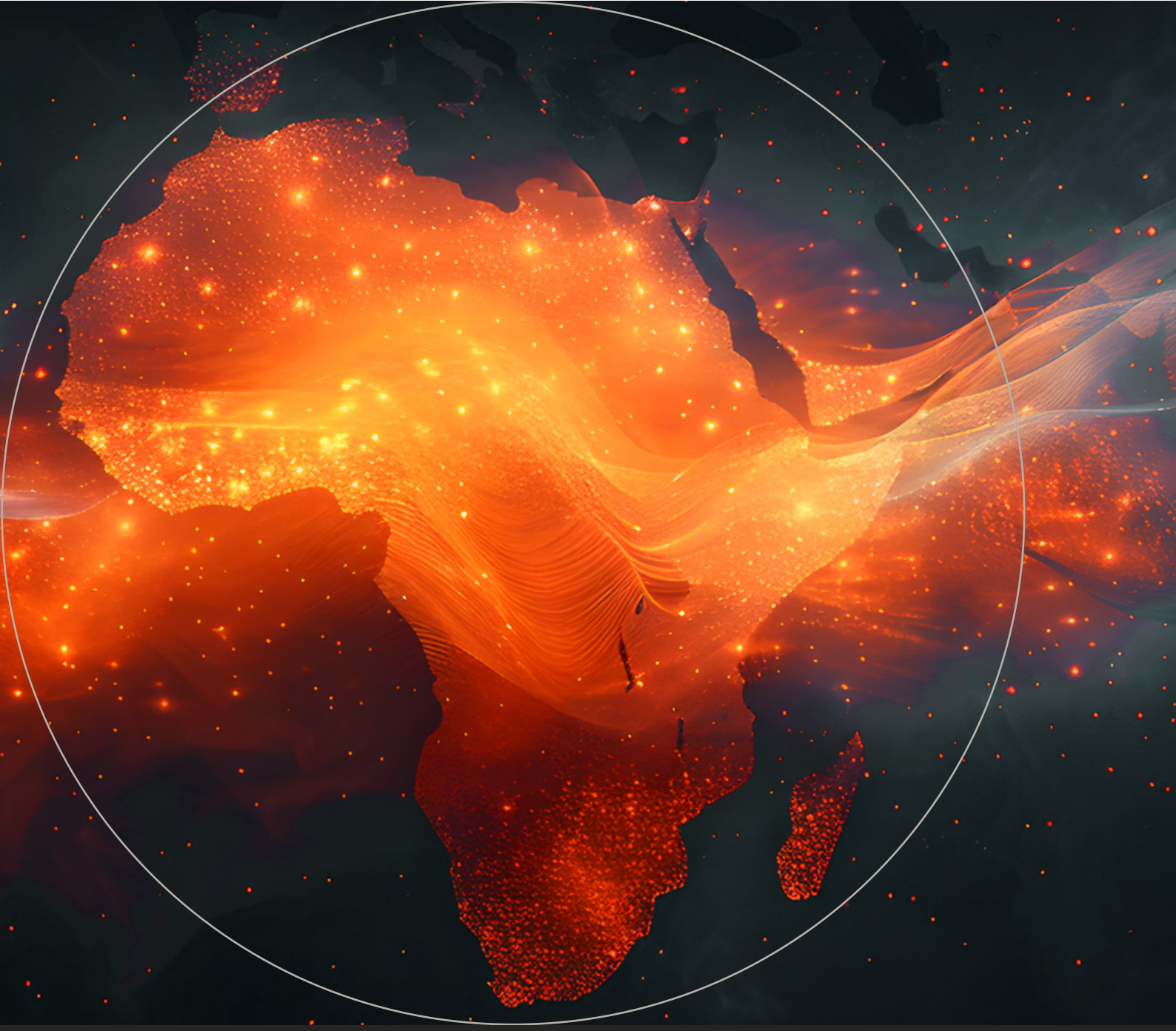

Harnessing the transformative power of AI in AFRICA

August 2025

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FOREWORD

AI's unique trajectory in Africa

Mark Elliott
Division President,
Africa, Mastercard

Africa is at an inflection point, when smart technologies hold the potential to make a real difference to people's lives. A co-ordinated, integrated approach to the development and implementation of artificial intelligence (AI) strategies can propel sustainable and equitable development, with gains in fields such as economic policymaking, agriculture, manufacturing, banking, and finance.

Adoption of technology is an area in which Africa has led by example. Infrastructure and cost factors resulted in the adoption of 'mobile money', which revolutionized financial inclusion by enabling millions of unbanked individuals to access financial services through their mobile phones, bypassing the need for traditional banking infrastructure. This provided a platform for payments, savings, and even credit, which in turn laid the foundation for the integration of more sophisticated technologies like AI through fintech innovation.

At Mastercard, we believe digital innovation, particularly AI, has the potential to drive real change on the ground by empowering communities and building a future where everyone participates in the new economy that connects people. The estimated market size for AI in Africa in 2025 is USD 4.51 billion. A forecast CAGR of 27.42% is expected to result in a market volume of USD 16.53 billion in 2030[1]. This includes speech recognition, image processing, autonomous vehicles, and services that enable organizations to develop and deploy AI applications..

Home to one of the youngest populations in the world, with a median age of about 19 years, technological development assumes greater significance in Africa. The youth are among the earliest adopters and most frequent users of digital tools. Tapping into this pool of talent requires creating pathways to enable access to education and developing opportunities for growth.

For Africa to realize its full potential, challenges need to be overcome. Parts of the continent face gaps in infrastructure, where connectivity is intermittent, and energy access is limited. Rapid gains from AI are possible if infrastructure powers electricity access and digitization. Also, ensuring that AI is powered by local, contextually diverse data is crucial. Equally critical is the quality of data. At Mastercard, our foundational Data & Tech Responsibility Principles ensure that the only good AI is responsible AI.

We believe Africa's digital journey would be strengthened by partnerships. Inclusive transformation is possible if everyone has a role to play, from small business to large corporations, from policymakers and regulators to community organizations, from the older generations to the youth. We aim to encourage conversation and collaboration, spark ideas, and inspire action to build inclusive solutions. We invite you to explore these insights and partner with us as we build a connected and prosperous future for Africa.

FOREWORD

AI has the power to improve lives, and Africa is on board

Africa's relationship with technology is not one of passive adoption – it's a story of active innovation. From the early rise of mobile payments to the current momentum around artificial intelligence (AI), the continent is shaping the future on its own terms. Mobile wallets have become as familiar as currency itself, transforming how people transact in both cities and rural communities. Africa is not just participating in digital finance – it's leading.

In Kenya, the green M-Pesa logo is as ubiquitous as cash. In Nigeria, Malawi, and beyond, millions manage their finances through mobile phones. Affordable sensors are helping farmers make smarter decisions, connecting them to real-time data that was once out of reach. Now, AI is accelerating this transformation, reshaping how people live, work, and connect.

At Mastercard, we see this evolution up close. Our fraud detection systems – built and trained in cities like Lagos, Nairobi, and Johannesburg – process transactions in real time, keeping costs low and security high. Engineers in St. Louis refine those same systems to ensure that a commuter in Accra can tap a bus card to get from one place to another. The same data that prevents fraud also enables lenders in Gabon to extend credit and helps supply chains in Morocco run more efficiently. Our approach is human-centered. We don't see technology as an end in itself, but as a tool to empower, protect, and personalize. We strengthen our network by combining global expertise with local talent, refining how we organize and apply data every day.

Our cybersecurity systems detect threats in real time, powered by vast datasets. Our AI models streamline operations and expand access, even for those with limited technical knowledge. And our personalization tools help businesses deliver experiences that are intuitive, trustworthy, and grounded in real insight.

Inside Mastercard, generative AI helps engineers write cleaner code and enables customer teams to respond faster and more accurately. We experiment constantly to stay aligned with our customers' needs. But with scale comes responsibility. We work closely with regulators to ensure privacy, partner with universities to uncover bias, and publish clear principles to hold ourselves and our customers and partners accountable. Trust is earned – one transaction at a time.

Our journey with AI and data spans decades. We've invested hundreds of millions of dollars to build systems that are accurate, secure, and future-ready. That foundation allows us to build smarter, more inclusive solutions. The future of responsible AI in Africa is already unfolding. Banks are using AI to predict cash-flow gaps. Clinics are diagnosing eye diseases with affordable imaging. Agri tech startups are pricing weather risk in real time.

Greg Ulrich
Chief AI & Data Officer, Mastercard

Challenges remain – connectivity gaps, fragmented data, and the need to nurture local talent. But the opportunity is clear. We believe AI can drive economic growth, enhance inclusion, and solve real-world problems.

I'm excited to be leading a global team on developing and leading what's next for AI and data.

Let's build it together.

INTRODUCTION

Why AI is a transformative opportunity for Africa

AI is transforming economies worldwide, creating opportunities for innovation, growth, and positive social impact. Africa is in a prime position to harness AI for transformative development, including addressing financial inclusion, narrowing wealth gaps, and enhancing output.

AI has the potential to lead the way to broader economic growth and shared prosperity. This white paper investigates how AI can unlock the continent's potential, emphasizing the role of responsible governance and strategic implementation in driving sustainable progress.

AI is expected to contribute about USD 15.7 trillion to the global economy in 2030[2] and Africa is well placed to tap into a substantial portion of this surge. The continent's growing adoption of mobile and digital tools already offers the groundwork for an AI revolution, linking people, companies, and public institutions in new ways.

One reason Africa is so well-suited for AI is its unique demographic and economic landscape. For instance, the continent holds 60% of the globe's arable land, plus one of the youngest populations in the world[3]. These characteristics set the stage for AI-driven solutions to local needs. The youth are among the earliest adopters and most frequent users of digital tools.

Agriculture, a key driver of many African economies, could particularly benefit. Africa's agricultural output is about 56% of the global average[4], and technologies such as AI-based predictive analytics for crop management and weather forecasting are already making a difference. By 2050, Africa's population is expected to grow by 800 million, representing both a challenge and an opportunity. AI will be crucial in scaling production, satisfying consumer demands, and creating jobs[3].

Tapping into this potential requires building something that works for Africa, shaped by the continent's innovators and guided by policies that understand each region's complexities. When African nations take charge of their own AI ecosystems, they graduate from being consumers to creators in a tech landscape increasingly dominated by international players.

A significant recent milestone was the adoption of the Kigali Declaration on Responsible AI in Africa in April 2024, which underscored the continent's collective commitment to ethical, inclusive, and collaborative AI development[5]. This was followed by another key step in June 2024, when African ICT ministers endorsed the Continental Artificial Intelligence Strategy and the African Digital Compact, setting a coordinated framework for AI advancement across the continent.

In the financial sector, AI helps reach underserved communities and promote inclusion. For instance, AI can analyze mobile money data to assess loan risk more accurately than conventional methods. This opens up funding opportunities for those previously excluded. AI also enhances security and regulatory compliance through better fraud detection and faster Know Your Customer (KYC) checks.

At the same time, AI-powered mobile payment platforms are democratizing access to financial services in Africa by overcoming geographical barriers, reducing costs, simplifying onboarding, leveraging alternative data for credit assessment, enhancing convenience and security, and promoting financial literacy. Increasing participation in the formal economy has the potential to drive economic growth, reduce poverty, and empower individuals across the continent.

$15.7T

AI's estimated contribution to the global economy in 2030

This is also where the private sector comes in. Firms like Mastercard have launched multiple AI-driven solutions across the continent, tackling barriers and enabling a more inclusive economy. These are focused on strengthening the security of digital transactions, expanding financial inclusion by leveraging AI for more accurate credit assessments, and supporting the broader digital transformation across various sectors, including healthcare and the digital economy through partnerships, investments, and the deployment of advanced AI technologies.

This wave of progress also carries responsibilities – like making sure everyone benefits from these advances without widening inequalities.

This white paper details how AI can power Africa's digital evolution, offering real, actionable pathways for impact in critical sectors. Drawing on expert commentary, real-world examples, and data, it showcases successful implementations while mapping out key obstacles. It highlights the groundwork required to realize Africa's AI potential – practical infrastructure, investment in people, and the right policy direction. Just as important, it acknowledges that a one-size-fits-all approach will not work. Rather than calling for strict rules, the focus is on flexible frameworks that respect each country's reality.

This approach puts innovation first, allowing African nations to adapt and build their own place in the global tech landscape without being held back by unnecessary regulation. Policy and regulation that take into account the continent's diverse realities will help African countries keep pace with global momentum while actively shaping a distinct technological and economic trajectory.

Ultimately, Africa's big opportunity with AI is to deliver growth that is both transformative and inclusive. It's an ambitious vision, one that certainly requires investment but also sustained coordination between governments, businesses, and global partners, along with a commitment to long-term capacity building. By developing an environment that prioritizes infrastructure, skill-building, and regulation that encourages forward-thinking approaches, empowers innovation, and supports interoperability across markets, Africa can shift its economic path and strengthen its position on the global stage.

2030 digital transformation goals for Africa

	Pillar	Goal
	Digital infrastructure	Access, quality, and affordability of broadband internet.
	Digital public platforms	Adoption and availability of interoperable platforms for public services and ID coverage for adults.
	Digital financial services	Access and use digital financial services.
	Digital businesses	Promote digital start-ups and increase platform-based or data-driven firms.
	Digital skills	Enhance connectivity in educational institutions and create a digitally confident workforce.

Source: World Bank Group's Digital Economy for Africa Initiative

4.5/5

Fintech leaders' optimism level on Africa opportunities[6]

Key Findings

Economic impact: AI development is reshaping key industries in Africa, including finance, healthcare, agriculture, energy, and urban development. A CAGR of 27.42% will take the AI market to USD 16.53 billion by 2030.

Policy and governance: Countries like South Africa, Egypt, Rwanda, Mauritius, Kenya, and Nigeria are leading AI policy development with AI strategies and regulatory frameworks for ethical deployment. The African Union (AU) has launched an AI strategy and the Declaration on Responsible AI in Africa prioritizes ethical implementation of emerging technology.

Financial inclusion: AI-driven microfinance and digital payments are expanding financial access, with companies like M-Pesa and M-KOPA in Kenya and AI-backed credit scoring models in Nigeria enabling loans for unbanked populations.

Job creation: AI initiatives are expected to create 230 million digital jobs in Sub-Saharan Africa by 2030, but a shortage of AI talent persists. Initiatives like Deep Learning Indaba and AI4D Africa aim to train local professionals.

Investment: Investment into AI Africa is growing, with major players like Google committing USD 1 billion to support digital transformation. Venture capital investment in AI-focused start-ups reached USD 610 million in South Africa, USD 218 million in Nigeria, and USD 15 million in Kenya in 2023.

R&D: Research hubs like the Artificial Intelligence Institute of South Africa and the Morocco International Center for AI are fostering AI innovation. However, R&D investment remains low in some regions.

Language processing: With over 1,000 languages spoken in Africa, AI-driven Natural Language Processing (NLP) is crucial for inclusivity. Projects like Masakhane and UlizaLlama are working on AI models to support African languages.

Digital infrastructure: Africa faces challenges in adoption due to limited cloud computing and data centers. South Africa leads in AI infrastructure, while Kenya is expanding its fiber optic network. Cloud computing adoption is growing at an annual rate of 25%-30%.

Partnerships: Government collaborations with private sector companies – such as Google, Microsoft, and Mastercard – are driving AI innovation.

The Africa opportunity for inclusion

Technological disruption defines the world we live in today and Africa is positioned at a unique crossroads. Home to the world's youngest population, a flourishing spirit of entrepreneurship, and a rapidly expanding digital economy – the continent is turning to AI as a powerful catalyst for change. Beyond simply boosting efficiencies, AI holds the promise of reshaping entire industries and tackling some of the region's most urgent social challenges.

Several compelling examples illustrate the possibilities. In Kenya and Nigeria, smallholder farmers are deploying AI-driven models to predict rainfall patterns and optimize crop cultivation[7]. Personalized education platforms in Nigeria are leveraging machine learning to offer targeted lessons to students with limited access to conventional classrooms[8]. These real-world applications underscore the transformative nature of AI – one that is already beginning to unlock progress across Africa.

The AI market's value in Africa is estimated at USD 4.51 billion in 2025, with a CAGR of 27.42% that will take this to an estimated market volume of USD 16.53 billion by 2030[1]. As many as 230 million jobs in the digital sector are forecast from this growth trajectory in Sub-Saharan Africa alone[9].

Africa's journey toward AI adoption is not uniform in the development of policies and infrastructure. Countries like South Africa, Egypt, Rwanda, Mauritius, and Nigeria have been frontrunners in AI governance[10], and Kenya – frequently described as the 'Silicon Savannah' – has emerged as a leader both in dynamic fintech innovation and in shaping AI policy for the region. Despite these successes, however, challenges remain. Infrastructure shortfalls,

Governments across Africa are actively exploring the development of AI across verticals, including secure payments, intergovernmental processes, hospital management, and agriculture. Within the payments sector, governments have created policies to allow fintechs to have access to the backend of various banks to leverage AI in B2B and P2P payments, particularly to implement transaction security.

The quest is to standardize and build a kind of playbook for a platform, as a nation, that everybody can plug into for different services.

Governments are also trying to track the allocation of funds to state and local governments. In Nigeria, for instance, the infrastructure to track the spend of this money, to ensure it is used appropriately for the purpose for which it is meant, is not available. Such transparency is one of the aspects that governments are trying to solve using AI.

Ajayi Akintunde, Director, BD, Fintech and Enablers, EEMEA, Mastercard

inconsistent internet access, and a lack of comprehensive AI governance frameworks hinder progress in many parts of the continent. Recognizing this, the African Union (AU) has introduced initiatives such as the AU Digital Transformation Strategy 2020-2030 and the AU Data Policy Framework to encourage safer, more inclusive AI deployment. The 2024 ratification of the Malabo Convention signals another noteworthy step forward, placing cybersecurity and data privacy at the heart of Africa's AI aspirations.

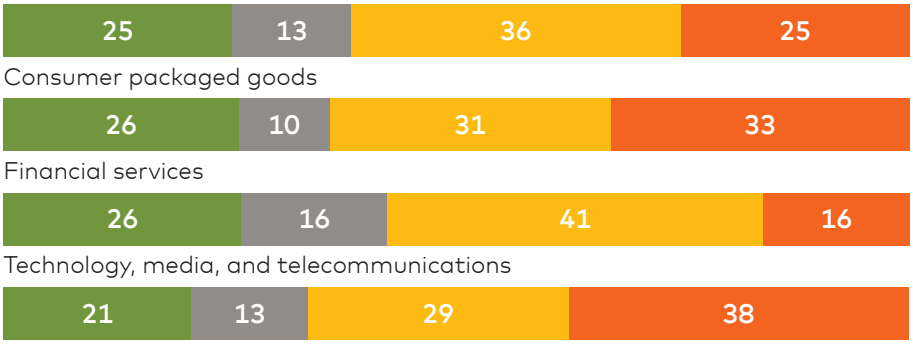
Aspirations for deployment

AI adoption in Africa is not simply about a race for the latest technology. AI-driven innovations can stimulate local entrepreneurship, enhance governance, and create new job opportunities. AI drives solutions for social challenges, improving access in critical areas like:

Financial inclusion: In Sub-Saharan Africa alone, over 400 million are financially unserved or underserved[11]. Mobile payment platforms like M-Pesa use AI to facilitate digital payments.

Educational opportunities: Platforms like Rising Academy Network use AI to gauge the difficulty level of a student. RAN operates across Rwanda, Sierra Leone, Liberia, and Ghana[12].

Use of cloud services varies widely across industries



Source: McKinsey & Company

Average cloud services use by industry: Current rate, %. Figures may not sum to 100%, due to rounding.

Database Network Storage Computer

400M

People are financially unserved or underserved in Sub-Saharan Africa alone

In the context of large language models (LLMs), concerns are not always in the technology itself, but how it interacts with different societies. Each language in the LLMs reflects the values and culture of a society. For example, French spoken in Morocco is different from French in France or Quebec, and these differences affect the outputs of the LLM, leading to varied meanings that reflect cultural values.

Relatedly, each society also has its own definition of what is harmful. Something considered acceptable in one culture might not be so in another. Therefore, it's crucial for AI practitioners to establish culturally-sensitive and measurable standards for responsible AI, such as accuracy and bias. These standards will vary from one country or culture to another and should guide how LLMs are built and used.

Ultimately, if AI behaves irresponsibly, it will lose trust, regardless of the culture.

Andrew Reiskind, Chief Data Officer, Mastercard

Healthcare access: AI-driven tools like chatbots and diagnostic models deployed by firms like Babylon (Rwanda) have improved access to healthcare for millions of rural residents[13].

Agriculture: AI-powered drones and predictive analytics have cut agricultural waste and improved yields. In Ghana, the Farmerline platform has boosted productivity by 30% by providing up-to-date weather and market information[14].

Energy: In remote areas, AI-driven microgrids efficiently coordinate renewable energy resources, delivering clean power to off-grid communities. In South Africa, utility company Eskom has adopted AI-enhanced smart meters to serve customers on pre-paid plans[15].

Big data: Central banks in the Common Market for Eastern and Southern Africa (COMESA) region are using AI/big data to improve economic forecasting, financial analysis, and banking oversight[16].

These initiatives foster inclusive, scalable, and sustainable development, including economic growth, job creation, and environmental sustainability.

$16.5B

Expected AI market size in Africa by 2030

Empowering key stakeholders

Stakeholders such as governments, banks, consumers, and small businesses gain from AI adoption, benefiting from improved decision-making, cost efficiencies, and broader access to services.

Governments

- Improved decision-making through AI insights.
- Enhanced efficiency in service delivery and resource allocation.
- Increased transparency and accountability through data-driven governance.
- Higher economic growth.

Banks

- Cost savings via automation of cybersecurity, fraud detection, KYC, and other processes.
- Expanded reach to the unbanked through AI credit assessment.
- Better customer experience with personalized financial services.
- Better risk management using predictive analytics.

Consumers

- Access to affordable and tailored financial products and services.
- Better protection from potential financial fraud.
- Increased access to digital platforms for education, healthcare, and commerce.
- Lower costs for goods and services through optimized supply chains.

SMEs

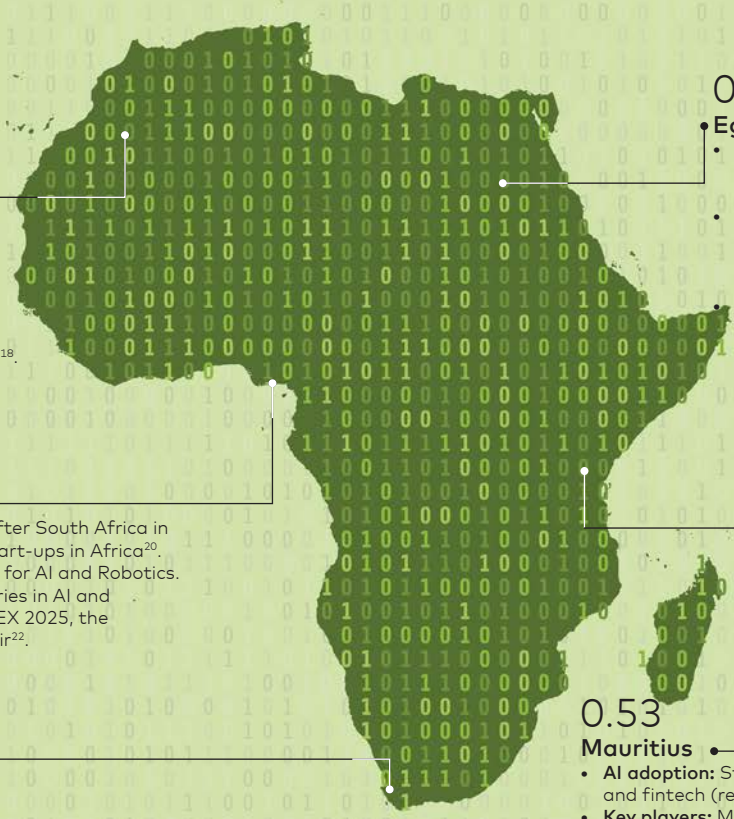
- Access to affordable credit through AI-based credit scoring.
- Improved market access with predictive analytics for customer targeting.
- Streamlined operations through AI-driven automation tools.

AI presents a transformative opportunity for Africa by driving growth, increasing productivity, and expanding access to essential services. It can democratize areas like education, healthcare, and financial guidance, making high-quality solutions affordable and accessible to all. For instance, AI can enable personalized learning for students in remote areas, streamline healthcare delivery, and provide small businesses with tools for growth and efficiency.

By leveraging innovative technologies, Africa has the potential to leapfrog traditional development barriers. Policies like Rwanda's National AI Strategy set a strong example of how the region can harness AI's potential while aligning with global best practices, paving the way for a future of inclusive and sustainable progress.

Mert Şendağ, Director, Data and AI Strategy, EEMEA Regional Lead, Mastercard

How AI-ready is Africa?



0.43
Morocco

- **AI adoption:** Growing hub for AI solutions in renewable energy, agritech, and healthcare[17].
- **Key players:** Mohammed VI Polytechnic University, Technopark Casablanca, DeepEcho.
- **Trends:** MoroccoAI Annual Conference[18]. New Development Model will lead to a national strategy[19].

0.39
Egypt

- **AI adoption:** Focused on public services, healthcare, agriculture, financial services[24,25].
- **Key players:** Ministry of Communications and Information Technology (MCIT), Applied Innovation Center, Synapse Analytics.
- **Trends:** First Arab and African country to adopt OECD AI Principles. The National AI Strategy 2025–2030 aims to: Raise the ICT sector's contribution GDP to 7.7% by 2030; establish over 250 AI companies; and train 30,000 AI professionals by 2030[25,26].

0.34
Nigeria

- **AI adoption:** Ranks second after South Africa in terms of the number of AI start-ups in Africa[20].
- **Key players:** National Center for AI and Robotics.
- **Trends:** Among top 15 countries in AI and crypto in 2024[21]. Host of GITEX 2025, the world's largest technology fair[22].

0.45
Kenya

- **AI adoption:** Driven by mobile money, fintech innovation.
- **Key players:** M-Pesa, PesaPal, Tala.
- **Trends:** The 'Silicon Savannah' is a hub for start-ups[27]. Growth is supported by policies like National AI Strategy 2025–2030[28].

0.50
South Africa

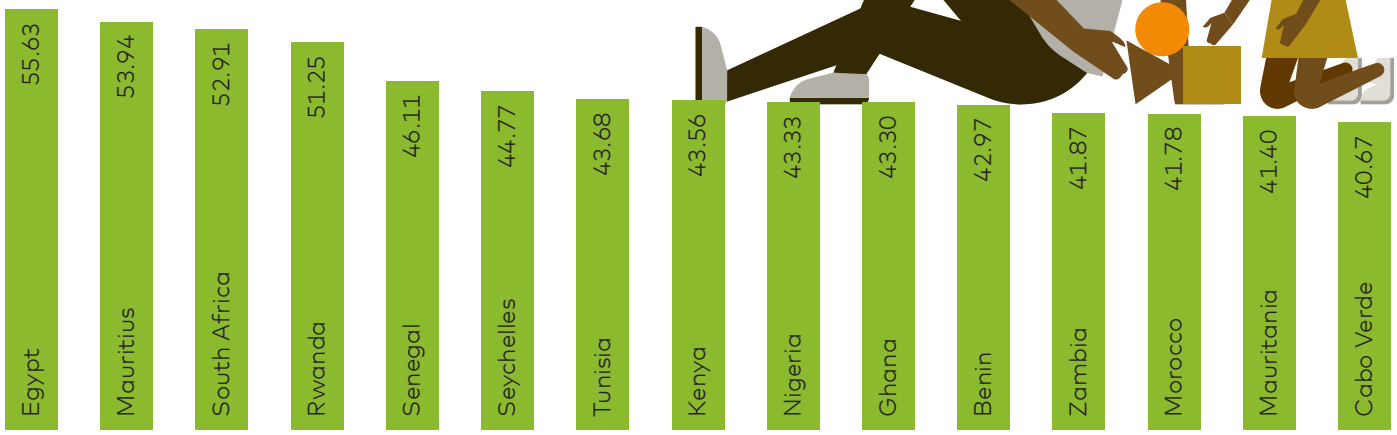
- **AI adoption:** Leading the continent in AI research and infrastructure.
- **Key players:** South Africa Artificial Intelligence Association, Center for Artificial Intelligence Research.
- **Trends:** National Artificial Intelligence Plan is one of the first regulatory frameworks. Innovation hubs in Cape Town and Johannesburg foster start-ups[23].

0.53
Mauritius

- **AI adoption:** Strong in agriculture, healthcare, and fintech (regtech and digital payments)[29].
- **Key players:** Mauritius Emerging Technologies Council, ARIE Finance, University of Mauritius, Dayforce.
- **Trends:** Hosted the inaugural AI Summit in 2024, under UNESCO[30]. Ebene's Cybercity is the primary center for AI and digital innovation, bringing together start-ups and tech firms[29].

Based on the IMF AI Preparedness Index, which ranks countries with scores ranging from 0.8 and more, 0.6-0.8, 0.4-0.6, and 0.2-0.4. The average score of advanced economies is 0.68 while that of emerging market economies is 0.46 on the index.

Top 15 government AI readiness scores in Africa



Top category scores in Africa

71.44
Rwanda

The **Government** pillar assesses vision, governance and ethics, digital capacity, and adaptability

42.13
Egypt

The **Technology** pillar assesses maturity, innovation capacity, and human capital

65.28
South Africa

The **Data & Infrastructure** pillar assesses supportive infrastructure, data availability, and data representativeness

Source: Government AI Readiness Index 2024 Africa ranking, Oxford Insights

INTERVIEW | Gabriela Ramos
Assistant Director-General for Social and Human Sciences, UNESCO

"Look for solutions at the global level, with a strong African voice"

Who would you say are the most important and effective stakeholders in the implementation of AI solutions, particularly in the context of Africa?

There is so much to do in getting everybody fit for the AI era that the core of the issue lies with the government. Public investments in skills and infrastructure, data centers, and regulations and legislation might create incentives for companies and other actors to align on the best use of AI. I think that's fundamental.

Digital transformation is highly concentrated in three countries – the US, China, and the UK – producing the majority of the developments. Foundational models require a huge amount of capital to just be tested and run... It's really a function of the enabler. And the main enabler of our economies is the government – because they produce the legal frameworks, the incentives, and the public investments necessary.

We should also encourage investors, venture capitalists, and businesses to invest. We know that for established business, using AI will help them become much more efficient and productive. It's really important to have an ecosystem for more start-ups in Africa, because they will be looking at African needs, and I'm encouraged to see that Africa has a lot of such start-ups and platforms.

In what ways could greater AI adoption empower local communities and support financial inclusion?

I would say: investments, investments, investments. [For example], supporting small and medium-sized enterprises is not about their size but about their loneliness, and then therefore just connecting them and getting them together through AI and platforms could be really useful for the financial sector, connecting and making people bankable. AI could be super promising to reach out to different users and create programs to enroll them into financial services.

This can help us develop financial systems that are also being fed with the right information of needs, where you can allocate funds, and how to mediate. And there is a lot of room for growth, because 50% of the population in Africa doesn't have access to financial services. If I were an entrepreneur, I would find that a very interesting market.

Infrastructural investment seems to be a challenge in Africa. How feasible is it to use existing channels to promote the adoption and use of AI?

If there is something that is accessible that you can use and deploy immediately, then yes, we should not be waiting for these more systemic frameworks that I am talking about. The banking example of Kenya shows that we need not wait for the whole thing to happen. But I think this should not blur the fact that, to put this in a solid, long-term perspective, it has to be accompanied by these other very important investments.

We are all talking about AI, all the governance and the issues, and the big summit, but I don't see the development corporations getting into it. If I were a development corporation of one of the G7 countries, I would be investing massively in these things.

What do you think are the challenges when it comes to ensuring responsible AI, particularly in Africa?

It's the development challenges. It's not even a question of the technology. The most important challenge is not to miss the opportunity of using technology to advance your own development. We have this amazing opportunity, and we should not miss it.

It would not be a really great outcome if we miss out on the possibilities of having the technologies to make the financial sector more accessible, financial literacy more easy to do, or looking

at weather predictions to ensure agriculture and food systems management is better. But how do we organize ourselves in countries where governance systems are still not fully in place to ensure that public officials are on top of the issues? Also, [how do we ensure] business sectors are in good shape to decide which technologies to use and how to use them and how to equip themselves to use them?

Take the education sector. We know that even if you have 30% of the global population without access to technology – Africa being over-represented in that figure – everybody has access to a smartphone. How do we make sure we use these tools not to create dependency for our kids, or expose them to negative images or content, but to tailor the technologies in ways that help us?

This is a global conversation. I'm working with 60 countries around the world, and I see a lot of movement in terms of countries thinking about their national AI strategies – where they want to invest and their vision for what they want to do with it.

On the other hand, the questions of security, safety, non-manipulation, and human rights are global questions. Therefore, it's also important to keep looking for solutions at the global level, with a strong African voice.

Overcoming the growth challenges

Africa is a complex landscape and AI adoption is limited by barriers in infrastructure, expertise, and alignment of AI solutions with local context. While adoption is critical, it often intertwines with issues of inclusion – ensuring AI solutions fit the unique needs of African businesses and communities.

The data challenge

Access to accurate, timely, and relevant data is the first step toward building effective AI systems. African data ecosystems are in nascent stages, with much of the early progress being driven by the private sector. Many users rely on imported algorithms developed and trained on foreign data sets, which may not reflect the unique characteristics of African populations. The mismatch between data sets and user needs can intensify inequalities and socio-economic challenges[31].

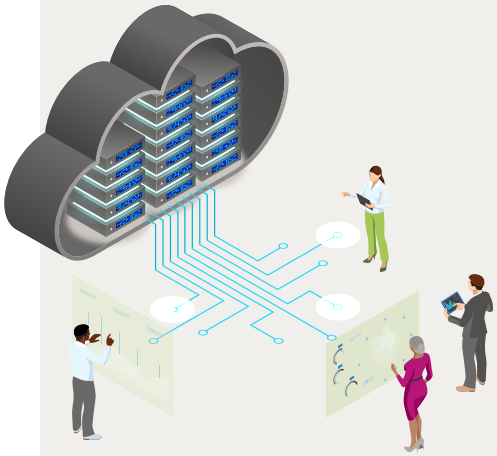
In East Africa, one of the barriers to open data initiatives relates to manual processes adopted by government agencies. This can lead to incomplete, inaccurate, or outdated data. In some cases, privacy or political considerations limit data sharing across borders. Data sets may also be fragmented across platforms and repositories[32].

Open Data for Africa

The African Development Bank Group (AfDB) Statistical Portal plays a large role in advancing open data initiatives, allowing access to key indicators. It provides users with tools to collect, analyze, and visualize data, making it a valuable resource for policymakers, researchers, businesses, and development organizations[33].

Cloud computing emerges as a large opportunity in Africa

Africa tops annual growth in demand for cloud computing services



<1%

Africa's share in global colocation data center capacity

>66% of this is in South Africa

Egypt

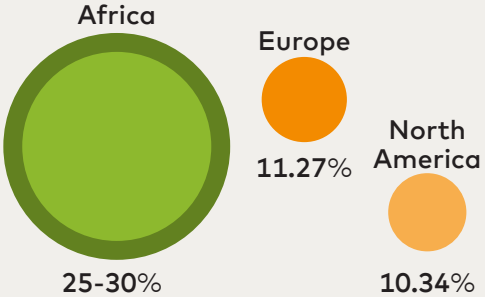
Nigeria

Kenya

Morocco

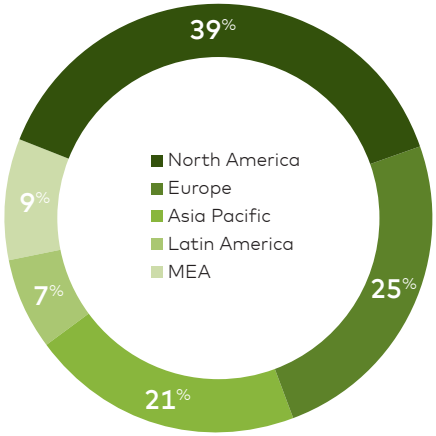
are other key centers

Demand growth



Sources: D4D Hub; DCByte, Vanguard; Africa Data Centers Association

Cloud computing market share



$10B

Revenue estimated from Africa's cloud market in 2024

of which

$3.5B

Is accounted for by Infrastructure as a Service

Source: Precedence Research

The private sector can play a role in addressing data fragmentation. Exclusive control over data for competitive reasons can lead to information silos that limit analysis while lack of data collaboration can impede economic growth and digital development[34].

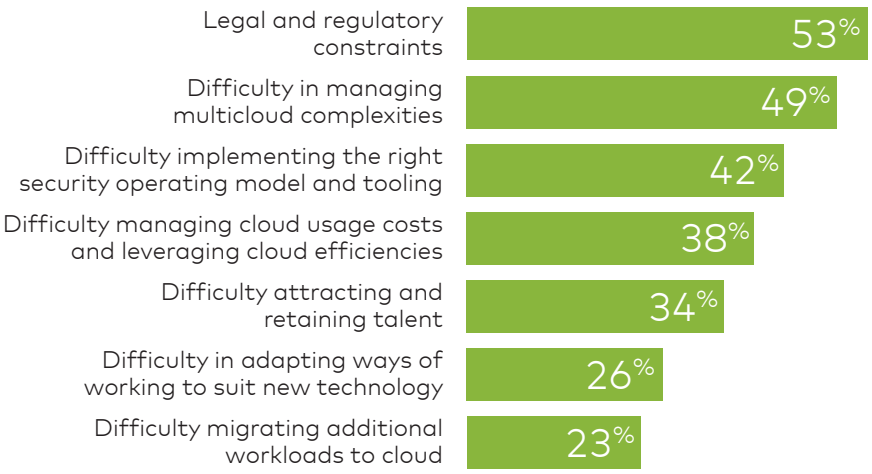
Data modeling at the terabit level

As the volume of data generated globally continues to grow exponentially, effective data modeling techniques are crucial for processing and extracting actionable insights at scale. In Africa, where emerging digital ecosystems are generating vast data sets from sectors like finance, healthcare, and agriculture, the ability to model data at the terabit level can unlock transformative potential.

Advanced data modeling techniques, such as distributed computing frameworks (e.g., Apache Spark, Hadoop) and parallel processing algorithms, enable organizations to handle large-scale data with speed and efficiency[35]. These methods support applications such as real-time fraud detection in financial systems, predictive analytics for crop yields in agriculture, and disease outbreak modeling in healthcare.

Regulation and cloud complexities are seen as top barriers

(% of respondents to a survey)



Source: McKinsey & Company

Exclusion and data fragmentation are key challenges in the African context. Deliberate efforts need to be made to improve inclusion.

Africa's diversity of languages poses a challenge when it comes to developing training data for AI. The related challenge relates to the financial aspect of gathering and developing training data. It is often difficult to make a business case for investing in such an exercise.

The big question is: Who will make the long-term investment to bridge the equity gap in the AI space?

Significant investment is needed to transition the continent from being a consumer of technology to a producer of technology.

Infrastructure is being developed by companies that have the financial muscle but are not based in Africa, while African companies are sensitive to cost even when solutions are available on the cloud. That makes it even more imperative to have a business case that makes sense for Africa.

Edwin Kaduki,
VP, Software Engineering Services, Mastercard

Machine learning integration: AI and machine learning models are increasingly being used to analyze terabit-level data for insights, enabling more accurate decision-making[36].

Federated learning: This technique allows for decentralized data processing while maintaining privacy[37], making it particularly useful in sectors like healthcare, where sensitive data must remain secure.

Cloud computing & data centers

Infrastructure remains a critical enabler for data accessibility. The growing adoption of cloud computing and improved internet connectivity are laying the foundation for a data-driven future. Cloud platforms provide scalable and cost-effective solutions for storing and analyzing massive data sets. They eliminate the need for expensive on-premises infrastructure, making advanced data processing accessible to businesses and governments alike.

Demand for cloud computing services in Africa is expanding at an annual rate of 25% to 30%, surpassing growth rates in Europe and North America. Forecasts suggest that revenue from Africa's public cloud market will have reached USD 10 billion in 2024, with Infrastructure as a Service (IaaS) leading the market[38].

Africa's data center capacity is also significantly underdeveloped compared to global standards[39]. More than two-thirds of the continent's capacity is concentrated in South Africa, with countries like Egypt, Nigeria, Kenya, and Morocco also having larger concentrations of facilities compared to most of the countries on the continent[40,41].

Democratizing AI

Natural Language Processing (NLP) and Large Language Models (LLMs) like GPT and BERT are on the rise because they enable conversational AI and reduce the reliance on specialized coding or data science skills. On the other hand, a lack of language diversity in AI systems can affect delivery of social support[42].

Masakhane

Masakhane is a grassroots organization dedicated to democratizing AI by advancing NLP for African languages. Through collaborative research, open-source tools, and community-driven initiatives, the organization works to bridge the language divide, enabling access, inclusion, and representation for diverse African communities. As of February 2020, over 49 translation results for 38-plus African languages have been published on GitHub[43].

Deep Learning Indaba

Launched in South Africa in 2017, Deep Learning Indaba aims to strengthen Africa's AI and ML community by equipping African researchers and practitioners with the skills and resources needed to tackle local challenges through AI-driven innovation. The initiative hosts an annual event that brings together AI leaders from across the continent and beyond, while also recognizing and celebrating research contributions within the field[44].

In Africa, where an estimated 1,000 to 2,000 languages are spoken across the continent[45], this presents a significant opportunity for an innovative solution. The World Economic Forum's 'Presidio Recommendations on Responsible Generative AI' emphasize the importance of addressing language bias in generative AI while working to "preserve cultural heritage[46]."

Skilled AI professionals

A thriving AI ecosystem rests on the availability of skilled professionals, including data scientists, machine learning engineers, and experts capable of translating AI insights into practical applications. The continent faces challenges in cultivating and retaining such talent, which can lead to a brain drain as skilled individuals migrate to more developed markets for better opportunities[47].

Only a small percentage of universities on the continent provide focused AI training, leaving a majority of students without access to critical technical education[48]. Limited access to computational resources, such as GPUs and cloud platforms, can also limit the ability of professionals to carry out further research and development.

Jacaranda

Based in Kenya, Jacaranda Health is a non-profit organization dedicated to improving maternal and newborn healthcare through data-driven solutions. In 2024, they expanded UlizaLlama (AskLlama), their open-source LLM to provide support in five African languages: Swahili, Hausa, Yoruba, Xhosa, and Zulu[49].

INTERVIEW | Ali Hussein Kassim
Chairman, Association of Fintechs in Kenya

"A fragmented policy and regulatory landscape is the key barrier"

How would you describe the growth of fintech in Africa?

Card payments are about 15% to 20% of all payments across Africa. Digital payments are between 10% and 15% across Africa. There's still potential there. You have the big fintech players like Cellulant, Pesapal, etc. plus thousands of smaller start-ups. Key markets like Kenya, Egypt, Nigeria, and South Africa attract 80% to 90% of funding.

Big banks are now setting up fintech divisions or departments. Some have succeeded, but not to the extent their financial muscle should have enabled. You have the big players like Mastercard and Visa and now Union Pay from China. And then you have the telcos, the mobile money players, including M-Pesa by Safaricom and MTN Mobile Money by MTN. Each has around 75 million active mobile money users across the continent. Airtel Money and Orange Money are smaller players.

What do you see as key barriers?

Number one is, of course, a fragmented policy and regulatory landscape. Africa is 54 countries with 54 different policies and frameworks for financial services and fintech. The other is digital infrastructure. Sometimes we forget that less than 50% of Africans are online. That creates its own barriers.

The third is the issue of funding, but not so much. Entrepreneurs always find a way. If there is a compelling product, funding comes in various ways. The fourth one would be the scramble for talent across Africa. Many global tech companies have a presence and they offer much higher entry level salaries that a start-up or home-grown company can't afford.

What are the challenges to financial inclusion?

Things are definitely moving forward. Kenya has gone from single-digit financial inclusion to almost 90% and people are focusing more on financial wellness now. A lot of us seem to want things to move faster, and governments are starting to pay attention, especially in the case of small enterprises. There are very clear policies and initiatives in conjunction with mobile money players to enable this ecosystem.

What role does AI play and what do global corporations like Mastercard bring to the table?

Many people who are not in the tech ecosystem in Africa don't understand what AI means and the power it can have on not just their businesses, but also on their day-to-day lives. A lot of education is required.

Governments are talking to the private sector on developing AI principles and discussing what can be done to make sure the benefits spread across the country, while at the same time safeguarding against some of the potential pitfalls.

The road to responsible AI

As AI continues to shape Africa's digital economy, ensuring that its development aligns with ethical and responsible practices is critical. AI has the potential to transform industries such as finance, healthcare, and agriculture. However, unregulated adoption can exacerbate inequalities, create ethical dilemmas, and introduce significant risks to society.

Global AI governance frameworks

The need for robust policy and governance frameworks has become increasingly urgent. A fragmented approach can lead to significant issues, as everyone deserves the same protection and access to responsible and ethical AI. With different approaches being adopted across the world, such as the EU AI Act and US state-level legislations, it is important to:

1. Leverage existing, technology agnostic laws that address potential harms, allowing critical protections to survive no matter how technology evolves in the future.

2. Advance global convergence/coherence to help reduce divergent or contradictory frameworks and promote legal certainty and compliance.

Core principles of responsible AI

Transparency
In Africa, transparency is critical for fostering trust in AI systems, especially in sectors like finance and healthcare.

Fairness
Ensuring fairness is essential to address systemic inequalities and biases in AI systems.

Privacy
Privacy is foundational for trust in AI systems. Respect for personal data, alongside compliance with Africa's growing data protection laws, ensures systems operate ethically.

Human oversight
Humans must remain in control to intervene in critical decisions when necessary.

Accountability
AI systems must have clear mechanisms for accountability to prevent misuse and ensure public safety.

Inclusivity
AI systems should be designed to address the diverse needs of Africa's population, including marginalized communities.

Safety
AI systems must prioritize the safety of users by mitigating risks such as erroneous outputs, unsafe recommendations, or cyber vulnerabilities.

Globally, there are still challenges related to fairness, equitable use, and transparency. There are instances of AI being discriminatory toward people of color, women, and marginalized groups, and picking up on historical biases that are part of the data, or because of some technical limitation.

It's important to make sure we are doing AI responsibly, particularly in the Global South, because of the ways that data is used. There's data coming in from Global South countries that are being put into algorithms that a lot of Global South stakeholders did not have a lot of input into.

Responsible AI works in a way that benefits everyone, that distributes the benefits from the technology to the people who are deploying it and using it, and the end users who might be affected by it.

At Mastercard, we take a global approach to responsibility. We have a framework of implementing and operationalizing our principles. Our core principles are safety and security, privacy, transparency, accountability, fairness, inclusion, innovation, and social impact.

Alayna Kennedy, Manager, AI Governance, Mastercard

3. Align key concepts, such as adopting a principles-based/risk-based approach to AI. Unlike an overly prescriptive policy regime, a principles-based framework allows for swift adjustment to technological and societal changes and creates a level playing field.

4. Encourage companies to adopt AI governance frameworks in a way that anticipates new legal frameworks.

The current landscape in Africa

The 2024 Oxford Insights AI Readiness Index, which examines indicators across the Government, Technology Sector, and Data & Infrastructure pillars, places Sub-Saharan Africa at the lowest global ranking, with a score of 32.7/100, underscoring the need for stronger frameworks. The region demonstrates its greatest potential in the 'Data & Infrastructure' pillar, averaging 42.06. Lower scores in the 'Government' and 'Technology Sector' pillars emphasize the need for increased investment[50].

However, significant regional disparities exist. Countries like South Africa demonstrate notable advancements, leveraging established infrastructure and robust governance mechanisms. Smaller economies, such as Malawi or Chad, struggle with limited resources, infrastructure, and technical expertise.

Laying the groundwork

A multi-stakeholder approach is essential – bringing together governments, private enterprises, and civil society to shape policies and practices that ensure AI systems align with ethical and societal goals of equity, inclusivity, and sustainability.

It is important to leverage existing legislation, adopt a principle-based approach, and encourage global convergence. Kenya, for example, is the only African member of the International Network of AI Safety Institutes and is establishing frameworks for responsible AI. In December 2024, it developed the first-ever Diplomats' Guide for AI and launched the School on AI Diplomacy (SAiD) at the Foreign Service Academy.

The Malabo Convention – a pan-African instrument for data protection and cybersecurity – came into force in June 2023, marking a significant step toward unified data protection. However, the adoption and implementation of comprehensive data protection laws vary among African nations. The African Union's Digital Transformation Strategy 2030 emphasizes the need for harmonized AI governance and advocating for regional data-sharing frameworks to facilitate collaboration[51].

The role of communities

Engaging local communities in AI development ensures that technologies address real-world challenges effectively. Initiatives like the AI Policy Lab by LawyersHub focus on advancing responsible AI governance across Africa, emphasizing the importance of community involvement in policy development[52].

A strong best practice is to stay open to innovation by engaging with industry experts – particularly in sectors like technology and payments. A consultative, collaborative approach between industry and government helps foster a regulatory environment that supports growth.

It's important to consider the long-term impact of restrictive regulation. Regulatory frameworks should be forward-looking and adaptable, keeping pace with technological advancements and market developments.

For AI, regulation should be agile and principles-based. High-level guidelines are often more effective than detailed rules, except where specific, well-defined risks call for targeted laws or safeguards. Regulators need to be open, consultative, and forward-thinking – embracing innovation while managing risks through smart, focused protections.

Some countries have adopted successful models by involving SMEs, experts, and dedicated government bodies. For example, the UAE has a Ministry of AI and an AI Council comprising public and private sector leaders who meet regularly to review trends and propose policy updates.

Azzam Alameddin, Senior Vice President for Public Policy, Mastercard EEMEA

Global AI regulation frameworks

UNESCO Ethics of AI	EU AI Act	OECD Principles on AI	US governance
Implementation			
2021 Scope: **193 countries**	2024 Scope: **27 EU members**	2024 Scope: **42 countries**	Ongoing Scope: **US**
Approach			
Voluntary participation, offering principles rather than enforceable rules.	• Legal framework with a tiered risk-based system. • Strict requirements for high-risk applications. • Mandatory risk assessments and compliance measures.	Offer general principles to guide member countries in crafting their AI policies.	Voluntary, non-binding
Challenges			
• Lack of enforceability; reliance on member states to implement. • Each country interprets and adopts guidelines in different ways.	• Complexity involved in categorizing AI risks. • High compliance costs.	• Lack of consistent enforcement mechanisms across member states.	• Lack of enforceable standards. • Inconsistencies across states and industries.
Opportunities			
• Creates a global baseline for AI ethics. • Encourages collaboration between countries to address cross-border issues.	• Establishes global leadership in AI regulation. • Provides a framework for other regions.	• Foundation for multilateral agreements on AI regulation. • Enables collaboration on cross-border challenges.	• Strong focus on R&D and innovation. • Flexibility fosters private-sector growth.
Highlights			
• Emphasis on protecting marginalized groups and promoting cultural diversity. • Framework for ensuring transparency and accountability in AI systems.	• First comprehensive legal framework for AI worldwide. • Transparency requirements for AI models affecting human rights.	• Promotes AI systems that are fair, accountable, and transparent. • Encourages innovation while safeguarding human rights and democratic values.	• Encourages innovation through light-touch regulation. • Federal initiatives on funding and research.

Africa's opportunity

The AU has recognized the need for a cohesive approach to AI governance. In 2019, the AU established a Working Group on AI to develop a "common African stance on AI," create a continent-wide capacity-building framework, and assess projects aligned with the AU's Agenda 2063 and the United Nations SDGs[53]. The Malabo Convention on data protection and cybersecurity was ratified in June 2023 and the Declaration on Responsible AI in Africa was signed in May 2025[54].

2019

Scope: **55 AU states**

Opportunities:
- Potential to position Africa as a leader in ethical and inclusive AI adoption.
- Collaboration among member states fosters regional unity and innovation.

Approach: Framework in development; emphasizes capacity building and alignment with Agenda 2063.

Challenges:
- Limited resources and infrastructure.
- Risk of dependence on external AI systems that do not address local needs.

Highlights:
- Focus on building AI capacity tailored to African contexts.
- Collaboration with global frameworks.

INTERVIEW | Dr. Uyi Stewart
Chief Data and Technology Officer, data.org

"Talent is abundant; opportunities are scarce"

What measures are needed to improve data sets across Africa?

To achieve this and ensure inclusivity, the simple answer is to provide more funding support. I think talent is abundant; it's just that opportunities are scarce. We need to provide more opportunities for those on the ground to roll up their sleeves to address these issues, and maybe implicit in that is to democratize the ability for those on the ground to contribute. Right now, the knowledge and the ability to do this is specialized, and in the hands of a few people, even in the universities. So, in order for this to truly be at scale, first [we need to] provide funding support. The second is to democratize the ability, the knowledge to do this.

You say there is talent. Could you elaborate?

A lot is going on in the African continent right now that is maybe not completely captured. It's different from what we see in the US. I'll give you a very specific example in Kenya. Strathmore University has this amazing innovation hub where students there are doing practical work and beginning to really explore some of what you can do with large language models, or even small language models, or even new approaches to data collection. Often that's not accounted for. Why? Because the innovation is not at scale. It is happening in hubs embedded within universities. The same thing is happening in Nigeria.

Which sectors can be considered low-hanging fruit when it comes to applying AI in Africa in an inclusive manner?

Africa is powered by a lot of transactions in the informal sector. A lot of work in the financial inclusion space, in payments, in retail, is really the opportunity for us to test out and experience the power of this technology, because it requires localization. If you look at the statistics in Kenya... for every 10,000 people, there is one doctor. This is an opportunity to build decision support systems to provide diagnostic care, not the treatment itself.

What role do private sector and NGOs play?

Mastercard, or the Gates Foundation, or whoever works with NGOs on the ground needs to de-risk the finance that is needed to test whether a technology will work. Step number one is finding the right use case. Once that is identified, we need the next level: for the private sector to come in and say, well, we see this is working, therefore let's do more of this, because there is money in it. The final level is government: if it's working, what regulations are needed? How do we scale?

Dr. Uyi Stewart joined the Mastercard Center for Inclusive Growth in June 2025 as the Vice President, Inclusive Innovation & Analytics

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INTERVIEW | Tijsbert Creemers-Chaturvedi
Managing Director & Senior Partner, Johannesburg, BCG

"We need data-driven solutions to drive financial inclusion"

How is AI enriching the payments sector in Africa?

Ecosystems that integrate AI create richer engagement and in turn create more data for AI to become more valuable, to personalize or drive that engagement. If a provider wants to provide a holistic solution to customers, they must integrate payment as it is the settlement of the transaction. As a consequence, platform solutions always include payments. Such solutions are being built on both the banking as well as mobile wallet platforms in Africa.

In one high-value AI application, both banks and fintechs have used satellite imaging to monitor crop growth, and lend based on that. By combining payments data and satellite imaging you can actually create solutions that serve a community that would have otherwise been tough to include in the credit system.

What are the key aspects of data and AI in the context of Africa?

Many clients are not digitally connected yet, so they don't have a data footprint. Payments, whether account-to-account or wallet payments, can create initial data footprints for such clients across the continent. A large chunk of the SME sector is not yet part of the digital environment, and therefore there are no or insufficient data or reliable sources. The opportunity from unlocking payments, AI, and data is massive. You need data, AI, and, over time, Gen AI to get outcomes where clients become bankable, on a payment as well as a credit level.

We need data-driven solutions to solve the paradigm that today exists around financial inclusion in Africa. Beyond that, especially in South Africa, there is a mature market because the payment infrastructure is very mature.

What kind of collaboration can drive benefits from AI?

We need more innovation. The regulator and the government in South Africa see that, and there is a drive toward regulation that stimulates it. Many start-ups combine digital with physical distribution to increase reach. In South Africa and the continent, digital reach is growing rapidly, but is still limited. Hence a bionic model – part digital / part human – increases effectiveness. There is also a lot of conversation around responsible AI, that it should bring it back to the creators and innovators rather than waiting for the regulator to step up and create regulations.

AI use cases in Africa

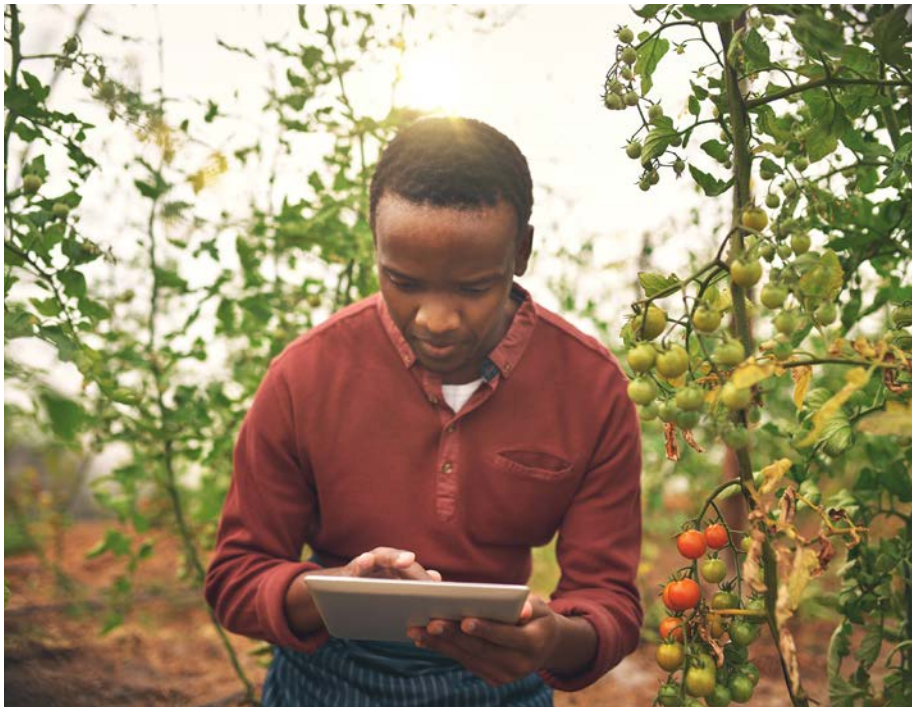
AI is being developed and deployed across various sectors to address challenges in healthcare, food security, financial inclusion, and economic development. This is achieved by providing tools for data analysis, prediction, and automation, helping to optimize resource allocation and improve decision-making, particularly for underserved communities.

Agriculture

Agriculture is central to Africa's economy, employing over 60% of the workforce[55]. However, the continent's food imports cost USD 35 billion annually[56]. AI technologies are transforming farming practices to address food insecurity and sustainability challenges through a surge in agri-tech start-ups focused on finding solutions to monitoring crop health and providing real-time weather and market information. A study encompassing Kenya, South Africa, and Nigeria found that nearly half of new AI innovations were focused on agriculture[57].

Education

Education is a cornerstone for Africa's development, with its youth population set to become the largest in the world by 2050. However, challenges persist, including limited access to quality teaching resources and barriers to access. AI technologies can help address these issues through personalized learning tools and multilingual platforms that bridge language gaps. The African Union's Education Strategy and Implementation Plan (2023–2028) provides a robust framework to accelerate the adoption of digital technologies. This strategy aligns with the Continental Education Strategy for Africa (CESA), which focuses on solutions to enhance access, equity, and quality in education systems across the continent[58].



Farmerline (Ghana)

Farmerline uses Darli AI, which supports small farmers worldwide. Launched in March 2024, Darli AI has been recognized as one of TIME magazine's Best Inventions of 2024. Accessible through WhatsApp chatbots and a conversational Interactive Voice Response (IVR) system, Darli AI allows farmers to interact in over 27 languages, including Twi, Swahili, and Yoruba. This multilingual support enables farmers in countries like Kenya, Ghana, and others across Africa, Asia, and South America to receive real-time advice on various agricultural topics, such as fertilizer usage, crop rotation, market logistics, and disease diagnosis through photo submissions. As of October 2024, it has been used by approximately 110,000 farmers[59,60].

Rising Academies (Sierra Leone)

Rising Academies was established in 2014 and has since expanded its reach to over 300,000 students in countries including Sierra Leone, Liberia, Ghana, and Rwanda. It operates affordable private schools and collaborates with governments to improve public education systems. One of the company's uses of technology is through 'Rori,' an AI-powered math tutor designed to build foundational math skills among low-literacy, low-income students in Africa. Accessible via WhatsApp, Rori utilizes NLP and machine learning to provide personalized tutoring[61,62].

Finance & banking

The financial services sector has seen the greatest impact of AI-backed tools. AI-driven models assess the creditworthiness of those without traditional credit histories by evaluating alternative data sources. This promotes financial inclusion. Kenya-based Tala analyzes mobile phone usage and payment behavior, which then helps make it easier for customers to be approved for micro-loans[63]. Jumo, a banking as a service platform operating out of Ghana, Tanzania, Kenya, Uganda, Zambia, Côte d'Ivoire, and South Africa, uses AI and machine learning to create tailored financial products for the underbanked[64].

AI-powered chatbots and virtual assistants offer faster, around-the-clock support, improving user experience and reducing operational costs. Kudi.ai, based out of Nigeria, started out as an AI-based chatbot on messaging platforms, helping users with payments and transfers. The goal was to offer conversational AI to ease the unbanked into the mainstream[65]. The South African Absa Group has introduced virtual assistant Absa Abby, which uses NLP to handle customer queries and guide users through basic banking tasks[66].

The Internet of Things (IoT) is also making significant strides in Africa's financial sector. For example, M-KOPA, a Kenyan digital financial services company, has successfully integrated advanced IoT technologies into its digital micropayments platform. This enables the processing of up to 500 payments per minute, supporting over 3 million customers across Africa[67].

Fraud detection

Fraud, including identity theft, account takeovers, false transactions, and check scams, remains a significant challenge globally. Financial losses from credit card fraud alone are projected to hit USD 43 billion by 2026. AI-powered systems are proving invaluable in combating these.
As mobile money platforms like M-Pesa continue to grow across Africa, the integration of AI-driven fraud detection systems becomes essential. Between April 2022 and March 2023, the South African Fraud Prevention Service recorded a 356% increase in impersonation fraud cases[68].

Transparency in AI is crucial to building trust and encouraging adoption across African communities. By clearly explaining how AI systems use data and reach outcomes, we can empower individuals to understand how AI works, its impact on their lives, and their rights. At Mastercard, we are committed to being transparent about how we develop and deploy AI, ensuring that our technology benefits people while respecting their privacy and rights.

Jasmien César, VP, Senior Managing Counsel, Privacy and Data Protection for AI, Mastercard

Algorithms are useful in identifying unusual spending patterns, thus making AI a tool for better fraud detection and risk management. Payment gateways incorporate AI-driven monitoring systems that spot transaction anomalies, securing the financial data of users[69]. A noteworthy example is Paystack, which employs machine learning for real-time transaction analysis, automatically flagging suspicious payment behavior for review. This approach helps merchants and customers alike enjoy a safer payments environment[70]. Mastercard now uses generative AI to double the speed at which it can flag potentially compromised cards[71].

Health

AI is being deployed in various healthcare applications across Africa to address critical challenges, such as limited access to medical professionals and diagnostic tools. In Malawi, the Area 25 health center in Lilongwe implemented AI-enabled fetal monitoring software, leading to an 82% reduction in stillbirths and neonatal deaths[72]. Meanwhile, in Rwanda, the IRCAD Africa Center is training African surgeons in minimally invasive surgery techniques, incorporating AI to improve surgical outcomes[73].

Diagnostics

AI has been a game-changer in medical diagnostics, allowing for more accurate and efficient detection and treatment planning. Google's DeepMind introduced AlphaFold, which predicts protein structures with high accuracy, accelerating drug discovery and treatment personalization[74]. Similarly, IBM Watson Health uses NLP to analyze unstructured medical data, aiding in cancer detection and treatment planning[75]. During the COVID-19 pandemic, platforms like BlueDot employed AI to analyze global travel patterns, news reports, and health records, identifying outbreaks before traditional systems[76].

In Africa, AI-powered diagnostics can address the shortage of medical professionals in Africa by offering affordable, scalable solutions for diseases such as tuberculosis and malaria. The deployment of AI models like tuberculosis detection tools in India[77] demonstrates how Africa can adapt similar technologies for community health centers.

Aurora Health Systems (Kenya)

Aurora Health Systems, founded in 2022 and headquartered in Nairobi, is a medical technology company developing devices paired with AI-based software to help clinicians detect heart and lung diseases early. Their mission focuses on adopting remote monitoring devices to address gaps in health services. The company has received support from programs such as the Qualcomm Make in Africa, HealthTech Hub Africa, and the Standard Chartered Women in Technology Accelerator[78].

Smart cities

Smart cities harness technology to shape urban environments, using AI, the Internet of Things (IoT), and advanced data analytics. Global examples offer a blueprint for African cities looking to change the efficiency of services. However, success hinges on infrastructure development and effective urban planning.

Singapore is a leading example of how AI-driven systems can transform the way cities function. The country's local utilities have adopted machine learning to forecast energy demand, allowing for improved electricity distribution and lower costs[79]. For African nations where grid reliability remains a challenge, this is a focus area. Early research shows that cost-effective sensor networks and AI platforms can streamline load forecasting and incorporate renewable energy sources more effectively[80].

Simultaneously, Singapore's Land Transport Authority (LTA) uses real-time sensors and predictive algorithms to manage traffic congestion[81]. Through machine learning, these systems predict changes in traffic patterns, adjust traffic lights, and reroute buses when needed. In African metropolises where road infrastructure is strained by fast-growing populations, such a model could help reduce traffic congestion and enhance public transportation reliability.

Barcelona has demonstrated how AI-assisted traffic monitoring can reduce traffic and pollution, contributing to improved air quality[82]. This success builds on years of scientific research and predictive modeling. African cities, where pollution and congestion remain pressing concerns, can use AI-powered forecasting to optimize urban planning, enhance environmental policies, and protect public health.

Buenos Aires offers another compelling use case. The city employs an AI-powered chatbot, 'Boti,' as an official government channel to streamline public communications and citizen engagement[83]. Initially rolled out during the pandemic for health updates, Boti has evolved to handle various municipal tasks, including public service announcements and basic administrative inquiries. In African cities, where bureaucratic processes can overwhelm limited administrative staff, such chatbot systems could alleviate pressure on public offices.

Conservation

AI-backed systems offer new ways of monitoring ecosystems, protecting endangered species, and combating poaching. Botswana, for example, has implemented AI-powered drones to monitor wildlife populations. These drones collect aerial imagery, which AI systems analyze to track animal movements and detect potential threats, such as poachers or habitat encroachment[84].

In Uganda's Murchison Falls National Park, conservationists have equipped African white-backed vultures with AI-enabled trackers[85]. In Kenya, the Wildbook project utilizes AI to analyze thousands of photographs of zebras, identifying individual animals based on their unique stripe patterns. This approach helps in monitoring population dynamics[86].

FruitPunch AI (South Africa)

FruitPunch AI is a community space that applies AI solutions to address pressing societal challenges. Founded in 2018, the organization began with the 'AI for Wildlife' project, where a team of AI engineers developed an autonomous drone equipped with thermal cameras to detect poachers in South African wildlife reserves. Now, they encourage other projects and provide support through 10-week challenges[87].

Energy

In the energy space, AI plays an important role in enhancing efficiency – especially in areas where access can be an issue. In South Africa, AI-powered smart meters assist vulnerable households in managing electricity consumption. In Kenya, AI algorithms are used to forecast solar and wind energy generation, facilitating the integration of renewable energy sources into the national grid[88]. AI-driven solutions are also being used to improve both on-grid and off-grid energy systems across the continent. Predictive maintenance technologies identify potential failures in infrastructure, reducing downtime and maintenance costs[89].

Learning from global applications

AI is no longer confined to specialized research or isolated applications. It has become a practical tool with a wide-ranging impact across industries. For Africa, where diverse challenges require tailored approaches, learning from global AI applications offers an opportunity to adapt proven solutions.

Husk Power Systems (Nigeria, India)

Husk Power Systems specializes in renewable energy solutions for rural and peri-urban areas in Africa and Asia. By integrating AI with IoT technologies and Geographic Information Systems (GIS), Husk automates the monitoring and management of its fleet of mini-grids. This enables real-time data analysis and predictive maintenance, ensuring reliable power supply to underserved communities[90,91].

INTERVIEW | Mlindi Mashologu
Deputy Director-General of ICT Information Society and Capacity Development, Department of Communications and Digital Technologies, South Africa

"Digital and financial inclusion are still critical to ensuring equitable access to AI technologies"

What is the implementation roadmap for the National AI Policy Framework?

The policy draft is expected to be released for comments. We envisage completing the process before the G20 sitting, by September-October 2025. We should be able to adopt it before the end of the next financial year in April 2026. We are hoping to have a finalized policy before the end of this financial year.

Where do you see room for region-wide regulations to facilitate cross-border application?

We need to use AI for economic development, but we are also looking at how we can make sure there is equitable access to the technology. The African Continental Free Trade Agreement was signed a year or so ago. We are trying work with the member states to see where and how we can leverage AI strategy for better coordination within the region. We are also looking at other regions such as the Economic Community of West African States. This will allow us to strategize on how to leverage AI for the whole of Africa. We are also looking at issues related to data, to see how we can leverage cross-border data flows to effectively deliver on data for development.

What are AI's immediate priorities in South Africa?

We see AI impacting all sectors. But it is going to be critical in healthcare, agriculture, and manufacturing. Once the policy is in place, it will allow the sectors to develop strategies on their own. The prioritization will come from those strategies. Digital inclusion is still at a very low level in huge portions of the rural populations, where we don't have proper network connectivity. To improve inclusion, we need to solve the issues of broadband penetration and access to devices at affordable prices. The policy will also have safeguards such as ethics oversight bodies to oversee responsible AI development and deployment.

What kind of talent framework does the national policy envisage?

AI is not supposed to replace humans but work with humans in solving issues. We need to make sure there is human oversight in terms of the decisions that AI is

taking. As we develop the policy proposals, we are trying to ensure this. The issue of skill development is a critical area. We are taking a multi-pronged approach that includes partnering with training organizations, skill development partners, tertiary institutions, and multinationals. We are trying to find ways to improve computing capability. We know that to stimulate innovation, there needs to be computing capability inside the country. At the same time, we are also looking at how to develop Africa-wide computing capabilities. It will be easier to implement in the higher education sector by introducing modules. We would like to institutionalize it in the basic education sphere as well.

INTERVIEW | Dr. Olubunmi Ajala
National Director of NCAIR
(National Center for Artificial Intelligence and Robotics), Nigeria

"Linguistic inclusivity, data digitization, and talent development are priorities"

What are the key developments taking place in the AI space in Nigeria?

Apart from the draft of the National AI Strategy, we have been working on inclusivity. It is crucial to ensure that AI is not trained just in English but also includes African, and Nigerian, nuances. We are developing our own multimodal, multilingual language model through a partnership between Awarri, DataDotOrg, NITDA Nigeria, and NCAIR Nigeria.

The LLM will be trained on five low-resource languages with accented English to ensure stronger language representation in existing data sets for development of AI solutions. The project will also be supported by over 7,000 fellows from the 3MTT Nigeria program. In fact, with technological advances we no longer have to use LLMs; we can utilize Small Language Models (SLM) and improve efficiency. Nigeria has hundreds of languages, but we are starting with five – English, Hausa, Igbo, Yoruba, Ibibo, and a bit of Pidgin.

How are initiatives related to data collection and data gathering in Nigeria adding value to the work in AI?

We have initiated a project to digitalize Nigerian archives. Many handwritten records in our countries don't have duplicates. They tell us about historical perspectives that might not have been captured. It is our initiative to digitize the memos or documents in the Nigerian ministries, starting with the Ministry of Communications, Innovation, and Digital Economy. We have set up a data center where these are captured, digitized, classified, and embedded.

Are there any initiatives to boost the AI ecosystem?

We have launched the AI Collective, which is a community to ensure an inclusive approach nationally and globally. We have the participation of academia, researchers, start-ups, the government, entrepreneurs, students, and civil society organizations. The collective, which is sponsored by Luminate with USD 1.5 million over three years, is hosted by NCAIR Nigeria and managed by Lagos Business School, Pan-Atlantic University, Data Science Nigeria, and the Center for Journalism Innovation and Development.

In February 2025, the Federal Executive Council approved the National AI Trust which will mobilize resources, provide oversight, and guide the development of AI in Nigeria. It will also help future-

proof our investment in AI across key sectors of the economy, in recognition of the transformative power of the technology in driving job creation and attracting foreign direct investment. This will ensure continuity of initiatives and work on AI.

What is the skill and talent development component of your strategy?

Nigeria is currently running the largest technical skills accelerator in the world, the 3 Million Technical Talent (3MTT) program, which aims to position Nigeria as a leading hub for digital skills and development. A percentage of the program is assigned to AI and machine learning, with a target of 150,000 people trained in these technologies.

$1.5M
Sponsorship amount for AI Collective over three years

150K
People will be trained in AI and ML

AI unlocks opportunities across the continent

Healthcare

- **Decentralized diagnostics:** Mobile-based AI tools aid in real-time detection of disease in rural clinics.
- **Telemedicine:** AI chatbots and virtual assistants make healthcare accessible in underserved areas.
- **Distribution:** AI optimizes supply of vaccines and critical medication in remote areas.

Finance

- **Microfinance:** AI-powered lending models use alternative data to assess creditworthiness.
- **Blockchain:** Smart contracts & AI provide automated fraud detection in digital finance.
- **Adaptive Digital IDs:** Real-time biometric verification systems support seamless KYC.

Agriculture

- **Crop yield:** Predictive analytics use satellite imagery and weather data to forecast crop yields and recommend planting schedules.
- **Pest and disease:** ML models analyze images for crop diseases.
- **Precision farming:** AI-powered drones and IoT devices monitor soil conditions and irrigation needs.

Education

- **Personalized learning:** Adaptive learning software provides customized educational experiences tailored to individual student needs.
- **Language support:** NLP enables learning in local African languages, breaking linguistic barriers.
- **Teacher training:** AI simulations assist in upskilling educators with interactive and practical teaching modules.

Automation

- **Supply chain optimization:** Predictive analytics for reducing waste across Africa's logistics networks.
- **E-government:** Agentic AI automates ID registration, tax filings, and business licensing.

Energy

- **Energy forecasting:** Predictive analytics improve grid reliability by forecasting electricity demand.
- **Renewables integration:** AI optimizes the deployment and management of solar and wind energy systems.
- **Smart grids:** Machine learning ensures efficient energy distribution, reducing waste and lowering costs.

INTERVIEW | Rob Floyd
Director, Innovation and Digital Policy, African Center for Economic Transformation

"Data for AI needs to be timely, accessible, and secured for economic policymaking"

Which key sectors can benefit from AI in Africa – any low-hanging fruit?

The key sectors are probably those where AI is already being deployed – such as health, agriculture, climate, etc. At ACET we also see huge potential benefit for the use of AI to inform economic policy – fiscal, monetary, and industrial policy. This is an area that is under-explored, even in the Global North. There is quite a lot of use in finance to support regulatory enforcement, but not in the design of public economic policy.

ACET has studied the importance of public data in AI-aided economic policymaking. Any insights?

As part of the project, we identified what data is available, what data is not, the quality, what data might be purchased, and what might be created. As expected, in some countries national economic data is kept in PDF files which creates lots of work to make it usable for AI models. In some countries the data is available but is owned by the private sector; it needs to be purchased. In other countries, data is available but has to be captured (for example, through scraping). And in some countries, we find that data is available but is out of date or the time series are not sequential; hence we are exploring the potential of creating synthetic data.

These early insights largely align with our hypothesis, except that the situation is probably worse than we expected – for example, finance ministry econometric model outputs being saved as PDF files.

How can AI solutions inform fiscal and monetary policy?

We have just finished the first year of the project, much of which was devoted to establishing partnerships with governments, creating parameters, defining key policy challenges, understanding data constraints, etc. In Togo, we are looking to utilize AI tools that can make the econometric models more useful – for example, through chat functions that allow policymakers to ask a much broader range of questions. In South Africa, we are seeking to use satellite imagery and AI tools to better estimate economic activity and therefore inform key fiscal policies. In Nigeria, we are using AI tools to better understand the economic impact of the creative industries, particularly music – which are often not captured in traditional models and policy.

We expect that variations of these tools can be implemented in other countries, but will need to be adapted in each case depending on data structure, local conditions, technical capacity, etc.

Can you identify three measures that can improve data quality?

One, ensure data is timely. In today's world having household surveys from 10 years ago is not really useful. Two, ensure data is accessible. Data saved to PDF files just makes work for everyone. And three, ensure data is privacy protected. Huge data sets with national ID numbers, addresses, and other personal details create all kinds of challenges for anyone wanting to use the data responsibly.

I would add a fourth, which is particularly important in the African context. Ensure that data localization does not thwart cross-border transfer of appropriate data. Many economies are simply too small to transform alone, and the lack of data flow will prohibit commerce, investment, infrastructure, and innovation.

Any examples where challenges have been effectively addressed?

They are going to be most effectively addressed when local stakeholders are engaged. For example, for one of our projects we needed to identify "areas of interest". This could have been done by a vendor (or maybe even by AI), but rather we hired local partners that were different genders and of different racial backgrounds to do this work to help ensure that we were cognizant of local context.

How can regulatory frameworks and policies support effective data generation, governance, and flows, especially across borders?

First, we need digital champions within government. We sometimes forget that politicians would rather not have data. Data is what creates facts, transparency, and the basis for informed debate. On the economic side, senior policymakers are often older and not comfortable with data-based technologies. Likewise, specific to data flow across borders, we need leaders who see value in regional collaboration, including data flow. The reality is that countries have different levels of need for or interest in regional integration. Big economies have less need, smaller economies generally have a stronger interest.

For cross-border data flows, one also needs to ensure that risks are appropriately addressed. Too often the response to these risks curtails the flow of data.

What role do companies like Mastercard play in bridging the digital divide in Africa?

Creating demand. Financial inclusion and other data-based initiatives create demand for effective data-based services, whether those are financial services, public services, national identification, etc. In many countries, the policymakers will respond to demand.

Creating champions. Whether it is a woman selling mielie on the street corner or the Director General at the Ministry of Finance, champions are needed to push for action.

Building capacity. From basic digital skills in primary school to coding skills at university.

Supporting an ecosystem of think tanks, academics, civil society, and government. Mastercard Foundation plays a huge role in creating and supporting this ecosystem of players that would not otherwise be connected and supporting each other.

Leading North Africa's AI transformation

#13 in Africa on the GAR Index 2024 | **#18 on the Government pillar** | **#5 on the Technology pillar** | **#7 on the Data & Infrastructure pillar**[1]

Morocco is driving AI adoption in North Africa in key sectors such as healthcare, energy, agriculture, and finance. The government has been proactive in fostering an ecosystem of innovation. In the payments and finance space, the value of digital transactions is expected to rise to USD 8.47 billion by 2028. A study of Morocco's largest banks revealed that AI implementation has reduced operational processing times by 30% and that branches with higher adoption also saw a 15% increase in monthly revenues[2].

EDUCATION: By 2022, STEM graduates made up 27% of all graduates. Morocco has established dedicated institutions focused on AI and related technologies[3].

HEALTHCARE: AI is improving efficiency in various functions – 45% of hospitals use AI for appointment management while 30% deploy it for diagnosis. Use of surgical robots has increased 30% between 2020 and 2024[4].

DEVELOPMENT: Projects like the Smart City of Benguérir and Casablanca's technological initiatives are integrating AI into infrastructure and transportation management[5]. The Noor Ouarzazate power plant uses AI in renewable energy management.

Key initiatives

The Maroc Digital 2030 strategy envisages USD 1.1 billion in investment and targets 240,000 digital jobs by 2030[6].

Two public engineering schools dedicated to AI and digital technologies have been set up in Taroudant (University of Agadir) and Berkane (University of Oujda)[7].

The Agency for Digital Development (ADD) has flagged AI as a priority, focusing on support for R&D, development of skills, and fostering an AI ecosystem[8].

The establishment of the Moroccan International Center for Artificial Intelligence highlights a commitment to building a robust AI ecosystem[9].

The Annual MoroccoAI conference brings together industry experts and researchers[10].

$340M
Is Morocco's projected AI market size in 2025[11]

$7.1M
VC investments in AI in 2023[12]

80%
Of Moroccan consumers are aware of ChatGPT[13]

1. Oxford Insights. Government AI Readiness Index 2024 December 2024; 2. Faouzi, A. Study: AI boosts Moroccan bank performance, cuts operation time by 30%. Morocco World News. January 06, 2025; 3. unesco. Morocco. Accessed February 06, 2025; 4. Idaomar, C., Idaomar, D., Hannaoui, M. and Chafik, K. Applications of artificial intelligence in Morocco's healthcare sector: A springboard to medical excellence. Journal of Computer and Communications, 12, 63-77. September 14, 2024; 5. INDUSTRIES.ma. Morocco and artificial intelligence: The present and the future. December 12, 2024; 6. SAMENA Council. Morocco launches Digital 2030 strategy. October 3, 2024; 7. Official statement from sources at the Moroccan government made to MasterCard. Received in May 2025; 8. L'Agence de Développement du Digital. Ecosystem dedicated to artificial intelligence. Accessed February 06, 2025; 9. Faouzi, A. Moroccan proposes establishment of national agency for AI governance. Morocco World News. April 25, 2024; 10. MoroccoAI. About the event. Accessed February 06, 2025; 11. Statista. Artificial intelligence – Morocco. Accessed February 06, 2025; 12. OECD.AI (2025) Policy Observatory. AI in Morocco. March 2024; 13. Balaji, N., Bharadwaj, A., Apotheker, J., & Moore, M. Consumers know more about AI than business leaders think. Boston Consulting Group. April 24, 2024.

AI innovation spans sectors

#8 in Africa on the GAR Index 2024 | **#9 on the Government pillar** | **#10 on the Technology pillar** | **#26 on the Data & Infrastructure pillar**[1]

Kenya is emerging as a regional leader in safe, inclusive, and trustworthy AI adoption, driving use cases in agriculture, energy, and finance. The government's strategic focus on innovation has created a start-up ecosystem supported by a network of incubators, innovation hubs, and professional associations shaping the country's AI trajectory. Organizations like AI Kenya and KICTANET are working to build a vibrant and inclusive community.[2]

FINANCE: The National AI Strategy 2025 outlines AI's role in broadening financial access and mobile money services. Kenya's leadership in mobile money has encouraged research into AI-based models. The Hustler Fund, launched in 2022, uses AI-driven credit scoring to deliver accessible, low-interest microloans to small business owners.[2] Firms like M-KOPA provide risk-based lending to customers without formal banking records[3].

INFRASTRUCTURE: Kenya's AI strategy prioritizes investments in infrastructure. The National Optic Fiber Network Backhaul Initiative (NOFBI) aims to deploy over 100,000 km of optical fiber by 2027[4]. At the Global AI Summit on Africa, Cassava Technologies, in collaboration with the Kenyan government and NVIDIA, announced plans to launch an initial 3,000 GPU cluster designed to position the country as a regional tech hub.[2]

AGRICULTURE: Tools like the Virtual Agronomist and PlantVillage employ AI to give farmers precise recommendations on fertilization, pest identification, and soil health management[5]. AI devices help farmers quickly detect and identify pests and diseases, enabling early intervention. SPACE AI, in partnership with Tuiyo Cooperative, is digitizing the dairy value chain to boost milk productivity for smallholder farmers.[2]

Key initiatives

Kenya's Ministry of Information, Communications, and Technology released a draft of the National Artificial Intelligence Strategy 2025–2030 in January 2025[4].

The Africa Center of Competence for Digital & AI Skilling is hosted at the Kenya School of Government in partnership with UNDP and Microsoft. Its goal is to upskill public servants in AI, systems thinking, and digital innovation, building capacity for sustainable development[2].

Maseno University is advancing a multilingual corpus project to ensure AI models reflect Kenya's linguistic diversity. The project currently covers four local languages and will expand to include more[2].

The Virtual Assets Service Providers (VASP) Bill proposes a licensing framework for VASPs like cryptocurrency exchanges, wallet providers, and other entities[2].

In March 2024, Amb. Philip Thigo was appointed the inaugural Special Envoy on Technology — the first in Africa — to spearhead technology diplomacy and AI collaboration[2].

$15M

VC investments in AI in 2023[6]

1. Oxford Insights. Government AI Readiness Index 2024. December 2024; 2. Official statement from sources at the Kenyan government made to MasterCard. Received in May 2025; 3. Burns, S. A. M-PESA and the 'market-led' approach to financial inclusion. Economic Affairs. October 01, 2018; 4. Republic Of Kenya Ministry Of Information, Communications And The Digital Economy. Kenya National Artificial Intelligence Strategy 2025-2030. 5. Mureithi, C. High tech, high yields? The Kenyan farmers deploying AI to increase productivity. The Guardian. September 30, 2024; 6. OECD.AI (2025) Policy Observatory. AI in Kenya. Accessed February 06, 2025.

Advanced infrastructure drives AI growth

#3 in Africa on the GAR Index 2024 | **#10 on the Government pillar** | **#3 on the Technology pillar** | **#1 on the Data & Infrastructure pillar**[1]

South Africa is strengthening its position as a leading AI research and innovation hub in Africa, backed by its advanced data and infrastructure capabilities. From 2019 to 2024, telecom companies have invested USD 11.45 billion to develop fiber optic networks and data centers, enhancing connectivity and driving the growth of the digital economy[2]. Key applications are emerging in industries such as healthcare, finance, and energy, with government and private sector initiatives focused on fostering a thriving ecosystem.

TELECOMS: South Africa has established itself as a leader in telecommunications on the continent, partly driven by government support. However, private sector interest plays a key role. For example, MTN South Africa has a strategic collaboration with China Telecom and Huawei to enhance offerings in 5G, cloud services, AI, and cloud-based business solutions[3,4].

CLOUD SERVICES: The demand for AI and faster computing capabilities has resulted in a growth in cloud services. Huawei Cloud, for instance, has grown more than 16 times since establishing a local data center in 2019[5]. Cloud computing services are hosted within colocation data centers, with all major cloud operators, including AWS, Microsoft Azure, and Google Cloud, relying on these facilities[6].

R&D: South Africa leads AI research in financial services on the continent, with 94 publications, surpassing Nigeria and Tunisia[7]. The country is also home to the AI Africa Consortium and the Wits MIND Institute, both dedicated to advancing AI research and policy development. The Center for High-Performance Computing (CHPC) supports AI innovation by providing state-of-the-art computing infrastructure for data-intensive research[8].

Key initiatives

The Department of Communications and Digital Technologies (DoCDT) published the National Artificial Intelligence Policy Framework in August 2024 to guide the ethical and responsible use of AI[9].

The Artificial Intelligence Institute of South Africa, a collaboration between the DoCDT, the University of Johannesburg, and the Tshwane University of Technology, aims to advance AI research and innovation[10].

Plans are under way to develop up to 300 AI start-ups and train 5,000 AI experts by 2030 to build a thriving AI ecosystem[2].

$1.2B

Is South Africa's projected AI market size by 2025[11]

$3.7B

Targeted investment in AI forecast by 2030[12]

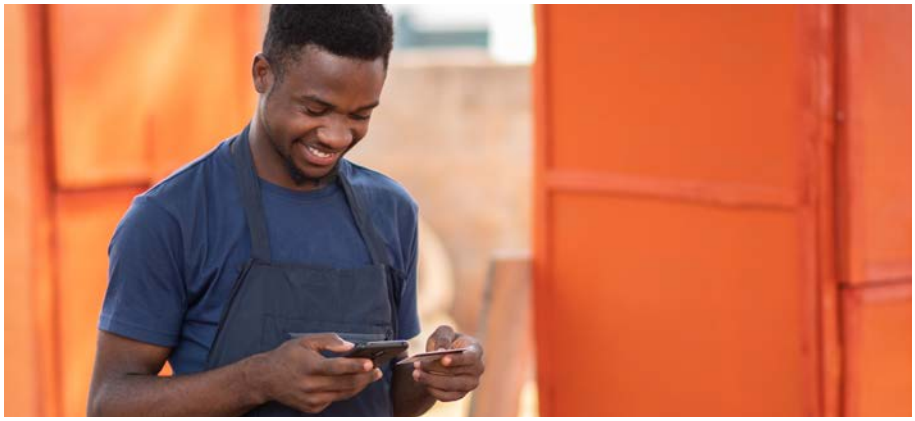
$610M

VC investments in AI in 2023[13]

1. Oxford Insights. Government AI Readiness Index 2024. December 2024; 2. International Trade Administration. South Africa commercial guide. Accessed February 06, 2025; 3. GSMA. AI for Africa: Use cases delivering impact South Africa deep dive. August 2024; 4. Reuters. S.Africa's MTN teams up with China Telecom, Huawei on 5G, AI. November 26, 2024; 5. Reuters. Huawei Cloud sees fast business growth in South Africa. October 24, 2024; 6. DCByte. Africa's key data centre markets: South Africa, Nigeria, Kenya, Egypt, and Morocco. 2023; 7. Moela, N., Matlala, L., Ma, J., Maphutha, D., & Twinomurinzi, H. Trends from 20 years of artificial intelligence in financial services in Africa. DigitalCommons@Kennesaw State University. September 13, 2024; 8. The Centre for High Performance Computing. About the CHPC. Accessed February 06, 2025; 9. Communications & Digital Technologies Department. South Africa National Artificial Intelligence Policy Framework. August 2024; 10. Republic of South Africa. Minister Khumbudzo Ntshavheni launches Artificial Intelligence Institute of South Africa and AI hubs. November 30, 2022; 11. Statista. Artificial intelligence – South Africa. March 2024; 12. International Trade Administration. South Africa information technology country launches draft national AI strategy. Accessed February 06, 2025; 13. OECD.AI (2025) Policy Observatory. AI in South Africa. Accessed February 06, 2025.

Advances in AI innovation across sectors

#9 in Africa on the GAR Index 2024 | **#7 on the Government pillar** | **#19 on the Technology pillar** | **#27 on the Data & Infrastructure pillar[1]**



Nigeria is advancing as a hub for AI and innovation across sectors including payments, security, hospital management, agriculture, and travel. The government's proactive approach, combined with private-sector innovation, suggests promising growth in AI applications. The private sector is playing a crucial role. For instance, a NGN 2.8 billion grant from Google.org to Data Science Nigeria aims to boost AI talent development, focusing on upskilling youth and the unemployed[2].

FINANCIAL SERVICES: The finance industry is increasingly integrating AI to improve operational efficiency. As of February 2024, 13 Deposit Money Banks in Nigeria had incorporated AI-powered chatbots into their services, streamlining customer interactions and support[3]. AI-based systems also analyze vast data sets, identifying complex patterns and anomalies indicative of fraudulent behavior[4]. Robo-advisory services, which provide automated, algorithm-driven financial planning, are gaining traction. The Nigeria Securities and Exchange Commission issued the Robo Advisory Services Rules in 2023 to regulate this sector[5].

AGRICULTURE: AI is transforming the agricultural sector by helping farmers with supply chain management and real-time monitoring and forecasting to support food security[3]. Crop2Cash, for example, introduced FarmAdvice, a toll-free hotline that provides farmers expert guidance in local languages[6].

INNOVATION ECONOMY: The entrepreneurial sector in Nigeria is experiencing rapid growth. In July 2024, Logidoo, a Pan-African logistics start-up, received a USD 50,000 grant to develop and promote AI solutions tailored for Africa's logistics market[7]. Firms like Kitovu Technology Company use AI and data-driven agronomic advisory services to reduce costs and increase yields from agriculture[8].

Key initiatives

The National Centre for AI and Robotics (NCAIR) has been established to drive AI R&D[9].

The 2024 National Artificial Intelligence Strategy (NAIS) outlines the country's vision to become a global leader in AI[10].

NCAIR's NGN 100 million AI Fund in collaboration with Google aims to support 10 Nigerian start-ups integrating AI into their products[11].

The Nigeria Artificial Intelligence Research Scheme (NAIRS) promotes development of AI research[12].

$1.4B

Is Nigeria's projected AI market size by 2025[13]

70%

Of Nigerians use generative AI[14]

$218M

VC investments in AI in 2023[15]

1. Oxford Insights. Government AI Readiness Index 2024. December 2024; 2. Federal Ministry of Communications, Innovation & Digital Economy. Ministry announce N2.8billion Google support to advance AI talent development in Nigeria. October 31, 2024; 3. Oloni, V. The future of work: AI's impact on Nigeria's job market. verivAfrica. February 03, 2025; 4. Ayodeji, I. A. Fraud detection and prevention in the Nigerian financial industry. Walden Dissertations and Doctoral Studies Collection. November 11, 2024; 5. Securities and Exchange Commission Nigeria. Rule on robo-service advisory services. Accessed February 06, 2025; 6. The Borgen Project. The impact of AI on agriculture in Kenya and Nigeria. Accessed February 06, 2025; 7. Ekhator, O. Logistics start-up Logidoo secures $50,000 to build AI-powered solution. Techpoint.africa. July 17, 2024; 8. Agwaibor, S. Exploring AI-driven solutions for African agriculture. techcabal Insights. April 10, 2024; 9. The National Center for Artificial Intelligence and Robotics. Accessed February 06, 2025; 10. The National Center for Artificial Intelligence and Robotics. National artificial intelligence strategy. August 2024; 11. The National Center for Artificial Intelligence and Robotics. AI fund in collaboration with Google. Accessed February 06, 2025; 12. Nigeria Artificial Intelligence. Accessed February 06, 2025; 13. Statista. Artificial intelligence – Nigeria. March 2024; 14. Umeh, J. Nigeria surpasses global average with 70% AI adoption rate – Report. Vanguard. January 14, 2025; 15. OECD.AI (2025) Policy Observatory. AI in Nigeria. Accessed February 06, 2025.

Recommendations

DIGITAL INFRASTRUCTURE: Investment in connectivity and cloud infrastructure across Africa has the potential to include more rural and underserved areas into the digital economy to reap the benefits of advances like telemedicine, online education, and digital financial services.

DIGITAL & FINANCIAL LITERACY: Strengthening digital and financial literacy empowers individuals and businesses to safely engage with new financial technologies while reducing the risk of cyber threats and fraud, ensuring that vulnerable groups are not left behind.

HOMEGROWN INNOVATION: Africa's linguistic and cultural diversity requires tailored approaches to the development of solutions uniquely suited to African contexts. Prioritizing local innovation places helps communities develop AI tools that reflect their realities and needs.

FOCUS ON KEY SECTORS: Direct AI investments into transformative sectors like agriculture, healthcare, energy, and education can directly improve food security, healthcare access, sustainable energy systems, and broaden opportunities.

BALANCED AI POLICIES: Comprehensive and balanced AI policies guided by ethical principles that align technology development with human rights and local values will foster trust, accountability, and transparency, ensuring communities benefit without compromising security.

INCLUSIVE COLLABORATION: Active partnerships between governments, private enterprises, and local grassroots organizations help ensure that AI-driven projects are informed by diverse perspectives and enjoy sustained support from stakeholders at every level.

DATA ECOSYSTEMS: Stronger local data ecosystems and established processes to collect, manage, and responsibly share high-quality data sets that harness Africa's remarkable diversity can make such data more valuable to reflect African realities and empowering decision-makers with contextually meaningful insights.

AI TALENT AND EDUCATION: Investment in local education and talent development programs can nurture homegrown talent, build a skilled workforce equipped to address the continent's specific challenges and opportunities, and ensure that communities are prepared to embrace new technological shifts.

CROSS-BORDER PAYMENTS: Accelerated development of AI-integrated cross-border payment systems can improve regional trade and economic integration, lower transaction barriers that impact small businesses and informal traders, bridge financial inclusion gaps, and empowering millions of previously unbanked individuals.

CELEBRATING SUCCESS: Amplifying the success stories of entrepreneurs and researchers can create relatable role models that inspire broader adoption and innovation, empower local talent, and resolve continent-specific perception challenges, and drive meaningful global participation.

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Authorship

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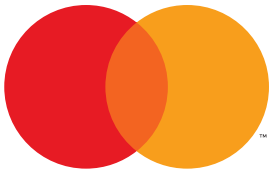

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