

AI SKILLING BLUEPRINT FOR AFRICA



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AOI Skills Coalition, International Telecommunication Union (ITU)

Lagos Business School

Makerere University

Mastercard Foundation

Wilton Park



“The next generation of AI architects must be African, educated in Africa, and working to solve African problems.” -

H.E. Lerato D. Mataboge, African Union Commissioner for Infrastructure and Energy at the 2025 High-Level Policy Dialogue on the Development and Regulation of AI in Africa in Addis Ababa

“We see AI as a tool to create opportunities, address challenges, and ensure sustainable growth....we aim to set a benchmark for inclusive innovation and equitable development across East Africa as a digitally empowered region.” - H.E.

Veronica Nduva, Secretary General of East African Community (EAC) in comments for AI for Good



“Let’s continue working together, and driving AI to reduce inequality, and allow more and more of our citizens to benefit from the good AI can deliver to all of us.” - Paul Kagame,
President of Rwanda at the 2025 Global AI Summit on Africa

“Leveraging AI is vital; the greatest risk is missing these benefits....Equipping Africans with AI skills through training and STEM education is critical.” - James Manyika, Senior Vice President, Research, Technology & Society, Google, in South Africa's BusinessDay, April 2025



“We were doing guesswork in the past. You’ll end up using more money treating what you don’t know.” - Musau Mutisya,
Maize farmer in Kenya after using AI, interviewed in *The Guardian* in September 2024

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 businesses attract foreign investment. Recognizing this, African ministers in the information, communications, and technology (ICT) sector endorsed the landmark [Continental Artificial Intelligence Strategy](#) and [African Digital Compact](#) in June 2024. Also several African governments have issued AI strategies.

However, for AI to promote economic growth and improve lives in Africa, it needs to be adopted across sectors and population segments. Africans are overall upbeat about AI – in a recent survey, [95 percent of Nigerians and 76 percent of South Africans believe AI will benefit them](#). However, according to the [International Monetary Fund's \(IMF\) AI Preparedness Index](#), Africans' AI skills are among the lowest in the world. LinkedIn data of mid-2025 suggests that [only 0.3 percent of South Africans have substantial AI skills](#).

African countries' AI strategies as well as the [Continental AI Strategy](#) already address the importance of AI skilling at schools, universities, and workplaces. Google's 2024 report [AI Sprinters](#) also underscores the pivotal role of AI skilling across African firms, agencies, and economies. According to *AI Sprinters*, AI-ready workforces should have three competency levels: AI Learners, who have basic AI literacy; AI Implementers, who use and adapt AI tools at work; and AI Innovators, who can use deep technical expertise to help shape how the technology evolves.

This **AI Skilling Blueprint** builds on *AI Sprinters* and proposes a practical **blueprint for African governments** to develop and implement a comprehensive, nation-wide AI skilling plan. The objective is to ensure that **all citizens are equipped with the necessary training** to participate in and benefit from the AI-driven economy. To meet this goal, this Blueprint prescribes actions to skill specific population segments at the three competency levels identified in *AI Sprinters*:

- **AI Learners**, including the general population and primary and secondary school students.
- **AI Implementers**, including micro, small, and medium enterprises (MSMEs), professionals, private sector workforces, public sector workforces including policymakers and educators.
- **AI Innovators**, including entrepreneurs, developers, and researchers.

Recommendations for these groups are as follows; table 1 summarizes.

AI Skilling Blueprint for Africans, by Segment

AI Learners:

- **General population:** AI applications will be taken up only if Africans are aware of them and trust them. The Blueprint promotes scalable awareness-building campaigns and programs to skill all Africans on the basics of AI, to understand and use AI applications, and to learn to discern risk in AI applications. This segment will need to learn about basic AI literacy, everyday use, and how to recognize risks.
- **Elementary, middle school, and high school students:** AI needs to be mainstreamed into Africa's national education policies. The Blueprint calls for national laws, guidelines, programs, technology adoption campaigns, and teacher training for schools to systematically teach students about AI, adopt and use AI, and be empowered through AI. Students should learn foundational AI skills and use AI as a learning tool, and think critically about AI in society and the economy.

AI Implementers:

- **Micro, small and medium enterprises (MSMEs):** The Blueprint calls for government-led training initiatives and digital inclusion programs that equip MSMEs to adopt and leverage AI. MSMEs should be taught to identify useful AI use cases and train their teams to apply AI responsibly.
- **Professionals:** The Blueprint proposes policies and programs that mainstream AI into Africa's professional degree programs across disciplines, such as engineering, medicine, business, and law, and AI training in technical and vocation education training, to ensure AI adoption across sectors.
- **Private sector workforces:** The Blueprint provides policy recommendations for African governments to train private sector employees to leverage AI in their work through occupational and lifelong learning programs, and to systematically measure workforce's AI transition. Workers will need to be taught practical AI skills through ongoing training to apply AI effectively in their roles.
- **Public sector workforces and policymakers:** The Blueprint proposes ongoing training for government officials to consider AI use cases and apply AI in their work, and for policymakers to keep learning about AI innovations to be positioned to consider appropriate AI-related policies.
- **Educators:** Teachers and educators play a central role in leveraging AI for learning and teaching about AI. This Blueprint proposes measures, based on global best practices, for equipping teachers across disciplines to weave AI into education in Africa. Educators will need to learn how to use AI in classrooms and innovate new teaching methods with AI.

AI Innovators:

- **Researchers, developers, and entrepreneurs:** The Blueprint proposes policies and mechanisms such as university programs, AI centers of excellence, and research institutes to build Master's and PhD-level AI expertise in Africa and thereby drive AI innovation sectors. This segment will need to learn advanced AI R&D skills to develop solutions for African challenges.

Table 1: Strategies for AI Skilling, by Population Segments

AI Sprinter	Segment	Main strategies
AI Learners	General population	- Launch awareness-building campaigns and programs to skill all Africans on the basics of AI. - Stage AI literacy campaigns to enable African consumers to learn about AI and discern risk in AI applications. - Offer scalable online AI learning platforms.
	Primary and secondary students	- Mainstream AI into education systems, including curricula, institutions, and programs. - Develop national laws and guidelines to promote AI adoption and use across the school system. - Promote young students' interest in and capability to pursue careers in STEM. - Promote AI as a learning tool to personalize and accelerate learning.
AI Implementers	Micro, small, and medium enterprises (MSMEs)	- Train MSMEs to understand AI use cases relevant for their needs. - Enable MSMEs' management to understand which AI skills they need for various AI use cases, and train their staff to meet those needs. - Encourage MSMEs to train their own staff on the use of AI, through fiscal and other incentives. - Provide grants and other incentives for MSMEs to test and use AI.
	Professionals	Mainstream AI into professional degree programs at African universities across all disciplines, including engineering, medicine, and law, as well as in vocational training programs.
	Private sector workforces	- Promote the AI transformation of the workforce through lifelong learning programs and certifications. - Measure the AI transition throughout the workforce.
	Public sector workforces, including policymakers	- Train government officials to consider AI use cases and apply AI in their work, providing technical, legal and ethical capacity-building. - Promote public-private partnerships and AI sandboxes to work and learn with the private sector in controlled settings. - Promote capacity-building and dialogue among African policymakers and their peers in other markets.
	Educators	- Support teachers in leveraging AI as a learning tool and help students use AI to personalize and enhance learning. - Incentivize teachers to innovate AI skilling approaches.
AI Innovators	Entrepreneurs, developers, and researchers	- Expand existing and launch new Master's- and PhD-level AI programs at universities. - Build research and development (R&D) capabilities in AI to help develop AI by Africans, for African challenges. - Build a pipeline of STEM students.

This Blueprint also proposes Africa's national AI skilling plans follow several principles, such as:

- Integrating AI ethics, responsible use of AI, and international standards into all AI skilling initiatives.
- Ensuring AI skilling is inclusive and the needs of underserved groups, such as persons with disabilities, are built into AI skilling policies and programs.
- Translating AI skilling into effective use of AI, by pairing skilling with broader change management and digital transformation at schools, workplaces, and government agencies.

National AI skilling plans need to be **adopted at the highest levels of government**: heads of state need to adopt national AI skilling plans and involve all relevant ministries.

Governments will also need to work together. At the continental level, this Blueprint calls for the African Union (AU) and regional economic communities (RECs) to promote AI skilling in Africa through guiding member states on their AI skilling plans, sharing best skilling practices, pooling resources across member states for AI skilling, creating regional AI credentialing systems, and measuring both AI proficiency and the effectiveness of AI skilling across different countries and demographic groups.

In their AI skilling work, African governments have a great opportunity to partner with the private sector, both to identify African businesses' needs for AI skills, and to skill Africans to use AI. Google has already made numerous commitments for AI skilling in Africa. In 2025, Google announced [\\$37 million in cumulative contributions toward AI skilling and research in Africa](#), including an AI Community Center in Accra that will host technical workshops, research exchanges, and community events for students, developers, entrepreneurs, artists, and civil society to explore how AI can respond to African needs. In 2024, Google made a [\\$5.8 million commitment](#) to accelerate AI skills initiatives across sub-Saharan Africa, and a [\\$15 million](#) contribution to boost AI skilling across the Middle East and North Africa. Google has also rolled out [Gemini learning features and Guided Learning](#) to support university students across Ghana, Kenya, Nigeria, Rwanda, South Africa, and Zimbabwe, free of charge for one year.

Google has also championed the AI-first accelerator [Google for Startups](#) in Africa. The [Google Hustle Academy](#) offers a free virtual bootcamp designed to empower African MSMEs to integrate AI into their business strategy, financial management, digital marketing, and leadership development.

AI is a breakthrough opportunity for Africa to attain a new development frontier where all Africans can improve their incomes and lives. Seizing this opportunity takes persistent and comprehensive AI skilling work by African governments. This Blueprint aims to catalyze and guide such work.

INTRODUCTION

AI will only be adopted and used in Africa if Africans of all walks of life know how to use it. Similarly, the opportunities for Africa to develop breakthrough innovations with AI is shaped by the ability of African researchers and entrepreneurs to drive AI R&D and innovate new AI applications.

In Google's [AI Sprinters](#) and [AI Policy Gold Standard](#), AI-ready workforces are assigned various competency levels: AI Learners, who have basic AI literacy; AI Implementers, who use and adapt AI tools at work and in various industry-specific use cases; and AI Innovators, who can help to shape how the technology evolves using deep technical expertise.

A recent Google-supported [AI Policy Blueprint for Africa](#) delivered by [Nextrade Group](#) noted that the demand for all three types of talent is significant in Africa: 55 percent of African firms reported needing talent able to use AI in various areas of business, and 79 percent of African students reported needing AI skills in order to succeed in the workplace.

The event "[Successfully Harnessing AI in Africa](#)," held on December 2-4, 2024, at Wilton Park in the United Kingdom, further highlighted the urgent need to close the AI skills gaps in Africa. The event was carried out in partnership with the UK Government's [Foreign, Commonwealth and Development Office](#) and [Google](#), and in association with the [African Leadership University](#) and the [African Observatory on Responsible AI](#).

This **AI Skilling Blueprint for Africa** aims to respond to AI skilling needs in Africa. It is aimed to be a cornerstone resource for African governments in formulating AI skilling plans and cultivating AI skills in their economies.

The Blueprint champions holistic national AI skilling policies, including AI skilling from the elementary to high school level, workforce AI transition programs, the integration of AI into professional degree programs, and the expansion of Master's and PhD-level AI expertise in Africa. The Blueprint also highlights the critical role of public-private partnerships in these efforts.

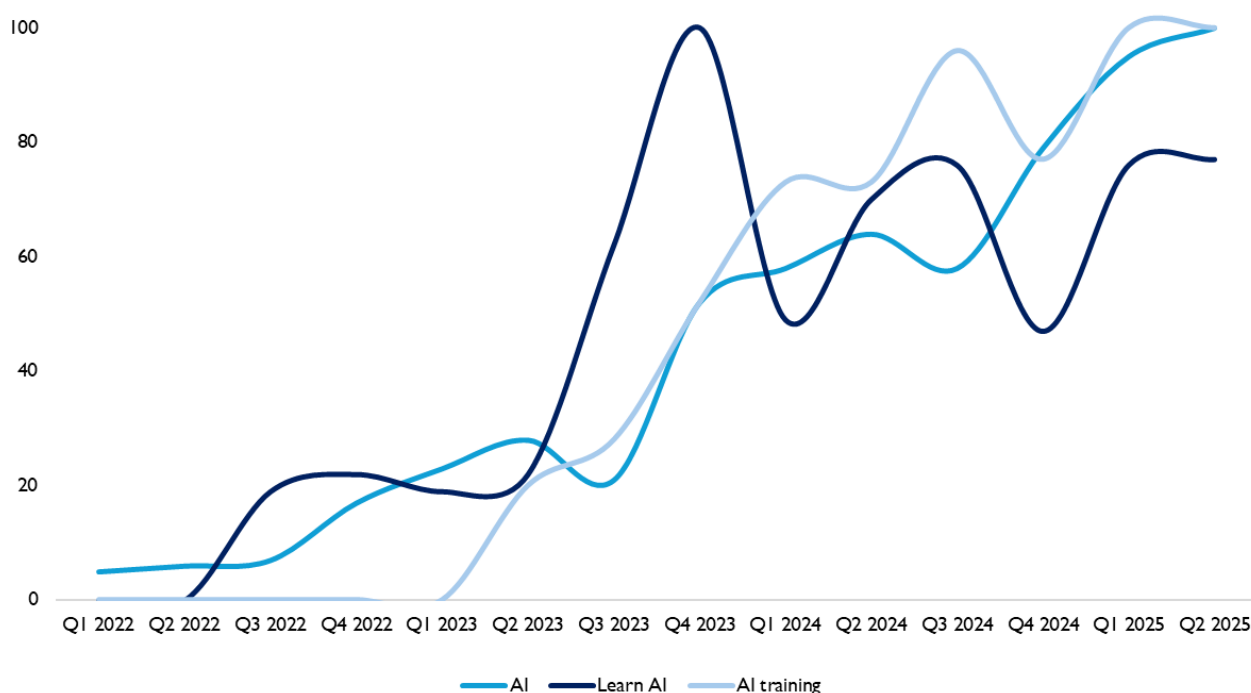
This Blueprint has three sections. Section 1 discusses the state of AI skilling in Africa, AI skilling strategies and actions at the three competency levels, and principles for AI skilling plans, drawing on approaches from 40 economies in Africa and around the world.

Section 2 analyses the baseline of the supply and demand of AI skills in Africa, based on survey data with 1,400 African businesses and international AI skills databases. Section 3 concludes.

1. AI Skilling Blueprint for Africa

This AI Skilling Blueprint comes at a time when demand for AI skilling is intensifying in Africa. Google Trends queries for “learn AI,” “AI training,” and “AI” have soared in many African economies, despite receiving almost no interest just several years ago (Figure 1). Botswana, Eswatini, Ethiopia, Kenya, Nigeria, Rwanda, South Africa, and Zimbabwe are in the top 20 countries globally for these search terms in the past three years.

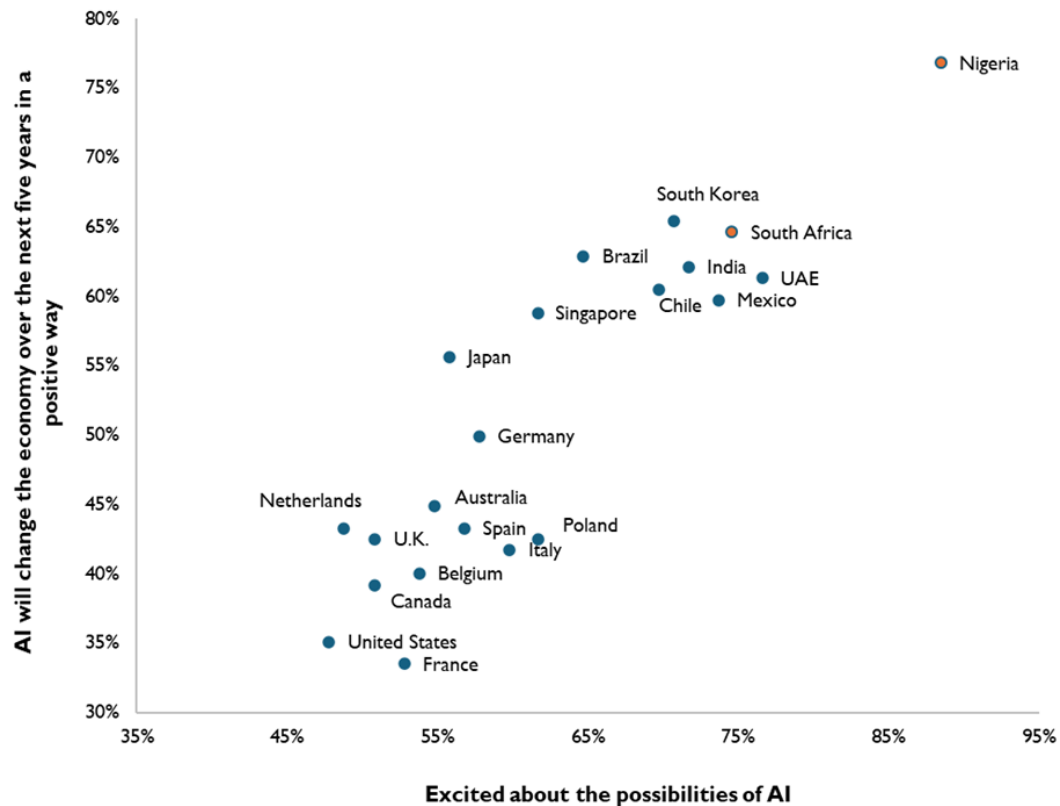
Figure 1: Rise in Interest in AI and AI Skilling in Africa per Google Trends, January 2022-June 2025



Note: Google Trends search terms include "AI," "learn AI," and "AI training." The figure combines quarterly Trends averages from eight African economies.
 Source: Google Trends.

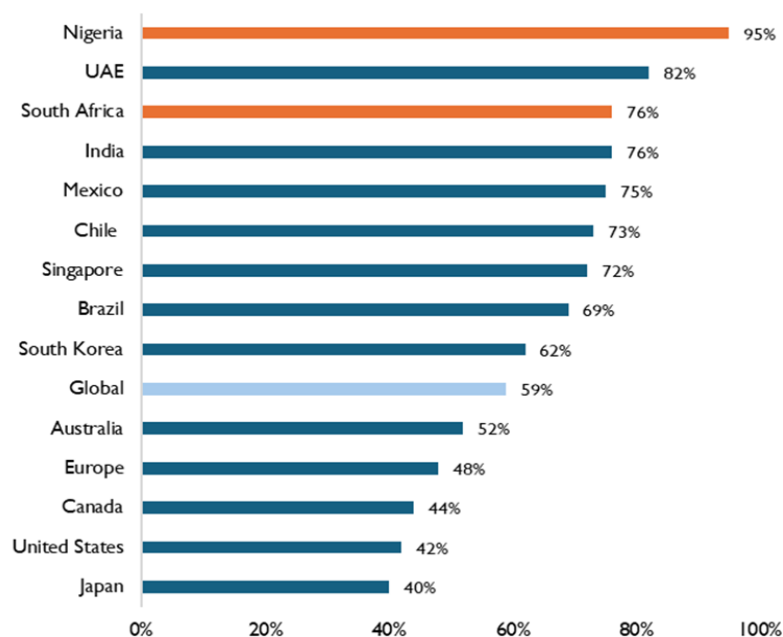
A recent [IPSOS survey](#) supported by Google found that Africans are particularly excited about AI and also expect the most positive economic gains from AI, surpassing their peers in other emerging and advanced regions (Figure 2). As many as 95 percent of Nigerians and 76 percent of South Africans state they believe AI will benefit people like them, compared to a global average of 59 percent (Figures 2 and 3).

Figure 2: Percent of Population Expressing Economic and General Optimism about AI, by Economy



Source: [Survey conducted by Ipsos](#) between September 17 and October 8, 2024, on behalf of Google.

Figure 3: Percent of Population Stating AI Is for “People like Me”



Source: [Survey conducted by Ipsos](#) between September 17 and October 8, 2024, on behalf of Google.

In Google's [AI Sprinters](#), AI-ready workforces have three competency levels: AI Learners, who possess 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.

This Blueprint proposes specific actions to promote AI readiness at these three levels, including by offering additional insight on specific population segments:

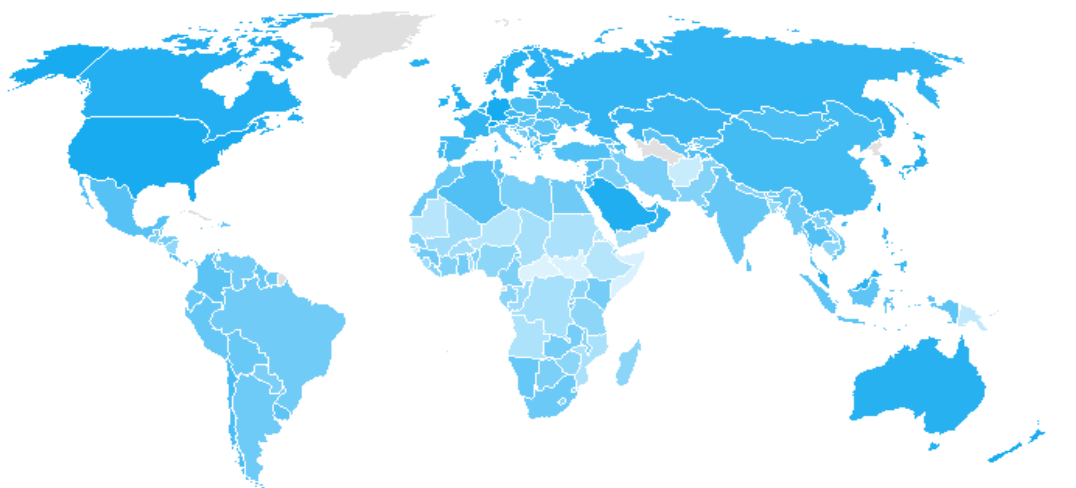
- **AI Learners**, including the general population and primary and secondary school students;
- **AI Implementers**, including micro, small and medium enterprises (MSMEs), professionals, private and public sector workforces, and educators; and
- **AI Innovators**, including entrepreneurs, developers, and researchers.

The following sections discuss ongoing AI skilling efforts in Africa and present the **AI Skilling Blueprint for Africa**.

A. The State of AI Skilling in Africa

African economies and businesses have a high demand for workers with AI-related skills. In a survey conducted for this report, 55 percent of African companies reported needing AI talent across business functions, and 44 percent reported needing talent to imagine AI use cases in their businesses. Yet, the supply of such AI talent in Africa is still comparatively low, especially in sub-Saharan Africa, according to the International Monetary Fund (IMF) (Figure 4).

Figure 4: IMF AI Preparedness Index - Human Capital and Labor Market Policies (Index) (darker blue = more prepared)



Source: "AI Preparedness Index," International Monetary Fund, 2024, <https://www.imf.org/external/datamapper/datasets/AIPI>.

To be sure, work is already underway to bridge Africa's AI skills gap. At the continental level, the African Union plays a key role in driving AI skilling policies, as it has already started to do through the [Continental Artificial Intelligence Strategy](#), [African Digital Compact](#), and [African Union Development Agency-NEPAD \(AUDA-NEPAD\) AI Strategy](#).

In addition, several African countries have sought to bridge the AI skills gap by creating ambitious AI skilling programs as part of their national AI strategies (Table 2):

- [Egypt's AI strategy](#) focuses on developing an AI workforce through curriculum integration, scholarships, partnerships with international institutions, and a certification system.
- [Ghana's AI strategy](#) focuses on building an "AI-Powered Society" by 2033, including by skilling over 1 million AI-ready youth by integrating AI, data ethics, data protection, and data science basics into high schools and tertiary education.
- [Kenya's AI strategy](#) looks to integrate AI and data science education in schools at all levels, develop AI talent in the AI ecosystem, and promote AI training of trainers.
- [Mauritius's AI strategy](#) aims to grow a sustainable AI talent pipeline by training local professionals, attracting foreign expertise, establishing specialized AI programs, and aligning education with industry needs.
- [Nigeria's AI strategy](#) promotes inclusive AI education and training programs, including curriculum reform, teacher training, and reskilling, and calls for a National Research and Education Network (NREN) to enhance collaboration, data sharing, and access to resources.
- [Rwanda's AI policy](#) focuses on integrating AI education across all levels, expanding university programs, launching national skills initiatives, and fostering international talent exchange.
- [South Africa's National AI Policy Framework](#) proposes to rethink education and learning ecosystems to help institutions plan to meet emerging AI skills needs, and strengthen the focus on teaching quality, literacy, and STEM subjects and promote stronger technical and vocational education and training (TVET).

Table 2: AI skilling approaches in selected national AI strategies

COUNTRY	SKILLING GOALS	SKILLING APPROACHES
<u>Egypt National Artificial Intelligence Strategy (2025-2030)</u>	Empower Egyptian citizens and equip future generations with the skills to harness modern technology to serve society and fulfill national aspirations.	● Train 30,000 AI professionals by 2030. ● Raise public AI awareness and digital literacy in AI, with the goal of enabling the workforce and citizens to effectively use AI tools in daily life and work. ● Create alliances with top-tier universities to co-design graduate-level AI degrees, joint research projects, and exchange programs. ● Establish a comprehensive qualification and certification system.
<u>Republic of Ghana National Artificial Intelligence Strategy (2023-2033)</u>	Cultivate a robust and inclusive AI-ready workforce by expanding AI education and training across all levels and empower youth for future AI and digital economy jobs.	● Train over 1 million AI-ready youth by 2033 by integrating AI, data ethics, data protection, and data science basics into existing STEM and IT curricula from high school through tertiary education. ● Promote training courses for teachers to equip them with necessary skills to deliver AI education and expand the number of AI education courses at universities, technical universities, and vocational training while also attracting AI lecturers and research programs. ● Empower youth for future AI jobs by facilitating remote jobs or internships in AI, developing AI Fellowship programs, and supporting continuous training and short courses for students and professionals.
<u>Kenya's Artificial Intelligence Strategy (2025-2030)</u>	Make Kenya into a leading AI hub for model innovation and an AI research and application leader in Africa.	● Integrate AI into curricula across all levels to develop early AI literacy. ● Develop AI talent and technical and applied competencies across sectors. ● Create partnerships with industry and academia to support AI talent development, mentorship, and job placement pathways. ● Attract and retain foreign AI talent to complement local capacity.
<u>Mauritius Artificial Intelligence Strategy (2018)</u>	Train and attract the talent needed for basic AI research, the design of AI applications, and the adoption of AI and AI-related technologies by local businesses.	● Build a local talent pipeline by training computer scientists and mathematicians and promoting science, technology, engineering, and mathematics (STEM) and AI education from primary to university level. ● Establish a dedicated AI campus with programs developed in collaboration with local universities and global experts. ● Align education with industry needs through a national "talent watch," faster curriculum approvals, inter-university collaboration, and reskilling programs for at-risk workers.
<u>Nigeria's National Artificial Intelligence Strategy (2024)</u>	Equip individuals to participate actively in the AI-driven future.	● Launch inclusive AI education and training programs, including curriculum reform, teacher training, and reskilling. ● Build a National Research and Education Network (NREN) to enhance collaboration, data sharing, and access to resources.
<u>Rwanda's National AI Policy (2022)</u>	Equip the workforce to thrive and remain competitive in the regional and global landscape.	● Launch national AI skills programs, including youth apprenticeships and a National Skills Building Program, to grow local talent. ● Integrate AI and data science into all education levels, with updated curricula and teacher training, starting from primary school. ● Expand university-level AI education and research through public-private partnerships, fellowships, and partnerships with global universities.

<u>South Africa National Artificial Intelligence Policy Framework (2024)</u>	Ensure that South Africa has a robust AI talent pool.	● Rethink education and learning ecosystems to help institutions plan to meet emerging AI skills needs. ● Strengthen the focus on teaching quality, literacy, and STEM subjects and promote stronger technical and vocational education and training (TVET). ● Guide public and private sector organizations to create “retraining engines” to enable lifelong learning. ● Define an accreditation framework and recommend new quality assurance processes focused on application of skills.
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There are also ambitious and promising programs and institutions being deployed by African governments for different segments of the population:

- **AI Learners:** Egypt’s Ministry of Education plans to make [AI and coding](#) core subjects for first-year secondary-school students starting in the 2025-26 academic year, in order to equip students with basic programming skills upon graduation. Kenyan and Nigerian Ministries of Education are also working with Google and the Raspberry PI Foundation to scale [ExperienceAI](#), a course which introduces AI and Machine learning to secondary school students.
- **AI Implementers:** In Nigeria, the Ministry of Communications, Innovation and Digital Economy’s [3 Million Technical Talent](#) aims to train three million Nigerians in technical and digital skills, including AI and machine learning, by 2027, while the Digital Bridge Institute’s [AI training program](#), with support from Nigeria’s federal government and Google, plans to train five million Nigerians from the public and private sectors by 2027.
- **AI Innovators:** The [AI Institute of South Africa](#), led by the Department of Communications and Digital Technologies and working in partnership with institutions like the University of Johannesburg and Tshwane University of Technology, is a hub for training AI professionals, such as AI engineers. Leading tech companies provide students with internships, research opportunities, and career placements as well as contributing to curriculum development and public awareness.

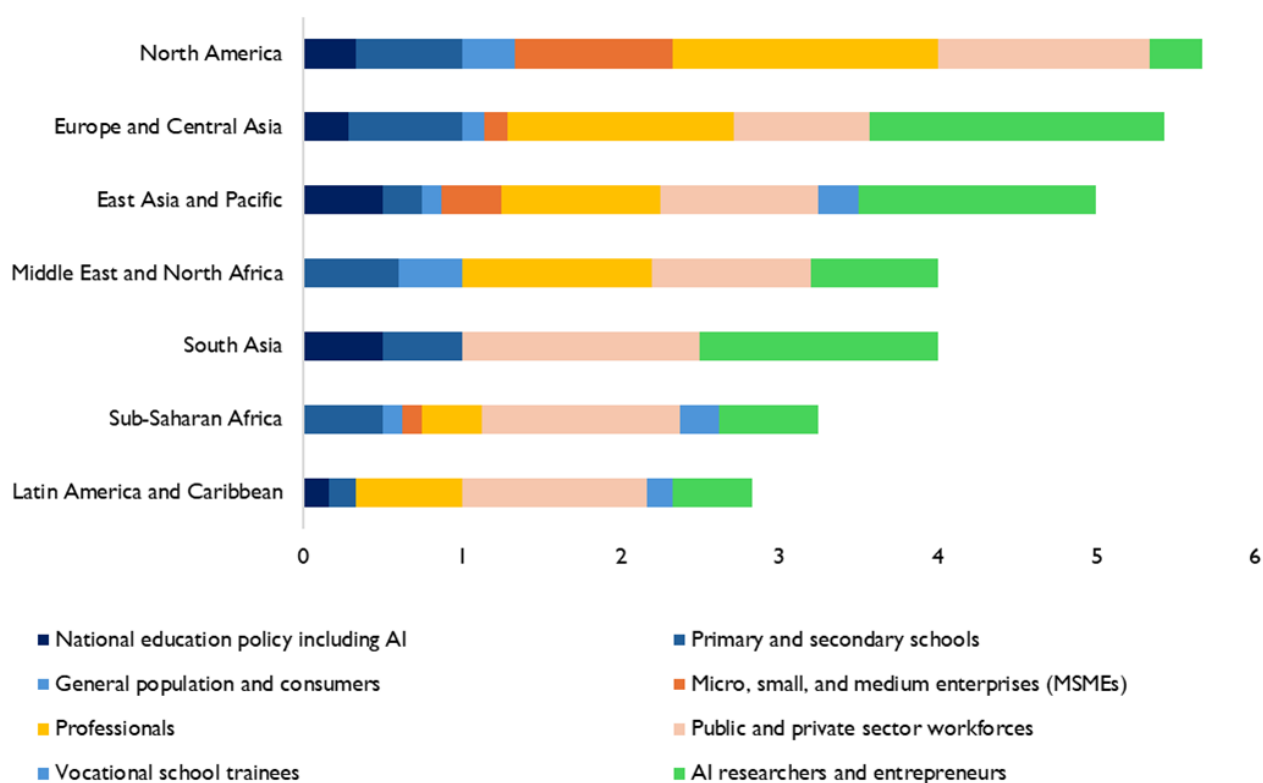
African countries are also pursuing public-private partnerships to skill workers for the AI era. For example, in Nigeria, the [DeepTech Ready Upskilling Program](#), an initiative launched by [the Federal Ministry of Communications, Innovation and Digital Economy](#) in partnership with [Google.org](#), aims to provide 20,000 young Nigerians with advanced technical skills in data science and AI across multiple cohorts. Each cohort will undergo an intensive six-month learning journey, involving self-paced study, on-site mentoring, hands-on project work, and job readiness training.

Africa's AI Skilling in Comparative Terms

In comparative terms, African countries' AI skilling efforts are still in early stages. They are more focused on the workforce AI transition than on comprehensive approaches through the education system, for example.

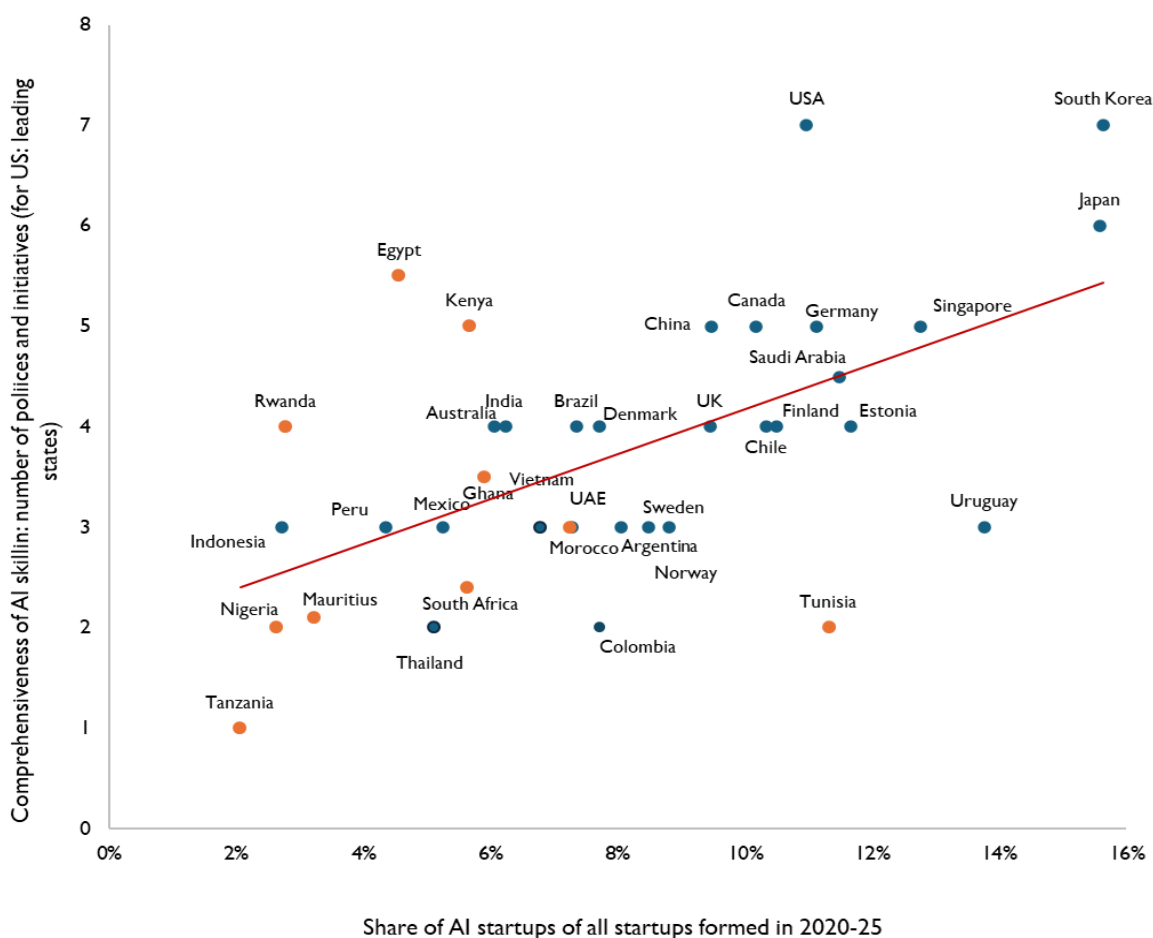
In a Nextrade mapping of nearly 200 AI skilling policies and approaches in 40 economies, several advanced and emerging economies, such as South Korea, Singapore, Germany, and Chile, are well on their way to building comprehensive skilling approaches (Figure 5). As such, they offer useful examples for Africa, such as integrating AI skilling into primary, secondary, and tertiary education, teacher training, and MSMEs and workforces' capacity-building. Economies that have comprehensive skilling approaches also have the most activity around AI, measured here as the share of AI startups as a proportion of all startups (Figure 6).

Figure 5: Average Number of AI Skilling Programs in 40 Countries, by Region and Type (max. 8)



Source: Nextrade analysis of 190 policies and programs in 40 economies around the world.

Figure 6: Comprehensiveness of AI Skilling and AI Activity, 2020-2025



Source: Nextrade analysis of 190 policies and programs in 40 economies around the world and startup data from Crunchbase.

B. AI Skilling Blueprint for African Governments

The objective of this Blueprint is to ensure that all Africans are equipped with the necessary training to participate in and benefit from the AI-driven economy.

To meet this goal, this Blueprint proposes (1) skilling strategies and actions African governments can take at the three competency levels; (2) principles for AI skilling, and (3) a template for sequencing of AI skilling policy and its implementation.

AI Skilling for Africans: Strategies and Actions

This **AI Skilling Blueprint for Africa** offers strategies and actions for African governments to follow to ensure all population segments have requisite AI skills. The AI skilling strategies for each group are included in Table 3.

Table 3: Strategies for AI Skilling, by Population Segments

AI Sprinter	Segment	Main strategies
AI Learners	General population	- Launch awareness-building campaigns and programs to skill all Africans on the basics of AI. - Stage AI literacy campaigns to enable African consumers to learn about AI and discern risk in AI applications. - Offer scalable online AI learning platforms.
	Primary and secondary students	- Mainstream AI into education systems, including curricula, institutions, and programs. - Develop national laws and guidelines to promote AI adoption and use across the school system. - Promote young students' interest in and capability to pursue careers in STEM. - Promote AI as a learning tool to personalize and accelerate learning.
AI Implementers	Micro, small, and medium enterprises (MSMEs)	- Train MSMEs to understand AI use cases relevant for their needs. - Enable MSMEs' management to understand which AI skills they need for various AI use cases, and train their staff to meet those needs. - Encourage MSMEs to train their own staff on the use of AI, through fiscal and other incentives. - Provide grants and other incentives for MSMEs to test and use AI.
	Professionals	Mainstream AI into professional degree programs at African universities across all disciplines, including engineering, medicine, and law, as well as in vocational training programs.
	Private sector workforces	- Promote the AI transformation of the workforce through lifelong learning programs and certifications. - Measure the AI transition throughout the workforce.
	Public sector workforces, including policymakers	- Train government officials to consider AI use cases and apply AI in their work, providing technical, legal and ethical capacity-building. - Promote public-private partnerships and AI sandboxes to work and learn with the private sector in controlled settings. - Promote capacity-building and dialogue among African policymakers and their peers in other markets.
	Educators	- Support teachers in leveraging AI as a learning tool and help students use AI to personalize and enhance learning. - Incentivize teachers to innovate AI skilling approaches.
AI Innovators	Entrepreneurs, developers, and researchers	- Expand existing and launch new Master's- and PhD-level AI programs at universities. - Build research and development (R&D) capabilities in AI to help develop AI by Africans, for African challenges. - Build a pipeline of STEM students.

There are many methods to operationalize these strategies and cultivate relevant AI skills across different segments of society. The following discussion highlights examples from Africa and around the world to illustrate actions taken by diverse economies to operationalize AI skilling policies.

AI Learners

General Population: Promoting AI Literacy across Society

- 1. Build awareness and understanding to empower Africans with AI.** AI applications will be taken up only if Africans are aware of them, trust them, and feel that they add value. Many governments have faced the challenge of promoting AI literacy across the society. Canada, for example, launched a Public Awareness Working Group in 2020 to inform citizens about AI and expand AI literacy. The working group [performed surveys on Canadians' perceptions about AI](#) and paved the way for ad campaigns about AI, including on social media. Similarly, the National Information Technology Development Agency of Nigeria has launched the [Digital State Initiative](#), with a goal of achieving a 70 percent digital literacy level by 2027 through curriculum reform, digital platforms like [DL4ALL](#) for informal learners, and targeted training for the public and private workforces. The new [AI Skills Coalition housed at the International Telecommunications Union](#) (ITU) to promote AI skilling among people around the world can provide valuable tools for African governments.
- 2. Use AI literacy campaigns to teach Africans about responsible uses of AI.** There are considerable concerns in Africa that AI be used ethically. The Nigerian government's [AI Academy Program](#) is designed to equip Nigerians with essential AI skills to drive innovation, address local and global challenges, and unlock new economic opportunities. Supported by the Commonwealth Secretariat, Intel, and the Federal Ministry of Innovation, Science and Technology, the program involves in-depth training in AI concepts and hands-on experience in solving real-world problems.

Primary and Secondary Curricula: Mainstreaming AI into Education Policy, Institutions, and Programs

- 3. Integrate AI into education policy through national laws and guidelines to encourage AI adoption across the school system.** To promote AI literacy and use in school systems, African governments, led by education ministries, should ensure national AI education policies include AI: establish goals for AI adoption in national education systems, and detail how AI skilling policies integrate with existing education policy frameworks. AI education policies should also consider any legal and regulatory reforms needed for adoption. Many governments have created guidelines for school systems to use AI and build literacy and critical thinking on AI. For example, in 2023, Australian education ministers approved the [Australian Framework for Generative Artificial Intelligence \(AI\) in Schools](#), which provides guidance on understanding, using, and responding to generative AI in schools. Another good example is Japan, where the Ministry of Education, Culture, Sports, Science and Technology has issued comprehensive [school guidelines and educational reforms](#) aimed to integrate AI into students' daily learning (Case Study 1).

4. **Promote STEM learning early on.** The African Union's [Agenda 2063](#) recognizes the strategic role that STEM education can play in promoting the region's prosperity. It recognizes the usefulness of STEM education for careers in AI and calls for [rethinking STEM in the era of AI and "STEMAI."](#) There is substantial literature on ways to promote the uptake of STEM careers among students. One key to ensuring that [more students are attracted to STEM fields](#) is to start early, in about fourth grade, to raise students' awareness about STEM careers, for example by promoting STEM learning opportunities in afterschool programs. Another solution is ensuring [access to relevant infrastructure and resources](#), such as electricity, internet connectivity, smart classrooms, science laboratories, and devices.

CASE STUDY 1

Japanese Guidelines for the Use of Generative AI in Schools

In 2025, Japan's Ministry of Education, Culture, Sports, Science, and Technology issued a second version of its guidelines to shape how schools in Japan, a world leader in education, approach AI.

The [Guideline for the Use of Generative AI in Primary and Secondary Education \(Ver.2.0\)](#) serves as a foundational reference for educational personnel, including teachers and school boards, with five principles:

- **Building a comprehensive approach:** A three-pronged learning model is recommended that includes (1) learning about AI, (2) learning how to use AI, and (3) actively applying AI in each subject.
- **Keeping the human at the center:** The guideline defines generative AI broadly as systems capable of producing text, images, and code, recognizing its expanding role in education as well as its inherent risks and the parallel evolution of safeguards. At its core, the document embraces a human-centered approach: generative AI is positioned as a powerful support tool, but its outputs are to be treated strictly as reference points, not final authorities. Human judgment and responsibility remain essential.
- **Supporting information literacy for AI skilling:** Learners must gain a solid understanding of how generative AI works, how to apply it effectively in academic contexts, and how to integrate its use across disciplines. This includes sharpening digital literacy, critical thinking, and ethical awareness..
- **Leveraging teachers as learning leaders:** Educators are encouraged to build fluency with generative AI, understanding both its practical benefits and potential drawbacks, in order to guide students effectively. The thoughtful integration of AI into teaching is also seen as a vehicle for broader reform, streamlining workloads and improving efficiency in teaching.
- **Making education boards champions of flexible, school-specific approaches to AI integration:** Rather than acting as designers of rigid rules, education boards are tasked with setting strategic direction, offering training, sharing effective practices, and supplying instructional resources.

African governments can follow Japan's example to develop clear, concise guidelines for schools, focusing on human-centric AI use and teacher empowerment, as one of the first steps to broader AI skilling policy.

5. **Use AI to personalize learning at scale.** In settings where classes are large and students have diverse learning levels and styles, African governments could leverage AI to personalize learning to students' unique needs. As one example, South Korea launched a policy to personalize learning in elementary and middle schools by [combining traditional textbooks with digital textbooks and intelligent tutoring systems](#) that enable personalized learning through AI. In France, the government has provided MIA, an AI-powered app, to [personalize learning for 200,000 15-year-old students](#). A [pilot project in Edo State in Nigeria](#) demonstrated that generative AI, when combined with guided teaching, localized materials, and basic infrastructure, can effectively engage students, support teachers, and expand access to personalized learning in low-resource settings (Case Study 2).

CASE STUDY 2

Lessons from Infinity Learn's AI Tutor, powered by Google Cloud

For millions of Indian students, the IIT JEE Main and NEET exams are life-defining gateways to top engineering and medical colleges. Success requires not just memorization but a deep grasp of complex reasoning in physics, chemistry, and biology. To support this need, [Infinity Learn partnered with Google Cloud Consulting](#) to build an AI tutor designed to teach how to think, not just what to answer.

Using Google Cloud's Vertex AI Retrieval Augmented Generation (RAG) and the Gemini 2.0 Flash model, the AI tutor acts as a custom search engine drawing on Infinity Learn's rich content library. It guides students step by step through problems, promoting real conceptual clarity. The system had to solve multi-stage questions, articulate clear logic, scale to many users, and continuously refine itself through feedback.

As an example, imagine a student wrestling with a difficult mathematics problem late at night. Instead of getting stuck for hours, they can now ask the AI tutor, giving them not only the correct answer, but a foundational understanding of the basic principles and the steps to get there.

A rigorous evaluation found the AI tutor to be around 90 percent accurate when addressing student queries across an average of 500 exam preparation questions.

Beyond numerical accuracy, the system learns from conceptual and procedural errors, improving over time and pinpointing where students most often struggle.

AI Implementers

MSMEs: Enabling Small Businesses to Identify and Operationalize AI Use Cases and Use AI

MSMEs lag behind large companies in AI adoption and access to AI talent. The following section of this report shows that the majority of MSMEs are experimenting with AI and have high demand for staff able to think about AI use cases and operationalize them. Many MSMEs are also training their own staff to use AI. African governments have a number of options to support MSMEs' use of AI:

- 6. Enable MSMEs to identify AI use cases and test AI.** One way to skill MSMEs at scale is through online platforms where MSMEs can access tools and data to learn how to use AI and try out AI use cases. In Singapore, the [AI Makerspace platform](#) provides access to resources for AI experimentation such as white-labeled AI solutions, curated datasets, and supercomputing resources. In Finland, the [Finnish AI Region \(FAIR\)](#) offers MSMEs free services to leverage and test AI to solve various pain points in their businesses. In Africa, the [Google Hustle Academy](#) offers a free virtual bootcamp to empower African MSMEs to integrate AI into their business strategies, financial management, digital marketing, and leadership development.
- 7. Skill MSMEs to use AI.** The UK government has launched several upskilling initiatives, including the [AI Upskilling fund pilot](#), which subsidizes AI skilling for MSMEs in the services sector, such as law and accounting. The £124 million (US\$168 million) [Bridge AI program](#) supports AI skilling and integration in transport, construction, agriculture and food processing, and the creative industries (Case Study 3). Chile's national [Ruta Digital program](#) provides AI-skilling courses to smaller businesses. In the Netherlands, the Dutch AI Coalition (NL AIC) provides AI development, education, and training for students and employees working in innovative MSMEs and semi-public organizations, reportedly [doubling the number of MSMEs that develop or adapt AI](#) into their work.
- 8. Support MSMEs in finding AI talent and training their existing staff in using AI.** This report shows that African MSMEs demand technical AI skills, and seek to cultivate these skills among their employees. African governments could readily support MSMEs in this work, for example through tax incentives or grants. Governments can also provide MSMEs grants for hiring AI talent. For example, Brazil's R100 million (US\$18 million) [Human Resources in Strategic Areas \(RHA\) AI program](#) helps MSMEs hire graduate students in AI-related disciplines, and Australia has allocated US\$8 million to enable businesses to partner with AI practitioners to solve regional problems. Australia has also established [AI Adopt Centres](#) that offer low-interest loans and grants for MSMEs' AI transformation.
- 9. Ensure MSMEs adopt and use AI responsibly.** Ethical and responsible use of AI in Africa has attracted considerable attention, including in the African Union's [Continental AI Strategy](#). MSMEs are one stakeholder group that needs to use AI responsibly, and promoting the adoption of global AI standards related to responsible use is one way to ensure MSMEs learn about AI ethics. Japan, South Korea, and Singapore are promoting responsible use of AI, for example, through [businesses' adoption and certification for ISO/IEC 42001](#), an international standard that specifies requirements for establishing, implementing, maintaining, and continually improving an AI management system within an organization. South Korea has created several programs and organizations that offer ISO/IEC 42001 certification services and train businesses to implement AI management systems. In 2024, the Kenya Bureau of Standards published the [Draft Information Technology Artificial Intelligence Code of Practice](#) to help organizations develop and use AI responsibly, including by applying international standards.

CASE STUDY 3

The United Kingdom's Bridge AI Offers Expertise to Promote Businesses' Adoption of AI

[The BridgeAI](#) program, funded by Innovate UK, has a mission to drive AI adoption in sectors of the UK economy deemed particularly promising for AI use cases, such as agriculture, construction, creative industries, and transport. BridgeAI aims to close the gap between developers and end users of AI. Its model incorporates three main approaches:

- Connecting businesses in priority sectors with AI experts and developers to encourage innovation;
- Building expertise to develop new trusted AI services and technologies through co-creation between both the supply and demand side of the AI ecosystem; and
- Upskilling to instill new capabilities in businesses and providing access to scientific expertise.

Innovate UK offers [multiple courses and capabilities](#) for businesses to learn about and adopt AI. BridgeAI's implementing partner, the Alan Turing Institute, offers the [AI Skills for Business Competency Framework](#), which aims to help organizations identify necessary AI skill sets for their employees.

AI in Professions: Mainstreaming AI Across Professional Degrees and Careers

10. Mainstream AI into Africa's professional degree programs across all disciplines, such as engineering, medicine, and law. AI is transforming the possibilities of professions, such as in medicine, law, and engineering. The productivity gains of using AI are significant; for example, an



AI-driven complaint response system [reduced law firm associates' processing time from 16 hours to 3 to 4 minutes](#). African governments should mainstream AI into traditional career paths, enabling students to learn to use AI in various professions. One good example is South Korea, where the government [supports the integration of AI into academic programs](#) and has launched [19 designated AI engineering schools](#) in Korean universities.

Google is working globally through the [Career Certificates](#) program to promote training for in-demand tech skills, including providing [100,000 Google Career Certificates for higher education students in Ghana](#) and partnering with governments and more than [550 universities across Latin America](#).

Private Sector Workforce: Promoting AI Transition Through Occupational and Life-Long Learning

11. Promote the workforce's AI transformation through lifelong learning programs and certifications. AI is expected to create considerable churn in labor markets. AI will replace some workers entirely, make others more productive, and create entirely new occupations. Recent research suggests that AI is not only enhancing the productivity of high-skilled workers but also that it may disproportionately [benefit low-skilled workers](#). African governments can support workforces' AI readiness through lifelong learning campaigns and certificate programs that credential workers in AI.

Many governments have developed workforce AI transition programs to ensure workforce readiness for the AI era. For example, South Korea's [AI-Digital \(AID\) 30+ Project](#) aims to offer retraining opportunities and digital education for 660,000 adults aged 30 and older. Korea has also launched a [lifelong digital education voucher](#) and pledged to create tailored curricula for universities to train workers in AI. Saudi Arabia's "[One Million Saudi in AI](#)" initiative aims to equip 1 million Saudi citizens with AI knowledge and skills.

Public-private partnerships are a powerful lever for workforce AI skilling. Governments can also support the development of [AI skilling consortia](#) that bring together the private sector with labor and workforce experts.

12. Systemically measure AI transition in the workforce. African governments should establish specific workforce AI skilling targets and track progress toward meeting them. They should similarly continue to forecast demand for AI skills to orient workforce development programs. As an example, in France, the [GEN SCAN Observatory](#) provides national data on digital skills and needs across the country. The U.S. Bureau of Labor Statistics produces data on employment for [occupations susceptible to AI](#) through the year 2033. In Chile, the 2024 updated National Artificial Intelligence Policy calls for the measurement of AI's labor market impacts, periodic foresight exercises, and public-private dialogue to guide talent development in line with AI's evolution.

Promote public sector workers and policymakers' AI skills

13. Skill public sector workforces to build their AI literacy and use AI. One of the most important steps that governments can take to spur AI adoption is to set a positive example on AI skilling and adoption, including by ensuring that all public sector workers have the skills they need related to AI and by deploying AI across a wide variety of public sector use cases. In Singapore, civil servants are trained through specialized AI curricula delivered by the [Civil Service College](#), and government agencies adopt AI in service delivery. The [United Kingdom's Civil Service Training](#) has introduced nine new AI training courses to enhance AI literacy among public sector employees. Key aspects include understanding AI concepts and applications in public services, developing AI policy and governance frameworks for

responsible AI use, and developing practical AI training for decision-making. The new Google-supported report [AI Works for Governments](#) provides several public sector use cases for AI and ideas for ethical, legal and technical capacity-building. The Google-backed [Government AI Campus by Apolitical](#) is also an excellent resource and peer-to-peer network for governments to build public sector capacities for leveraging AI.

14. Promote public-private partnerships and AI sandboxes for policymakers to work with the private sector to learn about AI's potential and impacts. African countries are avid users of regulatory sandboxes, especially for financial technologies. Sandboxes enable businesses to experiment with new technologies and business models in controlled settings and policymakers to learn about emerging technology applications and their impacts on the marketplace and society. Israel, a frontrunner in AI R&D, has launched a cross-sector regulatory sandbox that [enables companies to test new AI applications](#), such as autonomous systems, alternative food production, and traffic innovation. The Google for Startups program designed for startups using [AI to support governments](#) and enhance services for communities.

15. Promote capacity-building and dialogue among African AI policymakers and their peers in other markets. African policymakers are often in contact with their peers in other countries; for example, South African policymakers and regulators regularly come in contact with their G20 peers. The Global Partnership on AI represents an opportunity for African regulators to join dialogues on AI policies globally. There are also groundbreaking transcontinental initiatives, such as the [Africa-Asia AI Policymaker Network](#) promotes cross-country exchange among government officials from Africa and Asia on AI policies (Case Study 4). These dialogues should be scaled, for African policymakers to keep up to date and skilled on global AI policies.

CASE STUDY 4

Intelligent Technology Meets Smart Politics: The Africa-Asia AI Policymaker Network

Launched in 2022, the [Africa-Asia AI Policymaker Network](#) has grown into a major platform for cross-country exchange of government officials from Africa and Asia on policy frameworks and strategies to develop responsible and locally relevant AI applications. The network has been catalyzed by the German Development Cooperation ("FAIR Forward - AI for All") on behalf of the German government.

Since its first iteration, the program has trained policymakers from Ghana, India, Indonesia, Kenya, Rwanda, South Africa, and Uganda.

The **AI Policymaker training is a four-month peer learning** and capacity-building program on AI. Throughout this journey, participants immerse themselves in a rich array of topics, including AI ethics, the formulation of AI policies, and sector-specific approaches, as well as case studies on policy implementation. The training also provides a unique platform for engagement and dialogue with guest policymakers and AI developers from different countries on how AI can contribute to the achievement of the United Nations' Sustainable Development Goals (SDGs).

Members of the Network also come together for an **annual onsite gathering and bi-monthly online meetings** enable the participants to share updates on localized AI policy developments, including national AI strategies, procurement guidelines, and bottom-up AI practitioner guidelines, as well as to coordinate plans for joint projects.

Preparing Educators to Teach about and with AI

- 16. Train teachers to adopt and teach AI.** Schools in Africa have been undergoing a digital transformation over the past decade. AI transformation is another step in this journey. It requires empowering teachers to adopt AI in their teaching, experiment with how AI skills are taught, and explore new ways to weave AI into education. As an example, United Kingdom's National Centre for Computing Education, funded by the Department for Education, has several programs for educators to learn [how AI can be woven into primary computing curriculum](#); how AI can support creativity, digital literacy, and the use of IT; and how generative AI should be used in education. Brazil's AI plan commits funding for [Interdisciplinary Laboratories for Educator Training](#) aimed to train teachers for the pedagogical use of AI. [ADAPT](#), a research program supported by the Irish government, has partnered with Google to lead the [AI Literacy in the Classroom](#) program to boost AI literacy among secondary-school teachers. The Raspberry Pi Foundation and Google DeepMind's [Experience AI](#) offers scalable AI learning to students aged 11 to 14 and their teachers (Case Study 5). In Nigeria, [Google.org supports](#) the Experience AI Program, which is working to train 25,000 educators to teach AI.
- 17. Make teachers into AI skilling innovators.** Teachers are closest to the challenges and opportunities AI offers to African students, and have ideas on ways to improve AI skilling and use AI in the classroom. Enabling teachers to experiment helps surface best skilling practices and customize AI skilling to particular circumstances – much as [has been the case with teaching general information and communications technology \(ICT\) skills](#). African governments could offer teachers grant competitions to test new AI skilling initiatives in their classrooms, and then disseminate best practices that emerge. In California, the hub of AI innovation, the state-funded California Education Learning Lab has [run a grand challenge](#) to support AI-related innovation in teaching at California colleges and universities. California's [AI FAST Challenge](#) has supported innovative research, led by individual faculty, on the intersection of teaching and AI. Some [projects have included](#) weaving Generative AI into elementary teacher education and developing assessment strategies that ensure learning with AI.

CASE STUDY 5

Experiencing and Mainstreaming AI across Subjects through Teacher Training and Applied Learning

In order to equip students with foundational knowledge in this fast-developing field, the Raspberry Pi Foundation and Google DeepMind launched [Experience AI](#), an educational initiative aimed at students aged 11 to 14 and their teachers.

The goal of Experience AI is to make AI and machine learning accessible and understandable through curriculum-aligned resources that are engaging and age-appropriate. The initiative responds to a gap: few lower secondary-school programs formally cover AI, and many teachers lack the confidence, training, or materials needed to introduce AI concepts in the classroom.

At the core of the program is a structured set of lessons designed to teach students how AI works, where it appears in their daily lives, and what ethical questions it raises. The materials include lesson plans, slides, worksheets, and explanatory videos, all freely available to educators. The lessons are designed to be usable across multiple subjects and flexible enough to be taught in formal school settings or informal environments like afterschool coding clubs.

To support educators, Experience AI offers a free online course called [Understanding AI for Educators](#), hosted on the edX platform. Over three weeks, educators are introduced to key AI concepts and tools and are given opportunities to explore hands-on activities and classroom strategies. The course also addresses the broader implications of AI, such as its social, ethical, and economic impacts.

Another important component is the [Experience AI Challenge](#), a project-based learning opportunity that allows students to train a basic machine learning model and use it to develop a simple AI-powered application. This open-ended challenge encourages creativity and problem-solving, giving students a chance to apply what they have learned to issues or topics they care about.

Experience AI has also expanded internationally through a network of education partners who help adapt and localize the materials to fit national education systems and languages. Partners offer teacher training and contextualized content that reflect local priorities and curricula.

Since its launch, the program has reached thousands of educators and students worldwide. Teachers who complete the training report greater confidence in teaching AI topics, while students show increased interest in both the technical and ethical aspects of AI.

AI Innovators

AI Entrepreneurs, Developers, and Researchers: Building Africa's AI Innovation Capacity

- 18. Build AI R&D skills to use AI to solve African challenges, including via AI centers of excellence and research institutes.** AI is ushering in a new era of scientific discovery, exemplified by the recent Nobel Prizes awarded to [Google DeepMind](#) and [Quantum](#) researchers for breakthroughs in chemistry (protein structure predictions) and physics (macroscopic quantum effects), respectively. AI is also paving the way to breakthroughs in [cancer detection](#) and the forecasting of [extreme weather](#), [wildfires](#), and [floods](#). African AI skilling policies have an opportunity to promote AI R&D skills poised to solve previously intractable problems in Africa. African governments and universities have already launched many positive initiatives. For example, Tunisia's [AI innovation hub](#), launched with the [NVIDIA Deep Learning Institute](#), supports the skilling of AI researchers and startups, while the [Africa Research Institute for AI](#), based in Tanzania, advances high-impact research, training, and evidence-based policymaking with AI.
- 19. Establish AI programs at universities to build Master's- and PhD-level AI innovation capabilities.** AI innovators armed with Master's degrees and PhDs in AI and related disciplines like machine learning help drive new AI-driven solutions and AI startup ecosystems. Africa already has AI-focused universities and programs. For example, the Ghana-based [African Institute for Mathematical Sciences](#) offers an African Master's in Machine Intelligence, supported by Google AI, to cultivate local AI expertise. As an example outside Africa, the United Arab Emirates (UAE) has created the [Mohamed bin Zayed University of Artificial Intelligence](#) as the world's first graduate-level, research-based AI university (Case Study 6). Capabilities could also be pooled across universities in Africa. As one example, the [Finnish Doctoral Program Network in Artificial Intelligence](#) is a joint effort of ten universities hosted by the government-supported Finnish Center for Artificial Intelligence that brings together the participants' collective capabilities and technology for teaching AI innovators. It offers fully-funded PhD positions in AI and machine learning; access to Europe's fastest supercomputer, [LUMI](#); and partnerships with various European companies.

CASE STUDY 6

World's First AI University: The UAE's Mohamed bin Zayed University of Artificial Intelligence (MBZUAI)

The [Mohamed bin Zayed University of Artificial Intelligence \(MBZUAI\)](#) was founded in 2019 by the government of Abu Dhabi as the world's first dedicated graduate-level AI-research university. Aiming to drive AI innovation across key sectors like healthcare, energy, and transportation, it offers master's and PhD programs in key areas related to AI, such as machine learning, computer vision, and natural language processing.

The university is also expected to be at the center of a dynamic ecosystem that promotes collaboration among the academic, industrial, and government sectors. To attract the best AI talent globally, the university offers scholarships covering tuition fees, accommodation, and stipends to support students' living expenses.

MBZUAI is aligned with the UAE's AI strategy, which aims to make AI a central force in national development by 2031, as well as with the UAE's broader goals of diversifying its economy, fostering stronger innovation, and building a more knowledge-based society. It is part of a broader national agenda that includes large-scale projects such as Masdar City, a sustainable urban development initiative, and the UAE's space program.

The Model AI Skilling Policy in Table 4 details specific activities, building on global best practices, that African governments could undertake to promote AI skilling.

Table 4: Model AI Skilling Policy

MAIN AREA	STRATEGY	POLICIES	IMPLEMENTOR
1. General population: Promoting AI literacy across society	1.1. Build awareness about AI	a. Conduct national AI awareness campaigns with examples of how AI can be and is integrated into daily life. b. Include AI topics in national digital literacy programs.	• Ministry of Information/Communications & Digital Economy/ICT • Ministry of Education
	1.2. Promote AI literacy campaigns to enable Africans to learn about AI	a. Co-design with civil society organizations public campaigns on AI risks and opportunities. b. Partner with consumer groups to promote understanding of AI standards and responsible uses. c. Establish community-based AI literacy hubs.	• Ministry of Information/Communications & Digital Economy/ICT • Ministry of Consumer Protection, Trade, or Standards
2. Primary and secondary students: Mainstreaming AI into education policy, institutions, and programs	2.1. Develop national guidelines to promote AI adoption and use in primary and secondary education	a. Mainstream AI skilling into national education policy and incorporate AI learning into school curriculum for all ages. b. Mandate AI literacy throughout the school system to equip students to understand AI as consumers and members of society. c. Co-design AI curriculum with businesses and educators. d. Modernize educational assessments to include AI literacy and learning.	• Ministry of Education
	2.2. Promote STEM learning early on	a. Promote STEM learning in secondary schools and afterschool programs.	• Ministry of Education
	2.3. Use AI to personalize learning at scale	a. Equip students and teachers to use Generative AI tools and training content. b. Use AI, for example in intelligent tutoring systems and digital textbooks, to enhance learning and support differentiated learning needs. c. Develop and scale AI-powered learning apps for African contexts. d. Promote inclusive AI learning for students with disabilities through conversational AI, speech recognition, and extended reality. e. Promote the procurement of relevant technology products to support AI-driven learning.	• Ministry of Education

MAIN AREA	STRATEGY	POLICIES	IMPLEMENTOR
3. MSMEs Enabling staff at small businesses to imagine and test AI use cases and use AI	3.1. Help MSMEs adopt and use AI	a. Facilitate university-business partnerships to help MSMEs co-develop and test AI solutions. b. Create online platforms to help MSMEs learn about AI and use AI tools (e.g., through short-form, self-paced courses in AI and digital marketing for MSMEs).	• Ministry of Trade/ Industry & SMEs • Ministry of ICT/Digital Economy • Ministry of Science, Technology, and Innovation
	3.2. Cosponsor MSMEs' internal staff trainings	a. Offer financial incentives and co-funding for MSMEs to carry out their own training programs.	• Ministries of Trade, Industry and SMEs
	3.3. Ensure MSMEs use AI responsibly	b. Promote the application of international standards for responsible use of AI, for example, through certification for ISO/IEC 42001.	• Ministry of ICT/Digital Economy
4. AI expertise in professions: Mainstreaming AI across professional degrees and careers	4.1. Mainstream AI into Africa's professional degree programs across all disciplines	a. Integrate AI modules into professional degree programs, including law, medicine, engineering, and business degrees and in technical and vocational training. b. Train university faculty across disciplines to apply AI in instruction. c. Fund grants for faculty to develop curricula and teaching methods that integrate AI in tertiary education.	• Ministry of Education • Ministry of Science, Technology, and Innovation
	4.2. Promote change management and digital transformation at workplaces	a. Incentivize businesses to integrate AI into professional functions. b. Create knowledge-sharing network for professionals to share ideas on AI use cases. c. Partner with the private sector to develop an AI-focused leadership certificate for executives and managers.	• Ministries of Labor and Employment • Ministries of Trade, Industry, and SMEs

MAIN AREA	STRATEGY	POLICIES	IMPLEMENTOR
5. Private sector workforces: Promoting the AI transition through occupational and lifelong learning	5.1. Create lifelong AI learning programs and certifications for workforces	a. Create AI-focused career transition programs for at-risk workers. b. Offer AI trainings at adult learning centers and universities. c. Provide digital lifelong learning vouchers for workers to upskill in AI. d. Expand national certification programs like Google Career Certificates and similar models.	• Ministry of Labor • Ministries of Trade, Industry, and SMEs • Ministry of ICT/Digital Economy
	5.2. Systemically measure the workforce's AI transition	a. Use LinkedIn and other platforms to track different groups' AI-related skills and occupations. b. Develop national AI skilling observatories to monitor progress and forecast AI skills demand. c. Develop real-time labor market dashboards for policymakers to adjust training using job board data, certificate enrollments, and employer feedback.	• Ministry of Labor & Employment • Ministry of ICT/Digital Economy • Statistical agencies
6. Public sector workforces and policymakers: Teaching public servants to use AI	6.1 Train government officials to use AI	a. Introduce AI curricula in national civil service training programs. b. Train government officials to consider AI use cases and apply AI in their work. c. Promote capacity-building and dialogue among African policymakers and their peers in other markets on AI use cases in the public sector and on optimal methods to skill civil servants in AI.	• National Schools of Government/Civil Service Academies • Ministry of ICT/Digital Economy
	6.2 Enable policymakers to learn about AI	a. Promote AI sandboxes for policymakers to learn about AI's potential and to develop appropriate policy frameworks.	• Ministry of ICT/Digital Economy
7. Educators Enabling teachers to use AI for learning	7.1. Train teachers to adopt AI as a learning tool	a. Integrate AI skilling in new teacher training. b. Launch national AI training programs for current teachers. c. Offer digital tutors and support centers to help teachers integrate AI into classrooms. d. Promote teachers' AI credentialing and certification.	• Ministry of Education • Teacher Training Colleges • Ministry of ICT/Digital Economy
	7.2. Make teachers into AI skilling innovators	a. Promote innovation challenges that encourage teachers to experiment with methods of using AI in classrooms. b. Share innovative approaches that work to integrate AI into classrooms.	• Ministry of Education • Ministry of Science, Technology, and Innovation

MAIN AREA	STRATEGY	POLICIES	IMPLEMENTOR
8. AI entrepreneurs and researchers Building Africa's AI innovation capacity	8.1. Establish AI programs at universities to build master's- and PhD-level AI expertise in Africa	a. Support Master's and PhD AI programs in African universities. b. Partner with leading AI institutions globally for faculty exchanges and dual degrees. c. Partner with the private sector for AI projects focused on African research challenges. d. Provide scholarships for underrepresented groups in AI programs. e. Build a pipeline of STEM students.	• Ministry of Education • Ministry of Science, Technology, and Innovation • Ministry of Labor
	8.2. Develop AI R&D capabilities to develop AI by Africans, for African challenges	a. Bring together research labs, startups, and corporations to train PhD-level AI engineers. b. Launch competitive AI R&D grants to enable AI innovators to enhance their skills and put their skills into practice.	• Ministries of Science, Technology, and Innovation • Ministry of ICT/Digital Economy

10 Principles for AI Skilling Policy Africa

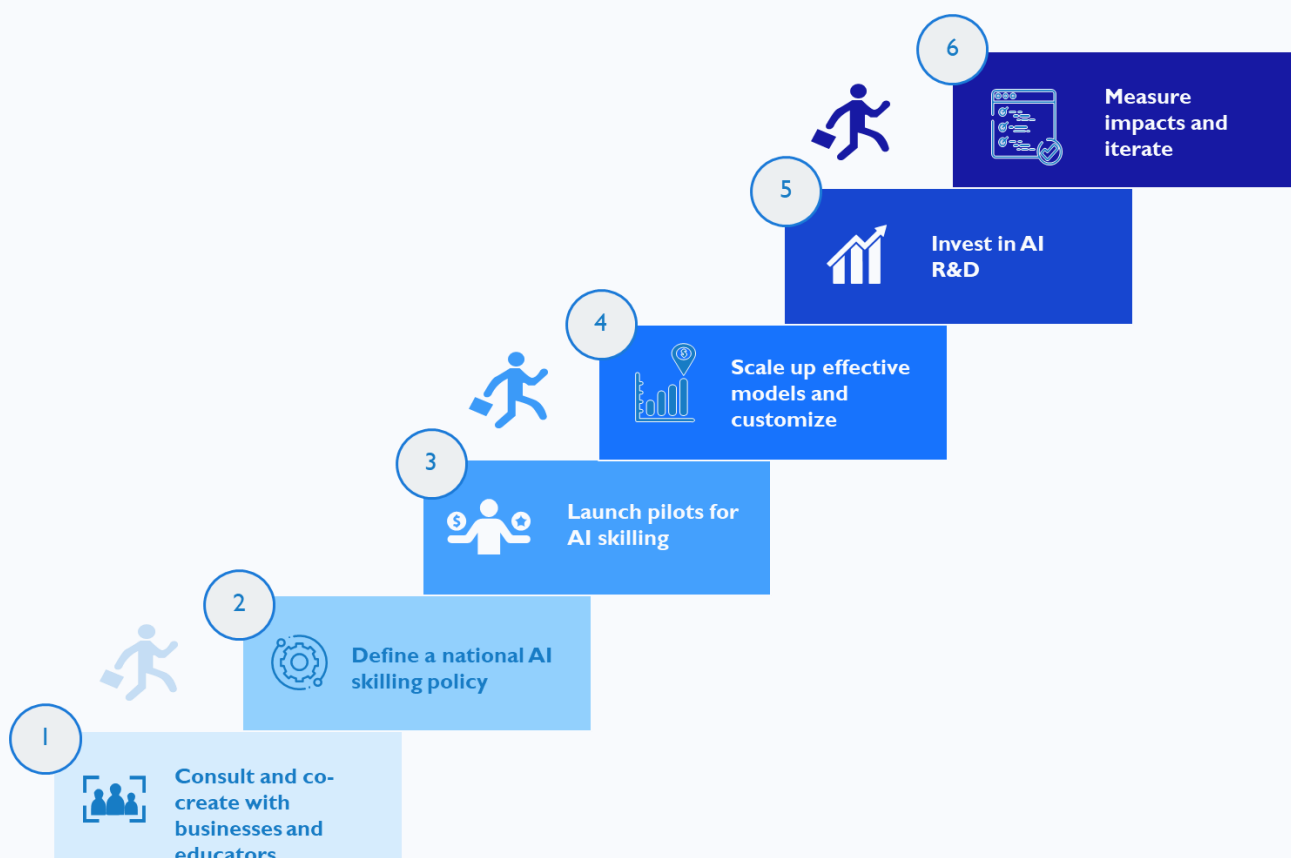
There are general principles for African governments to follow in forming and operationalizing their AI skilling plans. Ten principles include:

- 1. Make government into the catalyst and example of AI learning and application.** Governments should see themselves as frontrunners in AI skilling and set an example to their societies in AI skilling and adoption, through skilling the public sector and adoption. Governments' AI adoption and ethical use can also increase population's AI usage and trust in AI.
- 2. Tailor AI skilling to different country contexts and segments.** There is immense diversity in Africa, encompassing smallholder farmers, university students, small business owners, and persons with disabilities, among many others. These segments of society have widely different levels of readiness for AI and differentiated needs that AI could help meet. Also, as AI is mainstreamed into education systems and curricula, tailored approaches to different groups will be needed.
- 3. Take a whole-of-government approach and mainstream AI into existing policies.** AI skilling policy is most effective when it is built as a holistic “one-government” effort and mainstreamed into other key government strategies and policies aimed at skilling Africans, such as education, startup, and workforce policies.
- 4. Empower those that already do AI skilling.** African businesses are already skilling their staff to use AI, just as African schools and universities are already considering how to bring AI into higher education. African governments can scale these efforts by offering businesses and educational institutions grants and incentives and promoting learning on best practices.
- 5. Ensure stakeholders have access to the technologies needed for AI skilling - and use AI itself as a tool for AI skilling, especially to personalize skilling at scale.** AI skilling efforts require stakeholders' access to technologies, such as cloud and AI models for researchers, affordable AI resources and apps for small businesses, and AI subscriptions for students. African governments have a massive opportunity to use AI itself in skilling Africans to use AI, according to each African's abilities, circumstances, and aspirations.
- 6. Envision AI skilling as a change management process and build stakeholder support for its use.** AI skilling is not only about the ability to use AI – it is about organizations' ability to leverage people with AI skills to improve their performance. African governments should weave AI skilling into ongoing digital transformation work in the public and private sectors, and ensure buy-in for the use of AI by bringing along those that implement AI from day one.
- 7. Pursue AI skilling bottom-up, such as through national consultations with businesses and educators.** African governments and businesses need to come together regularly to discuss AI skilling needs, develop joint AI skilling programs, and discuss the results of skilling policies and efforts. Educators too should be engaged, as they are often closest to the

challenges and opportunities of AI skilling. In addition, as many economies around the world are already implementing AI skilling policies, African governments should also promote dialogues with their global peers to learn about best practices and pitfalls.

8. **Include in AI skilling work skilling in responsible uses of AI.** AI skilling policy and programs must always include a focus on AI ethics, the responsible use of AI, and the application of AI standards.
9. **Assess the impact of AI skilling regularly.** The uptake and impacts of AI skilling initiatives need to be measured regularly so that African policymakers and stakeholders can identify and scale what works.
10. **Conceptualize AI skilling as a journey - a constant work in progress, with improvements based on data and iteration.** African governments pursuing AI skilling do not have to do everything at once. Instead, they can adopt a sequenced, step-by-step approach, progressing from co-development of skilling plans with businesses, educators, and workers to integrating AI skilling into education systems and piloting skilling initiatives (figure 7). The key is a mindset of continued learning and iteration, and governments being willing to quickly shift resources to programs that work from those that don't. Likewise, governments need to adjust to new opportunities as AI evolves. For example, the rapid rise of agentic AI is a powerful emerging trend that will shape skilling needs.

Figure 7: Sequencing AI Skilling Policy and Implementation



- **STEP 1: Co-create AI skilling policies with African educators, employees and workers.** Governments can initiate AI skilling by engaging with a wide range of stakeholders - educators, MSMEs, startups, civil society organizations, and research institutions - to understand current capabilities, identify gaps, and generate ideas for policy design. These consultations form the foundation for a shared national vision on AI skilling and ensure that policies are contextually relevant and inclusive of diverse needs.
- **STEP 2: Define a national AI skilling policy that provides a unified direction for schools, educational boards, and training institutions.** This step involves setting a common baseline for AI education policy that ensures all Africans can both learn about AI and its applications and ethical considerations, and use AI tools to enhance their learning experiences. Such policies help mainstream AI education across regions, promote digital literacy, and teach responsible use of emerging technologies.
- **STEP 3: Launch AI skilling pilots and proofs of concept in collaboration with the private sector, development organizations, and education innovators.** Governments can support schools, teachers, and training centers in testing different methods of AI teaching and learning, whether through project-based learning, teacher-AI co-facilitation, or online platforms. These pilots also serve as experimentation grounds for empowering educators, many of whom can develop locally tailored AI teaching materials and approaches.
- **STEP 4: Scale up effective AI skilling models and promote personalization of learning at scale, building on successful pilot programs.** Governments can invest in replicating high-impact approaches across schools and communities while continuing to support educators through training and digital tools. Parallel efforts can help businesses upskill their workforce, often supported by targeted grants, incentives, or public-private partnerships.
- **STEP 5: Invest in AI innovation and research skills.** Governments can fund advanced education and R&D programs, support university-industry partnerships, and open opportunities for African AI talent to create new solutions using AI. They can also ensure that policy frameworks keep pace with innovation.

C. Regional Policies to Promote AI Skilling in Africa

The African Union (AU) and regional economic communities (RECs) play a crucial role in developing regional skilling initiatives, encouraging exchange of AI skilling best practices, and tracking the development of AI skills in different countries and segments.

1. Developing a Continental Skilling Roadmap to Guide National Skilling Policies

At the continental level, the AU plays a key role in shaping AI skilling policies, as it has already started to do through the [Continental Artificial Intelligence Strategy](#), [African Digital Compact](#), and [African Union Development Agency-NEPAD AI Strategy](#). The Continental AI Strategy, for example, calls for joint work in promoting Africans' skills to leverage AI for development and in developing AI curricula for basic and higher education and workforce development.

To operationalize these frameworks, the AU could partner with African institutions and the private sector to develop a shared AI skilling roadmap. This roadmap could include guidance for national AI skilling plans and integration of AI into national education strategies. The AU could also promote assessments of the needs and key challenges that Member States face in building AI skills and competencies.

In the longer term, African governments may consider launching a continental initiative inspired by the European Union's [Digital Europe Program](#), which seeks to mobilize funding, partnerships, and digital infrastructure to scale advanced AI skilling programs, create regional training hubs, and expand access to compute resources for education and research. Such an effort could pool resources to ensure that African AI talent is globally competitive, while also being grounded in regional needs.

2. Building Regional AI Skilling Plans, Programs and Credentials via RECs

Africa's RECs play a critical role in sharing best practices in AI skilling. RECs can also help member states craft AI skilling plans and programs, pool resources for AI skilling, and build region-wide public-private partnerships for AI skilling. RECs could also implement a regional AI credentialing system to ensure that African professionals, students, and MSMEs have certifications transferable across borders. One good example is the [East African Community \(EAC\)'s AI Alliance](#), which has emerged as a source of AI education, research, and policy in East Africa (Case Study 7).

CASE STUDY 7

Improving Regional AI Integration and Skills through the EAC's AI Alliance

The [East African Community \(EAC\)'s AI Alliance](#) is a key driver of AI education, research, and policy in East Africa. By fostering regional collaboration, private sector involvement, and practice-oriented education, the alliance helps to bridge the gap between higher education and industry across East Africa. The alliance addresses common critical challenges in sectors such as healthcare, agriculture, and climate change. It involves collaboration between universities, the private sector, and research institutions across the eight EAC partner states: Burundi, Kenya, Rwanda, South Sudan, Somalia, Tanzania, Uganda, and the Democratic Republic of the Congo. The AI Alliance is coordinated by the [EAC Secretariat](#) and institutions such as the Inter-University Council for East Africa and the East African Science and Technology Commission. It is co-funded by the German government. Concrete actions include:

- **Creating a regional AI academia and research network** to support practical, industry-driven AI research. By 2028, the initiative aims to involve over 10,000 researchers and 50,000 students in applying AI solutions

to real-world challenges and accessing AI skilling.

- **Developing private sector partnerships for AI in higher education and training** to modernize AI education through practice-oriented curricula, ensuring that educational programs are aligned with industry needs.
- **Offering micro-credentials** and digital learning platforms to broaden access to AI training across the region. In this field, the alliance partners with UNESCO Campus Africa.
- **Ensuring AI policy coordination and advocacy:** The Alliance promotes the development of inclusive AI policies and a regional AI strategy that supports regional integration and innovation.

In turn, international development organizations play a key role supporting RECs on regional AI skilling and technical assistance for AI plans and integration of AI into member states' educational policies. Existing donor platforms such as [AI4D Africa](#) can provide regional infrastructure for skilling and deliver localized, sector-specific AI skilling. There are a number of [important initiatives](#), such as:

- The [AI4D Africa Anglophone Research Lab](#) in Tanzania that builds university-level research and teaching capacity in AI.
- [Responsible AI Lab](#) in Ghana provides training in ethical AI and machine learning.
- [CITADEL](#), in Burkina Faso, focuses on building AI expertise in francophone Africa by developing inclusive and contextually relevant AI solutions.
- The [African Research Centre on Artificial Intelligence](#), an AI research and training center based in Brazzaville, Republic of Congo, focuses on delivering AI infrastructure, education, and capacity-building across Africa.

3. Tracking the Development of African AI Skills

Comprehensive and real-time data on the demand and supply of AI skills is still limited in general and in Africa, in particular - yet vital for the development of impactful AI skilling plans and programs. To keep abreast of AI skills demand and supply in Africa's labor markets, the AU and RECs could promote regular surveys with African firms on their AI talent needs, develop data partnerships with leading jobs marketplaces, and enhance data on African students' readiness for the AI era. The AU and RECs could also systematically measure the effectiveness of AI skilling initiatives across Africa.



2. Demand and Supply of AI Talent in Africa

Demand for skills to apply AI is exploding in Africa and globally. This section reviews new survey data on the demand for AI-related skills by African businesses, with the goal of informing national AI skilling policies on key needs. It then turns to data on the supply of AI skills in Africa.

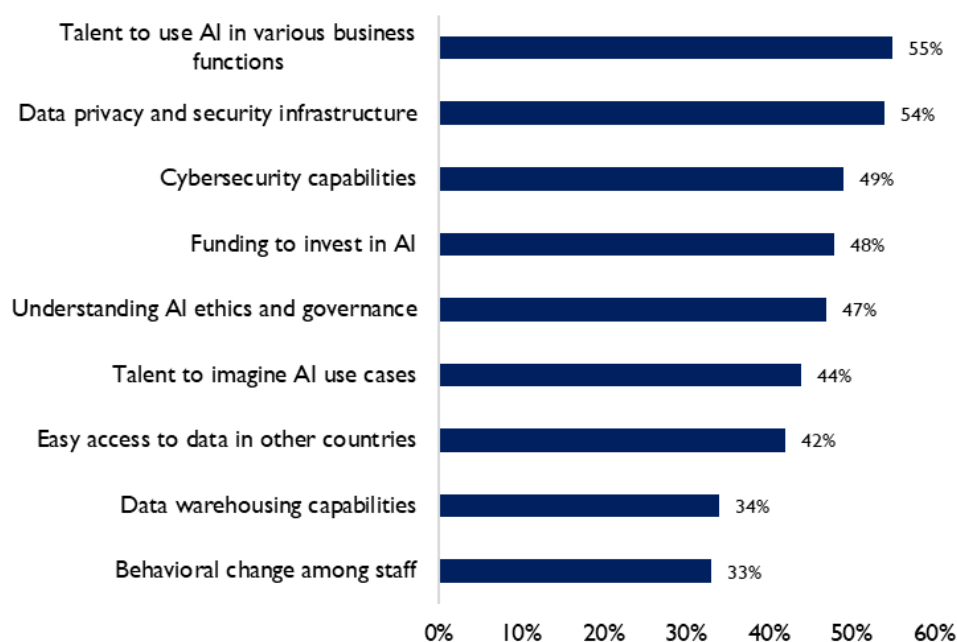
A. Demand for AI Skills in Africa

What skills do African firms look for to make the most of AI? And what types of occupations do they seek to fill to leverage AI? The following section discusses African firms' demand for AI skills through (1) a survey with altogether 1,400 African firms on their needs for AI-related talent in different sectors; and (2) an analysis of online job postings in Africa. Appendix 1 includes data on the sample.

There are seven stylized facts, as follows.

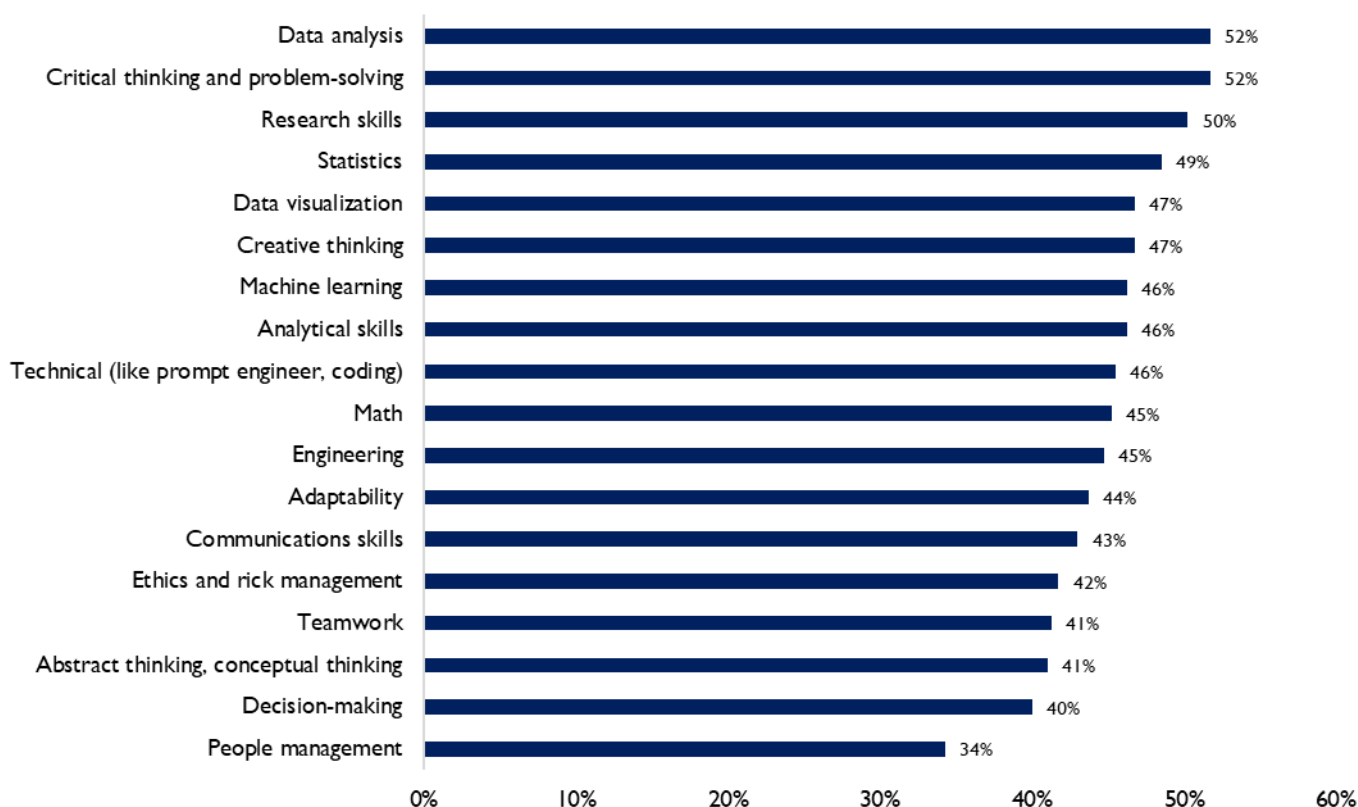
1. Access to talent tops the list of needs for African companies seeking to use AI.

Asked about their top needs to use AI, 55 percent of African companies report needing AI talent across business functions. Access to talent is a more pressing need than, say, cybersecurity capabilities (49 percent) or funding to invest in AI (48 percent) (Figure 8). In addition, 44 percent of firms report needing talent to imagine AI use cases in their businesses.

Figure 8: African Firms' Needs to Take Full Advantage of AI

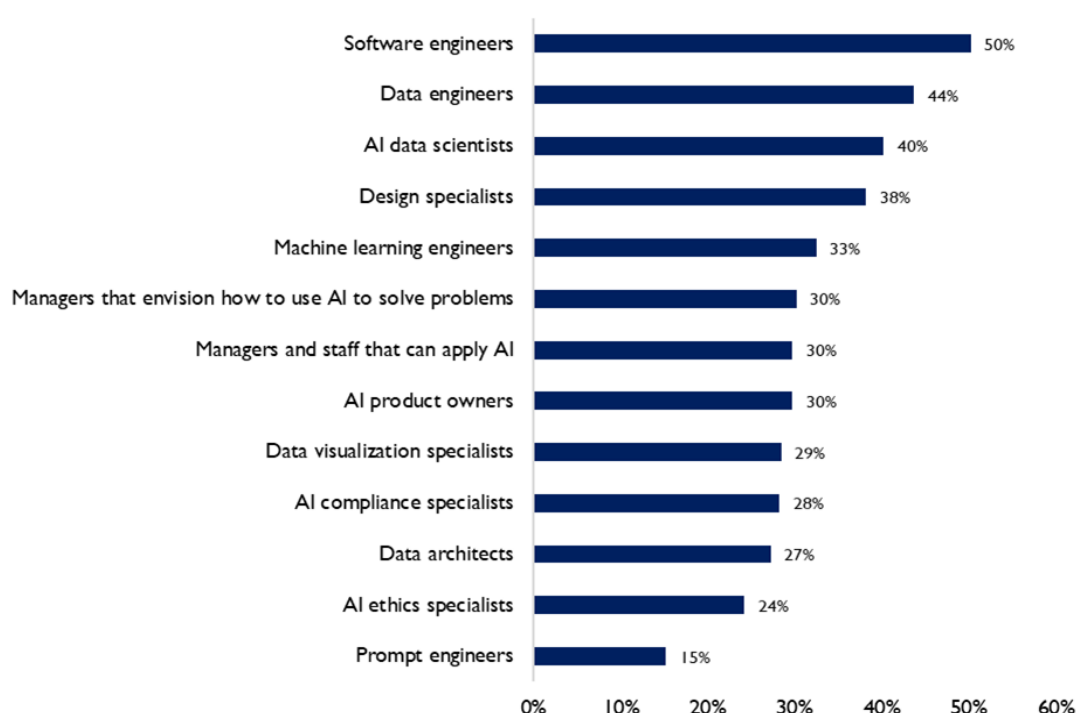
2. Asked about specific skills to use AI, African firms report needing data, statistical, and analytical skills.

Over one-half of African companies flagged skills such as data analysis, critical thinking and problem-solving, research, statistics, data visualization, and creative thinking as key to leveraging AI (Figure 9). In other words, companies want a combination of technical and soft skills to make most of AI.

Figure 9: Share of African Firms Reporting Need for Specific Skills to Take Advantage of AI


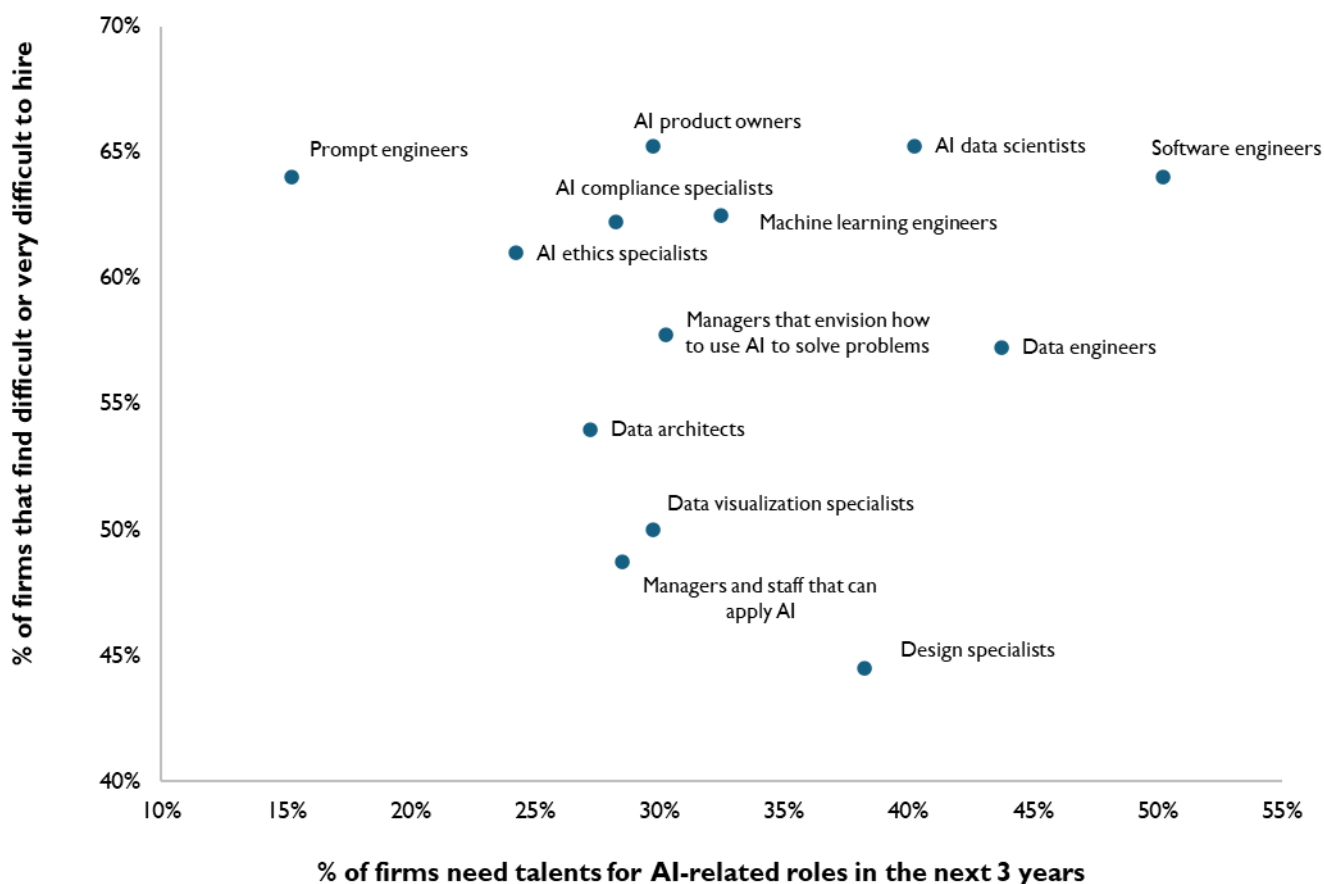
3. Asked for needs for staff in AI-specific occupations, African companies report needing software and data engineers as well as AI data scientists and product managers – but they also find these occupations difficult to fill.

The surveyed firms report primarily needing software engineers (50 percent), data engineers (44 percent), AI data scientists (40 percent), and design specialists (38 percent) (Figure 10). These talents are demanded across sectors and are especially important for the services industry (Figure 11). Talent for these roles is also difficult to find: 64 percent of firms highlight software engineers as very challenging to find, while 65 percent highlight AI data scientists and AI product owners as difficult to find (Figure 12).

Figure 10: Share of African Firms Reporting a Need for AI-Related Occupations**Figure 11: Share of African Firms Reporting a Need for AI-Related Occupations, by Sector**

	Agriculture and manufacturing	Retail and wholesale	Digitally deliverable services	In-person services
Software engineers	44%	46%	55%	50%
Data engineers	41%	35%	46%	45%
AI data scientists	38%	38%	42%	40%
Design specialists	35%	42%	37%	39%
AI product owners	29%	31%	33%	26%
Data visualization specialists	26%	31%	28%	29%
AI compliance specialists	24%	33%	28%	29%
Data architects	21%	29%	28%	29%
Managers envisioning use cases	28%	29%	27%	35%
Machine learning engineers	37%	31%	27%	37%
AI ethics specialists	19%	27%	26%	24%
Staff able to apply AI	25%	35%	22%	38%
Prompt engineers	10%	15%	18%	15%

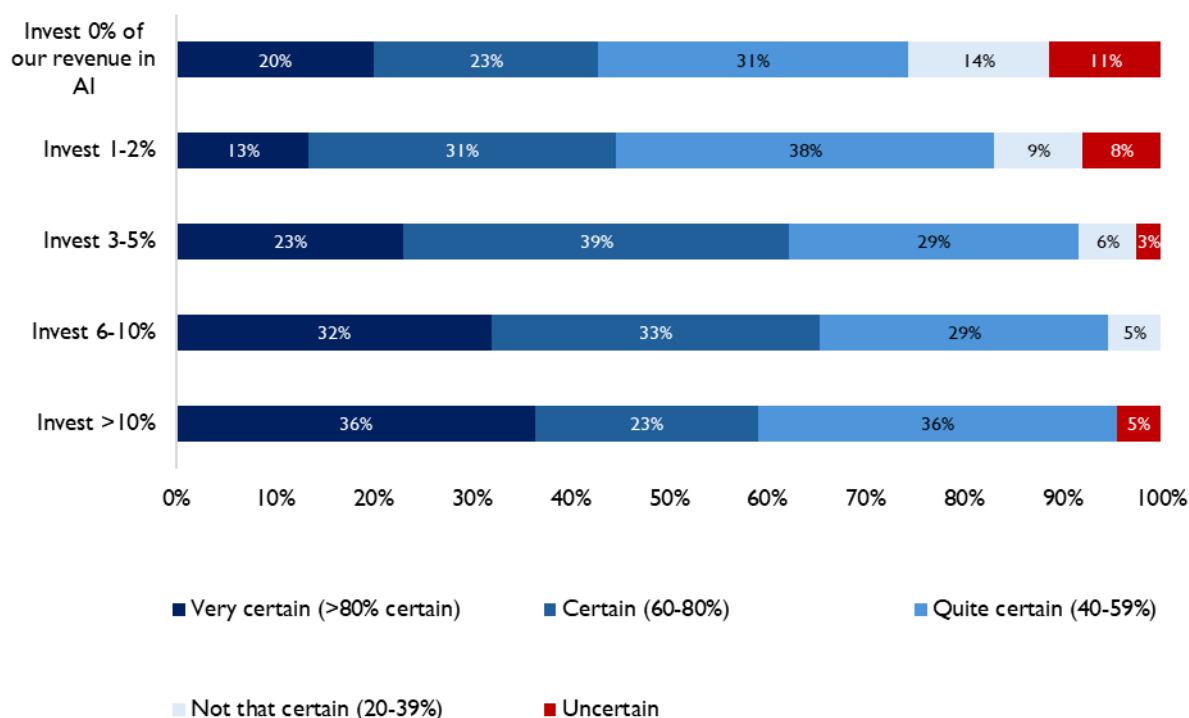
Figure 12: Demand for AI-Related Occupations among African Firms and Perceived Difficulty Finding Them



- 4. Many African firms are uncertain as to which AI-related talents they may need. African companies that use AI intensively are especially confident in their knowledge of the AI talent they need, but companies that are early in their AI journey are less certain.**

Businesses do not necessarily know exactly which types of AI skills they might need in the future. African businesses are relatively confident in their knowledge of the skills they need to use AI, and firms that invest heavily in AI and are especially familiar with AI are especially confident in their talent needs. Some 36 percent of businesses that invest more than 10 percent of their revenue in AI are very certain they know what types of staff they need for AI, as are 32 percent of firms that invest 6-10 percent of revenue in AI (Figure 13). Meanwhile, only 13 percent of firms that invest 1-2 percent of their revenue in AI are certain about the talent they need for AI, and 11 percent state they are not certain at all. This highlights a need to educate African MSMEs about necessary AI talents.

Figure 13: Firms' Certainty about Their Knowledge of AI Capabilities They Need to Hire, by Firm's Level of Investment in AI



5. African companies that invest heavily in AI rely on external AI talents while also cultivating talent in-house, among existing staff.

African companies that have been early movers in AI and invest heavily in AI have sought to find the right talent outside their organizations, such as from AI startups, in such functions as sales, marketing, and finance and accounting. Over one-half of firms that invest at least 3 percent of their revenue in AI have sought outside support (Figure 14).

This indicates the need for specialized capabilities that firms are not able to find internally and for which they are hard-pressed to hire. Indeed, African firms would be prepared to pay a premium for AI talent, especially in ICT-related roles (50 percent of firms would pay a premium of 20 percent or more for AI talent); senior management for thinking about AI strategy (48 percent); and in finance and accounting (42 percent) (Figure 15). The importance of AI talent in operations, marketing, and sales was rated as less important.

Figure 14: Share of African Firms that Have Outsourced AI Use in Different Business Functions, by Firms' Level of Investment in AI

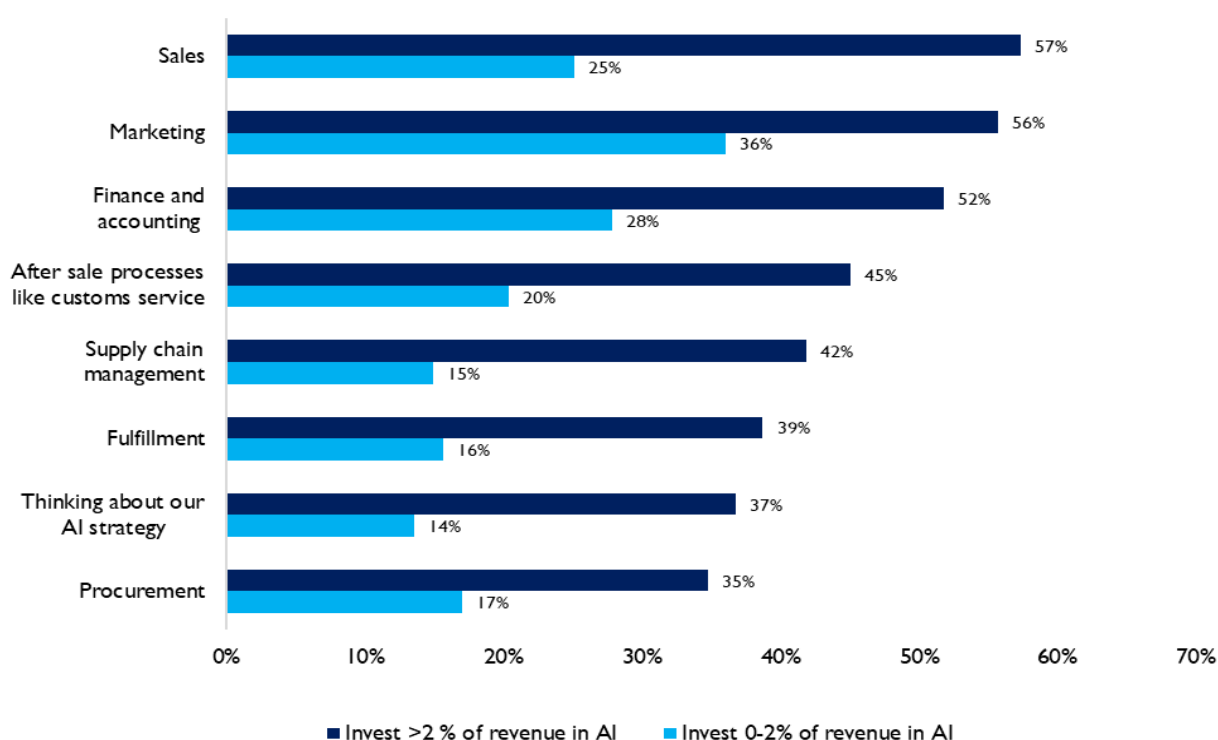
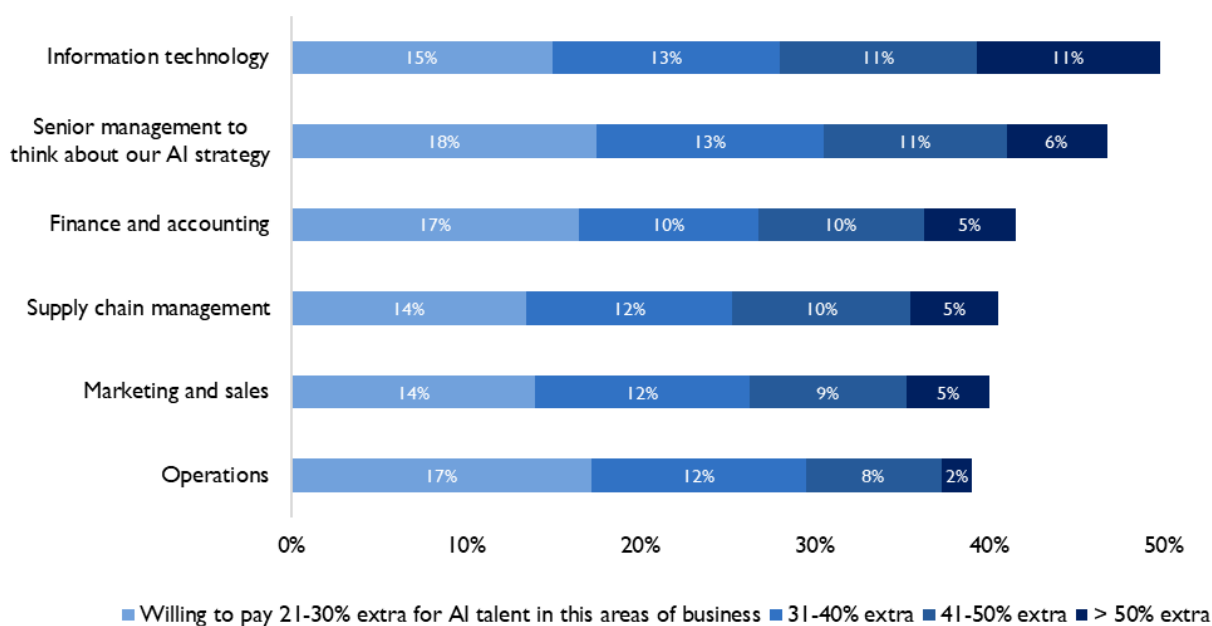
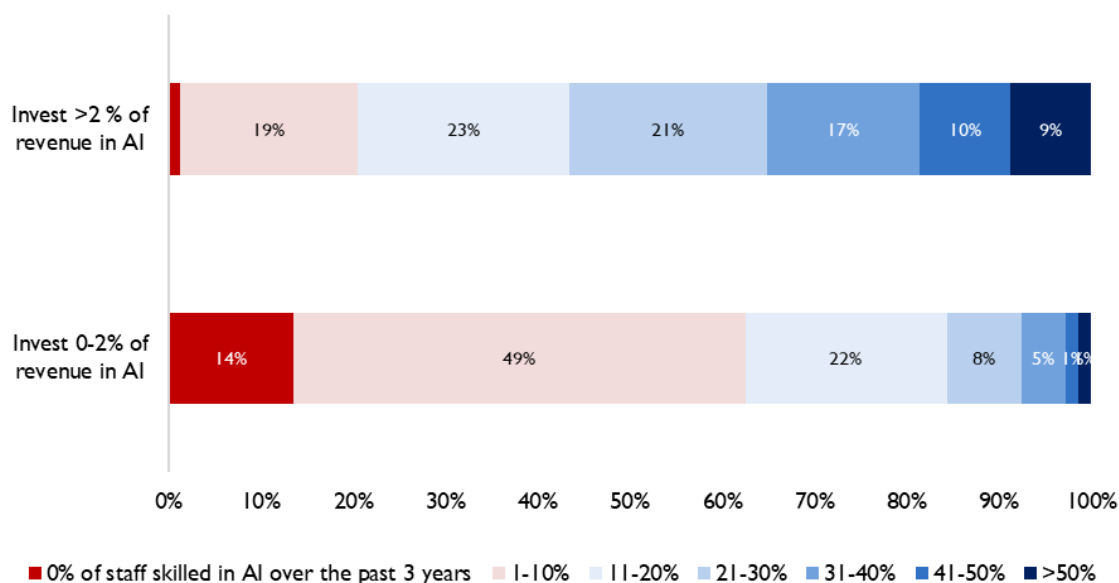


Figure 15: Share of African Firms that Would Pay a Premium of 20 percent or More for AI Talent, by Role Type

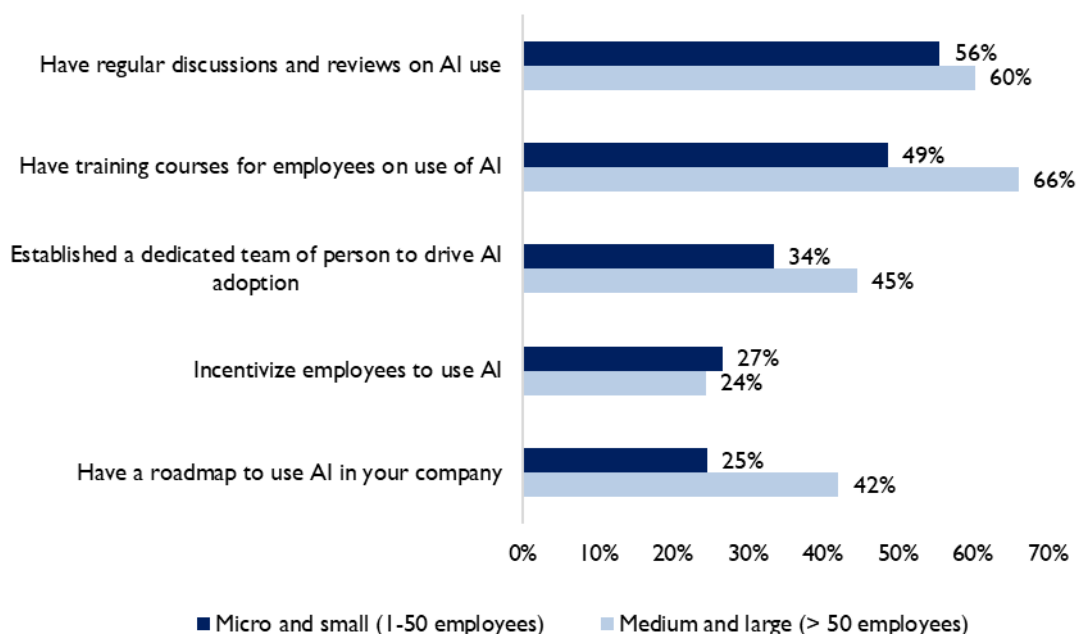


However, these same firms are also working to cultivate AI talent internally. Firms that invest more of their revenue in AI are likelier to have trained staff in the past three years on AI: some 80 percent of firms that invest more than 2 percent of their revenue annually in AI have trained more than 10 percent of their staff in AI, and 36 percent have trained over 30 percent of their staff (Figure 16). This suggests that governments could also support MSMEs' own ongoing talent development drives.

Figure 16: Share of Staff Skilled in AI in the Past Three Years, by Firms' Investment in AI



Asked about their training efforts, some 49 percent of MSMEs and 66 percent of medium and large firms have training courses for employees on AI, and 56 percent and 60 percent, respectively, have regular discussions on how to use AI (Figure 17). Over a third have dedicated staff to promote AI adoption, and over a quarter incentivize staff to take up AI. Digital service providers (such as legal, engineering, and professional services) are the likeliest business type to offer training programs.

Figure 17: Share of African Firms with Internal Talent Development Reviews and Processes


6. Employees' uptake of AI within African firms varies by age and occupation, with older employees and legal and HR professionals falling behind.

African companies have AI talents within their businesses as well as different levels of eagerness among staff to learn to use AI. Gen Z and Gen Y employees are likeliest to adopt and apply AI in their jobs (Figure 18). In different occupations, staff with ICT backgrounds and operations, sales, and marketing staff are likeliest to adopt AI, while legal and compliance staff and assistants are least likely (Figure 19).

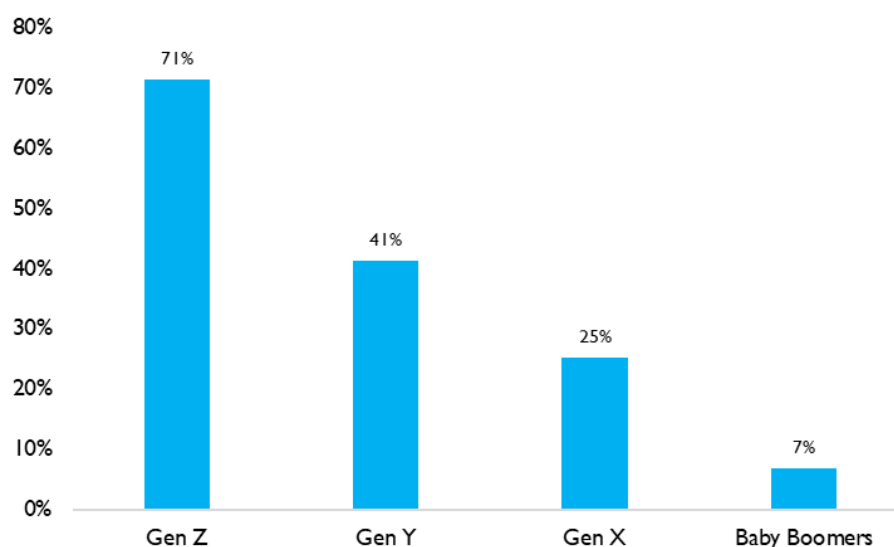
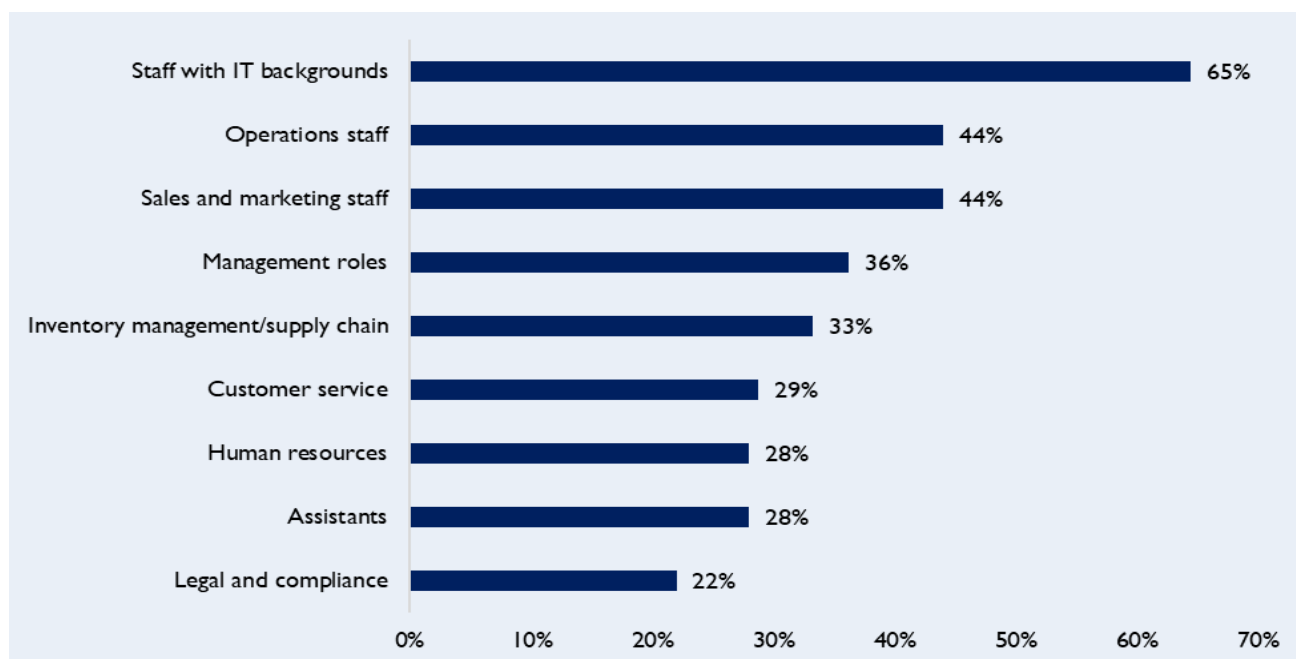
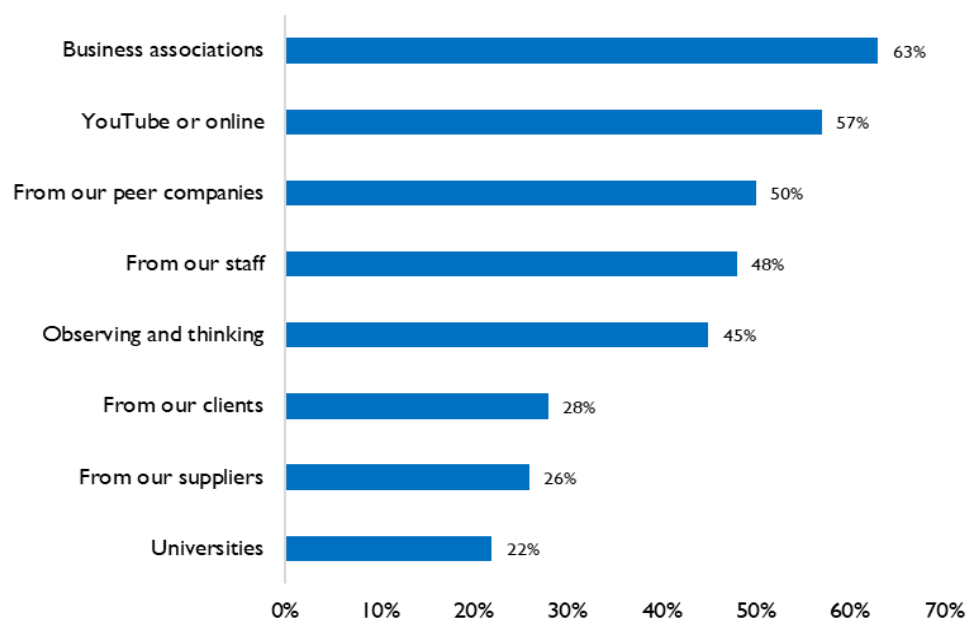
Figure 18: Share of African Companies Seeing a Generational Group as Likeliest to Adopt AI


Figure 19: Share of African Companies Seeing an Occupational Group as Likeliest to Adopt AI


7. African firms learn about AI capabilities they need from business associations and peers.

African companies learn about the talent they may need to build their AI capabilities mostly from business associations (63 percent), online (57 percent), or from peer companies (50 percent); universities are a source of information for only about a fifth of companies (Figure 20). In their AI skilling work, African governments should go where firms are already seeking AI skills, partnering with business associations to deliver trainings, and offer training online.

Figure 20: Share of African Companies Highlighting a Method of Learning about AI Capabilities


B. Supply of AI Skills in Africa

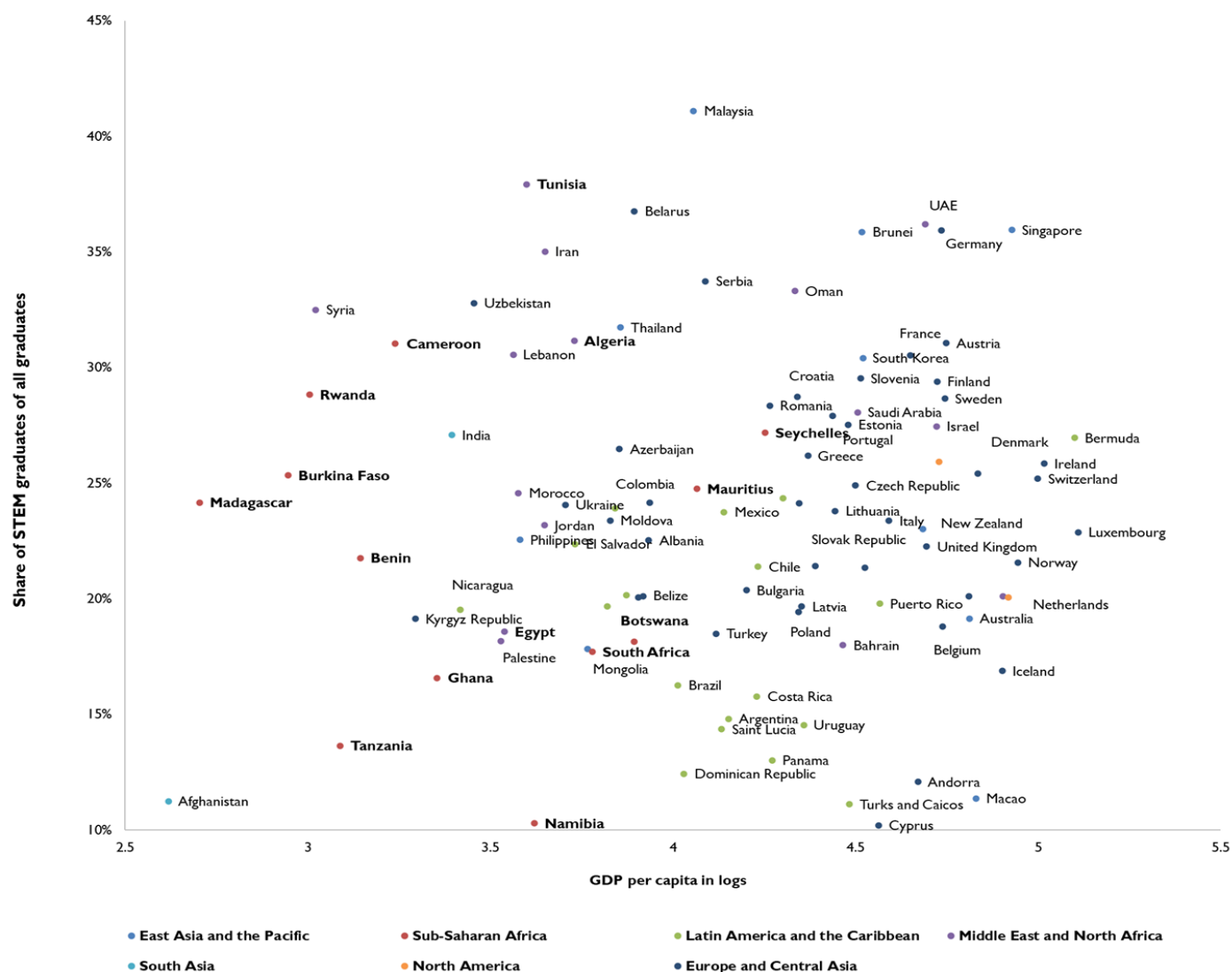
What is the baseline of AI talent in Africa? To what extent are African workers and students prepared for the AI era and meeting employers' needs for AI talent? This section seeks to provide preliminary answers and identify supply-side constraints. There are four main findings:

- 1. African economies such as Algeria, Tunisia, Rwanda, and Cameroon are producing substantial volumes of STEM graduates on par with leading OECD nations, but many other African economies trail behind their peers at the same level of development.**

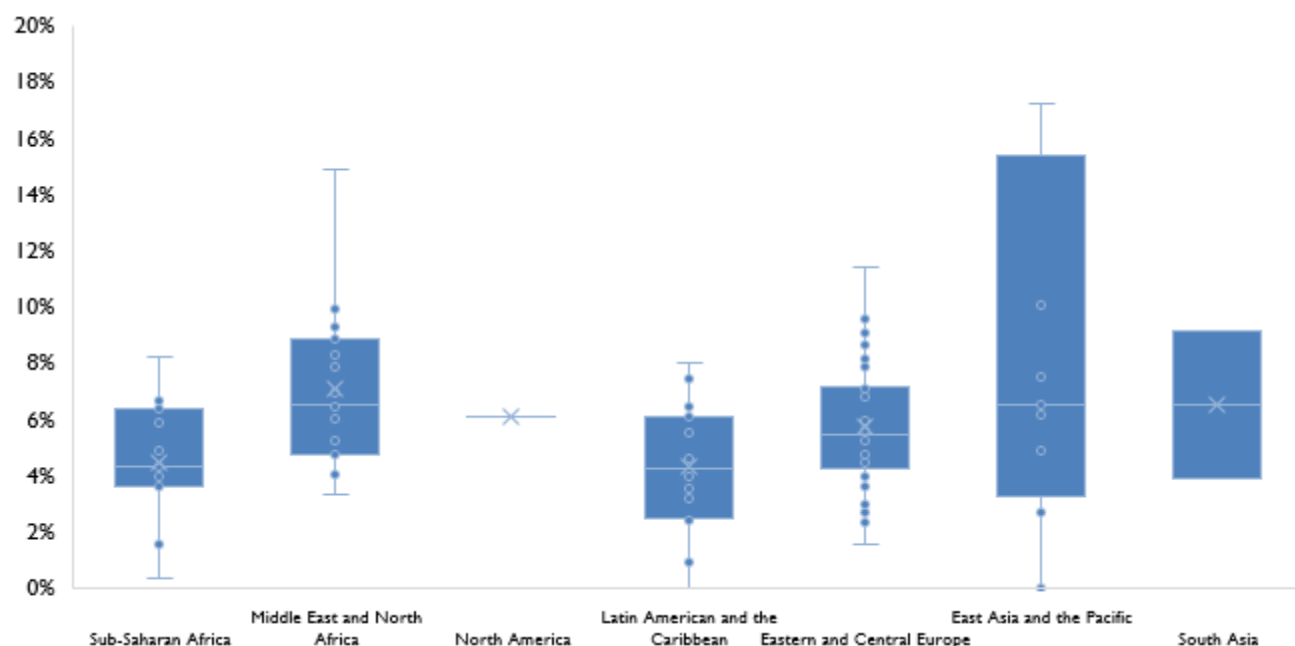
One way to gauge the potential for AI talent is to analyze the number of STEM graduates – individuals poised to innovate and adopt technologies in various use cases – as a proportion of all tertiary graduates from African universities. Africa exhibits substantial variation along this metric. Algeria, Tunisia, and Cameroon outperform economies at the same level of development, as well as many OECD nations, in producing STEM graduates, typically with over 30 percent of all graduates being STEM graduates (Figure 21).

However, South Africa, Botswana, Ghana, and Tanzania trail even economies at the same level of development in producing STEM graduates.¹ For the economies for which data is available, sub-Saharan Africa trails most world regions in the share of ICT graduates (Figures 22 and 23). The IMF's broader [AI Preparedness Index](#) and its subcomponent on human capital and labor market policies conducive to AI echoes these findings, suggesting low human capital readiness for AI, especially in Central Africa.²

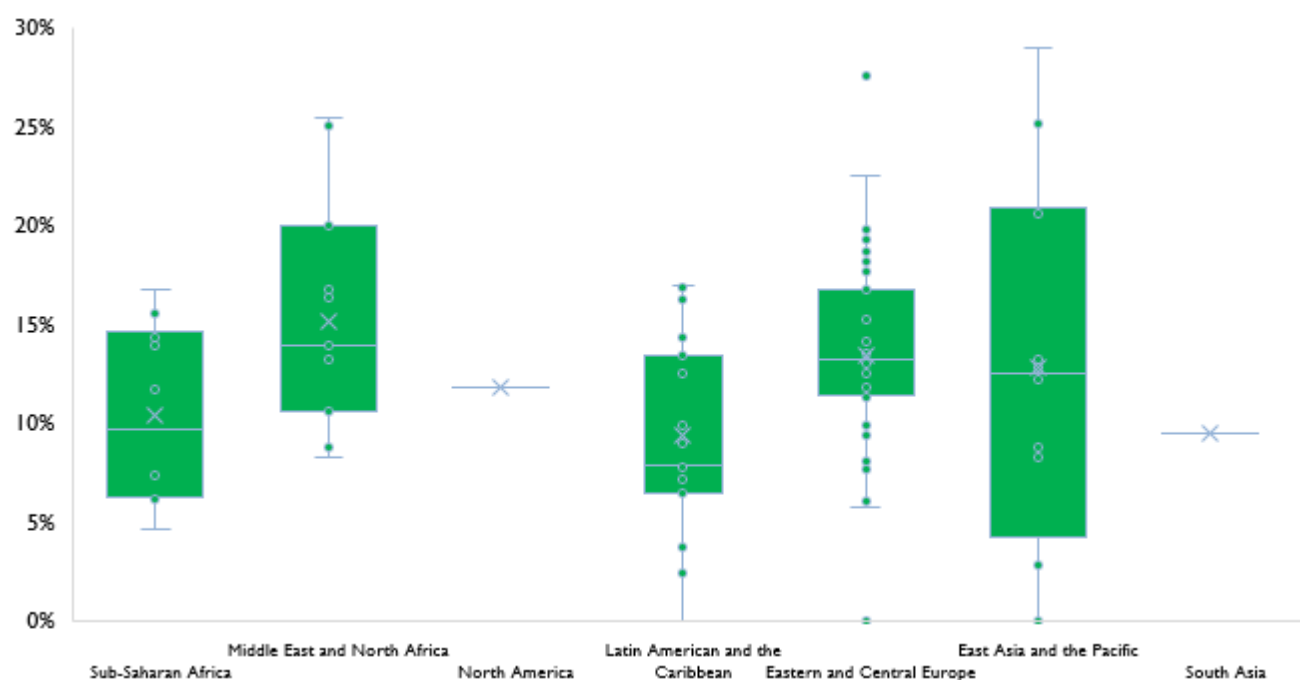
Figure 21: STEM Graduates of All Bachelor's Graduates, by Income Level, 2022-23



Source: UNESCO UIS Education Survey.

Figure 22: ICT Graduates as a Proportion of All Tertiary Graduates, by Subcategory and Region, 2022-23


Source: UNESCO UIS Education Survey. Data for African economies includes Algeria, Botswana, Cameroon, Egypt, Ghana, Madagascar, Morocco, Rwanda, Seychelles, and Tanzania.

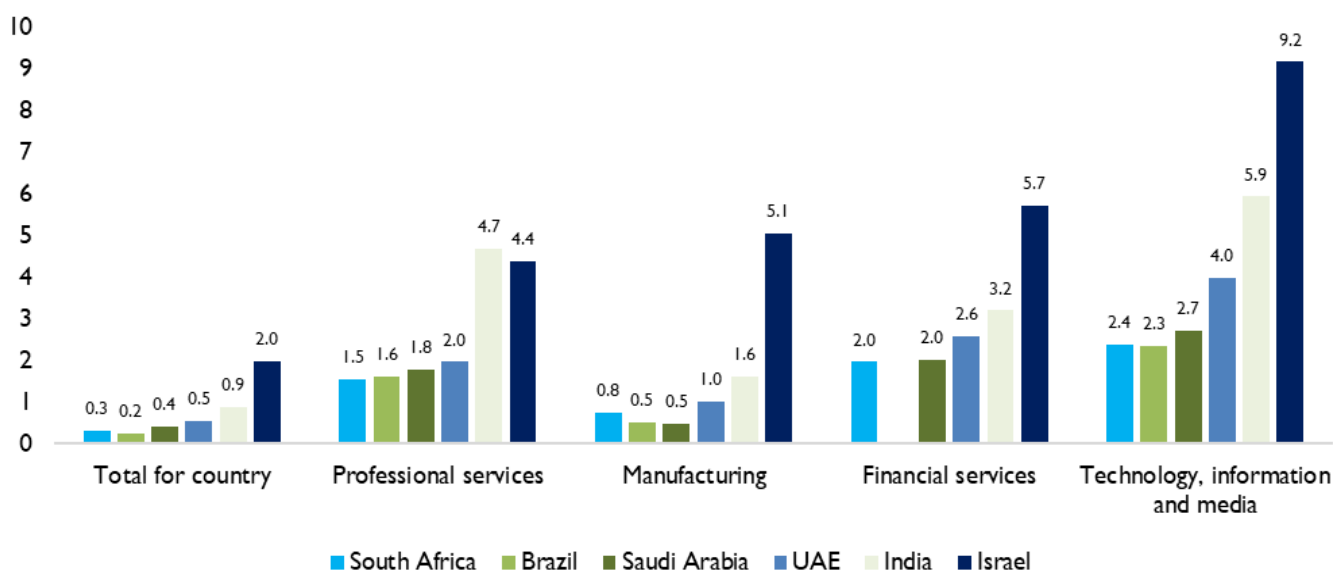
Figure 23: Engineering Graduates as a Proportion of All Tertiary Graduates, by Subcategory and Region, 2022-23


Source: UNESCO UIS Education Survey. Data for African economies includes Algeria, Botswana, Cameroon, Egypt, Ghana, Madagascar, Morocco, Rwanda, Seychelles, and Tanzania.

2. The supply of talent in AI-related occupations is growing but still relatively low.

Another way to gauge talent for AI is to analyze LinkedIn data on individuals that are already in the labor force. This data is available for South Africa and shows that South Africa has a relatively low concentration (0.3 percent) of LinkedIn members with at least two AI engineering skills or who perform an AI occupation; this is a third of India's level (0.9 percent) (Figure 24). The density of AI talent is highest in the technology, information, and media industry (2.4 percent), but it is still about a quarter of Israel's level, the world leader. Per the OECD's classification, there has been some churn in occupations with the rise of AI: South African data analysts and engineers (classified as non-AI occupations) have migrated to data scientists (an AI occupation), while software engineers have likewise transitioned into machine learning experts.

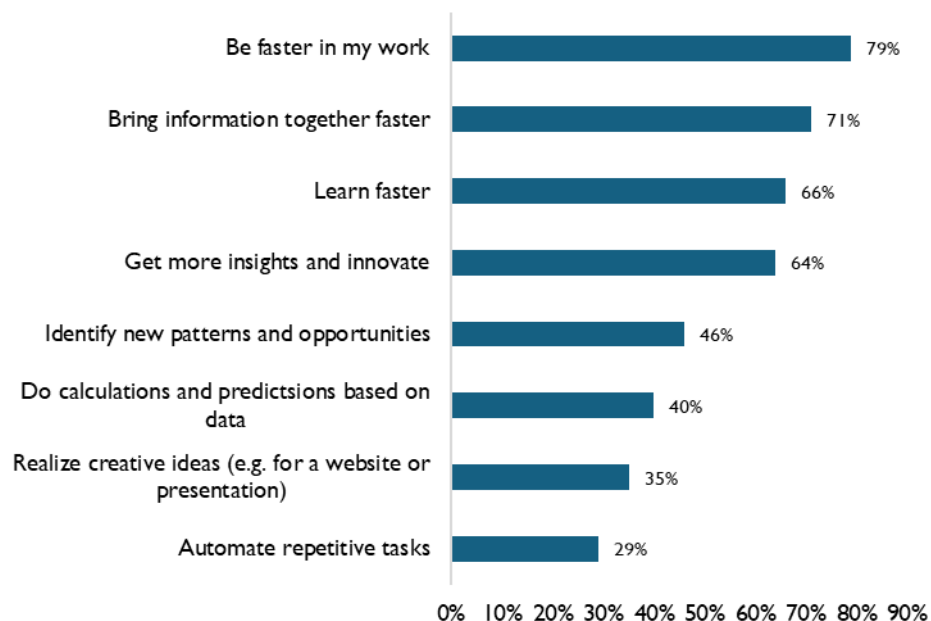
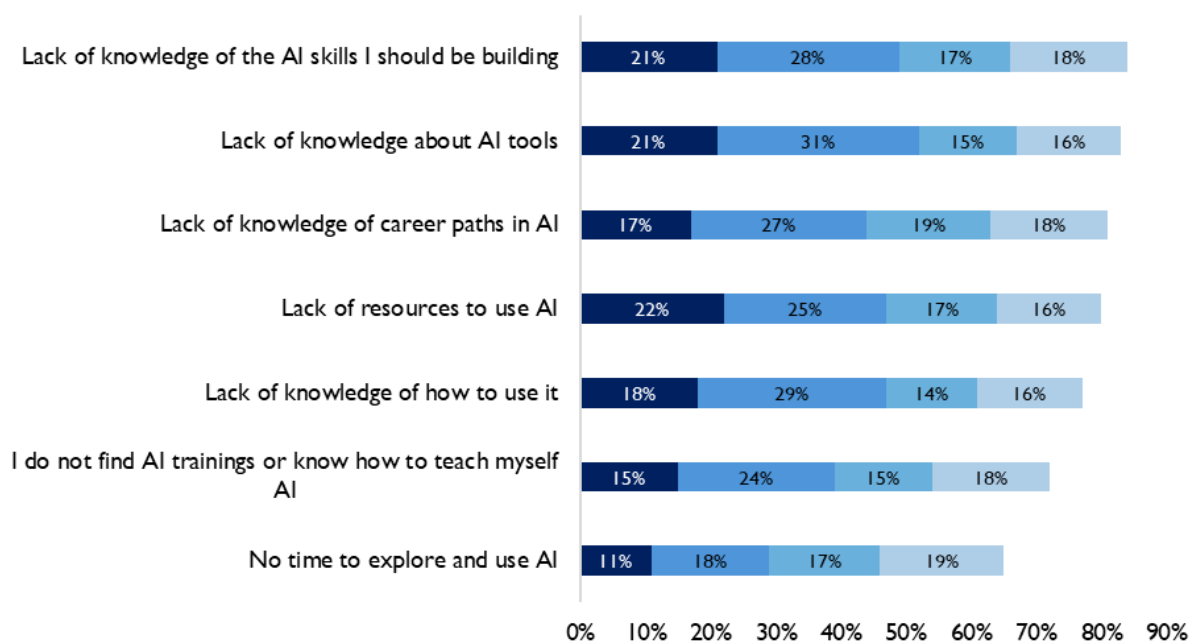
Figure 24: Concentration of LinkedIn Members with at Least Two AI Engineering Skills or Who Perform an AI Occupation, by Country



Source: OECD.AI (2025), data from [LinkedIn Economic Graph](https://oecd.ai/), last updated 2025-04-07, accessed on 2025-04-12, <https://oecd.ai/>.

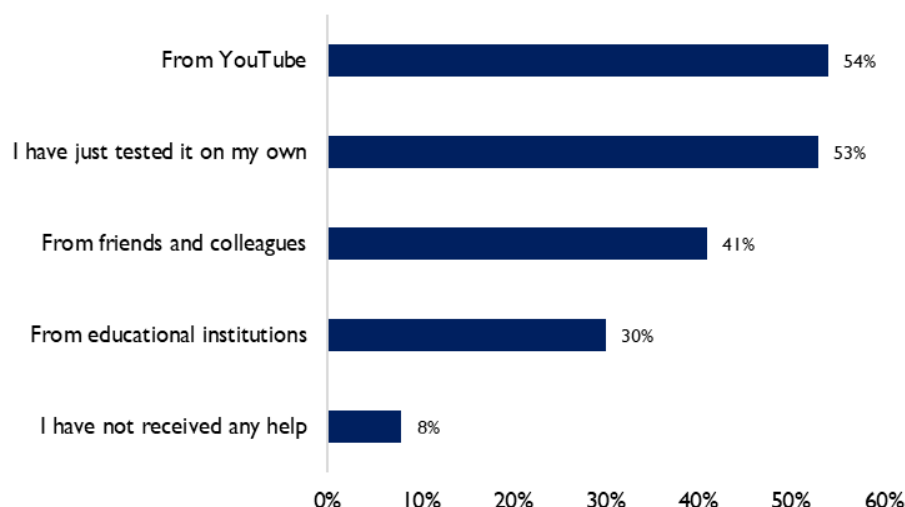
3. Students and educators want to improve their AI readiness, but do not necessarily know how.

Still another way to gauge the supply side is to understand the perceived importance of AI among workforces and students and learn about challenges to AI adoption. Nexttrade Group's survey of 1,000 African university students and educators suggest that students see great benefits from AI for their productivity and creativity. They report being able to become faster in their work (79 percent), learn faster (66 percent), and be better able to generate insights and innovate (64 percent) thanks to AI (Figure 25). However, students and educators also report a need to understand how to use AI in various business functions and in their lives, including the ability to imagine AI use cases, and report facing challenges in knowing about AI tools, accessing resources to use them, and knowing about which AI skills they should be building (Figure 26).

Figure 25: Perceived Benefits from AI according to African University Students and Educators

Figure 26: Top Challenges to Using AI according to African University Students and Educators


- 4. So far, Africa's education systems have not been at the forefront of AI skilling; rather, students have been learning AI on their own, from friends and colleagues, and from YouTube. Educational technology ventures built in Africa could be one solution.**

African students are learning about AI – only not yet from schools. Rather, over half of university students in Africa have learned AI by “doing” and testing, and over 40 percent have learned from YouTube or friends and colleagues (Figure 27).

Figure 27: Sources of Support to Learn to Use AI among Students and Educators


Educational technology (EdTech) ventures that use AI could be one solution to enable AI skilling at scale, if properly funded (Case Study 8).

CASE STUDY 8

Could EdTech Ventures Skill Africans in AI at Scale?

African EdTech ventures are increasingly leveraging AI to enhance teaching and learning, particularly in low-resource settings. Tools such as intelligent tutoring systems, adaptive learning platforms, and AI-driven assessments are helping address educational disparities. [M-Shule](#) in Kenya, for example, uses SMS and WhatsApp to deliver personalized lessons, enabling access to quality learning for students without access to the internet. Its model has shown promising results in supporting rural and underserved learners, especially girls, at low cost.

Other startups are expanding AI applications in diverse ways. [uLesson](#), in Nigeria, incorporates speech recognition and tailored learning content, while South Africa's [Foondamate](#) uses a multilingual AI chatbot and computer vision to assist students. Companies like [Obami](#) are exploring natural language processing to generate personalized quizzes and automate grading, freeing up time for teachers. These tools reflect a growing movement to integrate AI into African classrooms and support teacher effectiveness. However, key challenges persist.

Many EdTechs struggle with limited funding, weak infrastructure, and inadequate digital access especially in rural areas. Language diversity and reliance on non-African training data often reduce AI's cultural relevance, while government hesitation over regulation and ethics hinders adoption. Addressing these issues will require public investment in infrastructure, support for local AI innovation, and policies that promote inclusive, ethical, and context-specific solutions. With the right support, AI can be a powerful tool for equitable education in Africa.

In sum: Demand and Supply of AI Skills in Africa

The data collected for this report reveal a rapidly growing demand for AI-related skills across African companies:

- Over 55 percent of firms surveyed reported needing staff able to use AI across various functions, and 44 percent require staff able to identify use cases for AI in their businesses.
- Firms demand such AI competencies as data analysis, statistical knowledge, and problem-solving; as for specific occupations to use AI, software engineers, data engineers, and AI product managers are in greatest demand.
- Especially firms that invest significantly in AI are also investing heavily in training their staff to use AI. Governments could encourage AI skilling driven by firms through fiscal and other incentives.
- So far, most firms rely on peer companies, business associations, and online platforms, rather than universities, for information on required AI competencies. This signals a disconnect between academic institutions and market needs that AI plans need to bridge.

On the supply side of AI skills, the available data does suggest the following:

- IMF's AI Preparedness Index indicates weak human capital for AI especially in many Central African nations.
- While countries such as Algeria, Rwanda, Tunisia, and Cameroon produce a relatively high share of STEM graduates of all graduates, others like South Africa and Ghana lag behind.
- LinkedIn data from South Africa shows low but emerging AI workforce density, with only 0.3 percent of professionals having substantial AI skills, well below other emerging markets such as India.
- African students express a strong desire to build AI skills but often lack formal guidance and resources. Though 79 percent report AI helping them become more productive and innovative, many struggle to identify the tools they should learn. Most students are self-taught, learning AI through trial and error, YouTube, or peers rather than structured educational programs.
- There is an important gap in real-time data on the supply of AI skills in Africa. African governments could work through local and global online work and social media platforms to enhance access to real-time data on skills supply and as well as demand.

3. Conclusion

Africans are excited about AI as opening new opportunities for their lives and careers, but trail behind other regions in having the right skills to adopt and use AI. African governments have recognized the need to bridge the AI skills gap in their societies, and discussed the importance of AI skilling in national AI strategies. Now these strategies need to be operationalized through a concrete and comprehensive national AI skilling plans.

This ***AI Skilling Blueprint for Africa*** has sought to guide Africa's AI skilling plans by offering **specific strategies and actions** African governments can take to skill the various stakeholders highlighted by [Google's report *AI Sprinters*](#), including:

- **AI Learners**, including the general population and primary and secondary students;
- **AI Implementers**, including MSMEs, professionals, private and public workforces, and educators; and
- **AI Innovators**, including entrepreneurs, developers, and researchers.

This Blueprint has proposed a number of principles for African governments in developing and driving their AI skilling plans, such as to:

- **Co-create AI skilling policy with businesses and educators, responding to real needs.** AI skilling policies should reflect African businesses' needs, students' aspirations and questions, and educators' successes and challenges. They should also incentivize educators and businesses to experiment and innovate to develop optimal AI skilling approaches.
- **Take a whole-of-government approach, mainstreaming AI skilling plans into existing policies and workstreams across agencies.** AI skilling plans need to be mainstreamed into existing policies and programs across the government agencies, from education to startup and workforce policies. In the public sector, staff across agencies should be skilled to use AI .
- **Adopt a startup mindset and emphasize piloting, iteration, measuring results.** AI skilling is a journey: approaches should be tested and, once proven, scaled to meet demand. The outcomes of AI skilling policies and programs need to be measured and best practices shared.

The national AI skilling plans need to be **adopted at the highest levels of government**: heads of state need to adopt national AI skilling plans and involve all relevant ministries.

African governments also need to work together on AI skilling with the support of the AU and RECs, such as sharing experiences from AI skilling initiatives, pooling resources for AI skilling, adopting common AI skills credentials, and tracking AI talent development and the impacts of skilling programs across the Continent.

Appendix I - Survey sample

There were two firm-level surveys. The first one, gauging firms on specific talents and skills needed, was fielded on 7-10 April 2025 with 400 firms in Kenya, Morocco, Nigeria, and South Africa. Another survey, asking firms about the capabilities including human capital needed for taking advantage of AI was fielded on 13-17 July 2024 with 1,000 firms. Both were random samples covering a range of services and goods sectors and firms of all sizes, mostly micro and small firms. The surveys were 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. Respondents take the survey on their laptops or computers, online, on their own time.

The survey of students, educators and other stakeholders (policymakers and association leaders) used for three graphs was a random sample fielded on 16-17 July 2024 and consists of 1,000 individuals; 36 percent are students, 30 percent are educators at different levels, and the rest are association leaders (30 percent) or policymakers (6 percent).

The firm sample contains 43 percent micro and small firms of up to 50 employees, and 57 percent medium and large firms (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

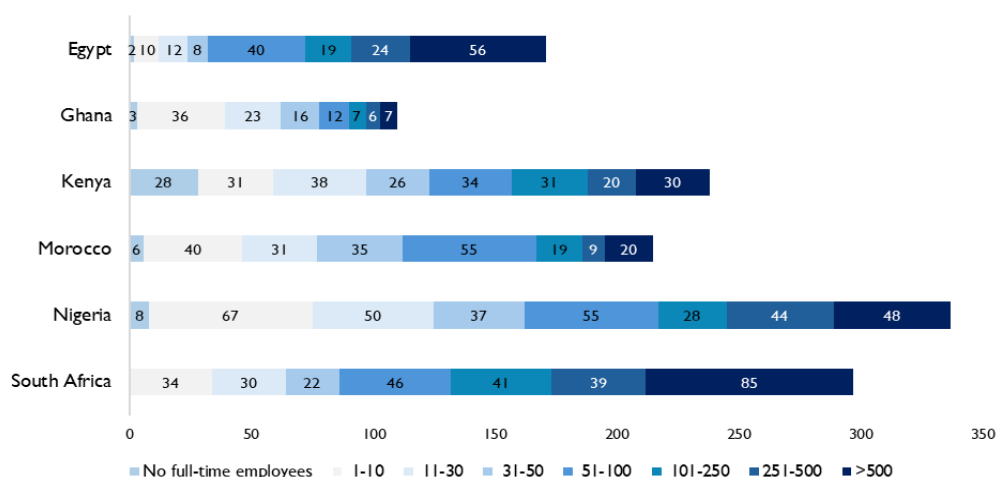
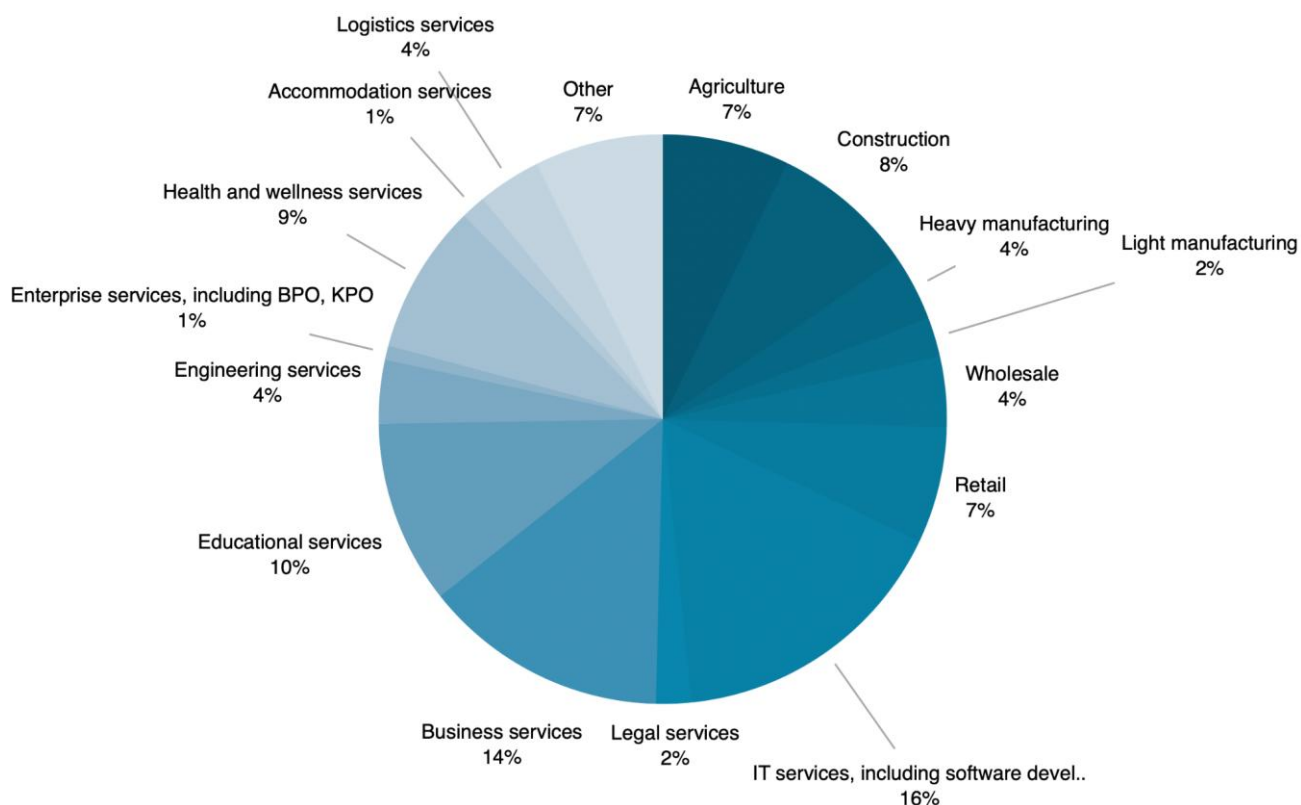


Figure I - 2 - Survey sample - firms, by sector



¹ On STEM graduates and innovation, see John V. Winters, 2017. "[Do Native STEM Graduates Increase Innovation? Evidence from U.S. Metropolitan Areas.](#)" [Economics Working Paper Series](#) 1714, Oklahoma State University, Department of Economics and Legal Studies in Business and https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2514768

² According to the IMF, the index measures "the education level and skills of the population, which is fundamental for the development and deployment of AI technologies. -Public education expenditure (percent of GDP): Indicates the investment in education, which is crucial for skill development and raising awareness about AI, fostering a workforce capable of understanding and utilizing AI technologies. - Skillset of graduates: Reflects the quality of education, which is crucial for producing skilled labor capable of working with AI. - Digital skills among active population: Assesses the prevalence of necessary skills like coding, which are essential for AI integration. - Number of STEM graduates: STEM expertise is crucial for AI research and development. - Number of female STEM graduates: Gender diversity in STEM can enhance innovation and AI development but may also bring diverse perspectives to AI ethics and governance."