

Leading, not lagging: Africa's gen AI opportunity

Gen AI is set to create significant value across sectors, and Africa has an opportunity to leapfrog other regions to capitalize on this transformative technology.

*by Mayowa Kuyoro and Umar Bagus
with Anass Benshrir and Ziyaad Bobat*



The rapid rise of gen AI has captured the world's imagination and accelerated the integration of AI into the global economy and the lives of people across the world. Gen AI heralds a step change in productivity. As institutions apply AI in novel ways, beyond the advanced analytics and machine learning (ML) applications of the past ten years, the global economy could increase significantly, improving the lives and livelihoods of millions.¹

Nowhere is this truer than in Africa, a continent that has already demonstrated its ability to use technology to leapfrog traditional development pathways; for example, mobile technology overcoming the fixed-line internet gap, mobile payments in Kenya, and numerous African institutions making the leap to cloud faster than their peers in developed markets.² Africa has been quick on the uptake with gen AI, too, with many unique and ingenious applications and deployments well underway.

Across McKinsey's client service work in Africa, many institutions have tested and deployed AI solutions. Our research has found that more than 40 percent of institutions have either started to experiment with gen AI or have already implemented significant solutions (see sidebar "About the research inputs"). However, the continent has so far only scratched the surface of what is possible, with both AI and gen AI. If institutions can address barriers and focus on building for scale, our analysis suggests African economies could unlock up to \$100 billion in annual economic value across multiple sectors from gen AI alone. That is in addition to the still-untapped potential from traditional AI and ML in many sectors today—the combined traditional AI and gen AI total is more than double what gen AI can unlock on its own, with traditional AI making up at least 60 percent of the value.

¹ "The economic potential of generative AI: The next productivity frontier," McKinsey, June 14, 2023.

² Sven Blumberg, Jean-Claude Gelle, and Isabelle Tamburro, "Africa's leap ahead into cloud: Opportunities and barriers," McKinsey, January 18, 2024.

About the research inputs

To understand how organizations across Africa are reacting to the rise of gen AI, we collated inputs from 126 C-suite executives at McKinsey's Africa Digital Summits in Johannesburg and Cape Town on September 3 and 5, 2024, respectively; more than 60 C-suite executives from across the continent who attended CIO roundtables in Egypt and Morocco; and the 2024 McKinsey State of AI Africa survey of 263 executives and managers from organizations across Côte d'Ivoire, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, Rwanda, and South Africa. Roughly 80 percent of the inputs were from the private sector.

The sizing of the economic potential for gen AI in Africa was based on the methodology developed by the McKinsey Global Institute featured in the report *The economic potential of generative AI: The next productivity frontier*. The methodology was adjusted for unique considerations on the African continent and on-the-ground implementation experience with African institutions.

Africa is ready to unlock growth and productivity from gen AI

Analytical AI is already indispensable in several industries, with ML solutions solving analytical tasks such as classifying, predicting, clustering, or evaluating data faster and more effectively than humans. Now, with gen AI's broad utility and revolutionary ability to convincingly mimic the human ability to create, including writing text, producing digital art, and composing music, the excitement about the potential of the technology has surged globally and the economic impact is expected to be substantial. McKinsey estimates that gen AI could add \$2.6 trillion to \$4.4 trillion to the global economy annually across 63 use cases analyzed.³

The application of gen AI and AI more broadly already has significant momentum in Africa, and African institutions are rapidly catching up with, and in some cases leading, global developments. Businesses and governments are incorporating gen AI in their technology strategies, and many are using it to solve some of Africa's most pressing problems in novel ways. For example, across Africa, AI-driven translation services for local languages that are underrepresented on the internet, such as Amharic, are being used to improve cross-cultural communication, increase access to information, and enhance social cohesion.⁴ In Kenya, gen AI is being used to create personalized learning pathways for students, with the goal of improving academic performance, increasing engagement, and providing tailored educational experiences.⁵ In South Africa, a local start-up is using proprietary AI models and tools, including GPT-4, to help small-business owners better understand their finances and automate

the production of easily understandable reports and dashboards.⁶

Although many gen AI applications in Africa tend to be in the experimental or developmental phase, several organizations have already successfully implemented AI and gen AI at scale and fully transformed workflows. For example, in Nigeria, a mobile telecommunications provider has been scaling a chatbot that functions as a digital assistant to improve customer experience. It can answer questions, provide personalized recommendations and 24/7 access to information, and help customers activate products or services, check their balances, and buy airtime. In South Africa, several financial services providers have been hyperpersonalizing their outbound sales campaigns and significantly cutting down internal time to market using gen AI.

Gen AI adoption still differs significantly by sector, with more-digitally-mature sectors, such as technology, telecommunications, and financial services, having the highest levels of AI and gen AI adoption. Common gen AI use cases in these sectors are already going beyond simply distributing copilot licenses to employees to intentionally boosting productivity and improving customer and employee experience. However, relatively few organizations have implemented software engineering use cases at scale throughout the software development life cycle, let alone tested agentic AI with autonomous agents.⁷ Significant value, therefore, remains to be tapped. We estimate that at-scale deployment of gen AI could unlock \$61 billion to \$103 billion of additional economic value across Africa and across sectors (Exhibit 1).

³ "The economic potential of generative AI: The next productivity frontier," McKinsey, June 14, 2023.

⁴ Bukola Adebayo, Nita Bhalla, and Kim Harrisberg, "From Swahili to Zulu, African techies develop AI language tools," CNBC Africa, June 18, 2024.

⁵ Audrey Matere, "Effectiveness of artificial intelligence tools in teaching and learning in higher education institutions in Kenya," *Journal of the Kenya National Commission for UNESCO*, December 29, 2024.

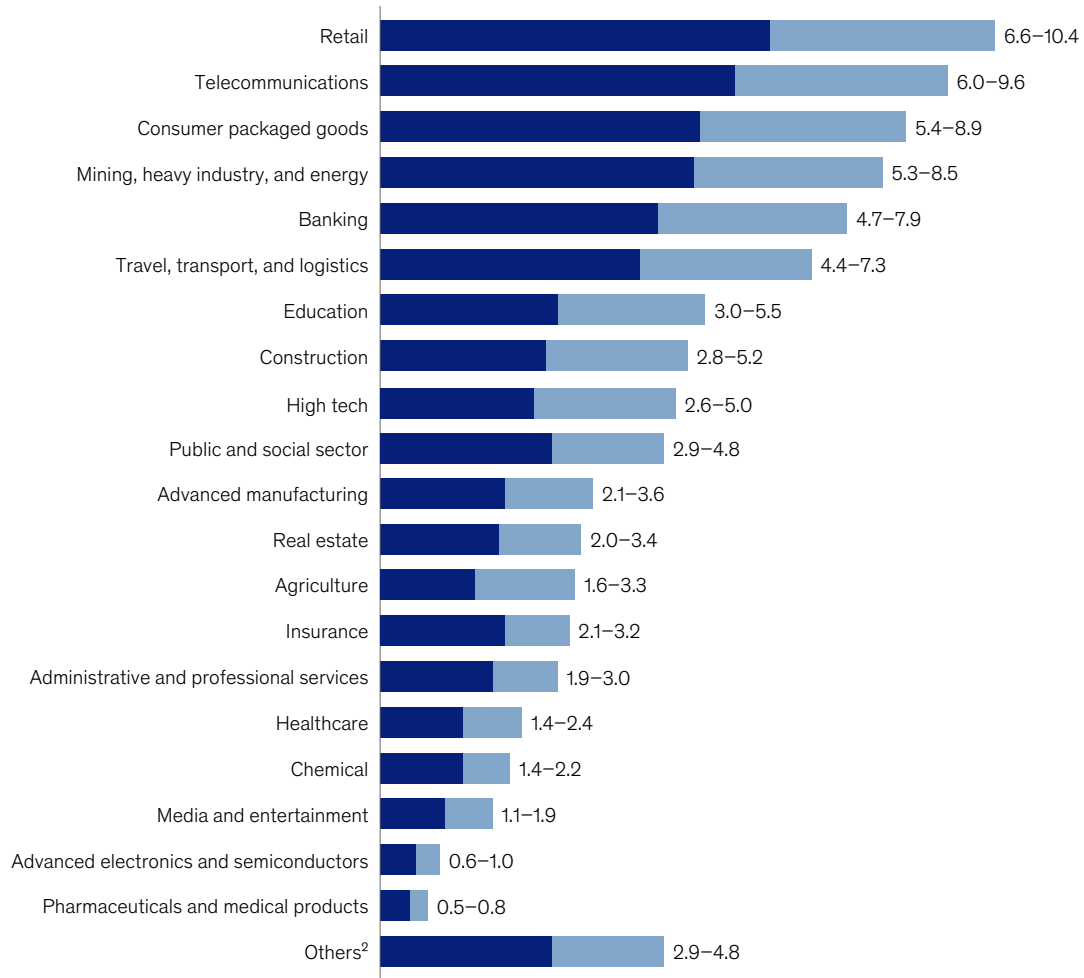
⁶ Sylvia Durson "South African startup FinanceGPT aims to simplify financial analysis in local languages," Tech in Africa, September 23, 2023.

⁷ Agentic AI refers to AI software designed to operate with a high degree of autonomy, enabling it to make choices and execute tasks independently of human direction.

Exhibit 1

Gen AI could unlock \$61 billion to \$103 billion of economic value across sectors in Africa.

Gen AI productivity impact by sector,¹ \$ billion (range)



¹Impact represents estimated total surplus from gen AI—economic gains to both producers (eg, profit, savings) and consumers (eg, lower prices, better products).

²Includes manufacturing of items not classified under the rest of the categories.

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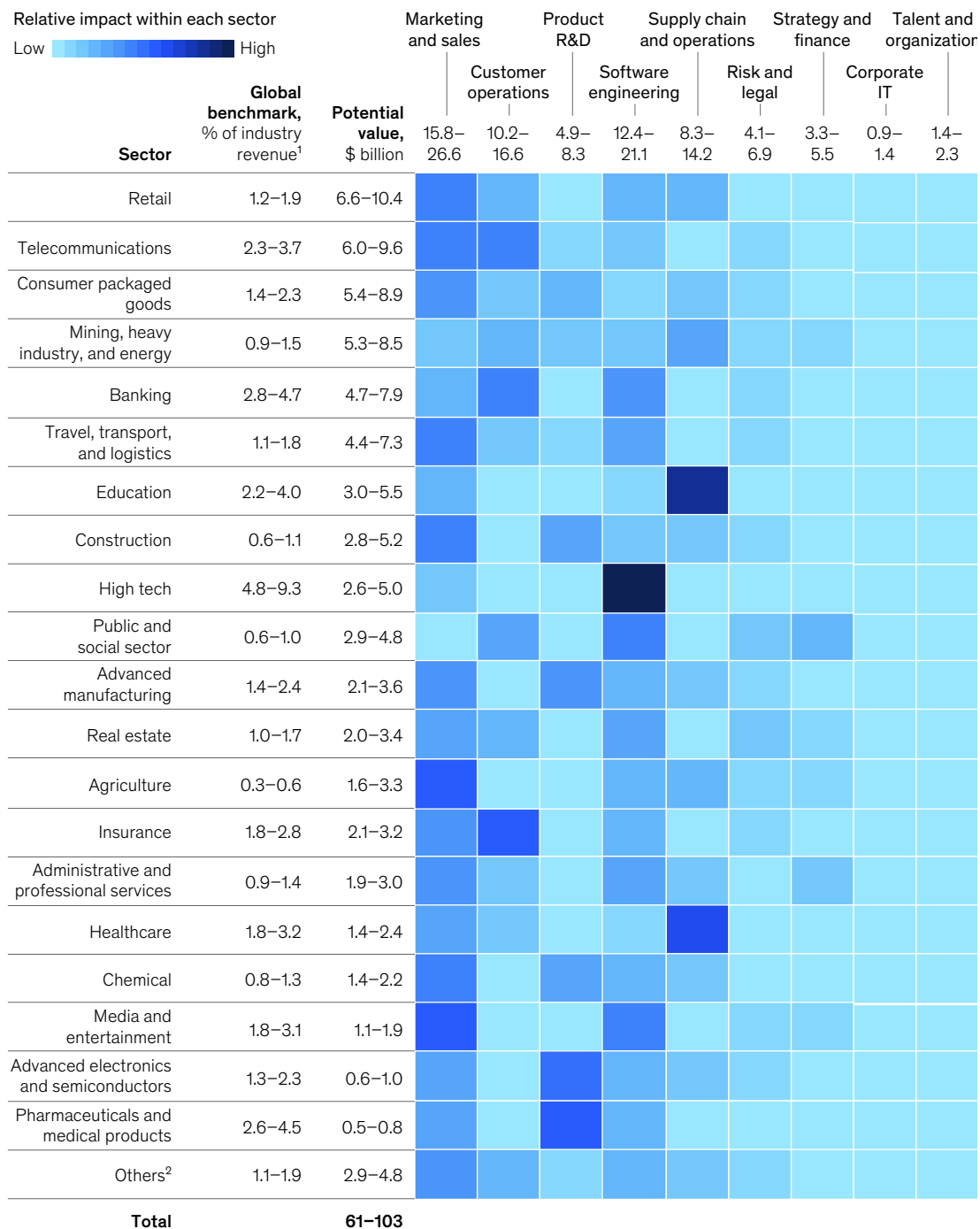
The magnitude of gen AI's impact is likely to differ by sector and function (Exhibit 2). For example, in retail and consumer packaged goods, it is expected to be strongest in marketing and sales, while in banking and the public sector, its largest impact will likely be in customer operations and software

engineering. In insurance, gen AI's largest impact is expected in customer operations, and the telecommunications sector also expects a large impact in this area, as well as in marketing and sales.

Exhibit 2

Gen AI will have different impact across functions and industries.

Gen AI productivity impact by business function (relative within each sector)



Note: Figures may not sum to total, because of rounding.

¹Based on the methodology developed for "The economic potential of generative AI: The next productivity frontier," McKinsey, June 14, 2023; the methodology was adjusted for unique considerations on the African continent and on-the-ground implementation experience with African institutions.

²Includes manufacturing of items not classified under the rest of the categories.

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African front-runners are showing us how it's done but are still just scratching the surface

More than half of the economic potential from gen AI in Africa is concentrated in sectors where there are already front-runners: banking; retail; consumer packaged goods (CPG); telecommunications; insurance; mining, heavy industry, and energy; and the public sector (including healthcare). In each of these seven sectors, there are organizations that are doing pioneering work in advancing the application of gen AI in their industry. However, these use cases represent just the tip of the value iceberg. Below, we explore noteworthy developments and opportunities for fully scaling the impact of gen AI in these seven sectors.

1. Banking opportunity: From idea to impact

Around the world, the banking industry's unique access to large amounts of customer data has created fertile ground for a range of innovative AI use cases along the entire banking value chain. Access to this data allows the sector to glean valuable insights into customer behavior and preferences, positioning it to leverage AI, including gen AI, to improve critical functions, such as customer service, credit risk, and fraud detection.

Several banks in Africa have started to seek productivity gains through gen AI by distributing copilot licenses to employees in customer service, risk, and IT. Some are going much further. For example, a number of sub-Saharan banks are using gen AI to hyperpersonalize outbound sales campaigns to replace generic marketing messages (copy) and cut down on time to market and lengthy review processes.

One bank has turned to large language model (LLM) agents to simulate a conversation between the copywriter and the customer to generate the best possible copy for individual customers. Data scientists were upskilled in copywriting and collaborated with risk, legal, compliance, and marketing to ensure the models could produce the right content and generate reports

to show that the copy satisfied all requirements. A microsegmentation approach captured key client value propositions for each segment, and personalized content was balanced with human review of all copy. The result was an improvement in campaign effectiveness and especially efficiency.

Other banks are unlocking value in the risk and credit functions. For example, an Egyptian bank is using gen AI to automate the drafting of credit memos for large and midsize lending cases. A South African retail bank is using AI across the risk value chain for risk identification and assessment, document vetting, decision-making, and monitoring, making it possible to address regulatory requirements faster and more accurately. Another pan-African bank is even using gen AI to document and understand dependencies in legacy code from the 1970s, and is testing its use in application migration across programming languages and systems.

Up to \$7.9 billion opportunity for African banks

Most African banks, however, have yet to move their gen AI use cases beyond the proof-of-concept stage. Our analysis indicates that deployment of gen AI across the banking value chain (Table 1) could help unlock \$4.7 billion to \$7.9 billion in economic value for African banks.

For example, in marketing and sales, relationship managers (RMs) and frontline agents can use gen AI tools to better engage customers with more personalization and appropriate-tone-of-voice prompts, while corporate and mid-cap RMs can use it to automate account plans. In operations, there are opportunities to automate and enable customer service activities and related back- and middle-office services. There are also opportunities in risk, legal, and support functions, such as human resources.

In technology, promising use cases lie across the full software development life cycle, from customer or business needs and thoughtful prompts in natural language to requirements (epics, user stories, acceptance criteria) to

contextual user interface (UI) designs, user experience (UX), and architecture to draft code and test cases. We've named this opportunity "idea to impact," which signifies more than a tool but rather a complete technology and business operating model shift.

To move beyond the proof-of-concept stage and embrace this shift, banks could focus on fully unlocking the value in one or two domains through at-scale deployment, including implementing new workflows to drive adoption.

Table 1

Gen AI provides significant benefits along the banking value chain.

Illustrative and nonexhaustive

Marketing and sales		
Personalized campaigns Hyperpersonalized copy production for cross-selling, up-selling, and new customers	Personalized interactions Hyperpersonalized prompts (eg, scripts, copilots, emails, texts) for relationship managers and frontline agents (branches, call centers, chatbots) with embedded next-best-action recommendations on products, timing, channel	Account planning for relationship managers Automated (draft) account plans for corporate and mid-cap clients
Customer service and operations		
Self-service support bot Offer a 24/7 support bot with proprietary technical knowledge, customer interactions, and live feeds of client data	AI servicing assistant Similar to a self-service bot but a copilot or coach for frontline servicing agents (live or post-call), extendable to email automation, quality assurance, and back-office support	
Technology		
Legacy-code management Product code documentation, dependency maps, change generation, and potential migration to modern stacks	Software development life cycle (idea to impact) Speed up development with gen AI across the end-to-end software development life cycle, from requirements (epics, user stories, acceptance criteria) to design (UI, UX, architecture) to code and test cases	IT help desk First-line IT help desk support
Risk, legal, and other		
Virtual risk expertise Access the latest public regulations across markets, internal processes, and compliance documents	Suspicious activity reports (SARs) Draft SARs on customer and transaction information into a specific format and structure	HR automation Help desk, job-profile drafting, function-specific interview questions, and personalized recruitment content

2. Retail opportunity: An AI-guided shopping experience

Across the world, the adoption of gen AI stands to enhance the entire consumer-facing retail value chain. The use of gen AI and AI broadly is optimizing the design of market research and customer experience and has the potential to ensure that the right product offers reach the right customers at optimal times, boosting customer satisfaction and sales efficiency. Additionally, gen AI can enhance customer experience by, for example, improving in-store operations and customer service and optimizing store design.

Many African retailers are unleashing AI across their operations. But even with analytical AI, there is still a lot of value on the table, especially in such core areas as pricing, promotions, and assortment. Some are, however, experimenting with gen AI beyond traditional areas. Prominent retailers with a well-established physical presence across the region have expanded into the online market and are reimagining the shopping experience with gen AI–powered conversational bots that act as personal shopping assistants.

Online retail has grown rapidly in Africa and is expected to increase even further, with Chinese and American digital disruptors entering the market. In this dynamic space, both grocery and apparel retailers are finding that gen AI–enabled conversational and personalized experiences are

key drivers of success. These smart-shopping assistants have significantly improved several key metrics of the online shopping experience, including time to check out and user effort, by more than 50 percent by reducing screens and clicks, and they have the potential to improve basket size and online adoption.⁸

Up to \$10.4 billion in potential value for African retailers

The race is on between digital disruptors and incumbent offline retailers going digital, and gen AI can be a key differentiator. Our analysis suggests that gen AI could unlock \$6.6 billion to \$10.4 billion of economic value in Africa's consumer-facing retail sector, with opportunities across the value chain (Table 2).

Opportunities include next-gen customer shopping experiences, generating marketing content, hyperpersonalized sales campaigns, and enriched customer insights. They also extend to store operations, layouts, and in-store experience; commercial support in making decisions about merchandising and suppliers; and across the software development life cycle. There are, however, significant challenges, including poorly integrated data sources and a lack of reliable data; complex supply chains, which can lead to inefficiencies and higher operational costs; and Africa's diverse and fragmented markets, which make it challenging to implement uniform platforms.

⁸ "LLM to ROI: How to scale gen AI in retail," McKinsey, August 5, 2024.

Table 2

Gen AI provides significant opportunities along the retail value chain.

Illustrative and nonexhaustive

Marketing and sales			
Next-gen customer experience A 24/7 virtual agent helps customers plan for shopping occasions, acts as shopping assistant for item selection, provides 3D product modeling, and offers post-purchase support	Generation of marketing content Engineer brand/marketing content prompts taking in low-fidelity inputs and generating high-fidelity content (eg, copywriting, visuals) across multimedia formats (eg, video, audio)	Hyperpersonalized sales campaigns Create personalized marketing content with appropriate language and tone, across formats (eg, email, messaging, images, videos), based on segmentation, individual profiles, and omnichannel data	Enriched customer insights From large-scale unstructured data, generate insights on consumption occasions, trends, and customer views on specific products to inform assortment mix and promotion strategies
Store operations and experience			
Store layout Innovate planning by converting unstructured inputs (eg, text description, design drafts, layout plans, sales data, customer segmentation) to 3D layout plans		In-store assistant A gen AI chatbot interacting with store employees can answer customer queries and communicate store policies	
Commercial and merchandising			
Commercial support Retrieve internal and external data on assortment, pricing, and promotions strategy, including SKU historical data, to accelerate decision-making	Supplier selection Assist supplier scouting with supplier profiles based on preferred criteria (eg, pricing, geographic location, customer reviews) and industry benchmarks		Product-attribute generation Enrich product-attribute data by adding parameters, such as color and function, that are not available in a structured form
Technology and support functions			
Software development life cycle (idea to impact) Speed up development with gen AI across the end-to-end software development life cycle, from requirements (epics, user stories, acceptance criteria) to design (UI, UX, architecture) to code and test cases			Receivables Assist debt collection through personalized client communications, including automated client outreach

3. CPG opportunity: Faster and deeper insights with streamlined processes

Gen AI has significant potential to enhance the entire CPG value chain. Certain areas, such as procurement, are especially well positioned to leverage it for efficiency and cost savings through real-time vendor analysis, cost benchmarking, and predictive modeling. It could also support decision-making by providing data on assortment, for example, and suggesting possible strategic recommendations. Additional use cases could include accelerating the product pipeline by minimizing the time and cost involved in ideation and design iteration while also optimizing operations and managing supply chains. It can also provide enhanced insight into the manufacturing process, aid in optimizing production costs, and support negotiations through automatic cleansheeting.

Multinational CPG companies in Africa are already using gen AI to engage consumers with creative content and personalization. One food and beverage company is deploying AI across the supply chain to optimize operations

in real time and to fuel data-driven decision-making with digital twins. African CPG players, however, have yet to fully exploit their analytical AI opportunities, which moves the gen AI discussion a bit further out of reach.

Up to \$8.9 billion potential value for CPG players in Africa

For African CPG players, gen AI opportunities are substantive (Table 3). But to fully realize the potential \$5.4 billion to \$8.9 billion in economic value at stake across the value chain, they will need to overcome several challenges. The sector is experiencing rising supply-chain costs due to poor infrastructure and logistical inefficiencies. Market insights are limited due to fragmented data sources and a shortage of analytics tools. Compliance in the sector is complex, partly due to a fragmented regulatory environment. Finally, the sector's limited AI expertise and gaps in its AI capabilities hinder even basic implementation of gen AI and analytical AI.

Table 3

Gen AI provides significant benefits along the CPG value chain.

Illustrative and nonexhaustive

Product development		
Research assistance Automated extraction of insights from unstructured feedback to expedite user testing and retrofitting	Innovation and design Faster concept development through text-to-text (eg, customer sentiment) and text-to-image gen AI (eg, engineered text, rooted in user vocabulary, to generate product images and experience concepts)	
Procurement		
Assisted vendor negotiations and category management Transform strategic sourcing based on real-time market and category intelligence, including market insights and supplier news, automated category insights, and negotiation preparation	Automated cleansheets Automatically determine and update the fair price from different suppliers for all inputs, using data on the market environment	
Manufacturing		
Line maintenance Predicting potential failures and maintenance needs by analyzing data from sensors, historical work orders, and environmental factors	Demand planning Track real-time changes (eg, raw material prices, market trends) and analyze weak signals to define short- and mid-term supply-demand	
Supply chain		
Vehicle tracking Simulate multiple what-if scenarios by modifying inputs and studying overall impact of decisions: Will shipments be safe, on time, etc?	Temperature monitoring and control Use combination of IoT and gen AI to predict maintenance and minimize risk of failure of equipment	
Marketing and sales		
Gen AI copilot Automated and data-rich human insights generation and content creation from unstructured data, as well as predicting future consumer needs and preferences	Hyperpersonalized marketing Personalization of marketing campaigns and automation of campaign management	Revenue growth management of the future Internal virtual assistant to support strategic decisions on assortment, pricing, promotions

4. Telecommunications opportunity: Enhancing servicing productivity and boosting customer satisfaction

Africa's telecommunications sector is poised for growth as demand for connectivity and data services increases.⁹ This environment creates fertile ground for leveraging gen AI to drive innovation and improve service delivery.

Globally, telco operators have shown a measured interest in AI, primarily using it for basic applications, such as customer-service chatbots and predictive maintenance for network infrastructure. However, African providers are pushing the technology to explore more ambitious applications, including using advanced chatbots to manage more-complex customer interactions or provide advanced decision support, and optimizing network performance to manage resources more efficiently.

For example, one West African telco is using a range of AI tools, including gen AI, to improve call-center productivity and customer satisfaction by helping employees resolve customer issues faster and to a higher standard. The volume of inquiries in the industry is significant and ranges from routine, frequently asked questions and policy inquiries to complex requests requiring employees to search manually through multiple information sources for a

proper response. This telco's gen AI solution plugs into the company's existing systems—including customer relationship management (CRM) systems, knowledge databases, and user manuals (which had to be refreshed)—to enable employees to provide accurate real-time information quickly. As a result, both time to resolution and customer satisfaction have improved. Additionally, the chatbot serves as a resource for new employees, offering answers to common questions and help in onboarding and continuous learning.

Up to \$9.6 billion potential value for African telco operators

Such cutting-edge applications are showcasing the transformative potential of gen AI in reshaping the telco landscape across the African continent. Our analysis suggests that at-scale deployment of gen AI with telcos in Africa can unlock \$6.0 billion to \$9.6 billion in economic value. The prime opportunities lie in boosting both B2B and B2C marketing and sales with copilots, automated outreach and personalization, improved identification and resolution of network issues through gen AI-enabled experience measurement and ticket resolution, and enhanced customer service and operations to drive both efficiency and customer satisfaction (Table 4).

⁹ *The mobile economy sub-Saharan Africa 2024*, GSMA & GSMA Intelligence, 2024.

Table 4

Gen AI provides significant benefits along the telco value chain.

Illustrative and nonexhaustive

B2B marketing and sales	
Negotiation copilot Customized customer negotiation copilot with gen AI to enhance customer experience and boost sales performance	Automated outreach communication Automated creation of outreach communications (eg, emails and landing pages)
B2C marketing and sales	
Hyperpersonalized communications Personalized campaigns and product offerings based on customer profiles	Commercial enhancement Next-best-action recommendations and copilot for store employees
Network	
Network ticket-resolution engine Automated incident resolution based on similar past incidents and their resolutions	Network experience measurement Implement customer network experience to transform wireless network experience measurement on a daily basis with daily scores for phones, tablets, smart devices, etc
Technology	
Legacy-code management Product code documentation, dependency maps, change generation, and potential migration to modern stacks	Software development life cycle (idea to impact) Speed up development with gen AI across the end-to-end software development life cycle, from requirements (epics, user stories, acceptance criteria) to design (UI, UX, architecture) to code and test cases
Customer service and operations	
Call summarization Gen AI-enabled call summarization allows for more accurate categorization, with possible additional actions, such as sentiment analysis, quality monitoring, and call routing	Gen AI chatbot on landing page Online gen AI text assistant on landing page that recommends products according to customer needs, and answers customer sales and product questions

5. Insurance opportunity: Personalizing customer experience and unlocking operational efficiency

Globally, the insurance sector has been something of a pioneer in the use of AI to improve predictive capabilities, notably in areas such as leads management and distribution, pricing, claims management, and fraud detection, where technology can be deployed to perform specific tasks or solve particular problems.¹⁰ However, few insurers globally are using gen AI extensively, in large part because of risks that are difficult to control but also because they have not yet fully scaled even analytical AI efforts. The most common use cases to date for gen AI in insurance have been for copilots to assist employees with routine and knowledge-based tasks.

In South Africa, a different picture is emerging. The South African insurance market, often a reference point even for developed markets in terms of penetration and innovation, is pursuing wider and at-scale applications of gen AI. Emerging innovations range from voice bots and enablement in call centers and claims functions to personalized outbound sales campaigns and at-scale hyperpersonalized customer engagement through agents and direct-to-client outreach. For example, one South African life insurer is combining gen AI with behavioral science to equip financial advisers with personalized advice content to engage clients and drive cross-selling, retention, and overall financial well-being. To date, this is one of the most sophisticated deployments of gen AI in insurance globally.

Life insurers typically have low customer engagement compared with other customer-facing industries, which makes it challenging to get in front of customers to update information, create stickiness, and increase share of wallet. The same insurer built a solution using developed

insurers' most common existing analytical AI models (leads engines, next-best-product and next-best-action solutions, underwriting tools, and lapse propensity) by adding solutions mastered by teledirect insurers (optimal channel, day of the week, time of day, and tone of voice) and built a "language" and engagement layer to generate output across different media (text, in-app, email, call-center scripts, and adviser tools). The trickiest part was to avoid crossing the line into automated financial advice; with the "agent in the loop," this is controlled. However, checking for bias, hallucination, regulatory compliance, and appropriate style was still a critical part of the development.

Another insurer in South Africa is using gen AI similarly to develop personalized and gamified educational content to help with self-led financial planning. Moreover, a number of South African life and nonlife insurers are using gen AI to automate, enable, and standardize customer underwriting, servicing, and claims operations, even with complex cases.

Up to \$3.2 billion potential value for African insurers

African insurers are racing to improve both efficiency and customer satisfaction, and gen AI can play a key role. We estimate that gen AI could unlock around \$2.1 billion to \$3.2 billion in economic value for African insurers, with opportunities across the value chain (Table 5).

While the majority of current innovations are in South Africa, many other African insurance markets are growing and experimenting with gen AI, including Ghana, Kenya, Morocco, and Nigeria. To unlock the value potential, insurers can tackle the opportunities fully in one domain at a time—for example, customer engagement and sales, customer servicing and operations, or claims and fraud.

¹⁰ Ramnath Balasubramanian, Ari Libarikian, and Doug McElhaney, "Insurance 2030—The impact of AI on the future of insurance," McKinsey, March 12, 2021.

Table 5

Gen AI provides significant benefits along the insurance value chain.

Illustrative and nonexhaustive

Marketing and sales		
Personalized sales campaigns Hyperpersonalized copy production for cross-selling, up-selling, and new customers	Personalized interactions Hyperpersonalized prompts (scripts, copilots, emails, texts, etc) for advisers and frontline agents (branches, call centers, chatbots) with embedded next-best-action recommendations and advice	Virtual portfolio assistant Light guidance to build portfolios based on individual preferences and life stage, highlight risks, and suggest potential moves as markets shift
Underwriting		
Underwriting assistant Generate indicative decisions to support underwriter based on guidelines, prefilled forms, and multiple data sources	Complex underwriting Preparation of draft risk assessment and synthesis of submitted documentation; process, policy, and regulation coach; draft quote and policy generation	
Customer servicing and operations		
Self-service bot Offer a 24/7 support bot equipped with proprietary policy and technical knowledge, customer interactions, live client-data feeds, and the latest regulatory updates	AI servicing assistant Similar to a self-service bot but with a copilot or coach for frontline servicing agents, providing real-time or post-call assistance and suggestions in live conversations or emails; extendable to quality assurance and back-office support	
Claims		
Claims chatbot Provide policy holders/claim handlers access to a chatbot to check if their claims are covered for different policies	Claims copilot/customer steering Automate research/analysis of claims eligibility against policy treatment plans, etc; guide claims handlers through process, including fraud detection	
Technology, risk, and legal		
Legacy-code management Product code documentation, dependency maps, and potential migration to modern stacks	Software development life cycle (idea to impact) Speed up development with gen AI across the end-to-end software development life cycle, from requirements (epics, user stories, acceptance criteria) to design (UI, UX, architecture) to code and test cases	Virtual risk expert Query the latest public regulations across markets, internal processes, and compliance documents

6. Mining, heavy industry, and energy opportunity: Faster, better, safer

Globally, the mining, heavy industry, and energy sectors, including the oil and gas sector, already rely heavily on analytics and AI. Exploration, extraction, and operational efficiency exercises are backed by analysis of the large volumes of data at nearly every modern plant or mine, including years of data from sensor historians, failure modes and effects analysis (FMEA) databases, engineering reports, work orders, and maintenance logs. Meanwhile OEM manuals and troubleshooting guides fill dusty shelves in storage rooms.

Gen AI and AI more broadly add a layer of intelligence to any data, which can then be used to inform decision-making, potentially reducing long processes to a single question. This enables workers to gain new knowledge or capabilities.¹¹

To date, most mining, heavy industry, and energy companies have focused their gen AI efforts on off-the-shelf applications, such as copilots for administrative and support staff. Only a select few have launched scaled solutions such as gen AI–powered predictive maintenance, where traditional ML models identify likely failures and gen AI accelerates repairs by rapidly navigating FMEA libraries, providing repair guidance to artisans and generating requisitions, work orders, and summaries.

In Africa, the sector has started to test gen AI's boundaries. For example, a South African mining company has developed a gen AI–powered maintenance interface to support operators during daily work in the field. This company had a history of highly variable skill levels and maintenance quality across artisans and sites, leading to suboptimal overall equipment effectiveness and reduced productivity. Technicians also spent a significant portion of their time on nontechnical tasks, such as preparation, troubleshooting, and

looking for information in equipment manuals, reducing their productive time.

The new interface provides context-relevant best practices and guidance from equipment manuals, freeing up technicians to focus on “wrench time.” The interface also provides real-time assistance and learning to maintenance operators through tool suggestion, work-order identification, root-cause analysis, and troubleshooting support, leading to higher-quality maintenance. It is delivered on hardware suitable for field deployment (tablets and headsets) and uses voice-to-text to enable hands-free operation. Implementing the solution increased wrench time by up to 40 percent, resulting in increased productivity and reduced costs as well as better maintenance quality, consistency, and operator experience.

Up to \$8.5 billion in potential value for Africa's mining, heavy industry, and energy sectors

Existing applications of gen AI clearly demonstrate its potential to revolutionize Africa's mining, heavy industry, and energy sectors. Our analysis indicates that at-scale deployment of gen AI could achieve \$5.3 billion to \$8.5 billion in economic value by providing innovative solutions along the entire value chain (Table 6).

Key opportunities lie in streamlining and enhancing decision-making in production and operations through predictive maintenance, yield optimization, and copilots, as well as automating activities in procurement and equipping teams for better outcomes. Another key use case lies in enhancing safety and environmental awareness and action through risk mitigation, root-cause analysis, and compliance monitoring.¹² Within the energy sector, in transmission and distribution organizations specifically, the untapped opportunities are similar to those in telecommunications and banking.

¹¹ “Beyond the hype: New opportunities for gen AI in energy and materials,” McKinsey, February 5, 2024.

¹² *McKinsey Talks Operations Blog*, “Harnessing generative AI in manufacturing and supply chains,” blog entry by Jacob Achenbach, Kevin Arbeiter, Nick Mellors, and Rahum Shahani, March 25, 2024.

Table 6

Gen AI provides significant benefits along the mining, energy, and heavy industry value chains.

Illustrative and nonexhaustive

Production and operations			
Predictive maintenance Predict machine failure modes, incorporating previously unusable (unstructured) data, and automatically develop intervention plans	Production copilot Virtual coach (voice and text) that operators can query about best practices and troubleshooting; ingest extensive OEM manuals	Employee training Create employee training videos and maintenance troubleshooting role-plays; also write standard operating procedures and policies	Copilot for capital projects Analysis of unstructured capital projects data to provide expertise on best practices for capital projects
Yield-optimization plans Develop production plans based on available materials, equipment, and resources (on top of yield-optimization models)	Productivity-loss insights Tool that gives operators and supervisors condensed feedback on operational questions and performance	Fleet management AI assistant for yellow-plant equipment and complex machinery, based on sensor data, maintenance manuals, historical work orders, procedures, inventory, parts databases	(Mining) mineral deposits image generator Generate 3D images of potential mineral deposits
Procurement			
Request for proposal (RFP) generation Automatic rapid RFP generation and direct creation of smart market baskets, tied to pricing formulas and latest regional regulations	Negotiation copilot Improve negotiation strategy through automated suggestive script fact base	Contracting Prescreen, summarize, and extract clauses of interest across contracts; assess risks	
Commercial B2B			
Automated outreach communication Automatically create outreach communications (eg, emails, landing page, quotes)	Negotiation copilot Improve negotiation strategy through automated suggestive script fact base		
Energy commercial: Transmission and distribution (B2B2C or B2C)			
Disruption ticket-resolution engine Automation of incident resolutions based on similar past questions and their corresponding resolutions	Self-service bot 24/7 support bot equipped with proprietary knowledge, customer interactions, live client-data feeds	Servicing AI assistant Similar to a self-service bot but a copilot or coach for frontline servicing agents (live or post-call); also extendable to email automation	Debt collection (distribution) Automated reminders to clients and personalized scripts for collection agents
Safety and environment			
Risk mitigation Identify hazardous working conditions and notify key stakeholders about required precautionary measures	Root-cause analysis Extensive structured and unstructured scanning of data to automate root-cause analysis given risk and safety events	Environmental compliance Continuous monitoring across all available data sources to identify potential environmental compliance breaches; automatically develop intervention plans	

7. Public sector opportunity: Improving experience and service delivery for citizens, patients, and students and boosting productivity in entities

The public and social sectors in Africa face many challenges that hinder effectiveness and efficiency, including limited talent and training, understaffing, outdated technology and processes, infrastructure gaps and shortfalls, and operational inefficiencies often due to largely paper-based processes. Gen AI offers an opportunity not just to overcome many of these limitations but to revolutionize citizen services and healthcare and drive effectiveness and efficiency across all types of government departments and state-owned enterprises.

In North Africa and the Middle East, social security and tax authorities are already using gen AI tools to manage messages, queries, and submissions and even to recommend responses. Additionally, in-house tools are helping with queries about laws and regulations. Many African tax authorities have also been using ML solutions to estimate individual and business incomes to identify potential underreporting and fraud.

In public healthcare, the impact jump is particularly significant, especially in countries with high levels of poverty, inequality, and disease burdens and limited access to healthcare and medical personnel. For example, the South African Department of Health, as part of a multipartner program, has successfully tested AI solutions to enhance tuberculosis (TB) diagnosis, leading to faster turnaround times and higher accuracy rates.¹³ Patient scans were annotated and fed into the system, which generated reports indicating the likelihood of TB. The program screened 6,500 individuals in its first six months, identifying 187 TB cases that might otherwise have been missed.¹⁴ A similar program has been running in Uganda, using a digital X-ray packed into a 35-kilogram backpack and computer-aided-diagnosis AI software that does not require special

health workers to interpret chest images. Each equipped team can screen up to 150 patients a day, and 50,000 people have already been screened and 1,000 diagnosed.¹⁵

Up to \$4.8 billion in potential value across public sector entities

The economic value potential from deploying gen AI across public sector entities in Africa is substantial; we estimate it at \$2.9 billion to \$4.8 billion. However, the impact on citizen, patient, and learner experience is even more exciting. Examples of gen AI use cases can be found in citizen-facing functions, public health, and tax authorities, and also highlight productivity potential in treasury and public finance, justice and legal systems, and even urban development (Table 7).

For example, gen AI-enabled chatbots can provide 24/7 support in navigating government services such as obtaining a driver's license or registering property titles. Public engagement and communication can be reimaged by using gen AI to create accurate and targeted content. Additionally, gen AI could be used to improve the public sector's operational efficiency by automating internal processes, helping with knowledge-management systems to make information retrieval easier for public sector workers, and facilitating personalized training and skills development.

In healthcare, gen AI could fundamentally improve patient experience, engagement, and quality of care, improve clinician and clinical productivity, and more broadly streamline operations.¹⁶ Additionally, it could help gather health data scattered across multiple systems—including unstructured sources like call transcripts, which contain critical patient information. However, risks around privacy and clinical outcomes still need to be fully addressed in order to ensure regulatory compliance and best-quality care.

¹³ "Health Department to consider AI to accelerate TB and Silicosis diagnosis in SA," media advisory, South African Department of Health, June 19, 2024.

¹⁴ "How AI is turning the tide against tuberculosis in South Africa," Qure.ai, July 16, 2024.

¹⁵ John Agaba, "How portable, AI X-ray machines are helping Uganda beat TB," Gavi VaccinesWork, May 24, 2024.

¹⁶ Jenny Cordina, Eduardo Coronado, Penelope Williams, and Sarah Greenberg, "Harnessing AI to reshape consumer experiences in healthcare," McKinsey, November 15, 2024.

Table 7

Gen AI opportunities are available across the public sector.

Illustrative and nonexhaustive

Citizen-facing functions and operations				
Call summarization to state helplines Automatically categorize the type and severity of issues reported, and auto-route them; synthesize common challenges and resolutions	Document submission Automatically scan and check citizen documents for submission to reduce rework and delays; interactive chatbot as coach	Copilot to automate routine administrative tasks Draft emails, generate actions from meetings, provide help desk for legislation and regulation checks	Complaints management Virtual assistant to help process complaints by providing initial recommendations aligned with laws and regulations	Generation of instruction content Create video or other media content with guidelines for citizens on civil procedures
Public health				
AI-aided diagnostics Assistant with “doctor in the loop” to improve diagnostic effectiveness and efficiency, using patient history, imaging, lab results, nurse and physician notes, and environmental data	Electronic medical records (EMRs) LLMs integrated into EMR tools, to capture demographics, biometrics, and notes from routine checks, and also to draft discharge notes	Care scheduling AI, as virtual 24/7 front door, gathers info to create initial suggestions on next steps, speeding the process of scheduling the right care at the right place and time	Patient engagement Coach for doctors and nurses to tailor patient experiences to individual needs, preferences, and goals, with greater empathy, while mitigating potential risks; can also extend to preventative care	
Tax and customs				
Tax-filing assistant Conversational chatbot that summarizes FAQs for citizens, limits search for info; automatic checking of filings prior to submission		Preliminary audit reports Automated audit and fraud checks		
Treasury and public finance				
Public procurement Virtual assistant that helps manage a large number of public sector tenders and contracts; links to project management system to provide information on ongoing and historical projects (scope, objectives, status and timelines, risks, compliance with policies); makes recommendations for new contracts based on key learnings from ongoing and historical contracts				
Justice, courts, and legal system				
Legal documents Review of existing legal documentation on national, federal, and local levels, identifying suggested new laws/regulations that are incoherent with existing ones		Chatbot to answer legal questions Help citizens and legal professionals make sense of complex laws		Legal drafting Reduce administrative burden of court documents, power of attorney, etc
Urban development				
Initial review of regulated procedures Assist planners and architects in submitting regulated procedures by conducting an initial review to identify code violations		Prepare first draft of urban planning designs Generate 2D/3D layouts to aid city planners in optimizing the design of streets, parks etc		

Adding private sector healthcare capabilities to the mix could lead to an additional \$1.4 billion to \$2.4 billion of economic value, and even more sophisticated deployments of gen AI. For example, South African healthcare providers that have adopted electronic medical records are already integrating LLMs into their workflows to capture patient information, biometric and lab data, and notes from routine checks, and even to draft discharge notes. There are gen AI opportunities for healthcare payers or insurers in claims processing, enrollment, and underwriting, and in making coverage and cost information more understandable. There is also potential to provide proactive care and wellness. For example, ML models can predict clinical and behavioral risks for individuals, and gen AI can tailor wellness programs and personalize messages with the aim of increasing engagement.

In the education sector, both public and private, gen AI has the potential to be equally revolutionary, potentially addressing challenges like limited access, teacher shortages, infrastructure gaps, and linguistic diversity. To date, however, innovation in education, even with analytical AI, has been limited, but the technology could help by automating tasks such as reviewing and grading; enabling rapid scaling of educational content to reach remote areas without extensive new physical infrastructure; and empowering educators to synthesize content and create more engaging and inclusive learning experiences tailored to diverse languages and cultures.

Unlocking the full potential of gen AI in Africa: Addressing barriers and how to scale

AI technologies have immense potential to drive economic growth and innovation in Africa, but most African organizations have yet to adopt them at scale. The challenge they face is twofold: there are significant barriers to be negotiated,

and the approaches to scaling that work in an African context need to be defined. In the spirit of remaining competitive as the rest of the world surges ahead, African front-runners are setting the pace, actively exploring ways to overcome the barriers, and defining scaling approaches to unlock AI's full value.

Challenges faced by African organizations in scaling gen AI solutions

In our McKinsey State of AI Africa survey, respondents identified five primary roadblocks that hinder gen AI scaling:

1. *Limited enabling infrastructure*

Strong gen AI ecosystems are built on robust infrastructure including reliable power, high-performance computing, and regional cloud resources. Over a third of survey respondents cite limited infrastructure as a roadblock. For example, major cloud providers have not yet established the regional infrastructure necessary to support gen AI solutions other than in South Africa. This drives up costs, complicates compliance, and restricts scalability. Even so, our recent research found that more than 50 major African businesses have about 45 percent of their workloads in the public cloud today.¹⁷ Another exception is Cassava Technologies, in partnership with Nvidia, which has announced plans to establish Africa's first "AI factory" in South Africa.¹⁸

2. *Few skilled professionals with gen AI expertise*

The labor market for digital skills is already highly developed in both sub-Saharan Africa and North Africa, and demand for digital skills in sub-Saharan Africa is expected to grow faster than in other global markets, with an estimated 230 million digital jobs expected in the region by 2030.¹⁹ However, filling those jobs with the right caliber of talent will be a challenge that is exacerbated by the need for deeper AI and gen AI expertise.

¹⁷ Sven Blumberg, Jean-Claude Gelle, and Isabelle Tamburro, "Africa's leap ahead into cloud: Opportunities and barriers," McKinsey, January 18, 2024.

¹⁸ Neil Lewis, "Africa's first 'AI factory' could be a breakthrough for the continent," CNN, April 3, 2025.

¹⁹ *Digital skills in sub-Saharan Africa: Spotlight on Ghana*, IFC World Bank Group, 2019.

Most organizations scaling their digital and analytics capabilities have invested in talent and training programs, including funding education and online training, university partnerships, and more. For now, those that have made the greatest progress with gen AI have done so by developing their own talent through a combination of vendor support and hands-on learning. They give their data scientists opportunities to develop gen AI applications and strengthen their expertise in ML and prompt engineering techniques, along with the necessary guidelines and guardrails.

3. Uncertainty regarding regulation

Africa's gen AI regulations are still evolving, with data protection, privacy, and cross-border transfer laws varying by country and no comprehensive regulations in place. This uncertainty opens the door to potential legal challenges, including international copyright disputes, and makes it harder for organizations to navigate building and deploying gen AI models, potentially discouraging innovation and investment. What we have observed is that the organizations that have advanced furthest in scaling gen AI solutions are those that have involved their risk, legal, and compliance functions from the start, often embedding them in the development teams.

4. Managing risks from gen AI

Gen AI challenges, including bias, privacy, job displacement, and cybersecurity, are global, but they are exacerbated in Africa by structural inequalities and limited resources. For example, African data contributes little to AI model training due to historically unequal access and data collection, risking biased outcomes from models that reinforce existing disparities.²⁰ In addition to the risk of LLMs producing biased content, there is a risk of hallucination: generating content that is false, not compliant with regulations, or with inappropriate wording and tone of voice. Most deployments of gen AI in customer-facing situations, therefore, still involve a “human in the loop.” Those that have ventured into gen AI

solutions without one manage risks by restricting the scope of applications, extensive user testing, and building a moderation layer that challenges model output. For example, some build a chatbot solution with a second “stricter” chatbot using an additional different underlying LLM provider to challenge and correct the content produced. They have also developed explicit guardrails to block certain actions, words, phrases, or other content.

5. Data availability and quality

High-quality, well-structured data is key to driving innovation and efficiency, mitigating bias and intellectual property (IP) risks, and protecting confidentiality. Among most African institutions, there are still real concerns that poor or inadequate input data will lead to incorrect predictions and biased content production. Gen AI also relies on new sets of data from an organization's internal “knowledge repository,” such as company policies, standard operating procedures, and “decision trees.” These are often outdated or undocumented and need to be curated to ensure optimal gen AI model performance and value. The investment in data has to be made, but as we explore below, it is about prioritizing the data for the use cases and domains where the most value can be created.

What will it take to build the capabilities needed to scale gen AI in Africa?

African front-runners are demonstrating how to overcome obstacles and leapfrog on the journey to scale the deployment and impact of AI and gen AI (see sidebar “Lessons from African front-runners can inform approaches to scaling”). While the path to scale will be different for each organization and industry, our research suggests that a holistic transformation approach addressing important questions across six dimensions can boost chances of success: strategy, talent, operating model, technology, data, and adoption and scaling (Exhibit 3).

²⁰ Daryna Antoniuk, “Lack of data makes AI more biased in African countries, says former tech official,” The Record, February 15, 2024.

Lessons from African front-runners can inform approaches to scaling

While the gap between piloting and scaling the value from gen AI can be difficult to bridge, organizations embarking on their gen AI transformations can learn from front-runners in the field. Our research has identified six key traits shared by organizations that lead in gen AI:

1. Successful front-runners start by focusing on one enterprise-scale use case with strong user adoption end to end rather than scattering efforts across multiple small proofs of concept and pilots that often fail to deliver impact and cause the gen AI scale-up to lose steam.
2. Since traditional AI and ML still contribute a larger share of value in a variety of use cases—at least 60 percent of the combined potential value from traditional AI and GenAI—successful front-runners focus on building traditional AI and gen AI solutions together, along with other technologies. Many use cases go hand in hand. For example, hyperpersonalized LLM-generated content (messages, emails, call-center scripts, nudges) for sales campaigns still relies on traditional AI to target the right clients at the right time with the right products.
3. Front-runners drive domain-level transformations rather than use cases in different parts of the organization, which can slow down the realization of scaling benefits. At the same time, a “big-bang” approach that deploys gen AI across the entire organization is not feasible. By focusing on one domain at a time, such as customer servicing, the full software development life cycle, or procurement, front-runners can significantly move the needle as interconnected use cases build on each other. The benefits stem from common data and data pipelines, common user interfaces (for example, digital tools or applications), and streamlining change management with the same group of users. Additionally, the AI team tackling the domain becomes very familiar with the data, context, and users. This targeted approach accelerates value realization and helps secure strong business sponsorship.
4. Front-runners take a strategic view of where to build versus where to buy. Not everything needs to be built from scratch; buying available tools or platforms can save time and money. Typically, however, the tools and use cases that give an organization a competitive advantage are built and owned in-house.
5. Building truly reusable code, embedding best practices, and ensuring maintainability are all proving to be essential features of successful deployments of gen AI at scale. Developing robust ML operations (MLOps) has been shown to bridge the gap between multiple data science teams and the teams who deploy the models. This enables speed, peer review, and easier maintenance.
6. Gen AI front-runners work hand in hand from the start with risk, legal, and compliance functions to transform their processes and operational models to take full advantage of gen AI. By designing and building solutions with that end in mind, organizations don’t lose time in lengthy review and approval processes.

Exhibit 3

Scaling gen AI beyond initial use cases or domains requires answering important questions across six dimensions.

Questions by dimension

Strategy	1 Strategic road map				
	<ul style="list-style-type: none">• How do we align our AI and gen AI strategy with domain-level ambitions and our overall technology aspirations?• How should we approach the transformation in a way that ensures value capture and unlocks competitive advantage?				
Capabilities	2 Talent	3 Operating model	4 Technology	5 Data	
	<ul style="list-style-type: none">• How do we attract, grow, and retain talent to stay ahead of the gen AI skill gaps?	<ul style="list-style-type: none">• How do we organize ourselves and teams to deliver on our road map?	<ul style="list-style-type: none">• How do we set up a scalable tech stack and infrastructure to support multiple gen AI use cases and solutions?	<ul style="list-style-type: none">• How do we build a robust data foundation to scale gen AI across the organization?	
Change management	6 Adoption and scaling				
	<ul style="list-style-type: none">• How do we design our scaling plan to ensure easy reusability and scalability across the organization?• How do we deliver effective training to support skill building and manage culture change at scale?• How do we think about risk and responsible use of gen AI across the organization?				

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The substantial economic contribution of gen AI can only be realized if there is a clear vision of how to harness its power, and cutting through the noise can be difficult. Organizations may need to take a hard look at how AI and gen AI fit within their current strategies and define a road map of use cases, structured by domains, that will yield the most value soonest with the least amount of resistance or challenge. This process needs to be led from the top. Effective AI implementation starts with a fully committed C-suite and, ideally, an engaged board. Many organizations leave AI to IT or a standalone digital or AI department, but this has proven ineffective. Getting real value out of AI requires a business transformation, not just a shift in technology and algorithms.²¹ How the necessary capabilities are set up—across talent, the operating model, technology, and data—can

then be aligned with the strategic road map to enable the right use cases at the right time.

Finally, building the best modeling solutions without adoption by users or the front line will yield little value. An adoption and scale-up plan is required for every use case (or each domain), including the necessary training and change management. Furthermore, the right user interface is needed for a given use case; this is where design thinking meets AI. For example, integrating a copilot for customer-servicing agents into an existing “agent workbench,” tool, or portal could lead to greater adoption than the addition of yet another portal and screen. Accessibility and usability in the field are also key, as we saw in the example of the mining tool for maintenance being adapted for easy use in the field.

²¹ Alex Singla, Alexander Sukharevsky, Lareina Yee, and Michael Chui, “The state of AI: How organizations are rewiring to capture value,” McKinsey, March 12, 2025.

This is a transformative opportunity for the continent that cannot be allowed to slip away. The potential of generative AI to reshape economies and daily lives is undeniable, and every sector has a role to play to ensure that Africa can take its place as a global leader on this technological frontier. Pockets of innovation and excellence are showing the way, but much more remains to be done to create the structures and processes that unlock meaningful value from gen AI.

A strategic and holistic approach can help to dismantle barriers and rewire African institutions to excel in an AI-powered world, raising the bar for innovation and impact across African economies and societies and setting the benchmark for global adoption of this transformative technology.

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Mayowa Kuyoro is a partner in McKinsey's Lagos office; **Umar Bagus** is a senior partner in the Johannesburg office, where **Ziyaad Bobat** is a principal data scientist; and **Anass Benshrir** is a senior director of data engineering in the Casablanca office.

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