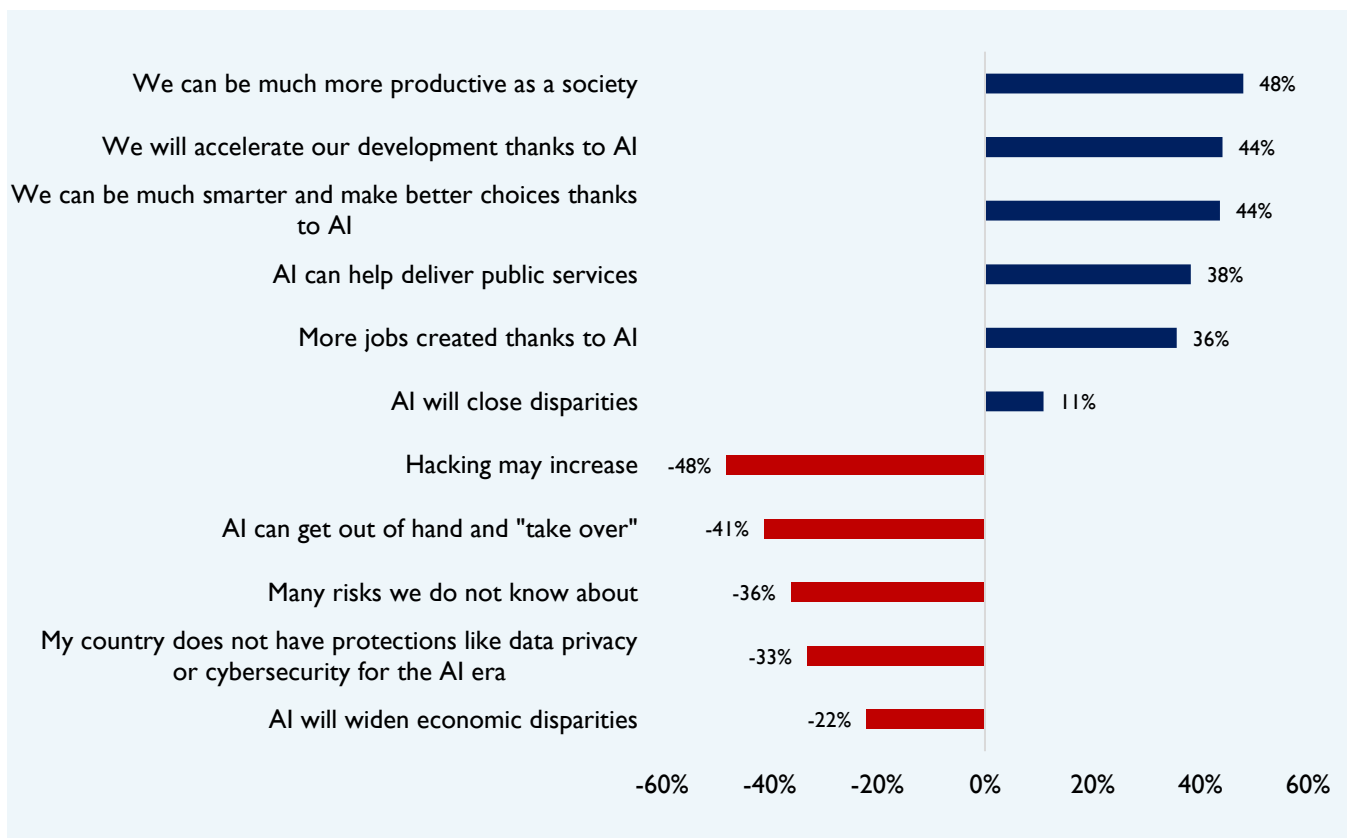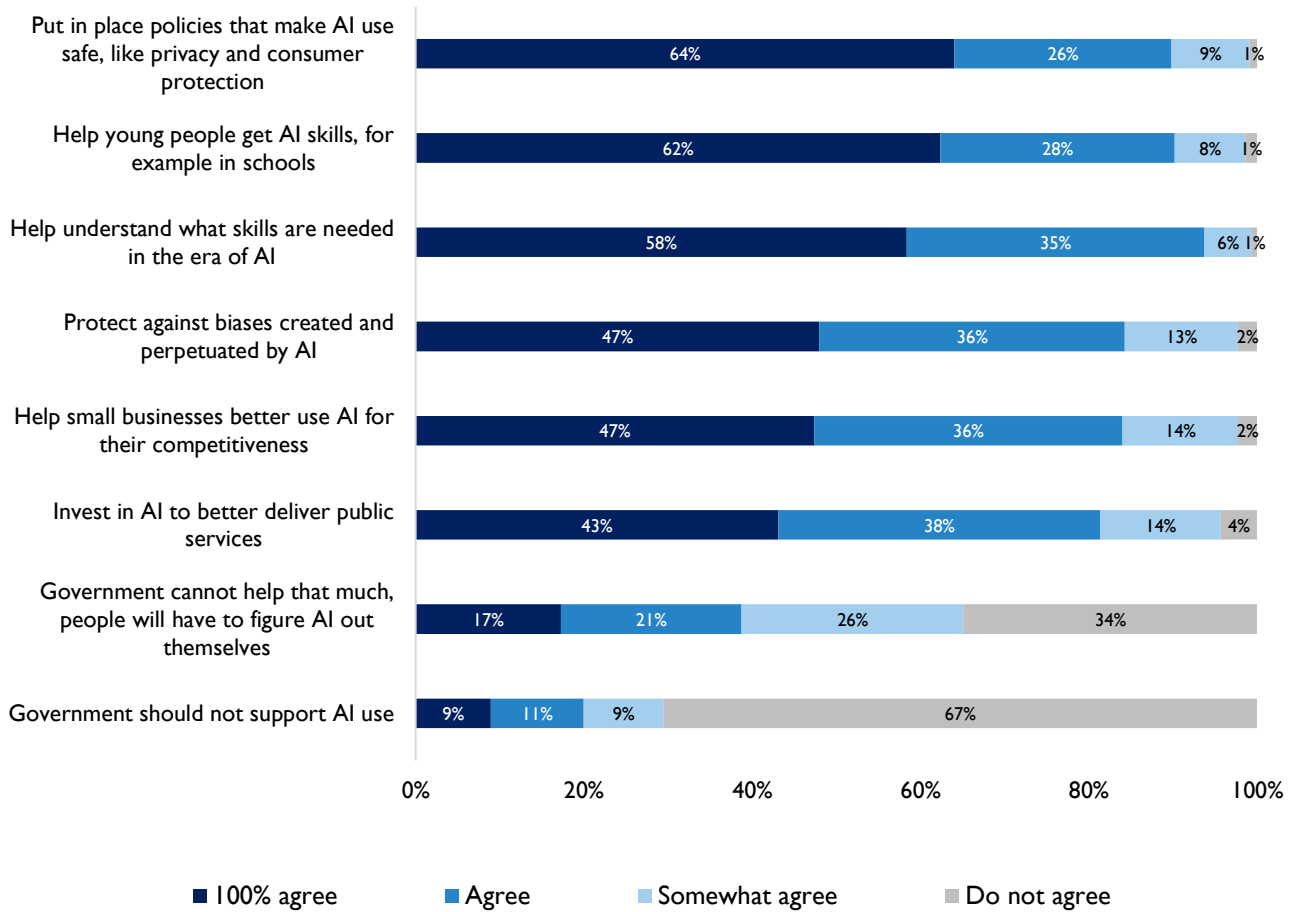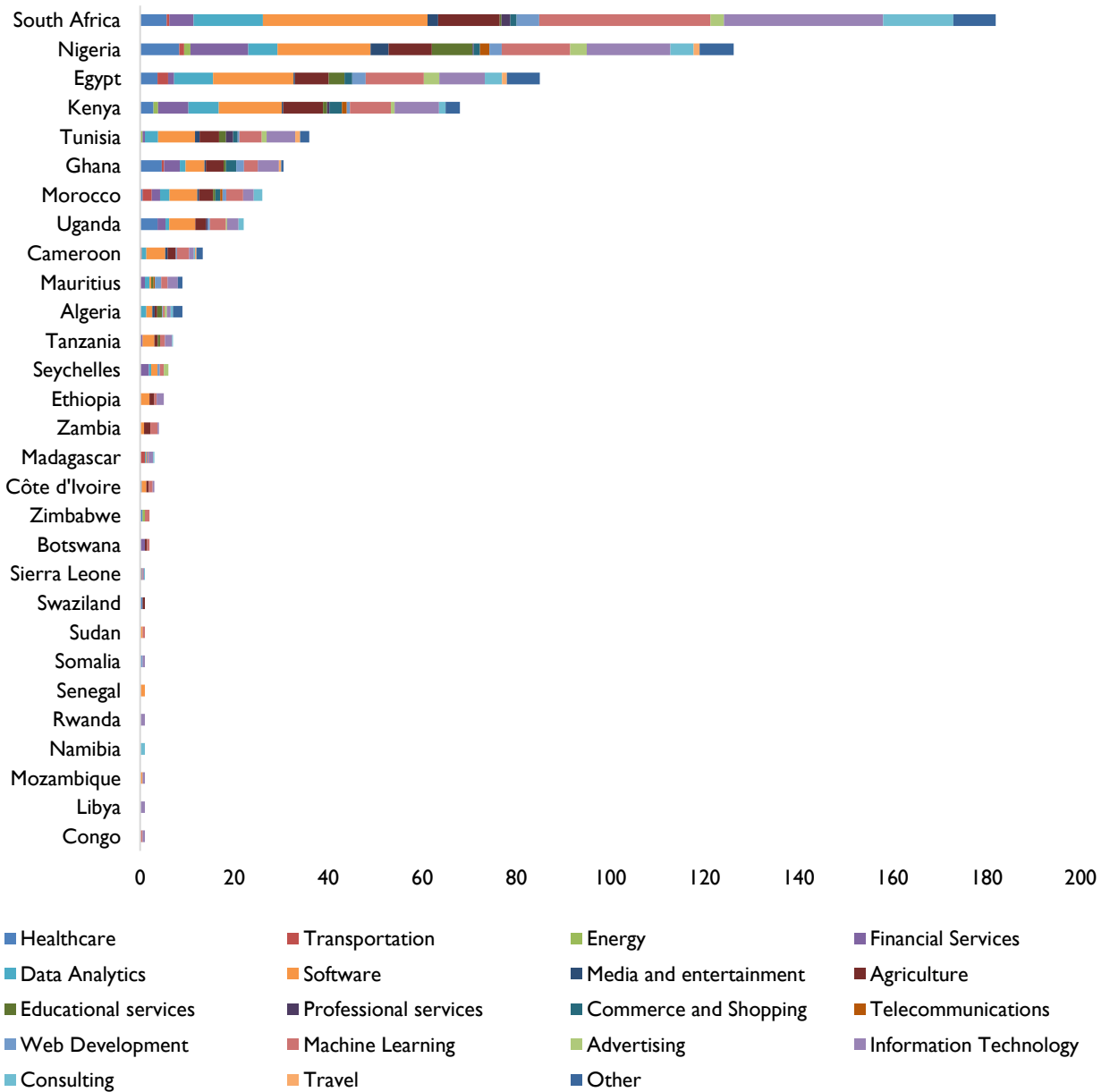**Figure 25 – Perceptions of the impact of AI in Africa**

Perception	Value
We can be much more productive as a society	48%
We will accelerate our development thanks to AI	44%
We can be much smarter and make better choices thanks to AI	44%
AI can help deliver public services	38%
More jobs created thanks to AI	36%
AI will close disparities	11%
Hacking may increase	-48%
AI can get out of hand and "take over"	-41%
Many risks we do not know about	-36%
My country does not have protections like data privacy or cybersecurity for the AI era	-33%
AI will widen economic disparities	-22%

37 | **AI POLICY** Blueprint for Africa

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Figure 26 – What African governments should do to help take advantage of AI

	100% agree	Agree	Somewhat agree	Do not agree
Put in place policies that make AI use safe, like privacy and consumer protection	64%	26%	9%	1%
Help young people get AI skills, for example in schools	62%	28%	8%	1%
Help understand what skills are needed in the era of AI	58%	35%	6%	1%
Protect against biases created and perpetuated by AI	47%	36%	13%	2%
Help small businesses better use AI for their competitiveness	47%	36%	14%	2%
Invest in AI to better deliver public services	43%	38%	14%	4%
Government cannot help that much, people will have to figure AI out themselves	17%	21%	26%	34%
Government should not support AI use	9%	11%	9%	67%

C. Rise of AI-driven startups in Africa

As AI use expands among Africa firms, many AI-driven startups are being created across the continent to enhance services to businesses and consumers across various sectors. Real-time data on the rise and funding of AI-driven startups reveals a notable growth of firms of this kind in the past five years in such sectors as healthcare, software, professional services, financial services, and information technology and software. As of 2024, there are almost 600 startups across Africa with AI as a core element in their business. In terms of absolute numbers, South Africa, Nigeria, and Egypt have led the way in spawning startups with AI-driven business models (figure 27). In relative terms, AI-driven startups are especially important in Morocco, Uganda, and Côte d'Ivoire where they make up as many as a fifth of startups launched in 2023-July 2024 (figure 28).

Figure 27 - Startups founded from 2000-24 with AI-driven business models, by country and sector

■ Healthcare	■ Transportation	■ Energy	■ Financial Services
■ Data Analytics	■ Software	■ Media and entertainment	■ Agriculture
■ Educational services	■ Professional services	■ Commerce and Shopping	■ Telecommunications
■ Web Development	■ Machine Learning	■ Advertising	■ Information Technology
■ Consulting	■ Travel	■ Other	

Source: Nextrade Group based on Crunchbase.

CASE 1
Diagnosing maternal and neonatal health challenges with iLara Health[39]

iLara Health is a health-tech company based in Kenya that provides affordable and accessible diagnostic services to primary care clinics, especially in peri-urban and rural areas.[40] Founded in 2019, the company targets the significant diagnostic gap in the African healthcare sector by offering small, portable diagnostic devices that can be integrated with smartphones. These devices are designed to make essential medical diagnostics more accessible, helping clinics increase their service offerings and, consequently, their revenue.

iLara started by offering diagnostic devices at affordable rates, digitizing clinic operations, and optimizing record-keeping through their custom-built Electronic Medical Records (EMR) system. This system streamlined patient care and improved business operations for clinic owners, creating a comprehensive solution for better visibility and efficiency. The initial months from late-2022 to mid-2023 were focused on integrating the model with local data, training it, and aligning the team with the project's demands.

In an important milestone, iLara Health partnered with public sector bodies in Kisumu County and collaborated with other entities like Swap Kenya and Cognitive Care to deploy an Antenatal Risk Stratification (ARS) algorithm. By training this algorithm with local data, iLara was able to predict critical maternal and neonatal health risks, including emergency C-sections and postpartum hemorrhage. iLara Health has also helped clinics improve their services by using EMR data to identify factors contributing to various clinics' success and client retention, and to predict disease burdens and medication demand.

Challenges to deploy AI

iLara Health has faced several challenges in deploying AI within healthcare systems. Bureaucracy and the need to deal with multiple stakeholders in the public health sector often delays decision-making. Many clinics and hospitals iLara Health serves operate with limited budgets, making it difficult for them to invest in advanced AI technologies and the processing power needed. While Kenya is moving from paper-based medical data to electronic records, there are still inconsistencies in electronic data that undermine the robustness of AI models.

Fundraising environment too is in a flux after the surge of interest in AI in 2023. Today, fundraising efforts are more traditionally oriented towards scaling operations, market expansion, and product development rather than earlier, Series A rounds.

Importance of data transfer, privacy, and ethics

Data management and storage are a challenge in the face of evolving regulations and ambiguity surrounding transmission of data outside of Kenya. According to iLara, while Kenyan law mandates that data be stored locally and can be transferred internationally provided that necessary protections are in place, the specifics of what constitute "necessary protections" remain unclear. This ambiguity often requires the formation of agreements and adherence to strict safety standards. Large institutional funders usually require compliance with stringent international data protection laws from the outset, even before local regulations require such standards.

There are also important ethical implications and practical applications of AI in healthcare, particularly in terms of patient consent in data usage. iLara's AI models primarily focus on data analysis but also occasionally leverage generative AI for engaging customers, which underscores the need to obtain explicit consent before using patient data. iLara stresses that AI tools should generate value not only for the healthcare system, but also for the patients, the original data subjects.

40 | **AI POLICY** Blueprint for Africa

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Figure 28 - Share of AI-driven startups of all startups formed in 2023-24, by country
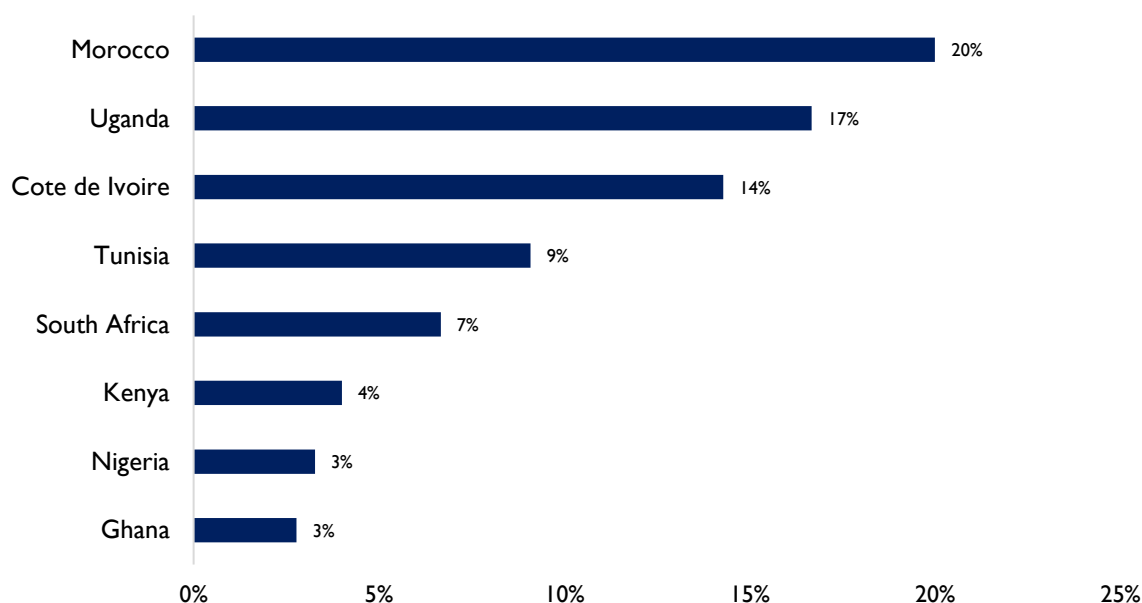
Source: Nextrade Group based on Crunchbase.

CASE 2
World-class logistics management with Logistify AI

Logistify AI, a Kenya-based AI-driven company founded in 2019, is addressing the challenges faced by logistics and supply chain managers in East Africa.[41] Initially conceived to streamline operations for a family-owned warehousing business, Logistify AI has set out to automate costly and inefficient manual workflows that had burdened warehouse owners and supply chain managers across East Africa.

New value through automation

One way Logistify adds new value is through sales order entry automation where AI extracts sales order data from communication platforms such as WhatsApp and integrates it into enterprise resource planning (ERP) systems, eliminating the need for manual data entry, reducing errors, and significantly speeding up the order processing workflow. Using CCTV cameras in warehouses, Logistify also offers automated inventory checks and real-time tracking of stock levels, a process that minimizes human error and ensures faster and more accurate verification of inventory. These innovations have allowed Logistify AI to expand its services across East Africa and position itself as a leader in AI-driven logistics management.

The integration of AI into logistics seemed impossible just two years ago. However, today, low-cost natural language processing (NLP) systems and large language models (LLMs) are operational due to advances in AI technology and research, and enable AI solutions at lower cost.

Challenges

Logistify AI faces several challenges in the deployment of AI technologies. Many of the company's clients operate in remote locations with poor or inconsistent internet access, limiting the scalability of cloud-based AI solutions. Running AI models remains expensive, making it difficult to implement AI-driven, customer-centric models in a cost-efficient manner. The availability of skilled AI professionals in

East Africa is still limited. While Logistify AI has invested in internal training to build its workforce, the high cost of hiring experienced AI developers remains a significant challenge. The lack of comprehensive AI policies in East Africa has created uncertainties, particularly regarding data governance, AI ethics, and cross-border data transfers. Without a clear AI regulatory framework, it has been difficult for businesses like Logistify AI to navigate compliance issues.

Policy priorities

To fully leverage the potential of AI and drive its safe and sustainable implementation in East Africa, Logistify AI calls for governments to develop clear guidelines on data privacy, cybersecurity, and data transfer, for companies to deploy AI responsibly.

African governments should also introduce policies that encourage innovation in AI. One good example is Morocco that has successfully invested in logistics and supply chain innovation.

To democratize AI and bring it to businesses in rural areas, there is a need for affordable internet access across Africa. Governments also need to invest in AI training programs to equip young professionals with the skills required to develop and deploy AI solutions. Building a strong local talent pool will help address the shortage of AI expertise in the region.

African AI-driven startups have also attracted investors. Tanzanian, South African and Tunisia, AI startups have on average garnered over a million in funding; South Africa is the clear leaders in overall investment in AI companies, at $80 million in total (figures 29-30).

Figure 29 - Average funding in AI-driven startups that report investments, by country

Source: Nextrade Group based on Crunchbase.

42 | **AI POLICY** Blueprint for Africa
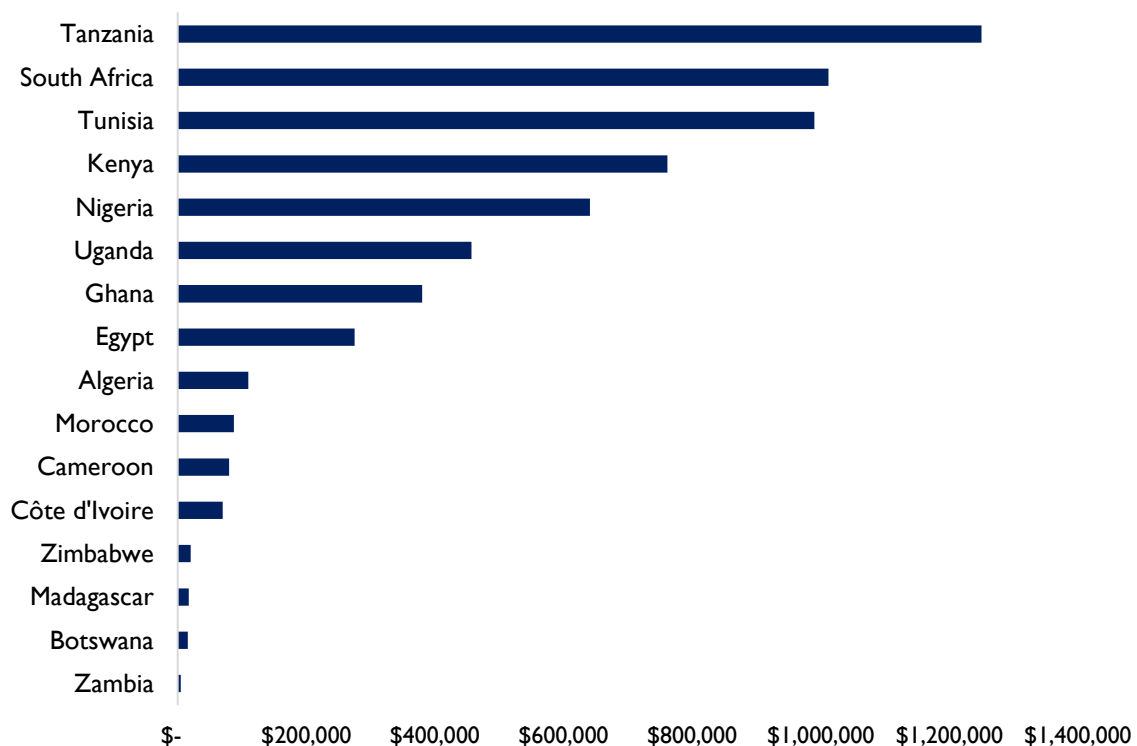
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Figure 30 – Total funding in AI startups, by economy and last funding round reported
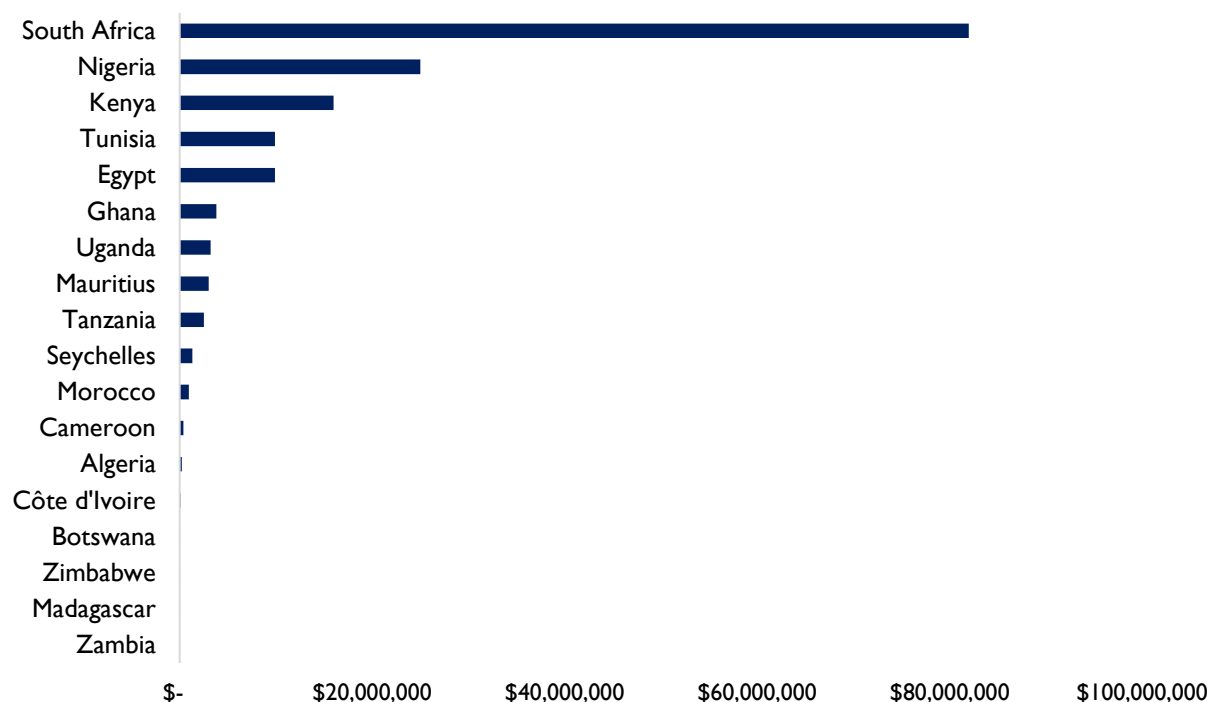
Source: Nextrade Group based on Crunchbase.

CASE 3
Low-cost websites for African entrepreneurs in 30 second using VZY

VZY operating in Nigeria and the United States uses AI to streamline website development for individuals and businesses. VZY enables the creation of a website in less than 30 seconds, a great advantage for users with limited technical skills or access to traditional computing resources.

VZY has created over 100,000 websites within just six months. The platform is optimized for mobile use, allowing users to create, manage, and edit their websites directly from their smartphones, enhancing accessibility and convenience.

Also VZY's pricing model is tailored to Africa, with subscription cost one-half the cost of those in the United States. VZY has also adopted a freemium model, which allows users to launch a website at no initial cost. This model is particularly advantageous for new businesses or individuals who are unsure of the website's return on their investment.

Looking ahead, VZY is developing a feature that enables users to create online shops on their websites, with an innovative payment structure where fees are only incurred on transactions made through the site. VZY founder Evans Akanno stresses the importance of basics like electricity and internet for Africans to access to AI-driven solutions. Data privacy policies and cybersecurity threats should also be prioritized. Ethical data practices by all stakeholders are paramount to avoid unnecessary data collection and ensure user privacy.

In terms of revenue, some AI-driven startups in South Africa, Nigeria, and Egypt in particular have taken off with estimated revenues of over $1 million, with a few surpassing $50 million in revenue (figure 30).

Figure 30 - Distribution of revenue of AI-driven startups, by country
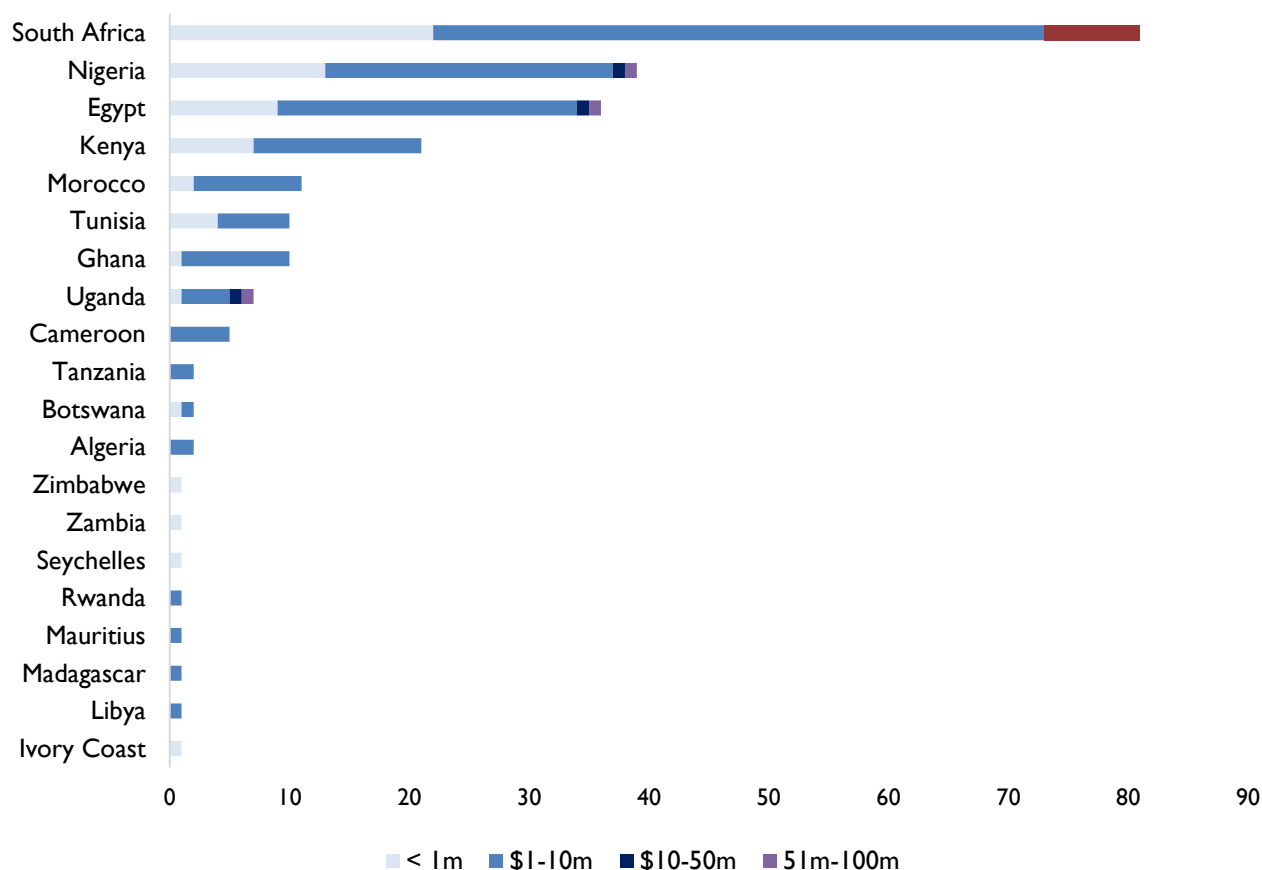
CASE 4
MSME financing with Kenya's Fastagger

Fastagger, co-founded by Mutembei Kariuki in 2019, stared with a focus on machine learning data labeling.[42] The company's vision is to democratize AI and data. Its flagship product addresses a significant gap in customer and revenue management tools available to SMEs, particularly informal ones reliant on mobile money transactions, and assists SMEs in analyzing their transaction data, improving financial reporting, and identifying growth opportunities. A recent product, Auni.AI, serves as an on-device AI assistant that leverages existing small language models and Retrieval Augmented Generation (RAG) to offer personalized advice to SMEs based on their financial reports.

Fastagger's AI solutions offer a unique value proposition tailored to the specific needs of SMEs, especially those operating within Africa's informal sector. Recognizing that internet connectivity is a huge obstacle for AI adoption in Africa, Fastagger develops on-device offline AI solutions, with a focus on low-spec smartphone

44 | **AI POLICY** Blueprint for Africa

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devices. This reduces reliance on internet connectivity and data consumption.

Challenges Faced as an AI Startup in Africa

Fastagger has encountered several challenges in deploying its AI solutions, the most pressing of which is the difficulty in securing capital. The funding gap is primarily due to knowledge gaps in the investment community about AI's potential in Africa. African VCS are still new to AI and hesitate to invest in AI startups, opting for fintech startups that offer more immediate returns. Limited investments in AI also curtail access to top AI talent and AI infrastructure. Fastagger's high cost of computing infrastructure necessary for AI development and deployment also remains a significant barrier, despite some relief provided by computing credits from Google.

Also regulatory issues pose obstacles. The nascent nature of data protection and AI regulations on the continent creates uncertainties. Additionally, existing regulations such as the imposition of punitive taxes on digital services risk stymying growth. For example, Kenya's decision to impose VAT on cloud services from international providers directly raises Fastagger's operational costs and burdens other startups heavily reliant on these services for their core operations

Policy and the African AI Startup Ecosystem

Kariuki advocates for the development of regulatory frameworks that are specifically tailored to the unique needs and contexts of the African market, rather than adopting foreign models wholesale. Many African countries are adopting for example European digital regulations without fully considering their applicability to local conditions. For example, Kenya's data protection act, which mirrors the EU's GDPR, makes it illegal to obtain a person's name after sending money via mobile money. This regulation is misaligned with the reality in Kenya, where mobile money transactions often require name confirmation for security and fraud prevention. Kariuki argues for pro-innovation policies while addressing the continent's unique needs and challenges.

Impact of Partnerships on AI Strategy and Capabilities

Partnerships have been a critical conduit of Fastagger's strategy to enhance its AI capabilities. Their collaboration with KEPSA, the Jua Kali Association, and other MSMEs networks such as Kayana Create have significantly contributed to the company's growth by enabling it to directly engage with a broad base of micro and small enterprises. By working closely with these organizations, Fastagger has been able to tailor its solutions to meet small businesses' specific demands, particularly in traditionally underserved sectors. These partnerships have also facilitated the introduction and adoption of Fastagger's AI tools within these networks, providing invaluable insights into the needs and challenges of MSMEs. The company has successfully collaborated with organizations such as Safaricom, which has integrated its AI solutions into widely used platforms like the MPESA Super App, expanding its reach.

45 | **AI POLICY** Blueprint for Africa

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CASE 5
Identifying low-quality medications through RxAll

RxAll founded in 2012 uses AI to combat counterfeit drugs in Africa.[43] The company's use of convolutional neural networks in conjunction with miniaturized spectrophotometers achieves remarkable 99.9 percent accuracy in identifying low-quality medications. The rapid on-site testing of drugs without the need for specialized personnel drastically reduces the costs and logistical barriers associated with traditional methods. To date, RxAll's patented technology has successfully removed 1.1 million substandard drugs and currently serves about 3 million monthly patients at sixth of the cost of solutions offered by competitors.

Originating from a collaboration between Yale University's Business School and School of Chemistry, RxAll started as a project aimed to empower regulatory bodies like the U.S. Food and Drug Administration (FDA) and its counterparts in Nigeria, Kenya, and Uganda to perform instantaneous drug verification. By 2020, RxAll had secured funding to transition the prototype into a market-ready product and expanded the technology to include generative AI by 2022.

RxAll has faced various challenges. AI was not widely recognized or understood until the rise of ChatGPT in 2022. Misconceptions about AI and machine learning have undercut adoption, while the proposition to replace traditional labs with AI technology have sparked concerns about job losses.

Access to finance has also been a challenge: investors have been hesitant to fund AI applications in Africa, perceiving the market as unsophisticated and unable to generate returns and preferring, for example, AI-driven skincare and related luxury solutions for U.S consumers. There is also a lack of access to talent such as AI engineers with expertise in refining models to function independently without constant tuning and able to integrate foundational AI models with specific applications. The RxAll team has found that effective AI engineering demands a blend of theoretical knowledge, programming skills, and practical experience to adapt and utilize advanced models, which remains a significant gap in the local talent pool.

The team is also concerned that critical access to data from across Africa could be jeopardized if African countries begin requiring local data hosting.

D. Adoption of AI by African governments

AI is not only for firms: AI use by governments can dramatically enhance public service delivery and expand citizens' access to healthcare and the justice system, for example. The use of AI is only beginning in the coming years, governments have a huge opportunity to enhance services and increase efficiencies by leveraging AI, especially as they also adopt cloud computing. Several African governments are already working to use AI for these purposes. Some use cases include:

- **Scaling health diagnostics.** South Africa's Department of Health has explored using AI to expedite the screening and diagnosis of tuberculosis (TB).[44] Although South Africa has made progress in the fight against TB, it still had 468 cases per 100,000 of the population in 2022. AI use is expected to accelerate and improve diagnostics such as chest X-rays that have been integral in diagnosing TB and silicosis among mineworkers.

- **Bolstering revenue collection.** The Kenya Revenue Authority (KRA) is planning to use AI to bolster its efforts reduce tax evasion and expand the tax base.[45] With a focus on industries that have historically been challenging to tax, AI use seeks to guarantee a more equitable system and to shield companies from undue taxes.

- **Representing language groups**. Nigeria's government and local startup Awarri are building a large language model (LLM) in five low-resource languages and accented English, to help increase the representation of Nigerian languages in the AI systems being built around the world.[46] The first version of the LLM will be trained on 24,000 hours of audio, while the second will need 500,000 hours.

- **Improving access to justice.** Morocco's Ministry of Justice is integrating AI to enhance efficiency, improve judicial quality, and facilitate access to justice.[47] One key element is transcribing judgments through AI-supported voice dictation that automates conversion of speech to written text, including in Darija dialect and the Amazigh language. The use of AI will also help judges to refer to similar cases and precedents.

- **Mainstreaming AI use in government**. The Government of Rwanda and Babylon Health are working to enable Rwandans access quality healthcare services through their mobile phones.[48] This new delivery model called "Digital-First Integrated Care" is aimed to provide convenient access to qualified doctors and nurses, especially for people living in remote areas.

CONCLUSION

AI is a historic opportunity for Africa. It can deliver extraordinary productivity and development gains for African economies and firms, streamline and scale government operations and service delivery, and help African economies attract foreign investment. AI can also propel Africa to reach sustainable development goals.

The adoption and diffusion of AI and cloud across African firms, government agencies, and economies is accelerating, and will critically be shaped by the regional governments' digital policy frameworks. This report has built on Google's AI Sprinters report to build a policy framework for bringing about the promise of AI in Africa. This report has assessed the gains from AI to African economies and firms and government operations and service delivery, discussed good global practices for adopting AI safely at scale, and analyzed African economies' AI policy readiness.

Africa's AI journey is just in the beginning. This report is expected to be a living document that will be updated to reflect policy changes and AI adoption gains in Africa, and promote the latest thinking on AI policy to the continent.

Appendix I – Survey sample

The firm-level survey used here was fielded on 13-17 July 2024 as a random sample covering a range of services and goods sectors and firms of all sizes, mostly micro and small firms. It was fielded with survey firm Pollfish that has large panels of survey takers globally. The survey also captures such firm characteristics as gender of the CEO, geolocation, export orientation, and growth, and surveys firms on their use of AI and challenges to AI use. The survey has a confidence level of 95% and a margin of error of five percent, similar to the margin used in the World Bank's Enterprise Surveys. Unlike in a traditional survey process where we would first draw up a sample frame of firms in a country and then randomly select firms for it for computer-assisted telephone interviews (CATIs) or in-person meetings, the method here was based on online surveys relying on Pollfish's proprietary panel of respondents. The survey takers take the survey on their laptops or computers, online, on their own time.

This online survey method is scalable and saves considerable amount of time and resources. Several prior surveys utilizing both CATI and online surveys in a country simultaneously that online surveys as executed as here have minimal tradeoffs: they produce very similar patterns as CATI surveys, and, even if the surveys are unsupervised, produce robust, high-quality responses by serious survey takers. This in part owes to robust quality control before, during, and after the survey, through such practices as questions to identify inattentive survey takers and digital fingerprinting to prevent duplicates. A mix of further solutions ensure that even users that may have multiple accounts and devices attempt a specific survey only once.

The firm sample contains 47 percent micro and small firms of up to 50 employees, and 53 percent medium and large firms, mostly from Egypt, Ghana, Kenya, Morocco, Nigeria, and South Africa (figure I-1). These firms represent various sectors; about two-thirds are in services (figure I-2).

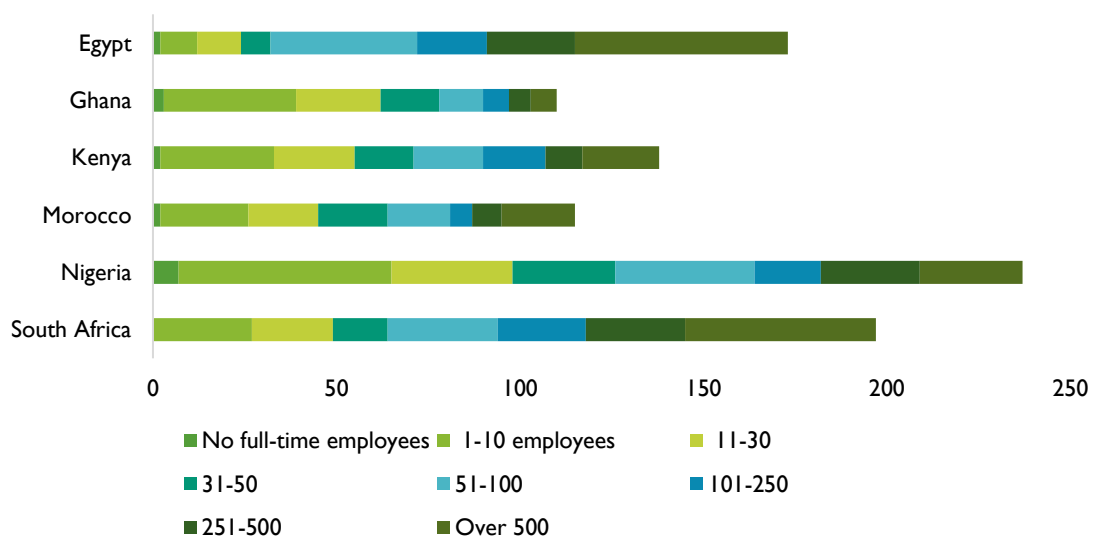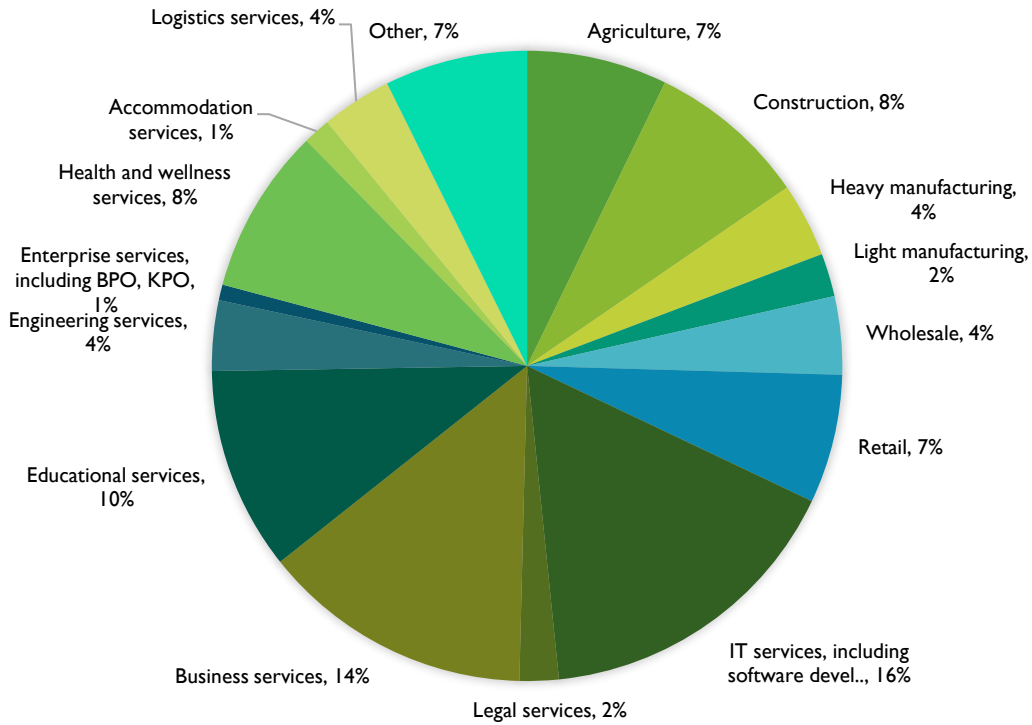**Figure I - 1 – Survey sample – firms, by size and country**

Figure I - 2 – Survey sample – firms, by sector

Theu survey of students, educators and other stakeholders (policymakers and association leaders) was a random sample fielded on 16-17 July 2024 and consists of 1,000 individuals from Egypt, Ghana, Kenya, Morocco, Nigeria, and Zambia (figure I-3). 36 percent are students, 30 percent educators at different levels, and the rest are association leaders (30 percent) or policymakers (6 percent).

Figure I - 3 – Survey sample – students, educators, and other stakeholders, by country
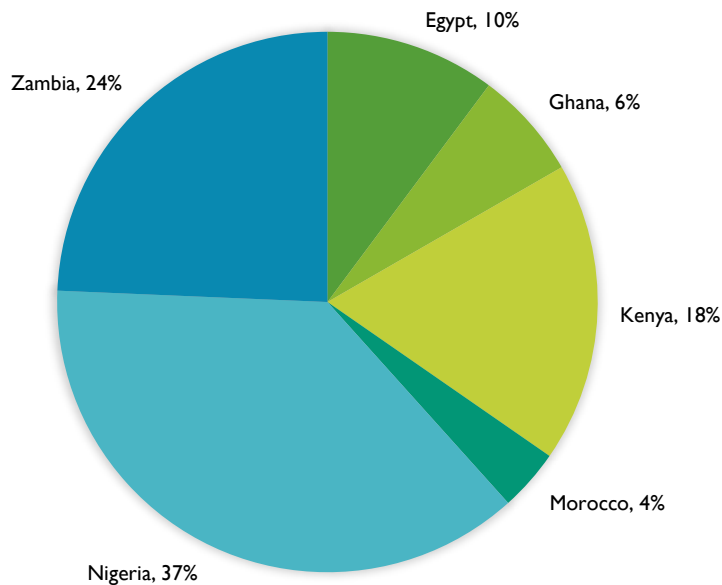
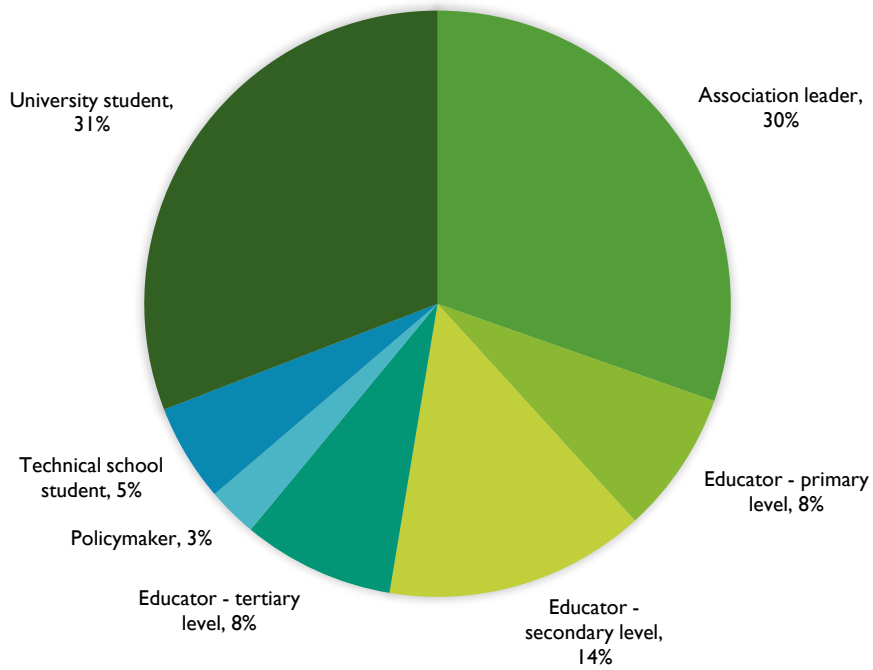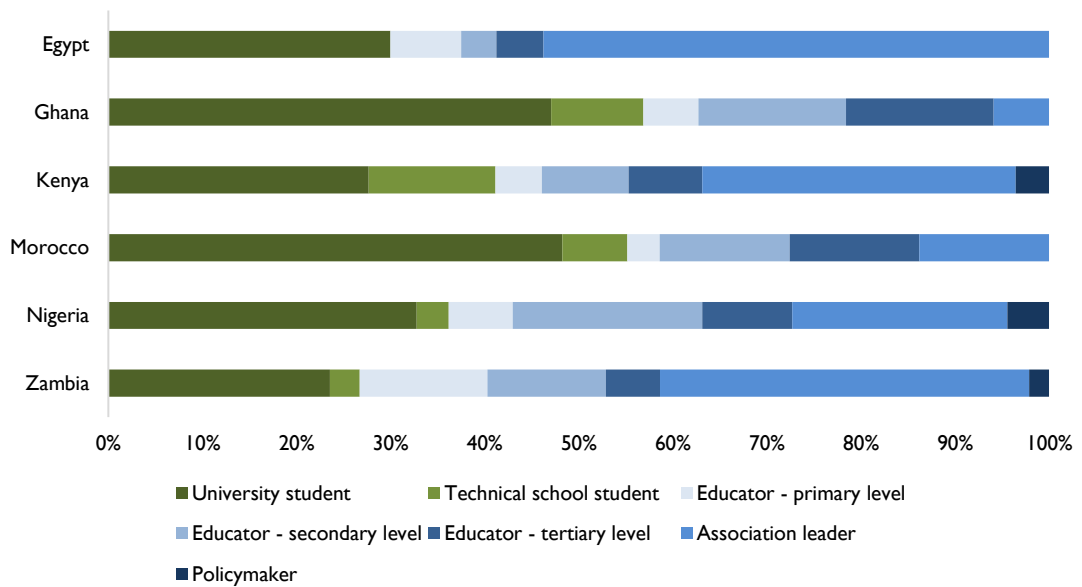**Figure I -4 – Survey sample – students, educators, and other stakeholders**

Figure 1 – 5 – Survey sample – students, educators, and other stakeholders

Appendix II – Mapped policies conducive to the use of AI

MAIN AREA	SPECIFIC AREA	SOURCE
National focus on digital development	National digital strategy	Document
	National cloud first strategy	Policy
Copyright	Copyright - fair use	Law
Data governance	Data privacy	Law
	Crossborder transfer of data	Law
	Government data governance	World Justice Project
Security	Consumer protection regulation	Law
	Cybersecurity capabilities	National Cyber Security index
	Electronic transaction framework	Law
Government digitization	Open government data	World Justice Project Open government
	E-government index	United Nations E-Government Survey
Skilling and access	Digital skills	World Bank's Human Capital Index
	Principles to access and use the internet	Human Rights Watch
	Digital inclusion	UNESCO - STEM graduates
	Promotion of STEM	UNESCO - STEM graduates
	Internet connection charge sharing	International Telecommunications Union Policy Index on competition among internet services

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