Africa's AI Productivity Gain

Pathways to Labour Efficiency, Economic Growth and Inclusive Transformation

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AFRICAN DEVELOPMENT BANK GROUP
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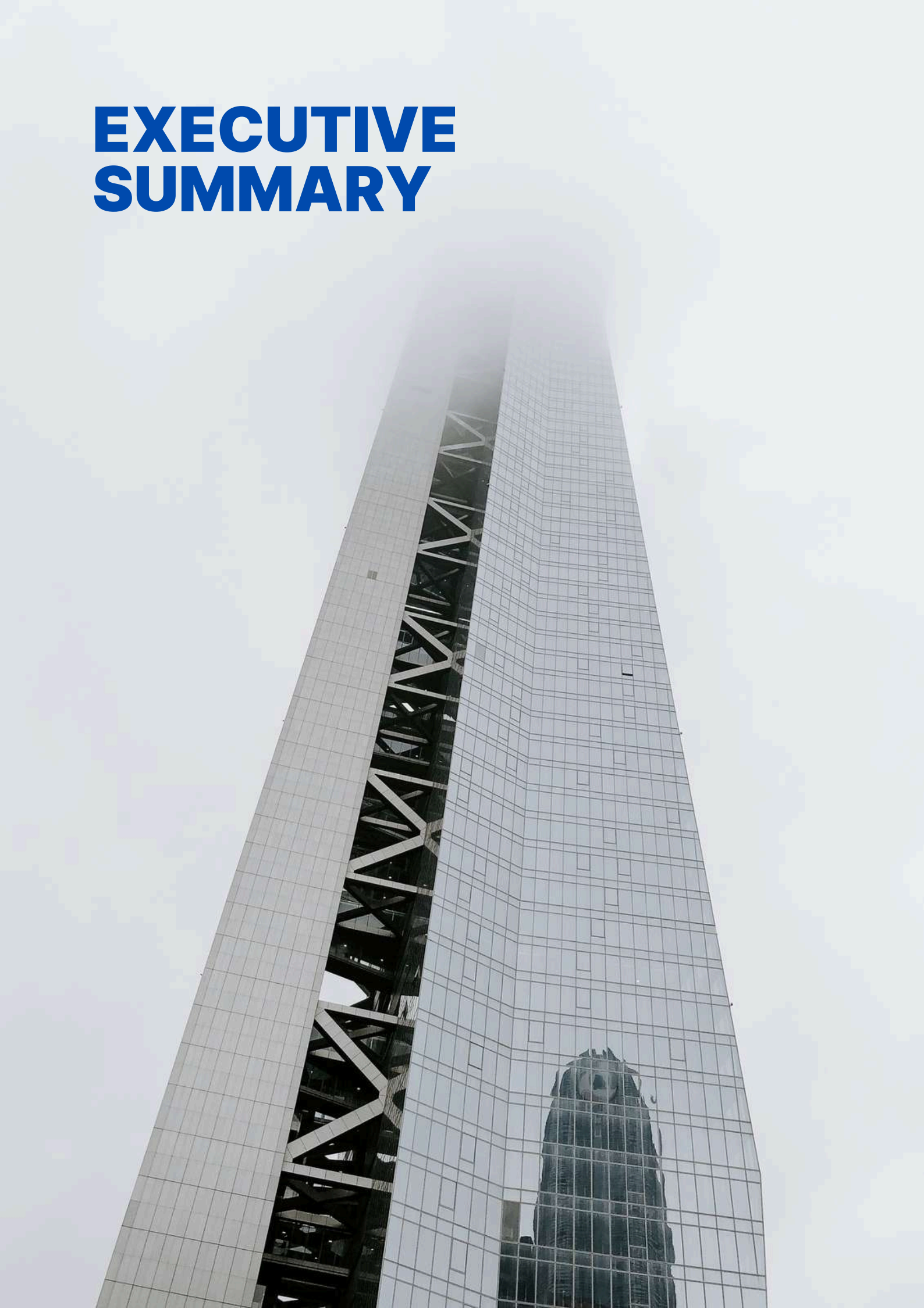
Table of Contents

ACRONYM	FULL MEANING
AfCFTA	African Continental Free Trade Area
AfDB	African Development Bank
AGI	Artificial General Intelligence
AI	Artificial Intelligence
API	Application Programming Interface
AU	African Union
B2C	Business-to-Consumer
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditure
DFI	Development Finance Institution
EU	European Union
FAIR	Findable, Accessible, Interoperable, Reusable (data standards)
GDP	Gross Domestic Product
GPU	Graphics Processing Unit
GCI	Global Cybersecurity Index
GSMA	Global System for Mobile Communications Association
ICT	Information and Communication Technology
ILO	International Labour Organization
ICT	Information and Communication Technology
IMF	International Monetary Fund
KYC	Know Your Customer
LP	Limited Partner (in investment funds)
ML	Machine Learning
MLOps	Machine Learning Operations

Acronym	Full Meaning
ODIN	Open Data Inventory
OECD	Organisation for Economic Co-operation and Development
PPA	Power Purchase Agreement
REC	Regional Economic Community
SDG	Sustainable Development Goal
SME	Small and Medium Enterprise
STEM	Science, Technology, Engineering, and Mathematics
TVET	Technical and Vocational Education and Training
UIS	UNESCO Institute for Statistics
UN DESA	United Nations Department of Economic and Social Affairs
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United States Dollar
WDI	World Development Indicators (World Bank)
WEO	World Economic Outlook (IMF)
WIPO	World Intellectual Property Organization

EXECUTIVE SUMMARY



Unlocking Africa's AI Dividend: A US $1 Trillion Opportunity

Artificial intelligence (AI) has the potential to deliver transformational gains for Africa's economies. If developed and deployed inclusively, AI could generate up to **US $1 trillion in additional GDP by 2035**[1], representing close to one-third of the continent's current output. This is a realistic opportunity grounded in Africa's demographic advantage, growing digital capacity, and sectoral reform.

The AI dividend is not given, but it is attainable with concerted effort and coordination. If realised, this dividend could translate into:

Growth & Revenue
- + US $1T GDP by 2035
- US $150B new tax annually
- 24% uplift over baseline GDP

Jobs & Youth
- 35-40M digital jobs
- 300M youth integrated into workforce

Global AI Equity
- African data & languages in global models
- More equitable model generalisation

This report presents a pathway to delivering this dividend. It outlines the enablers, the sectors where impact is most likely, and the sequencing required to move from potential to delivery.

Five Foundational Enablers Driving the AI Readiness Flywheel

Africa's ability to harness AI depends on simultaneous progress across five interconnected readiness levers:

Enabler	Challenge	Primary 2030 milestone
Data	Low discoverability, fragmented formats	60 data platforms and APIs compliant with FAIR (Findable, Accessible, Interoperable, Reusable) principles
Compute	Limited regional access to GPU infrastructure	Four GPU-rich "Data Embassies"[2] operational (one per high-capacity REC) + two edge-corridor nodes financed & under construction; network on track for six embassies by 2035[3]

[1] Derived from a scenario-based model using a 4% share of the estimated US $25 trillion global AI dividend by 2035. See Annex A for full assumptions and methodology.
[2] A Data Embassy is a GPU-rich regional compute hub under AU governance. The roadmap targets six embassies by 2035: four core hubs (one per high-capacity REC) and two edge-corridor nodes serving underserved RECs.
[3] The Compute enabler reaches four operational Data Embassies + two edge nodes by 2030 and the full six-Embassy network by 2035. All other enablers remain 2030 targets

Enabler	Challenge	Primary 2030 milestone
Skills	Gaps across entry, mid-career and technical levels	3 million AI-capable professionals (incl. 30 000 ML engineers & 1 million micro-credential holders)
Trust	Weak AI regulation, low interoperability	AU-wide Responsible AI Framework, 20+ national implementations
Capital	Insufficient finance for infrastructure and scale-ups	US $10 billion blended-finance facility (US $5 billion expected to be disbursed by 2030)

Table 1: Five Foundational Enablers Driving the AI Readiness Flywheel

2030 marks a strategic window: delays beyond this point risk locking African systems out of the foundational wave of global AI evolution, deepening digital and economic inequalities.

These pillars reinforce each other. No single enabler can succeed in isolation

Sectoral Allocation of AI-Enabled Productivity Gains

AI's productivity gains will not be uniformly distributed. Using a data-driven scoring model based on GDP share, digital readiness, and SDG leverage, the report identifies five high-impact sectors. These sectors are projected to capture **58% of the overall US $1 trillion dividend**, or roughly **US $580 billion** by 2035:

Sector	Estimated Uplift
Agriculture & Food Systems	US $200 billion
Wholesale & Retail	US $140 billion
Manufacturing & Industry 4.0	US $90 billion
Finance & Inclusion	US $80 billion
Health & Life Sciences	US $70 billion

Table 2: Sectoral Allocation of AI-Enabled Productivity Gains

These sectors represent both economic scale and inclusive development value. AI adoption within them can enhance food security, reduce health service gaps, expand financial inclusion, and raise productivity in informal economies.

Diagnosing Readiness Gaps and Country Archetypes

Africa's 54 economies do not all start from the same level of readiness. To inform policy and investment sequencing, the report groups countries into four AI-readiness archetypes:

- **Catalytic Agents:** Economies with scale and momentum (e.g. Nigeria, Kenya, South Africa)
- **Scale Accelerators:** Mid-sized countries with emerging AI ecosystems (e.g. Ghana, Morocco, Tunisia)
- **Innovation Hubs:** Smaller but agile digital systems ideal for piloting policy (e.g. Rwanda, Mauritius)
- **Foundation Builders:** Countries needing support to build foundational capacity

Bridging gaps between these groups is key to achieving regional equity and avoiding a two-speed transition.

Scenario Analysis of Africa's AI Trajectory

Africa's AI dividend depends on the pace and consistency of readiness investments:

Scenario	GDP Impact by 2035	Jobs Impact
Status Quo Drift	US $250 billion	Limited, fragmented benefits
Fragmented Progress	US $500–600 billion	Concentrated gains in select countries
Full Activation	US $1 trillion	35–40 million net new digital and digitally enabled jobs, broad sectoral and regional coverage

Table 3: Scenario Analysis of Africa's AI Trajectory

Only the third scenario unlocks the full social and economic potential. The **difference is not technology, it is coordination!**

Roadmap for Converting Potential into Delivery

Africa's roadmap to AI-readiness consists of **three phases** between now and 2035:

1. **Ignition (2025–2027)**: Charter policy frameworks, launch pilots, initiate compute deployment
2. **Consolidation (2028–2031):** Build regional corridors, deploy sandbox regulation, scale skills and capital
3. **Scale & Diffusion (2032–2035)**: Full activation of the AI readiness flywheel across all regions and sectors

To anchor this transition, five flagship programs are proposed, each corresponding to one of the readiness levers. Together, they provide a structured platform for coordinated investment and reform.

Africa's AI Agenda: Continental Priorities with Global Implications

Africa's AI readiness is not just a regional priority; it is a matter of global interest.

- It will strengthen global AI systems with African data and languages
- It will contribute to global digital SDG progress
- It will reduce the risks of exclusion, without decisive action, Africa faces deeper digital dependency, slower skills acquisition and growing marginalisation in global AI.
- It creates long-term opportunities for public–private partnerships

This is why the African Union (AU), development banks, RECs, national governments, DFIs, philanthropies, and private actors must work together. The dividend is within reach. The roadmap is actionable.

The time to act is NOW

SECTION 1

How Big Is Africa's Attainable AI Productivity Gain by 2035?

Section 1 - How Big Is Africa's Attainable AI Productivity Gain by 2035?

Artificial intelligence is often described as transformative, but for Africa, the transformation must be measurable, equitable, and grounded in real economic outcomes. This paper sets out to quantify how much AI could contribute to Africa's productivity-led growth and identify what it would take to unlock that contribution. Section 1 begins by establishing the size and structure of Africa's attainable AI dividend by 2035. Drawing on tested scenarios (see Annex A), demographic trends, and sectoral modelling, it presents a data-driven estimate anchored in realistic development conditions.

These numbers are ambitious but grounded in demographic and sectoral realities. They reflect the scale of opportunity that can emerge when digital innovation meets real economic and social needs. This section answers a foundational question: just how big is Africa's attainable productivity gain, and where will it come from?

The methodology behind this estimate is unpacked in Section 1.2.1, which outlines how sectoral prioritisation was modelled. Sections 1.2.2 and 1.2.3 then dive deeper into the five leading sectors and cross-sector insights, while Section 1.2.6 explains the implications for strategic planning.

1.1 US $1 Trillion AI Productivity Opportunity

Africa's economic future will not only be shaped by how fast it grows, but by how productively it uses its people, capital, and ideas. Artificial intelligence (AI) offers a generational opportunity to shift from incremental gains to exponential outcomes. With the right guardrails and investments, AI could help the continent leapfrog into new levels of efficiency, job creation, and competitiveness.

If the continent stays on its current trajectory, defined by steady improvements in infrastructure, trade, and services, Africa's GDP is expected to reach US $4.23 trillion by 2035 (in constant 2015 dollars). This "baseline" assumes incremental reforms and a continuation of current investment levels. While this path is stable, it is not transformative. It does not fully account for the continent's expanding labour force, nor does it strengthen fiscal capacity or unlock the deep reserves of underused productivity across sectors.

AI offers an alternative path. With the right conditions for adoption, including digital infrastructure, a skilled workforce, interoperable data, trusted systems, and sufficient capital, Africa's economy could grow to US $5.23 trillion by 2035. This would represent a US $1 trillion increase over the baseline projection, equivalent to nearly one-third of Africa's current GDP.

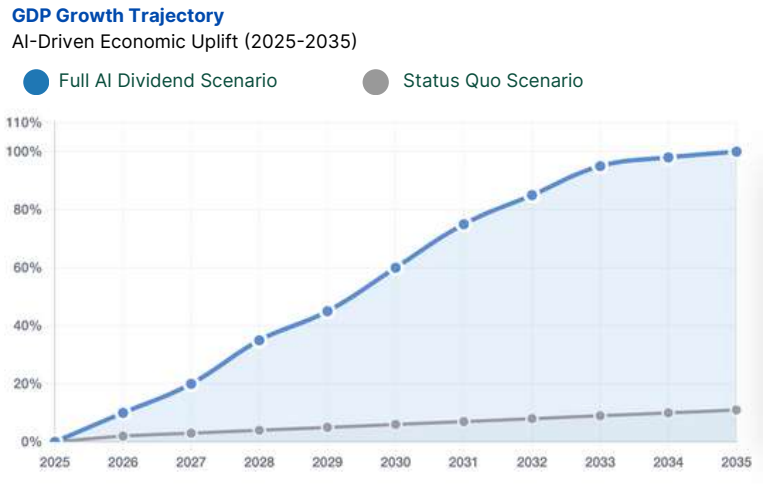
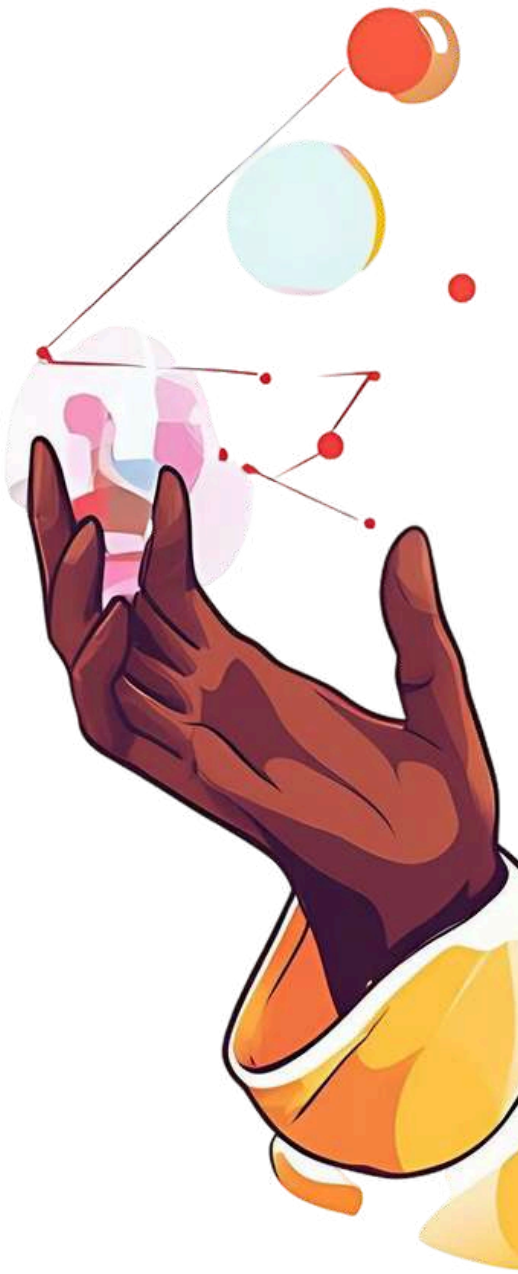


Figure 1. Africa's projected GDP with and without AI, 2025–2035
(Baseline vs. AI-enhanced path. See Annex A for projections.)

This projected growth is driven by the strategic application of AI across both capital- and labor-intensive sectors. In capital-intensive sectors such as healthcare and finance, AI enables functions like diagnostic support, fraud detection, and algorithmic credit scoring. These applications improve service quality, efficiency, and financial inclusion. In labor-intensive sectors such as agriculture and retail, AI supports tools like market analytics, precision farming, inventory optimisation, and AI-assisted logistics. These technologies enhance productivity by improving decision-making, reducing waste, and expanding access to markets and services. Global examples suggest these tools are already delivering measurable gains. Under the right readiness conditions, as defined in this report's five enabler framework, such applications are transferable to African contexts. See Annexes A and B for methodology and modelling inputs.[4]

And the gains go beyond GDP. An extra trillion dollars can ripple through economies in deeply tangible ways. Think of more than 35 to 40 million net new digital and digitally enabled jobs, each one putting food on a family's table and placing a young person on a sustainable career path. Think of the US $150 billion in fresh annual tax revenue, funds that could be channelled into classrooms, hospitals, and small businesses across the continent.



1.2 Africa's Youth Surge: Doing More with More

This is not about automation replacing what Africans already do well. It is about amplification, using AI to enhance Africa's strengths, especially its people. The continent's demographic dividend is unmatched. Over the next ten years, more than 300 million people will enter working age, accounting for nearly 90% of the total global growth in this segment. If harnessed properly, this youth surge can drive a new wave of productivity, creativity, and growth.

But systems must keep pace. Today, over 80% of workers are in the informal economy, and many small businesses remain undercapitalised or invisible to formal finance[5]

Still, signs of readiness are emerging. Each year, Africa's universities graduate more than 700,000 students in STEM fields. Yet fewer than one in nine secures a recognised digital job. AI tools can accelerate how employers identify talent, streamline how skills are recognised, and improve access to SME credit. These are the bridges from raw potential to real productivity.

This is why the AI dividend matters. It is not just a headline number. It is a lever for inclusive growth. It turns population trends and technology capabilities into human prosperity.

Examples include the use of AI in diagnostics and clinical decision-making (see: Davenport, T. and Kalakota, R. "The potential for artificial intelligence in healthcare." Future Healthcare Journal 2019, PMC8285156) and recent deployments of generative AI in global retail operations (see: McKinsey & Company. "LLM to ROI: How to scale gen AI in retail." July 2023).

Where the number comes from

Looking ahead to 2035, AI is expected to add US $25 trillion to the global economy. Africa's share is set at 4%. This is a fair-share scenario that reflects a moderate but ambitious uplift from Africa's current position, the continent today accounts for just under 3% of global GDP. The 4% allocation assumes that Africa accelerates progress across five critical enablers: data governance, compute infrastructure, skills, trust frameworks, and capital access. It is not based on parity with high-income economies but reflects the continent's potential for productivity catch-up if decisive action is taken.

- Establishing open and well-governed data systems
- Creating scalable, affordable compute infrastructure
- Developing strong pipelines of skilled professionals
- Putting in place trust and safety frameworks
- Securing sufficient funding to scale proven AI projects

The model works on the idea of steady, modest catch-up rather than outright parity with wealthy nations. Section 1.2 explains how this potential is distributed across sectors. Full modelling assumptions are in Annex A

Critical Enablers Required to Capture Africa's AI Productivity Dividend

- **Computing power:** Six GPU-rich 'Data Embassies' (four core hubs + two edge-corridor nodes) governed under an AU charter
- **Open data:** FAIR-compliant national and regional platforms established across RECs
- **People:** Three million professionals upskilled or retrained for AI-related jobs
- **Trust:** A model AI-risk law, practical sandboxes, and routine audits operating continent-wide
- **Capital:** About US $10 billion in blended finance, led by the Africa AI Growth and Innovation Fund. This is far more than an aspirational list. The items are the building blocks for the action plan sketched in Section 3. Each is concrete, fundable, and timebound.

The aim goes beyond GDP alone. The goal is to change the very pattern of African development. If steps like these are taken, AI can help shift growth from extractive industries to digital platforms, from a largely informal economy to one that is better organized, and from silos to a truly integrated market. In that sense, it offers a path to growth that is more inclusive, competitive, and future-ready

Section 1.2 will examine the key sectors poised to drive this opportunity and the precise actions needed to unleash their full promise.

[1] International Labour Organization (ILO), Women and Men in the Informal Economy: A Statistical Picture, 3rd Edition (2018). ILO regional data show informality rates exceeding 85% in sub-Saharan Africa.

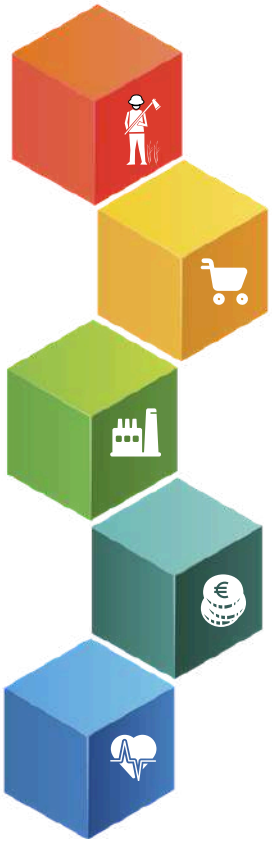
1.3 Tier-1 Sectors Deliver $580 bn: Over Half of Africa's AI Upside

The forecasted US $1 trillion AI dividend is not expected to spread evenly across all parts of Africa's economy. Instead, it will concentrate in specific sectors those that combine economic size, readiness to adopt AI, and a high potential to drive inclusive development outcomes. These are the sectors where AI will deliver the most visible and measurable impact.

While AI is a general-purpose technology, its real-world uptake is rarely uniform. In every country, certain sectors are more prepared to benefit. These tend to have more structured data flows, stronger infrastructure, relevant technical talent, and a clear policy or commercial urgency. These factors allow them to absorb innovation more quickly and to convert it into growth and services that matter.

Identifying the right sectors is therefore not just a technical modelling step it is a foundational equity and efficiency decision. The sectors chosen for prioritisation will shape how Africa's AI transition plays out: whether it deepens digital divides or closes them, whether it accelerates resilience and jobs or leaves productivity gains locked behind technical barriers.

Prioritising sectors with high female participation also improves inclusivity outcomes. In sectors like retail and health, where women make up a significant share of the workforce, AI-enabled innovation can expand opportunities, narrow pay gaps, and improve service access for underserved communities. Ensuring gender-responsive AI deployment is therefore not just a matter of equity but of economic optimisation.



To conduct this analysis, we applied a three-factor scoring model to every major economic sector across the continent. Each sector was ranked based on:

- **GDP share**: its current contribution to Africa's economy
- **AI readiness**: including digital maturity, infrastructure depth, and workforce capacity
- **SDG leverage**: the sector's potential to deliver measurable progress on key Sustainable Development Goals (SDGs) – particularly those related to poverty alleviation (SDG 1), health and well-being (SDG 3), quality education (SDG 4), decent work (SDG 8), industry and innovation (SDG 9), and gender equality (SDG 5).

This analysis identified five sectors: agriculture, retail, manufacturing, finance, and health. These were the highest-ranking based on their composite scores. Together, they are projected to capture around 58% of Africa's AI dividend, equivalent to US $580 billion of the estimated US $1 trillion gain by 2035. The full methodology, indicators, and source data behind the sector model are detailed in Annex B.

1.3.1. Top Five Sectors by Composite Score

Sector	Composite Score	Share of Dividend	Estimated Uplift
Agriculture & Food	1.42	20%	US $200B
Wholesale & Retail	0.98	14%	US $140B
Manufacturing & Industry 4.0	0.63	9%	US $90B
Finance & Inclusion	0.53	8%	US $80B
Health & Life Sciences	0.51	7%	US $70B

Table 4: Top Five Sectors by Composite Score

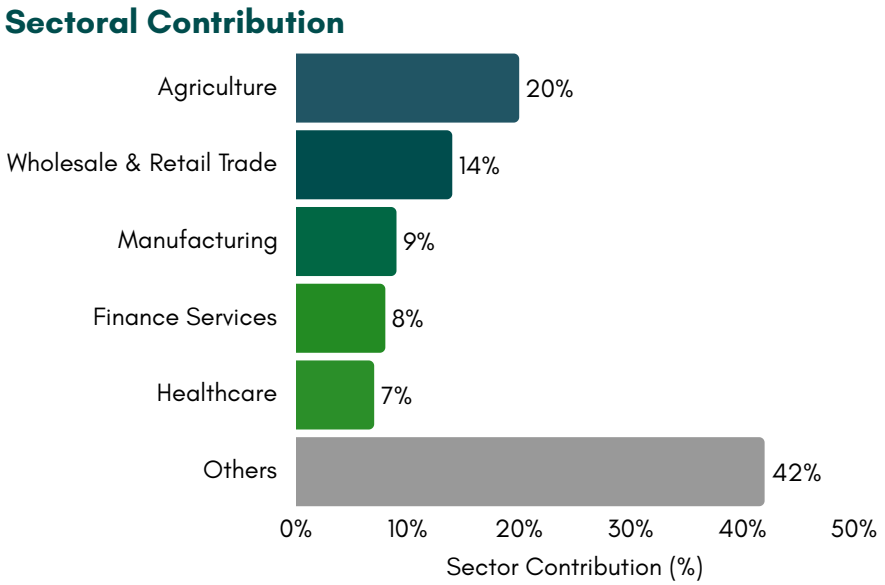


Figure 2. Top Five Sectors by AI Composite Score and Sectoral Contribution

These sectors now serve as entry points for AI-enabled transformation. The next section explores how, where, and why these gains are likely to materialise.

1.3.2 Detailed Sector Analyses

Each of the five Tier-1 sectors demonstrates strong potential for AI-driven productivity, job creation, and human development.

(A) Agriculture & Food Systems

Agriculture remains the backbone of most African economies, contributing approximately 15% to the continent's GDP and employing more than half of its workforce, particularly women. Yet the sector operates well below its productive potential. Many farmers still depend on rain-fed systems, face limited access to reliable inputs, and lack real-time data to guide decisions. Market inefficiencies, post-harvest losses exceeding 30% in some regions, fragmented supply chains, and limited rural financing further constrain both yields and incomes. These weaknesses are compounded by climate variability, degraded soils, and outdated extension systems.

At the same time, Africa's agriculture sector possesses powerful assets. The continent hosts 60% of the world's remaining arable land, a young and growing rural population, and fast-rising mobile connectivity. These foundations create the conditions for a leap in productivity if modern tools can be deployed at scale.
Artificial intelligence offers such a pathway. Rather than replacing farm labour, AI augments decision-making, sharpens resource allocation, and unlocks new types of services across the agricultural value chain. Its benefits apply from pre-production (planning and forecasting), to production (precision farming), to post-harvest (storage, logistics, and market access).

Why AI Is a Game-Changer for African Agriculture

AI is uniquely positioned to solve information asymmetry, low productivity, and market inefficiencies, which are the sector's core challenges. It converts data into insights, making invisible risks visible and enabling better decisions with fewer inputs. Thanks to mobile phones, satellite imagery, and IoT devices, the necessary data flows are increasingly available

Key Use Cases

- **Pest and Disease Prediction**

AI models trained on climate and crop data can forecast pest outbreaks and trigger early alerts. For example, systems that combine weather trends with satellite imagery and farmer reports can anticipate locust swarms or fall armyworm activity. This allows early pesticide application or crop switching to mitigate losses.

- **Computer Vision for Quality Sorting**

Traditional manual grading of produce is slow, inconsistent, and labour-intensive. AI-powered computer vision systems now sort fruits and vegetables by size, colour, and defects. This reduces human error and enables farmers to meet the quality requirements of formal retail or export markets.

- **Precision Irrigation and Input Management**

Drones and remote sensors collect soil moisture and crop health data, which is then interpreted by AI to guide irrigation or fertiliser application. This ensures inputs are used efficiently and only where needed, improving yields while conserving resources.

- **Parametric Insurance and Risk Pricing**

AI uses satellite data to monitor rainfall or vegetative cover in real time. These signals can automatically trigger payouts under pre-agreed insurance terms, protecting farmers without the need for traditional claims processing and reducing the risk of climate-induced shocks.

- **Alternative Credit Scoring for Farmer Finance**

Many farmers lack formal financial histories. AI addresses this by analysing alternative data such as mobile money usage, transaction patterns, and input purchase behaviour. This enables lenders to assess creditworthiness and provide microloans or asset finance more accurately.

African Example:

Twiga Foods – Continuous Innovation in a Traditional Sector[67]
Twiga Foods, founded in Kenya in 2014, is a standout example of how AI and digital platforms are transforming traditional agricultural supply chains in Africa. The company began by addressing systemic inefficiencies between rural farmers and urban vendors. In its early years, Twiga focused on linking producers directly with informal retailers, reducing spoilage, stabilising prices, and lowering delivery costs by bypassing fragmented middlemen.

As its operations matured, Twiga layered in artificial intelligence to manage logistics, optimise supply and demand matching, and predict inventory needs across its expanding vendor base. Machine learning algorithms process sales patterns, seasonal fluctuations, and urban demand signals to improve route planning and ensure just-in-time delivery to more than **140,000 informal retailers.**

But Twiga's innovation did not stop with logistics. In **2018**, the firm introduced a **blockchain-based microloan product**, targeting kiosk owners and vendors with no formal credit history. These loans were underwritten using behavioural and transaction data gathered through Twiga's platform, making credit accessible to previously excluded businesses. The pilot began with **220 food stall retailers** and grew into a foundational element of Twiga's embedded finance strategy.

By **2025**, Twiga had attracted new rounds of investment and restructured parts of its business model to integrate deeper financial services, customer analytics, and AI-powered credit assessment at scale . This evolution reflects a broader market shift: agritech platforms are no longer limited to sourcing and delivery, they now function as full-stack enablers of rural commerce, credit, and enterprise growth.

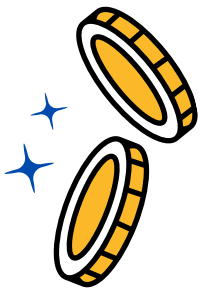
Twiga illustrates how traditional sectors can become hotbeds of innovation when AI and financial technology are deployed strategically. Its trajectory from basic logistics to AI-enhanced microfinance is a template for inclusive, technology-enabled growth

Global/G20 Reference
India's eNAM (National Agriculture Market), in partnership with Microsoft's FarmBeats, integrates AI with satellite imagery, weather data, and soil sensors to help farmers make informed decisions. The platform improves price transparency and promotes smart farming practices at national scale

[6] Kenyan Wall Street (2018). Twiga Foods to Offer Blockchain-Based Microloans to Food Kiosk Owners in Kenya.
[7] Crunchbase (2025). Twiga Foods – Recent News & Activity.

(B) Wholesale & Retail Trade

The retail and wholesale sector is a cornerstone of Africa's economic activity and livelihoods. Informal outlets account for over 90% of total retail transactions, underpinning everything from daily food distribution to household essentials. This vast network of kiosks, markets, distributors, and vendors is highly fragmented, cash-based, and undercapitalised. On one hand, it offers flexibility, reach, and employment (especially for women, who constitute the majority of informal retail operators). On the other, it suffers from inefficiencies such as stockouts, uncoordinated supply chains, unreliable data, and limited access to credit or insurance. These weaknesses result in high transaction costs, poor inventory management, and systemic exclusion from digital commerce.



AI can help formalise and upgrade these trade systems without erasing their decentralised strengths. One of the most transformative applications is demand forecasting. Using machine learning, retailers and suppliers can analyse past sales patterns to predict which goods will be needed, when they will be needed, and in what quantity. This helps avoid both overstocking and shortages, optimising working capital. Predictive logistics tools improve route planning and reduce fuel consumption, particularly important for small delivery fleets that serve informal markets.

AI is also reshaping access to finance. Creditworthiness can now be assessed in real time using sales data, phone usage, and purchase history. This allows lower-risk merchants (including many women entrepreneurs) to qualify for short-term working capital. Digital credit is then embedded into ordering platforms, allowing retailers to restock on the go. In warehousing and fulfilment, AI helps sort goods, verify authenticity, and recommend bundle deals based on customer profiles. These efficiencies improve margins, reduce waste, and strengthen customer satisfaction.

Gender inclusion is pivotal in this sector. Since a disproportionate share of informal retail businesses are owned or operated by women, AI-led improvements in inventory management, credit scoring, and logistics offer substantial potential for economic empowerment. To ensure these benefits are widely shared, targeted investments in digital literacy, onboarding support, and inclusive policy frameworks will be essential.

African example:
A strong illustration comes from TradeDepot in Nigeria. Its AI-powered platform supports over 100,000 small retail stores by helping them manage inventory and forecast demand. Based on real-time sales data, merchants receive embedded working capital that allows them to restock immediately. This reduces downtime and increases resilience, especially for informal vendors

G20/global reference:
Alibaba provides a useful comparative benchmark. In rural China, the company uses AI to streamline fulfilment pipelines, customise customer experiences, and support pricing strategies. These systems enable even the smallest vendors to operate efficiently and competitively within larger e-commerce ecosystems

(C) Manufacturing & Industry 4.0

Manufacturing plays a pivotal role in Africa's industrialisation agenda, supporting export diversification, job creation, and economic resilience. While the sector accounts for over 10 percent of GDP in many African economies, its potential remains underutilised. Many manufacturing firms across the continent face persistent constraints. These include high input costs, outdated equipment, erratic electricity supply, and long lead times for parts and maintenance. Informal production dominates in some regions, while medium to large factories often operate at suboptimal capacity. Workforce training also lags behind global benchmarks, and quality control is typically manual, leading to inefficiencies and waste.

Despite these challenges, Africa's manufacturing base is steadily modernising. Export processing zones, special industrial parks, and local assembly hubs are creating momentum. As demand for affordable, locally produced goods rises and as Africa's population urbanises, manufacturing is increasingly viewed as a strategic growth engine. However, to fully capitalise on this potential, manufacturers must overcome the legacy of inefficiency. This is where AI can make a substantial difference.

AI technologies offer tangible solutions for factory floors. Predictive maintenance systems, for example, use vibration, sound, and temperature sensors to anticipate machine failure before it happens. By analysing these signals in real time, AI alerts engineers to subtle anomalies and schedules timely interventions. This reduces downtime, extends asset life, and lowers the cost of emergency repairs.

Another breakthrough lies in computer vision. Visual inspection tools powered by AI can detect defects, misalignments, or contamination on production lines faster and more accurately than human eyes. This leads to higher-quality outputs and fewer product recalls. Digital twins (virtual models of factory processes) allow managers to simulate process changes and stress-test workflows without halting physical production. This reduces trial-and-error costs and optimises throughput.

In addition, AI helps orchestrate factory-wide operations. Smart energy systems fine-tune power consumption based on real-time needs. Robotics and machine-learning algorithms coordinate task sequencing, material flow, and safety protocols. In high-volume plants, these efficiencies translate into major gains in productivity and cost savings. In smaller plants, they free up human workers for higher-value tasks and accelerate compliance with standards required by regional and global buyers.

African example:
Bell Equipment, a South African heavy machinery OEM, has integrated predictive maintenance analytics into its operations. By analysing real time sensor data (vibration, pressure, temperature), the firm identifies potential component failures early—reducing downtime by approximately 15 percent

G20/Global Reference:
Bosch (Germany) applies similar AI intelligence across its global facilities. Their systems manage tooling predictions, monitor performance, and execute automated quality control checks that preserve consistent product standards at scale.

(D) Finance & Inclusion

Africa's financial sector has undergone a quiet revolution over the past decade, driven primarily by the rapid uptake of mobile money. In several countries, mobile payments account for a larger share of GDP than in many advanced economies. Services like M-Pesa, MTN Mobile Money, and Orange Money have connected millions to the financial system, enabling fast peer-to-peer transfers, digital wallets, and merchant payments. This has created one of the most dynamic financial ecosystems in the world—albeit one still marked by fragmentation, low formal savings rates, and high credit exclusion.

A key structural feature of African finance is its reliance on non-bank actors. Fintechs, mobile network operators, and informal savings groups all play significant roles. However, access to affordable credit remains limited. Traditional banks often avoid low-income customers due to the lack of verifiable data, collateral, or formal identification. Moreover, onboarding and compliance processes are still cumbersome, and fraud remains a growing threat as digital adoption accelerates.

This is where artificial intelligence offers transformational potential. AI technologies allow institutions to move beyond conventional credit assessment and fraud detection tools, replacing them with dynamic, data-rich systems that improve speed, scale, and inclusion. For example, AI-powered credit scoring can assess risk in real time by analysing alternative data; such as smartphone usage, mobile money flows, or social graph activity, giving lenders insight into borrowers previously invisible to the system. Models built on behavioural patterns, transaction histories, and even repayment rhythm enable institutions to underwrite loans for first-time borrowers without relying on physical collateral.

Fraud detection systems powered by AI can scan millions of transactions in seconds, spotting unusual patterns that indicate scams or identity theft. As these models learn from real-world fraud attempts, they improve over time, allowing firms to respond faster and with more precision. Customer onboarding, long a chokepoint for digital finance, is also being streamlined. Facial recognition systems and selfie-matching tools reduce the time and documentation burden associated with know-your-customer (KYC) compliance. Predictive models are also used to monitor repayment behaviour, flagging early signs of financial stress or potential default.

Portfolio managers and institutional investors benefit from robo-advisory tools that provide personalised savings nudges or suggest asset allocations tailored to individual goals. These tools make investing and saving more accessible, even to those with modest incomes.

African example:
M-KOPA, a fintech based in East Africa, has built its entire lending model on AI-enabled underwriting. It provides financing for solar kits and smartphones to customers without traditional credit histories, using signals such as airtime purchase behaviour, repayment consistency, and phone usage patterns to assess creditworthiness. The model enables low-income users to access assets incrementally through pay-as-you-go plans, improving quality of life while building a digital credit trail

G20/global reference:
JPMorgan Chase in the United States applies AI across its global retail and investment banking operations. It uses AI to monitor millions of accounts for potential fraud, ensure compliance with anti-money laundering regulations, and automate customer support queries. Its AI-driven risk systems also help human analysts focus on the most serious threats, making fraud prevention more efficient at scale

(E) Health & Life Sciences

Health systems across Africa face a complex web of challenges. Many countries contend with chronic shortages of healthcare workers, limited diagnostic infrastructure, long wait times, and fragmented patient records. The average physician-to-patient ratio remains well below global norms, particularly in rural areas. Many clinics operate without digital records, consistent electricity, or real-time supply chain visibility. These gaps often result in delayed diagnoses, drug stockouts, and poor patient outcomes.

Yet the sector also has important structural strengths. Many African countries have made significant investments in primary care networks, community-based health initiatives, and mobile health (mHealth) platforms. The growth of digital health startups is helping bridge service gaps, particularly where public systems fall short. Africa's demographic dividend, including a rapidly growing youth population and widespread mobile phone usage, has also created new opportunities to deliver healthcare through digital channels.

Artificial intelligence offers a powerful set of tools to support health workers, improve diagnostics, and streamline resource use. Rather than replacing clinicians, AI helps amplify their capacity. For example, imaging algorithms can prioritise X-rays and MRIs, helping radiologists identify the most urgent cases more quickly. In areas where specialists are few, this triaging can accelerate life-saving care. Chatbots and symptom checkers offer front-line triage, guiding patients through questions before they reach a health worker. This reduces strain on overstretched clinics and helps health systems direct patients to the right level of care. In some settings, AI-powered virtual assistants can also support physicians by suggesting treatment protocols based on local data and global best practice.

Behind the scenes, AI helps streamline the supply chain. Algorithms that analyse prescription data and disease patterns can predict demand for essential medicines, reducing waste and improving availability. Other systems simulate the impact of potential interventions, allowing policymakers to test public health campaigns in silico before implementing them at scale.

One crucial equity issue in African healthcare is gender. Women make up a majority of the workforce in many countries, particularly in nursing, maternal care, and informal caregiving roles. AI systems that improve diagnostic accuracy or reduce clinical burden can disproportionately benefit female health workers and patients alike. However, many global health models have been trained on male-biased datasets. Ensuring that AI deployment in African health systems addresses sex- and gender-specific data gaps is essential for equity.

African example:
mPharma, operating across West and Southern Africa, uses AI-driven analytics to forecast pharmaceutical demand across a network of more than 3,000 pharmacies. Its platform integrates real-time sales data, disease incidence, and delivery timelines to predict which medicines will be needed and when. This reduces stockouts and ensures that drugs arrive in the right locations before shortages occur. The system has become particularly valuable during health emergencies and seasonal disease cycles

G20/global reference:
In the United Kingdom, NHS England applies AI in its national cancer screening programme. Algorithms assist radiologists by flagging anomalies in imaging scans, accelerating the triage process and reducing wait times for diagnosis by up to 50 percent. Clinical AI systems are also used to forecast hospital admissions and manage elective surgery queues, freeing up clinicians to focus on complex cases

1.3.3 Cross-sector insights

The five sectors highlighted earlier offer distinct advantages that position them as key drivers for Africa's AI leap forward. First, they already generate a rich stream of data from mobile phones, satellites, sensors, and payment platforms, creating a lively "data ecosystem" that machine-learning models need. Second, they employ tens of millions of people, mostly outside formal contracts, which gives any productivity gain an immediate human and social footprint. Third, AI benefits can materialise rapidly, through lower prices, faster services, or improved health outcomes, making their impact difficult for policymakers to ignore. Finally, each sector aligns closely with the continent's five core AI building blocks: compute, data, skills, trust, and capital; ensuring these sectors both benefit from and reinforce the enabling ecosystem.

They also have another powerful feature in common: **they enable the rest of the economy.** Agriculture supports food and trade systems. Retail fuels logistics, e-commerce, and warehousing. Finance touches every SME, and healthcare systems underpin workforce health and stability.

1.3.4 Beyond the Top 5: The Other 10 Sectors

Of course, the story does not end there. The other sectors may not shine as brightly, but collectively they still represent a very sizeable prize estimated at $420 billion, or 42 percent of the total projected uplift. In energy, AI can fine-tune demand forecasts, balance smart grids, and spot faults before they cascade. Transport and logistics gain through real-time traffic management, smart fleet routing, and predictive maintenance schedules that extend asset life. Education, too, stands to benefit: adaptive learning platforms, portable credentialing systems, and AI-driven tutors can help millions upgrade their skills in a fraction of the time traditional methods take.

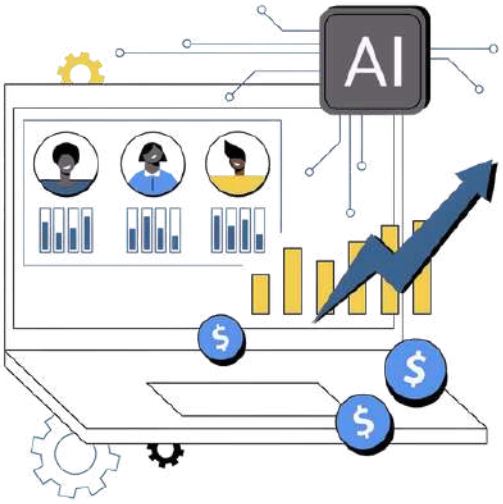
When people think about artificial intelligence, they might picture flashy chatbots or automated factories, but the substance behind the hype is steadily transforming everyday government services. By streamlining document handling, spotting irregularities before they become costly frauds, and making it easier for citizens to interact with public agencies, AI is quietly modernising the way government works for all of us.

Many of these sectors are **indirect beneficiaries** of AI scaling in the Tier-1 sectors. For example:

- AI adoption in agriculture drives demand for smarter logistics and transport
- Retail digitisation creates new financing needs, linked back to AI in finance
- Health and education AI models require clean, reliable energy and connectivity

Economy-Wide AI Spill-Over Effects

Put simply, investing in foundational AI capabilities; such as computing infrastructure, open and interoperable datasets, skilled technical talent, trusted governance frameworks, and catalytic financing; may be the most effective way a country can broaden the benefits of digital transformation. These shared enablers act as platforms for innovation across sectors, making it easier for governments, businesses, and communities to adapt AI solutions to local needs. Every dollar invested in these core systems stretches further by enabling future applications in energy, education, public services, and beyond.



Sector	Share	Uplift
Agriculture	20%	US $200B
Retail/Trade	14%	US $140B
Manufacturing	9%	US $90B
Finance	8%	US $80B
Health	7%	US $70B
Other 10 Sector [8]	42%	US $420B
Total	100%	US $1 Trillion

Table 5: Sectoral Allocation of the US $1 T Uplift

[8]**The "Other 10" sectors include:** Transport & Logistics, Energy, Government Services, Education, ICT, Water & Sanitation, Construction, Mining, Tourism, and Creative Industries. For full methodology and scoring details, **see Annexure B.3.**

1.3.5 Implications for Strategic Planning

While the Tier-1 sectors offer the greatest promise for early AI dividends, they are not without structural challenges. Across agriculture, retail, manufacturing, finance, and health, common bottlenecks include fragmented data ecosystems, limited access to compute infrastructure, underdeveloped talent pipelines, regulatory uncertainty, and weak financing mechanisms for AI experimentation and scale-up.

Converting sector-level potential into tangible outcomes will require strategic interventions tailored to both cross-cutting and sector-specific readiness gaps. The following five priorities reflect actionable entry points for policymakers, development institutions, and private investors:

- **Invest in shared data infrastructure**: Build and connect interoperable data networks across agricultural production, retail logistics, and health systems. These systems should support real-time decision-making, predictive modelling, and the secure exchange of sector-specific data.
- **Expand blended finance for informal sectors and SMEs:** Strengthen access to capital for smallholder farmers, market traders, small manufacturers, and health entrepreneurs through digitally enabled lending and credit scoring platforms powered by AI.
- **Accelerate sector-specific talent development:** Develop dedicated tracks in AI-related skills that directly support applied use cases in agriculture (e.g. remote sensing), manufacturing (e.g. robotics and predictive maintenance), finance (e.g. risk modelling) and health (e.g. diagnostics and imaging).
- **Establish testbeds and regulatory sandboxes:** Encourage experimentation through policy frameworks that allow safe testing of AI applications in finance and healthcare, such as AI-driven lending tools or clinical triage models.
- **Create public–private labs and open platforms:** Build collaborative environments where innovators can co-design AI solutions, test sector prototypes, and scale successful pilots with governments, universities, and anchor firms.

For AI to advance, especially in the industries that stand to gain the most, several boxes have to be ticked:

Data has to be plentiful and protected, computing power needs to be cheap and easy to find, workers have to receive the right training, regulations must be clear and credible, and investors must be willing to step up with the required funds.
The next section looks closely at these gaps in readiness and outlines what needs to happen to fix them

These interventions are not exhaustive, but they are catalytic. They provide a starting point for translating Africa's AI opportunity into a coordinated productivity agenda. Each is designed to directly address the friction points identified in Section 2.3 and to reinforce the five foundational enablers detailed in Section 2.1.

Gaining the benefits of artificial intelligence in Africa is within reach, but it won't just happen on its own. The earlier chapters have laid out the size of the reward and the direction to take, yet both become meaningless if the surrounding infrastructure is missing.

SECTION 2

Readiness Gaps: What Must Be Fixed to Deliver the Dividend

Section 2 – Where do Africa's AI gaps lie and how do we close them?

The promise of Africa's AI dividend will not be realised through projections alone. Real delivery depends on whether the continent can overcome five systemic barriers: fragmented data systems, limited compute infrastructure, insufficient AI-ready talent, weak governance frameworks, and undercapitalised innovation ecosystems. This section examines those readiness gaps in depth, quantifies where Africa stands compared to global benchmarks, and unpacks what it would take to turn latent potential into productivity gains. If Africa is to shift from ambition to outcome, these are the five levers that must be unlocked together.

2.1 The AI Readiness Flywheel

Africa's AI dividend is real, but only if the system that enables it is in place. Just as no economy can grow on ideas alone, no country can unlock AI's full potential with data but no infrastructure, or with skills but no compute. The reality is this: AI productivity only happens when five critical levers move **together.**

We call this the **AI Readiness Flywheel.** It is a simple but powerful way to understand what's required to turn AI possibility into reality. Like any flywheel, its strength lies in motion and balance. When one lever stalls, the whole system slows. But when all parts turn in concert; **data, compute, skills, trust and capital,** momentum builds and transformative gains become achievable.

We have seen this dynamic at work in countries such as **India** and **Saudi Arabia,** where coordinated investment across all five enablers is already turning policy into productivity. For example, India's "AIRAWAT" supercomputing initiative is tightly integrated with national data infrastructure and digital skilling programs, while Saudi Arabia's AI strategy aligns trusted data, sovereign compute infrastructure, and a US $20 billion AI investment fund under a single national framework.

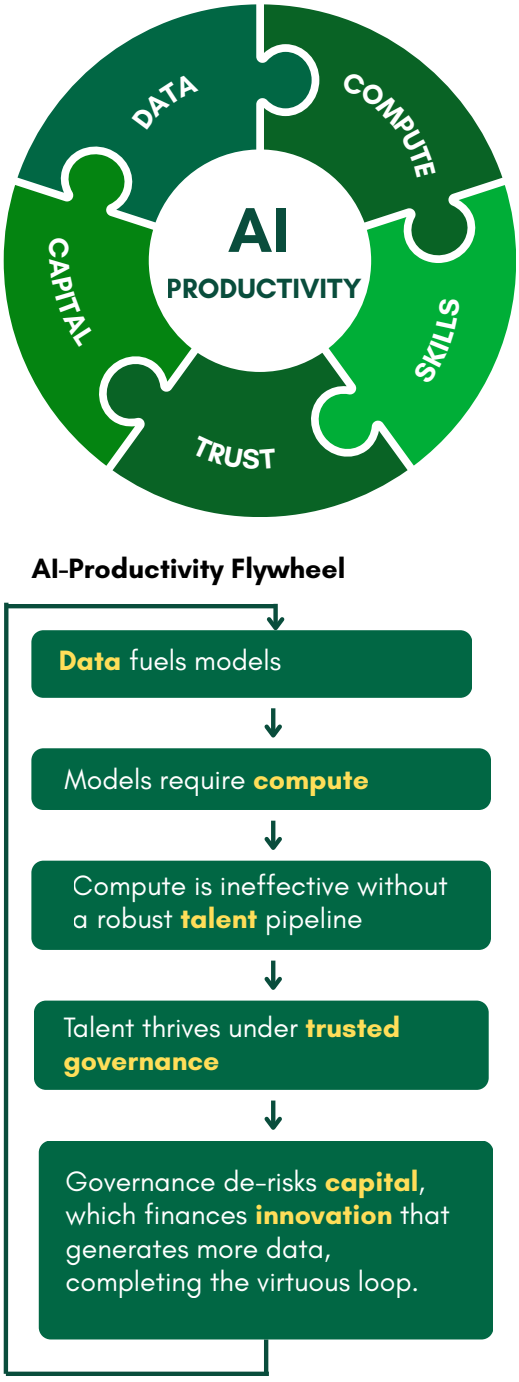


Figure 3: The AI Readiness Flywheel
(Five interconnected enablers: Data, Compute, Skills, Trust and Capital forming a circular, self-reinforcing loop)

Why readiness must be systemic:
The flywheel is made up of five enablers that are individually important but collectively essential:

Enabler	Why it matters
Data	AI needs fuel. Without high-quality, accessible, well-governed data, no model can be trained, tested, or scaled.
Compute	AI needs power. Models that take seconds to run in California can take days without GPUs or cloud access.
Skills	AI needs people. From engineers and analysts to teachers and regulators, talent is the bridge between code and context.
Trust	AI needs safeguards. Without rules that inspire confidence, systems stall or spark resistance.
Capital	AI needs investment. Pilots will not scale without long-term capital to fund infrastructure, startups, and public delivery.

Table 6: Why readiness must be systemic

These five enablers do not work in isolation. They form a **flywheel** a loop where each one amplifies the next. When data is open, compute is accessible, skills are available, trust is established, and capital is present, progress becomes self-reinforcing. But if one piece is missing, the whole system slows down.

AI Readiness Flywheel – G20 Examples: India and Saudi Arabia
While Africa must chart its own AI pathway, lessons from G20 countries can help illuminate how to activate the five foundational levers of AI readiness: compute, data, skills, trust and capital. Informed by direct consultations with stakeholders from India and Saudi Arabia, this box summarises how both countries have begun putting their flywheels in motion.

India: Coordinated National Infrastructure and Human Capital Investment
India's approach to AI readiness is anchored in institutional coordination and inclusion. Insights from public-sector officials at the Ministry of Electronics and Information Technology (MeitY) highlighted the following:

- **Compute:** Through the National Supercomputing Mission and the proposed IndiaAI Compute Platform, India is building sovereign infrastructure to expand AI processing capacity across public and private sectors.
- **Data:** National open data frameworks and interoperability protocols support AI developers, researchers, and digital service delivery across ministries.
- **Skills:** FutureSkills PRIME, a joint initiative with NASSCOM, aims to train millions of workers in AI, data science, and cloud computing, including via public digital infrastructure.

- **Trust:** Draft legislation such as the Digital India Act and AI ethical guidelines promote responsible use, algorithmic transparency, and privacy safeguards.
- **Capital:** Centres of Excellence in AI and government-backed R&D schemes enable early-stage companies and academic labs to experiment with applied solutions in health, agriculture, and education.

Saudi Arabia: Institutional Leadership and Market-Driven AI Scale-Up

Saudi Arabia's flywheel is being driven by bold Vision 2030 ambitions and strong public-private collaboration. Consultations with private-sector AI leaders in regulated industries offered the following insights:

- **Compute:** Cloud infrastructure and smart-city platforms (e.g. NEOM) provide advanced AI processing capacity for both enterprise and government services.
- **Data:** The Saudi Data and AI Authority (SDAIA) has developed national standards and frameworks to govern open data sharing and AI model transparency.
- **Skills:** SDAIA and affiliated institutions offer AI bootcamps, data science fellowships, and university partnerships to grow local AI talent.
- **Trust:** A national AI ethics policy has been published to guide responsible development, with compliance expected across key public-sector systems.
- **Capital:** Saudi Arabia has created dedicated digital economy investment vehicles and fintech innovation hubs to scale AI-enabled startups and financial products.

These examples confirm that sustained progress across the five flywheel levers depends on early policy coordination, multi-stakeholder alignment, and strong investment signals. Africa's advantage lies in applying these lessons with context-specific innovation.

Why it matters now

Many African countries are making progress on key aspects of AI readiness. As of 2024, at least seven countries; including Kenya, Ghana and Nigeria have launched or piloted AI sandboxes. [9] More than 25 are implementing broadband acceleration plans through initiatives like AU and the World Bank Digital Moonshot. [10] Others, such as South Africa and Senegal, have rolled out AI fellowships or digitisation pilots in healthcare, education, and public registries. [11]

Yet these efforts remain fragmented often siloed, unsequenced, and lacking system-level integration. Realising the full dividend requires the flywheel to turn as one.

Africa is not starting from scratch, but we are not yet moving in sync

[9] Empower Africa (2024). Regulatory Sandboxes in Africa.
[10] ITU & Smart Africa Alliance (2023). Africa Connectivity Report. See also: World Bank (2023), Accelerating Broadband Access for Inclusive Growth.
[11] ECDPM (2024). Envisioning Africa's AI Governance Landscape; Brookings Institution (2023). AI Policy in Africa.

Signs of Momentum

Early sparks of flywheel activation are visible across the continent:

- **Data:** Ghana's health datasets and Rwanda's agriculture portals are FAIR aligned
- **Compute:** South Africa and Nigeria have active GPU zones connected to international fibre
- **Skills:** Moringa School (Kenya) and AI Fridays (Senegal) train ML engineers
- **Trust:** Mauritius and Egypt have published AI guidelines; Kenya's Data Protection Act includes fairness provisions
- **Capital:** Over US $500 million has been raised by African AI-adjacent startups since 2021 (e.g. InstaDeep, Viebeg, Zindi)

The risk of moving alone

While these initiatives signal progress, no single enabler can drive transformation in isolation. In Kenya and Senegal, AI talent pipelines are expanding, but limited access to compute hampers deployment. In South Africa and Ghana, data digitisation outpaces regulatory clarity, delaying adoption. These aren't isolated anomalies they reflect a systemic pattern: when one pillar advances without the others, momentum stalls.

The flywheel is more than a metaphor. It is a strategic map for AI readiness, grounded in what's already unfolding across the continent. Synchronised progress across compute, data, talent, trust and capital is not aspirational, it is essential.

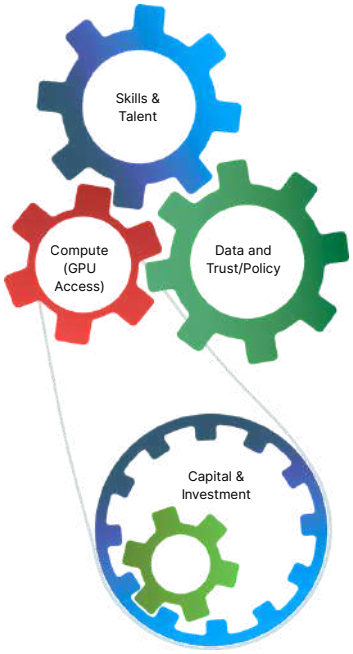
Why coordination matters

Continental and sub-regional platforms are pivotal to this synchronisation. The African Union's Continental AI Strategy (2024) calls for cross-border interoperability in infrastructure and governance. Smart Africa supports over 40 countries in harmonising broadband rollouts and digital policy. ECOWAS and SADC are increasingly active in aligning standards and regulatory frameworks.

These coordination bodies help countries pool resources, de-risk innovation, and unlock economies of scale ensuring that national progress is not trapped within borders, but shared continentally.

What the flywheel tells us

Early evidence underscores a simple truth: progress on one pillar does not unlock AI readiness unless all five turn together. In Kenya and Senegal, bootcamps such as Moringa School and AI Fridays are graduating talent, yet limited compute (GPU) access still blocks deployment, while in South Africa and Ghana data digitisation is advancing faster than policy clarity, stalling scale-up efforts. Comparable patterns appear outside Africa: India's National AI Mission ("AIRAWAT") and Saudi Arabia's Vision 2030 started to deliver results only after coordinated investment across data, compute, skills, trust and capital. The most catalytic programmes, AI-enabled health triage, adaptive learning platforms, smart supply chains sit at the intersection of multiple enablers rather than any single one. Section 2.2 now measures how far Africa must travel on each pillar to match G20 benchmarks and fire up the full flywheel.



2.2 Benchmarking Africa's AI Readiness Against Global Peers

Why a benchmark?
To pinpoint where Africa must invest and how quickly progress is possible, we built a data-centric, fully reproducible index that scores every African country against two baselines: 18 sovereign G20 economies (EU and South Africa excluded for parity) and the rest of the world.[12] The index mirrors the report's AI-productivity flywheel, tracking five equal-weight pillars:

Pillar	Why it captures	Example public sources
Data Ecosystems	Openness, quality, FAIR alignment	ODIN, Global Data Barometer
Compute & Digital Infrastructure	Connectivity, cloud/GPU capacity	GSMA MCI, World Bank servers
Skills & Human Capital	STEM talent pipeline	UNESCO UIS, Oxford Insights
Trust & Governance	Policy, privacy, cyber-security	ITU GCI, UN EGDI
Innovation & Capital	R&D and AI investment flow	WIPO GII, IMF AI Index

Table 7: Benchmark

Each pillar is the 0–100 mean of 5–9 indicators.

Where Africa stands today

- **Composite score:** 32 /100 -36 points behind the G20 (68) and 14 points behind the rest-of-world benchmark (46).
- **Largest gaps:**
  - Trust & Governance 36 vs 78 (−42 pts)
  - Compute & Digital Infrastructure 22 vs 63 (−41 pts)
- **Other deficits:** Data 45 (−35 pts), Skills 29 (−32 pts), Innovation 28 (−27 pts).

Africa is **heterogeneous:** the top quartile already scores 52/100, showing how quickly convergence can happen when policy, infrastructure and capital align. Many countries, however, remain well below the continental median; isking a two-speed landscape.

Priority actions derived from the numbers

1. **Close the trust gap:** enact and enforce clear AI laws, privacy safeguards and ethics review.
2. **Widen compute access:** regional GPU hubs and pooled procurement (see section 3) to lift the 22-point infrastructure score toward parity.
3. **Grow talent pipelines & open data**: mid-career up-skilling and FAIR-aligned public datasets shrink the skills and data deficits while boosting investor confidence.

With targeted investment along these three levers, many African states are already narrowing the 36-point composite gap and accelerating toward the AI-productivity flywheel outlined in Section 1.

AI Readiness Gap – Africa vs. G20 and Rest of World
(Average scores across five pillars: Data, Compute, Skills, Trust and Capital; scale: 0–100)

Pillar	Africa (AU-54)	G20	Rest of World	Africa's Gap
Data Ecosystems	45	80	66	US $200B
Compute & Digital Infrastructure	22	63	41	US $140B
Skills & Human Capital	29	61	41	US $90B
Trust & Governance	36	78	47	US $80B
Innovation & Capital	28	55	38	US $70B
Composite (5-pillar mean)	32	68	46	US $420B

Table 8: AI Readiness Gap

Note: South Africa is included in the Africa group; the EU and South Africa are excluded from the G20 benchmark. See Annex C for full methodology, data sources, and scoring protocols.

Why these scores matter
Africa's AI-readiness is far from uniform. A small group of front-runners already demonstrates what's achievable for example, South Africa (sovereign GPU "data-embassy" hubs), Rwanda (near-universal broadband and AI fellowships), Kenya and Mauritius (regulatory sandboxes), and Egypt and Ghana (national data platforms). Their momentum lifts the top quartile to roughly 52/100. In contrast, more than forty countries are still laying basic digital rails, creating a risk of a two-speed continent.

The benchmark helps decision-makers to:

- See where each country sits on the spectrum; from advanced leaders to early-stage builders.
- Spot the biggest pillar gaps so policy and investment land where they matter most.
- Identify issues that require regional coordination, because fragmentation can strand shared infrastructure and shrink the overall dividend.

If the largest gaps persist:

- Data remain siloed, stalling cross-border services.
- Talent migrates, following compute capacity and careers abroad.
- Compute stays expensive, locking SMEs out of AI tools.
- Trust remains fragile, discouraging citizens, regulators, and capital.

The index is not a scoreboard; it is a diagnostic dashboard that turns broad readiness talk into concrete, country-specific action.

Signs of acceleration
Across the continent, early wins show the flywheel beginning to turn, often in places that score very differently on the readiness index.

- **Compute:** South Africa's public "Data-Embassy" hubs and the private Nvidia-backed AI factory signal a nationwide push for affordable GPUs.
- **Skills + Connectivity:** Rwanda's nationwide AI fellowship pairs with near-universal 4G; Ogun State, Nigeria just launched a similar fellowship aimed at 2,000 trainees.
- **Trust:** Draft AI bills have entered public consultation in Kenya and Mauritius while Ghana opened its sandbox to regional start-ups.
- **Data:** Egypt's National Data Cloud and Ghana's Open Health Portal both went live in 2024, publishing FAIR-aligned datasets.

Africa's top quartile already scores 52/100, but these scattered accelerators spanning compute, skills, trust and data; suggest the median gap can close in under a decade if such efforts scale.

But the risk is fragmentation
If only 8 or 10 countries reach AI-readiness, the dividend shrinks. Network effects are lost. Regional infrastructure remains underused. And inclusive growth the real goal becomes harder to deliver.
This is why AI must be approached as a **continental development priority**, not a national pilot.

What it would take

- Regional readiness compacts to align standards, law, and investment
- Compute-credit mechanisms to allow shared access to GPU infrastructure
- Public data clean-up incentives to populate FAIR-aligned datasets
- Mid-career ML training at scale in underserved regions
- Blended-capital funds for both infrastructure and scale-up finance

Africa is not 40 years behind it is 40 points behind

And that can be closed with the right partnerships, policies, and focus

Section 2.3 now unpacks each enabler in detail starting with data.

2.3 In-Depth Analysis of Readiness Enablers

Africa's AI dividend depends not just on innovation, but on infrastructure. To unlock real productivity at scale, five foundational enablers must be built and aligned: **Data, Compute, Skills, Trust and Capital.**

These are not technical checkboxes they are the systems that determine whether AI helps the farmer, the teacher, the patient, the entrepreneur. This section explores each enabler in turn.

Data Ecosystems

Why it matters
AI systems learn from data but only if it is accessible, usable, and representative. Without data, there is no model to train, no service to optimise, no outcome to measure. High-quality public and sectoral data ecosystems are the bedrock of AI readiness.

Where Africa stands
Africa scores **45/100** on data ecosystems; a 35-point gap with G20 peers. Many datasets are outdated, closed, or scattered across ministries. Local-language data is scarce. Few countries follow **FAIR principles** (Findable, Accessible, Interoperable, Reusable).

Where progress is happening
- Ghana's health data portal provides machine-readable, anonymised facility-level data[13]
- Rwanda's agriculture data strategy is building interoperability for farmer-facing tools[14]
- Mauritius is advancing open data platforms alongside data protection oversight[15] [16]

What's missing
- No cross-border data standards
- Poor metadata practices and fragmented datasets
- Limited funding for public-sector data infrastructure

What success could look like by 2030
- All RECs have federated public data networks
- Every AU country adopts FAIR-aligned open data policy
- APIs available for core datasets in health, agriculture, and education

Compute & Digital Infrastructure

Why it matters
AI is compute intensive. Training and deploying models; even small ones require GPUs, cloud infrastructure, and stable power. Without compute, local innovators are priced out or locked out.

Where Africa stands
Africa scores **22/100** on compute[17], the lowest across all pillars. GPU availability is limited, cloud infrastructure is uneven, and energy costs remain high.

[13] Health Facilities in Ghana (CSV)."Ghana Open Data Initiative, National Information Technology Agency. Last modified 10 May 2019.
[14] Rwanda Ministry of Agriculture and Animal Resources. "Smart Nkunganire System to Enhance Access to Agriculture Inputs." News release, Kigali, 2024.
[15] Mauritius Digital Promotion Agency.Open Data Portal (dataset catalogue, 500 + downloadable CSV/XLSX datasets). Accessed 10 July 2025. https://data.govmu.org.
[16] Government of Mauritius, Data Protection Office. Data Protection Act 2017 – Legal Text & Guidance. Accessed 10 July 2025.
[17] AI Readiness Benchmark, see Annex C of this report for methodology

Where progress is happening

- South Africa is leading on the Data Embassy concept sovereign, shared GPU-rich centres [18] [19]
- Nigeria (NITDA) has entered partnerships to expand cloud compute access [20]
- Kenya's Konza Technopolis is exploring AI infrastructure zones[21]

What's missing

- Compute remains unaffordable for most startups and research labs
- No shared AU procurement or GPU pool
- Power and cooling constraints limit scalability

What success could look like by 2030

- Four GPU-rich Data Embassies (one in each high-capacity REC) fully operational by 2030, with two edge-corridor nodes financed and under construction; keeping the network on track to reach six embassies by 2035 under the same AU charter
- Compute-credit schemes for researchers and social impact projects
- Low-latency cross-border access for SMEs and developers

Skills & Human Capital

Why it matters

AI is built, deployed, and governed by people. Without talent, AI remains theory. Africa needs builders, trainers, auditors, policymakers not just developers.

Where Africa stands

Africa scores 29/100 on skills, a 32-point gap with the G20 average[22]. The continent has fewer than 40,000 AI-literate professionals, and most training is concentrated in a few cities.

Where progress is happening

- Moringa School (Kenya) offers hands-on training in AI and machine learning
- AI Fridays (Senegal) builds early-stage talent through open bootcamps
- Zindi runs real-world competitions, linking AI talent to industry problems

What's missing

- Mid-career up-skilling and retention; especially pathways that keep talent on the continent
- Post-graduate research capacity and sustainable funding
- AI skills integrated across school, university & TVET curricula
- Inclusive pipelines; limited access for women and marginalised groups to AI careers and decision-making roles

[18] African billionaire set to build the continent's first AI factory powered by Nvidia," Business Insider Africa, 24 Mar 2025
[19] Sean Whitehead, "South Africa Ranks Among Global Leaders in AI Data Centres," iAfrica.com, 2 Jul 2025.
[20] Soonest Nathaniel, "Nigeria, Google Advance Strategic Digital Partnership to Boost AI Innovation," Channels Television, 8 May 2025.
[21] Moses Kemibaro, "30 Key Takeaways from Kenya's National AI Strategy 2025-2030," LinkedIn article, 30 Mar 2025 (see point 10: "Konza … will host the AI cloud, national super-computing facility")
[22] AI Readiness Benchmark, see Annex C of this report for methodology

What success could look like by 2030

- Three million AI-capable professionals across Africa
- Active AI talent pipelines across all RECs
- Inclusive, gender-balanced AI training ecosystems

Trust & Governance

Why it matters

AI systems increasingly shape decisions about health, finance, and access. Without trust, adoption stalls. Without governance, risk grows.

Where Africa stands

Africa scores 36/100 on trust and governance, a 42-point gap with the G20.[23] Many countries have general data protection laws, but few have AI-specific rules, sandboxes, or enforcement systems.

Where progress is happening

- Kenya's Data Protection Act (2019) includes provisions on automated decision-making
- Mauritius has published an AI Ethics Framework
- Egypt is piloting algorithm audit protocols for digital government

What's missing

- No model AI risk framework at AU level
- Lack of local algorithmic audit tools
- Weak coordination between digital trust agencies and AI oversight

What success could look like by 2030

- AU-wide Responsible AI framework adopted by all RECs
- Algorithmic audit templates for developers and regulators
- Public–private sandboxes used to test AI in sensitive domains

Innovation & Capital

Why it matters

AI is not just about models, it's about solutions that scale. That means risk capital, patient infrastructure finance, and platforms that allow small firms to grow fast.

Where Africa stands

Africa scores **28/100** on capital and innovation.[24] While seed funding is rising, growth equity and project finance remain limited. AI-focused DFIs and blended funds are still rare

[23] AI Readiness Benchmark, see Annex C of this report for methodology
[24] AI Readiness Benchmark, see Annex C of this report for methodology

Innovation & Capital

Where progress is happening

- InstaDeep (Tunisia/South Africa) raised US $100M and was acquired by BioNTech
- Viebeg (Rwanda) uses AI for medical supply forecasting across East Africa
- Zindi creates deal flow by connecting talent to enterprise demand

What's missing

- Growth-stage capital for AI scale-ups
- Infrastructure finance for data centres, labs, compute
- Domestic capital markets aligned with digital priorities

What success could look like by 2030

- US $10B mobilised in blended capital across AI sectors
- Regional AI innovation funds backed by public and private LPs
- 100+ AI-powered African companies scaling across key verticals

One system, five levers all must move

No single pillar can deliver the dividend alone. When these enablers move together, they generate momentum. When one lags, the others slow down. Coordination, timing, and scale are essential

Section 2.4 now introduces country archetypes and how different states can close different gaps.

2.4 Country Archetypes: Four Paths to Readiness

To move from one-size-fits-all advice to country-specific roadmaps, we grouped Africa-54 into **four readiness archetypes** using a two-axis, data-driven segmentation:

- **Capability score** – the **weighted composite** AI-readiness index (Compute 25 %, Data 20 %, Skills 20 %, Trust 20 %, Innovation 15 %) detailed in section 2.2.
- **Market weight** – an adjustment for each country's GDP and population shares (both capped at 20 %) that reflects its capacity to scale impact.

A four-branch decision tree (Annex D) then classifies countries as Catalytic Agents, Innovation Hubs, Scale Accelerators, or Foundation Builders. The thresholds are rule-based, with no manual overrides, so any analyst can replicate the result.

Knowing where a country sits on this capability-versus-weight map shows policymakers where to start (e.g., foundational ID systems vs. sandbox governance) and investors how to move (large-market scale plays vs. small-market test beds). Evidence in section 2.1 already shows Catalytic Agents piloting AI in banking, manufacturing, and retail supply chains, while Innovation Hubs focus on compliance-heavy health-tech trials.

For all indicator weights, threshold values, and the full decision-tree logic, see Annex D.

The Four Readiness Archetypes

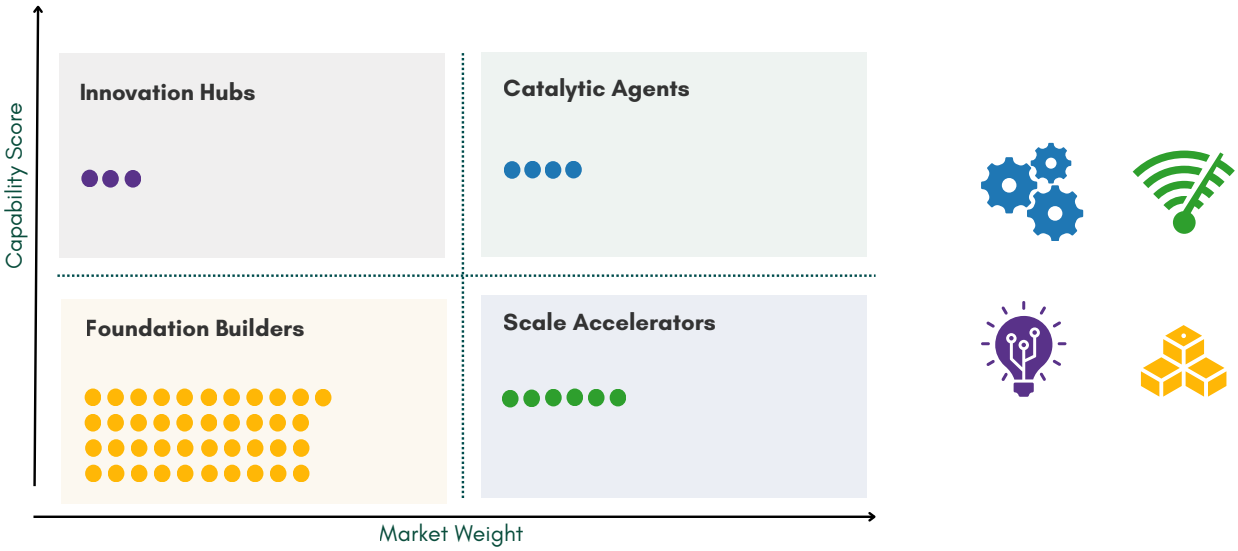


Figure 4. The Four Readiness Archetypes

Archetype	Countries	Summary
Catalytic Agents	South Africa, Nigeria, Egypt, Kenya	Large markets with advanced digital foundations. Act as regional drivers of AI readiness
Scale Accelerators	Morocco, Tunisia, Ghana, Algeria, Senegal, Côte d'Ivoire	Mid-sized economies gaining fast. Poised for regional scaling with the right policy and investment.
Innovation Hubs	Mauritius, Rwanda, Cabo Verde	Digitally mature but small. Offer low-risk testbeds for AI pilots.
Foundation Builders	40+ AU Member States	Just beginning the digital journey. Need foundational support to enter the readiness curve.

Table 9: The Four Readiness Archetypes

Archetype 1: Catalytic Agents

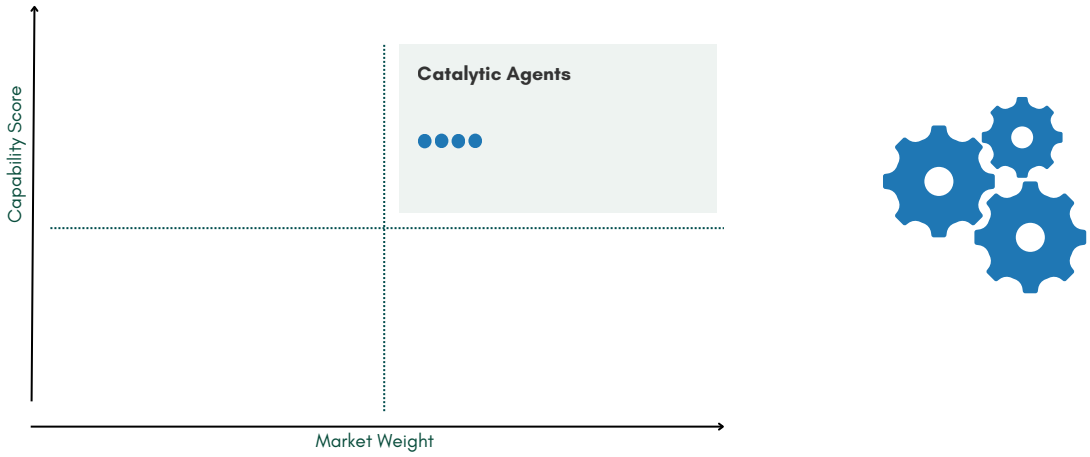


Figure 5. Catalytic Agents

These countries combine economic scale with digital maturity — publishing open datasets, hosting cloud infrastructure, and operating regulatory sandboxes. Together, they represent nearly half of Africa's GDP and have begun piloting AI tools in health, agriculture, and finance.

Strengths:

- Urban fibre density and multiple submarine cable landings
- Operational GPU cloud zones (public and private)
- High visibility to investors and AI multinationals
- Diaspora return programmes and postgraduate talent pools

Gaps:

- Rural and local-language data is still fragmented
- Gender gap in AI and STEM workforce remains large
- Sandboxes are often policy-led but underutilised by startups
- Growth capital (US $25–100M) remains scarce relative to demand

Next Moves:

- Operationalise AI-risk audits across sectors (e.g. credit, health, policing)
- Expand compute access via regional hubs and public credit lines
- Channel scale-up finance through blended AI investment windows

Archetype 2: Scale Accelerators

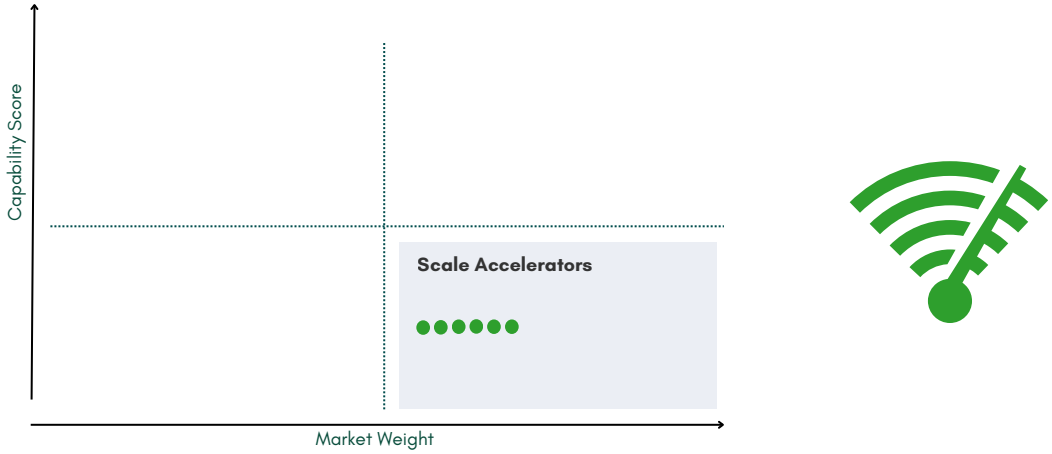


Figure 6: Scale Accelerator

These economies are digitising quickly and host dynamic startup scenes. With near-universal mobile coverage and increasing cloud access, they can pilot AI use cases across key export sectors including agri-processing, logistics, and tourism.

Strengths:

- Rapid deployment of 4G and mid-tier fibre corridors
- Entrepreneurial tech culture and bootcamp pipelines
- Politically stable environments with modernised data laws
- Growing access to seed capital and innovation funds

Gaps:

- Brain drains of skilled developers to G20 markets
- Intermittent electricity and compute affordability challenges
- Weak MLOps pipelines between bootcamps and scale-up employers
- Few AI sandboxes are active beyond policy announcement stage

Next Moves:

- Expand sandboxes beyond FinTech into education, health, and agritech
- Incentivise compute pooling across startup clusters
- Pilot interoperable trust and compliance frameworks with Catalytic Agents

Archtype 3: Innovation Hubs

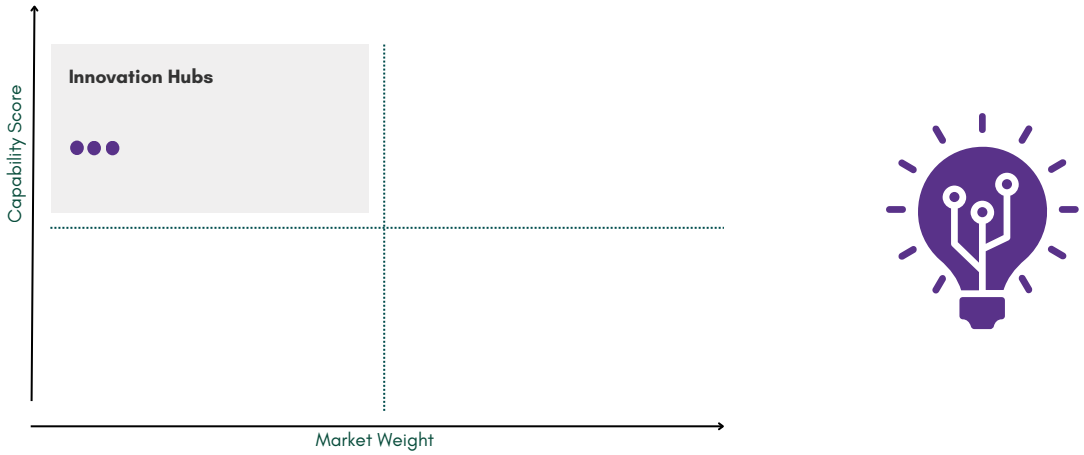


Figure 7: Innovation Hubs

These countries score high on capability relative to their size. With modern legal frameworks and agile regulators, they offer ideal conditions for piloting responsible AI systems for example privacy-preserving e-KYC engines, AI radiology-triage tools, explainable crop-risk models for ag-insurance, and regulatory chatbots for digital-ID services.

Strengths:

- National broadband coverage and edge compute availability
- Robust digital-ID coverage plus GDPR-aligned data-protection laws, enabling trusted data sharing and low-risk AI pilots
- Compact, agile bureaucracies able to test and iterate quickly
- Academic partnerships (e.g. CMU-Africa) linking global and local talent

Gaps:

- No domestic GPU compute capacity, reliant on foreign infrastructure
- Narrow AI career pathways beyond junior technical roles
- Export volumes and addressable customer bases remain small
- Series B and C funding is rare or externally anchored

Next Moves:

- Position as low-risk trial zones for AI systems in compliance-heavy sectors
- Establish sovereign synthetic data protocols to augment small national datasets
- Serve as testing labs for policy innovation on trust and fairness

Archtype 4: Foundation Builders

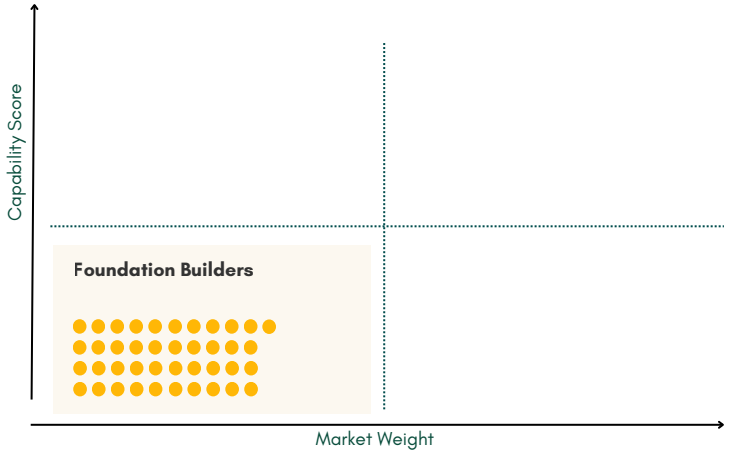


Figure 8: Foundation Builders

The largest cluster by population and geography, these states are still laying the groundwork for digital participation. But their long-term potential is enormous. By 2035, Foundation Builders will account for over half of Africa's working-age population and a third of new internet users.

Strengths:

- Expanding coverage of satellite internet and mobile broadband
- Early digital ID programmes rolling out across subnational areas
- Fast uptake of mobile learning and digital skills content
- Strong donor and DFI pipeline for foundational infrastructure

Gaps:

- Records remain largely paper-based across public services
- Low STEM enrolment and very limited AI curricula
- Cybersecurity and digital trust frameworks are immature or missing
- Venture funding < 0.05% of GDP in most Foundation Builder states

Next Moves:

- Start with AI-ready public service use cases (e.g. logistics, agriculture)
- Embed algorithmic literacy into national digital literacy programmes
- Join continent-wide GPU and data-sharing programs to bridge local compute and dataset gaps

Why regional coordination still matters
No archetype succeeds in isolation. AI thrives on network effects from shared infrastructure to common regulatory language. The greatest gains emerge when **Catalytic Agents accelerate, Scale Accelerators align, Innovation Hubs pilot,** and **Foundation Builders onboard** together.

Continental coordination ensures that AI doesn't deepen digital divides but instead becomes a force for convergence and inclusion.

Mobility: archetypes are checkpoints, not permanent labels
Because the decision tree is data-driven, a country's archetype will change automatically as its capability score and market-weight factors improve.

Several Foundation Builders could move up to Scale Accelerator-status within a single strategy cycle (8–10 years) if they make coordinated progress on three levers: expanding affordable compute capacity, opening high-value public datasets, and enacting trust-building regulations. Likewise, a Scale Accelerator that sustains double-digit gains in capability and whose GDP share crosses the 3% threshold would graduate to Catalytic Agent. In short, the framework is designed for upward mobility: it flags where a country is today and highlights the measurable gaps it must close to shift archetype tomorrow.

Section 2.5 now explores three possible scenarios depending on whether Africa moves together, partially, or not at all.

2.5 Readiness Scenarios: Drift, Fragmentation and Full Activation

Africa's AI dividend is not guaranteed. While the opportunity is large, the outcome will depend on how quickly and cohesively countries build the five enablers introduced in Section 2.1. The future is not linear — and readiness will not rise automatically. This section outlines three strategic scenarios for the continent's AI readiness over the next decade.

Scenario thinking is essential when capabilities are uneven, and coordination is variable. It helps policymakers, development partners, and private investors understand what is at stake and how policy ambition translates into economic and social returns.

All three scenarios below assume no fundamental global shift in AI pace or regulation. What varies is Africa's level of commitment, coordination, and investment in turning the flywheel.

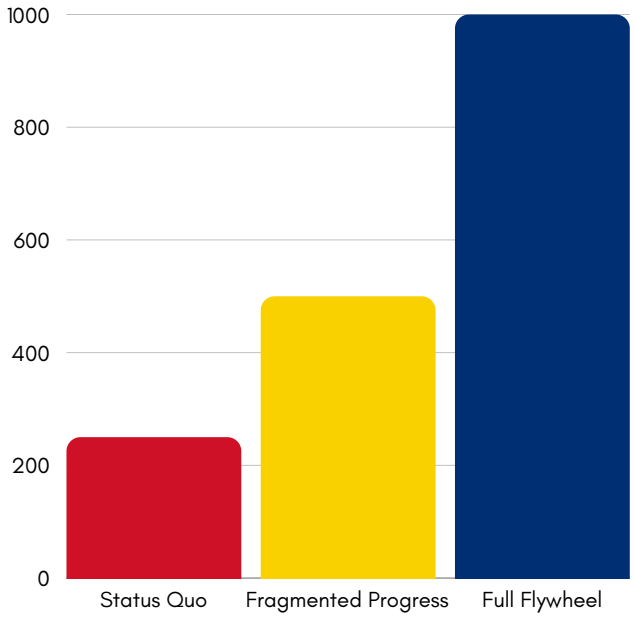


Figure 9: Readiness Scenarios

Scenario 1: Status Quo Drift
Readiness outcome (by 2035): Patchy and unequal progress. Fewer than 10 countries reach 45/100.
GDP impact: Africa captures **~1%** of the global AI dividend **(~US $250B).**
Labour impact: Digital job growth localised; rural and informal workers excluded.

Under this scenario, pilot projects proliferate but do not scale. Sandboxes remain isolated. Compute and data investments are delayed or restricted to capitals. Skills programmes are fragmented, with little industry linkage. Trust frameworks lag adoption, and capital stays on the sidelines.

This is the low-growth, high-friction path one that locks in the digital divide.

Scenario 2: Fragmented Progress
Readiness outcome (by 2035): 10–15 countries exceed 50/100; regional gaps persist.
GDP impact: Africa captures **~2%** of global AI dividend **(US $500–600B)**.
Labour impact: Productivity gains cluster in 3–5 sectors and urban centres.
Here, some RECs move faster than others. Catalytic Agents and Innovation Hubs advance quickly, but Foundation Builders are left behind. Talent and capital flow into a few digital islands, creating early impact but also divergence. Without common standards or regional infrastructure, the benefits are concentrated and harder to scale.
This is a two-speed Africa dynamic at the top, stalled at the base.

Scenario 3: Full Flywheel Activation
Readiness outcome (by 2035): Every Regional Economic Community (REC) runs at least one multi-country AI initiative e.g., a shared GPU "Data-Embassy," a cross-border open-data trust, or a joint talent-exchange so 25 + countries exceed 45/100.
GDP impact: Africa captures **4%** of global AI dividend **(US $1 trillion).**
Labour impact: Productivity lifts in key sectors across both formal and informal economies.

In this scenario, the flywheel turns at scale. Regional GPU hubs and compute credits make infrastructure accessible. Data-sharing rules are harmonised. AI skills are embedded in national curricula and reskilling programs. Sandboxes are active in core public services from healthcare to transport to agriculture.
Trust frameworks are coordinated, and capital flows through blended funds linked to the five priority sectors (see Section 1.2). No country is left behind and no sector is locked out. This is the dividend scenario. And it's still within reach.

What separates the scenarios?
Progress hinges on five measurable litmus tests by 2027. Hit all five and the continent moves toward Full Flywheel Activation; miss even two and Africa remains stuck in fragmented or low-growth tracks.

Litmus test	2027 target
Data	≥ 60 FAIR-compliant public data catalogues across AU and REC platforms
Compute	Ground broken on the first two GPU-rich "Data Embassies" and AU charter ratified; four core embassies operational and two edge nodes launched together forming a six-embassy network by 2035
Skills	3 million AI-capable professionals (incl. 30,000 ML engineers & 1 million micro-credentials)

Litmus test	2027 target
Trust	20 countries with audit-ready AI laws and public algorithm registers
Capital	US $4 billion disbursed from a US $10 billion blended-finance facility

Table 10: five measurable litmus tests by 2027

If these thresholds are met, the flywheel gains unstoppable momentum; if they lag, delays in one enabler drag down the rest and the window for convergence snaps shut.

2.6 From Inputs to Impact: An AI-Productivity Theory of Change

Section 2.5 showed what is possible if Africa activates the full AI readiness flywheel. A coordinated, continental effort can deliver inclusive productivity growth, sectoral transformation, and system-wide uplift. This section breaks that vision down: how it happens, in what sequence, and what signals to track along the way.

This is Africa's AI dividend, mapped from policy to payoff.
The assumptions and hypotheses underpinning the projections in this section are detailed in Annexure E. These targets are not arbitrary they are built from scalable precedents, sectoral patterns, and validated benchmarks and reflect what is possible under a fully activated scenario.

Inputs: The Five Enablers, Activated Together

Delivering on the dividend starts with focused, synchronised activity across the five enablers introduced in Section 2.1.

- **Data:** Tag rural and local-language datasets and launch public clean-up bounties
- **Compute:** Establish six Data Embassies (four core GPU hubs plus two edge-corridor nodes) with REC-to-REC interconnectivity
- **Skills:** Run AI fellowships, mobile micro-credential sprints, and MLOps upskilling labs
- **Trust:** Roll out sandbox-ready audit labs and algorithmic compliance templates
- **Capital:** Channel Series A equity, leasing boosters, and revenue-based financing into scale-ready AI ventures

Each lever reinforces the others. All five must move in step for progress to compound.

Outputs (2025–2030): Tangible Readiness Milestones

Within five years, these interventions deliver clear institutional and infrastructure signals:

- 60 FAIR-compliant national and regional data catalogues published
- 4 Data Embassies fully operational (one per high-capacity REC), with two edge-corridor nodes financed and under construction; keeping the network on track to reach six embassies by 2035 under the same AU charter

- 30,000 mid-career ML engineers and 5,000 monthly hours of MLOps training delivered
- 20 countries adopt audit-ready AI laws and algorithm registers
- US $5 billion in growth-stage capital deployed across five priority sectors (see Section 1.2)

These milestones represent the visible rotation of the flywheel — readiness in motion.

Outcomes (2028–2032): Systems Begin to Shift

By the end of the decade, these outputs yield measurable shifts in productivity, adoption, and inclusion:

- 40 percent reduction in training and inference costs across compute-active RECs
- 30 percentage-point jump in AI adoption by SMEs and public service platforms
- 30 percent female representation in AI leadership and technical roles
- Private AI capital expenditure at or above 1 percent of GDP in Scale Accelerator countries

These outcomes show that AI is no longer experimental. It has become embedded in institutions, systems, and supply chains.

Impact (2035 and beyond): The Dividend Realised

These outcomes translate into the macro-scale dividend described in Scenario 3 of Section 2.5:

- US $1 trillion in incremental GDP by 2035 compared to the baseline scenario
- 35–40 million net new digital and digitally enabled jobs
- 10 percent of global training tokens are African and multilingual, embedding the continent into frontier AI models

This is not just a technical vision. It is a development strategy. It is what the flywheel looks like when it spins.

Why this theory of change matters

The outcomes outlined in Section 2.5 are not abstract. They are structured, sequenced, and deliverable if investment, coordination, and policy move in sync. The theory of change links high-level goals to operational priorities. It gives funders a time horizon, regulators a checklist, and the public a promise.

Annexure E provides the detailed rationale and assumptions that inform this model; ensuring each target is traceable, testable, and tied to real-world logic.

2.7 Five Flagship Programs to Unlock Africa's $1 Trillion AI Dividend

Section 2.6 set out a theory of change: how the right mix of inputs and coordination can turn Africa's AI flywheel and deliver real impact. This section now translates that theory into **actionable flagship programs** one for each of the five core enablers. Each program is built to be cross-border, scalable, and archetype-aware.

Together, they form the spine of a **decade-long roadmap** for readiness delivery structured, fundable, and capable of matching Africa's ambition.

Why flagship programs?

Readiness does not happen through pilots alone. To shift the curve continent-wide, Africa will need shared infrastructure, harmonised rules, trusted skills pathways, and risk-aligned capital at scale. These five programs provide the platform for all of that.

They take what was introduced in the flywheel (Section 2.1) and turn it into coordinated, investable delivery.

[D] Trusted, Shareable Data

Program anchor: Africa Sovereign Data Commons
Continental gap: Public datasets are fragmented; privacy rules are inconsistent
What it delivers:

- A shared FAIR (Findable, Accessible, Interoperable, Reusable) rule
- Regional and national open-data APIs
- Legal alignment for data trust and access

All public data becomes easier to find, share, and protect

[C] High-Performance Compute

Program anchor: Regional Data Embassy Network
Continental gap: GPU-rich compute infrastructure is uneven and expensive
What it delivers:

- Six GPU-rich Data Embassies (4 core hubs + 2 edge-corridor nodes) built under an AU charter and linked via low-latency corridors.
- Interconnected regional corridors for low-latency access
- Shared compute credits for AI startups, researchers, and public services

Every country gets access to affordable, secure compute power

[T] Risk-Managed AI Adoption

Program anchor: AU Responsible AI Trust Network
Continental gap: Legal approvals are slow, and cybersecurity laws vary widely
What it delivers:

- Shared sandbox toolkits and test environments
- Compliance-as-a-service labs for SMEs and public institutions
- A harmonised, AU-level AI risk framework adopted by all RECs

Faster, trusted deployment of AI across sectors and borders

[S] Whole-Pipeline Skills

Program anchor: Pan-African AI Talent Compact
Continental gap: Skills shortages persist at entry, mid-career, and expert levels
What it delivers:

- 1 million micro-credentialed AI contributors
- 30,000 trained ML engineers
- Live MLOps guilds sharing knowledge and practices across RECs

Africa grows its own job-ready AI talent pool, from annotators to specialists

[C] Deep, Blended Finance

Program anchor: Africa AI Growth & Innovation Fund
Continental gap: US $25–100 million cheques are scarce; infra finance is slow
What it delivers:

- A US $10 billion fund, backed by DFIs, sovereign-wealth investors, and private LPs
- Blended capital for GPU infrastructure and scaling AI ventures
- Patient, catalytic finance that underwrites risk and accelerates regional scale

Capital reaches the right firms, at the right time, to unlock the dividend

Table 11: Five Flagship Programs to Unlock Africa's $1 Trillion AI Dividend

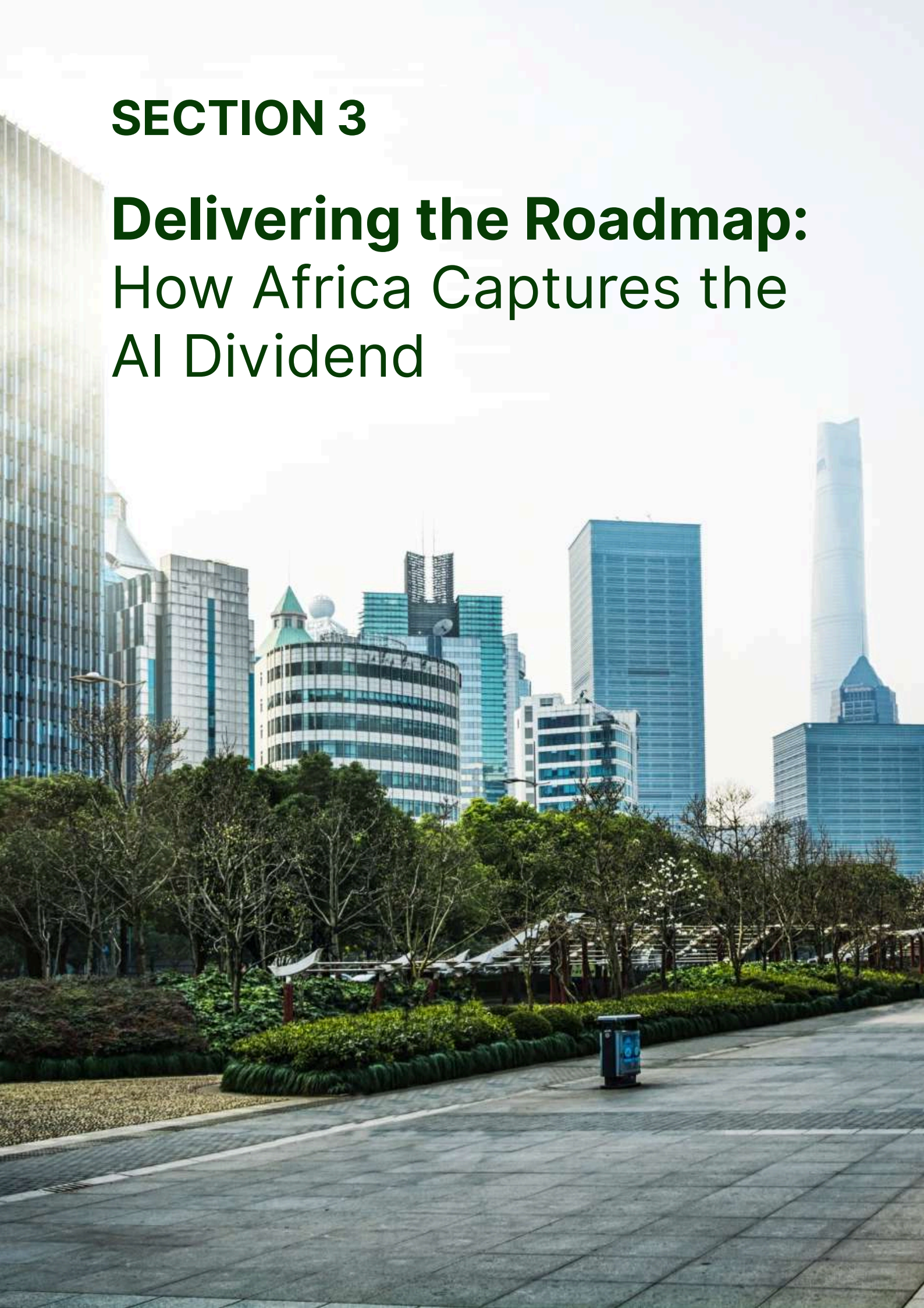
One roadmap, five levers, real results

Each flagship program is designed to stand alone but together they work as a system. Just like the flywheel, these initiatives reinforce one another. Skills without compute stalls. Data without trust slows adoption. Finance without rules raises risk.

Section 3 now builds on this and outlines what must happen next across institutions, financing instruments, and implementation timeframes.

SECTION 3

Delivering the Roadmap: How Africa Captures the AI Dividend



Section 3 – Delivering the Roadmap: How Africa Captures the AI Dividend

Africa's $1 trillion AI productivity prize is not a guaranteed outcome, but it is a deliverable one. Sections 2.6 and 2.7 outlined the theory of change and five flagship programs required to turn the AI readiness flywheel. This section presents the full implementation roadmap: how those programs are sequenced, funded, safeguarded, and governed from 2025 to 2035. For the sensitivity drivers that anchor each flagship namely faster sector-level AI adoption and higher productivity elasticity see Annex A.3.

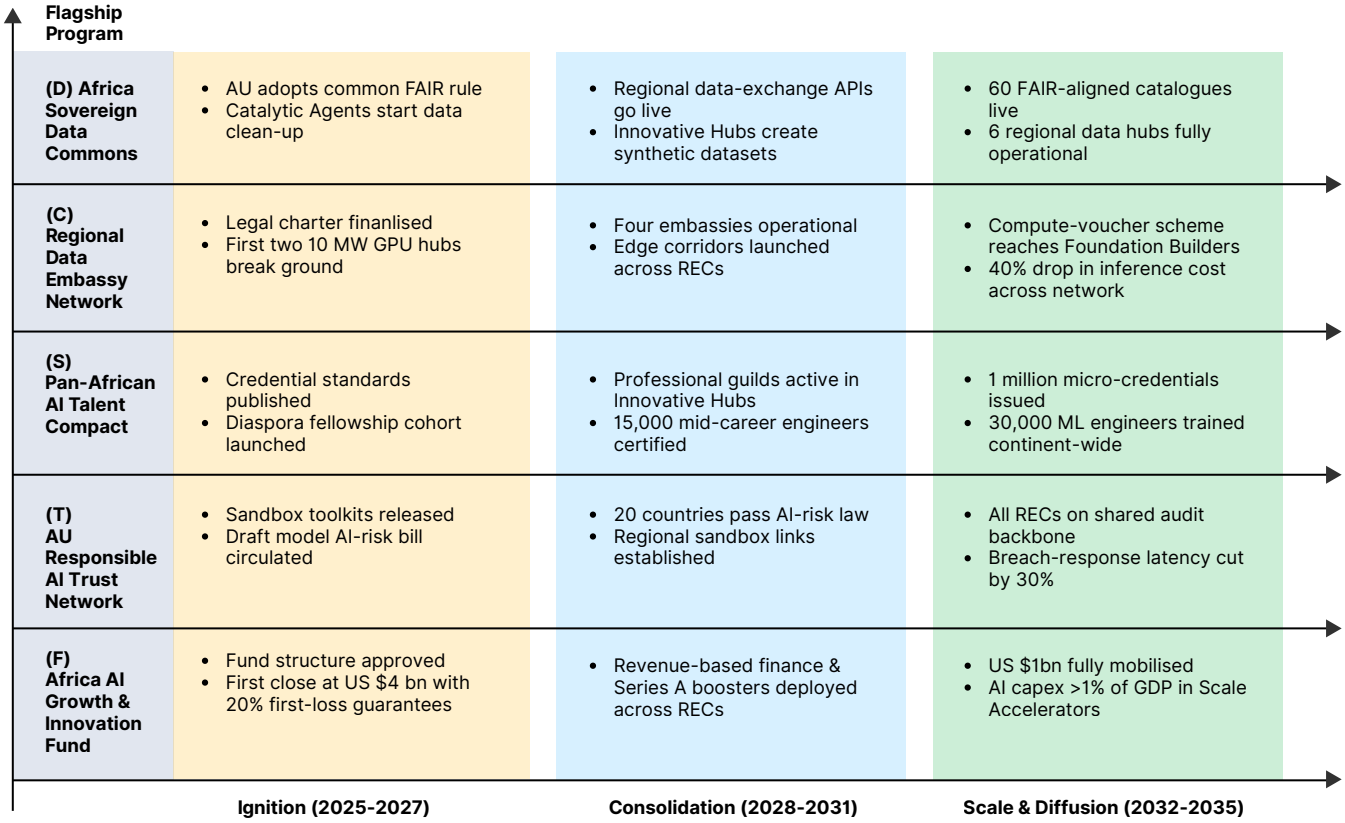


Figure 10: Delivering the Roadmap

3.1 A Three-Phase Path to Scale (2025–2035)

The roadmap unfolds in three phases, each building the capabilities and confidence to reach full readiness continent-wide:

*** Capital mobilised from the Africa AI Growth & Innovation Fund**

Phase	Years	Delivery Focus
Phase I – Ignition	2025–2027	Charter AU frameworks, pilot flagship programs, and align regulatory baselines
Phase II – Consolidation	2028–2031	Institutionalise standards, deploy regional infrastructure, scale skills and capital access
Phase III – Scale & Diffusion	2032–2035	Full flywheel activation across RECs; dividend outcomes realised and sustained

Table 12: Three-Phase Path to Scale

Each flagship is rolled out progressively, with sequencing tailored to the maturity of different country archetypes

3.2 Flagship Program Milestones by Phase

The five programs outlined in Section 2.7 are translated here into delivery milestones over the three phases. Milestones are continent-wide, but execution is archetype-specific: Catalytic Agents lead ignition, Innovation Hubs de-risk pilots, Scale Accelerators absorb proven models, and Foundation Builders receive pooled vouchers and starter kits.

[D] Africa Sovereign Data Commons

- Ignition: AU adopts common FAIR rule; Catalytic Agents begin data cleanup
- Consolidation: Regional APIs go live; Innovation Hubs generate synthetic datasets
- Scale: 60 FAIR-aligned catalogues and 6 regional data hubs in operation

[C] Regional Data Embassy Network

- Ignition: Legal charter finalised; first two GPU hubs break ground
- Consolidation: Four embassies operational; two edge-corridor nodes launched (scaling to six embassies network-wide by 2035)
- Scale: Compute vouchers flow to Foundation Builders; 40 percent drop in inference cost

[S] Pan-African AI Talent Compact

- Ignition: Credential standards set; diaspora fellowships launched
- Consolidation: Guilds activated in Innovation Hubs; 15,000 mid-career engineers certified
- Scale: 1 million micro-credentials and 30,000 ML engineers trained continent-wide

[T] AU Responsible AI Trust Network

- Ignition: Sandbox toolkits released; draft model AI risk bill circulated
- Consolidation: 20 countries pass risk laws; regional sandbox links established
- Scale: Every REC integrated into shared audit infrastructure; breach response latency reduced by 30 percent

[C] Africa AI Growth and Innovation Fund

- Ignition: Fund structure approved; first close at US $4B with DFI guarantees
- Consolidation: Revenue-based finance and Series A boosters deployed across RECs
- Scale: US $10B fully mobilised; AI capex exceeds 1 percent of GDP in Scale Accelerators

3.3 Risk Management and Governance

The roadmap recognises five systemic risks and ring-fences them from day one, assigning owners and mitigation instruments.

Risk	Mitigation Mechanism	Owner/Trigger
Coordination & trust gaps	REC-level incentive compacts, public progress dashboards, and an AU Capacity-Building Facility for regulators	AU Commission + REC secretariats
Policy drift	Annual REC-level scorecards and model law adoption tracker	AU Commission + REC secretariats
Funding shortfall	US $4B first close with 20% first-loss guarantees	AfDB (Fund GP) + partner DFIs

Risk	Mitigation Mechanism	Owner/Trigger
Cybersecurity failure	Shared cyber response frameworks and mandatory breach insurance	AU Cybersecurity Agency
Compute downtime	Dual-feed power for GPU hubs; PPAs with renewable providers	Embassy Operating Companies
Talent flight	Bonded fellowships and return-path sabbaticals	Talent Compact Secretariat

Table 13: Risk Management and Governance

Each risk trigger activates contingency plans and coordination alerts to keep delivery on track.

3.4 Institutional Roles and Responsibilities

This roadmap is not delivered by one actor, but through a distributed model with clear accountability:

- AU Commission: Oversight, policy chartering, and flagship steering
- RECs: Corridor deployment, legal harmonisation, and sandbox coordination
- National Governments: Local programme implementation and regulation
- Development Finance Institutions: Capital mobilisation, risk guarantees, and fund governance
- Private Sector: Infrastructure buildout, AI use-case delivery, and innovation support
- Donors & Philanthropy: Catalytic capital and capacity-building in Foundation Builders

3.5 Projected Outcomes by 2035

By 2035, the roadmap delivers the outcomes outlined in the theory of change:

- Africa has deployed a regionally harmonised, risk-aware AI infrastructure
- Cross-border platforms and talent systems scale responsibly and inclusively
- 35–40 million net new digital and digitally enabled jobs are created across formal and informal economies
- Africa contributes 10 percent of global multilingual AI training tokens
- US $1 trillion in cumulative productivity gain is realised

These will be enabled by an AU-led dashboard that tracks the five litmus-test metrics - data catalogues, GPU hubs (6-Embassy network), skills pipeline, trust laws, capital deployed and publishes annual REC scorecards, enabling mid-course corrections.

SECTION 4

A Call to Action: Delivering the AI Dividend Together

Section 4 – A Call to Action: Delivering the AI Dividend Together

Africa's AI window is still open, but it is closing fast. Choices that governments, financiers and firms make **by 2026** on data policy, compute infrastructure and human-capital development will determine whether the continent secures or surrenders an estimated **US $1 trillion in extra GDP and 35–40 million new jobs by 2035.**[1] The roadmap is clear; what remains is disciplined delivery.

4.1 Priority Deliverables by December 2026

Stakeholder	2026 deliverables	Archetype focus
AU Commission & RECs	• Adopt continent-wide FAIR-data and AI-trust frameworks. • Publish the first REC scorecards covering data, compute, skills, trust and capital. • Break ground on two GPU "Data Embassies" and launch the pooled voucher pilot.	Catalytic Agents & Innovation Hubs host the pilots; scorecards create peer pressure; pooled Embassy access reaches Foundation Builders.
National Governments	Close the largest gap for each archetype: • Foundation Builders: digital-ID plus baseline cyber-hygiene active in ≥ 50 % of districts. • Scale Accelerators: at least one interoperable AI sandbox outside FinTech. • Catalytic Agents: publish sovereign-compute audits and AI-risk registers. • Adopt an AfDB benchmark: earmark 5% of ICT procurement for open-source public-good solutions.	Aligns effort with readiness gaps; procurement quota creates predictable demand for local innovators.
DFIs & Donors	• Close a US $4 billion first-close of the Africa AI Growth & Innovation Fund (with 20 % first-loss guarantees). • Approve a concessional-finance envelope that subsidises voucher access for Foundation-Builder countries until Data Embassies reach scale. • Endow an AU-level facility to train 1,000 AI-risk supervisors.	Blended finance unlocks private capital; concessional support keeps low-capacity states in the game; supervision capacity protects investors and citizens.

Stakeholder	2026 deliverables	Archetype focus
Private-Sector Innovators	• Provide a compute-voucher pool sized jointly with the AU (stretch target ≈ 50 million GPU-hours). • Publish bias-audited model cards in ≥ 3 AU languages. • Co-finance two edge-compute corridors in Scale-Accelerator RECs.	Bridges compute gaps, builds trust and ties commercial scale to regional benefit.
Universities & Technical Institutes	• Issue a continent-wide micro-credential standard for AI skills. • Launch the pipeline toward 15 000 certified mid-career ML engineers by 2028 and certify the first 5 000 by 2026. • Release an open 5 bn-token multilingual corpus (stretch target). • Open four MLOps labs, one per high-readiness REC	Talent, open corpora and labs feed every archetype and anchor inclusive, locally relevant innovation.

Table 14: Priority Deliverables

4.2 Integration of Key Components

- **AU and RECs** establish the shared rules, pooled infrastructure and public score-keeping so breakthroughs in one region travel continent-wide.
- **National governments** pull the levers that match their readiness gap and create markets through strategic procurement.
- **DFIs and donors** absorb early risk, crowding in private capital for GPUs, data commons and talent programmes.
- **Private firms** deliver production-grade platforms and datasets while meeting transparency and fairness standards that build public trust.
- **Universities and research institutes** mint the talent and benchmarks that keep progress visible, measurable and inclusive.

4.3 The G20 Opportunity: A Strategic Win-Win

Africa's AI dividend is Africa's to capture, but the G20 has a direct stake in its success.

G20 engagement is not charity. It is a strategic, economic and governance investment; one that expands global markets, improves model robustness, strengthens multilateral governance, and advances the G20's own commitments to fairness and inclusion.By backing Africa's AI readiness roadmap, the G20 can:

- Help shape shared norms through the AU Trust Network
- Strengthen global datasets through Africa's multilingual, real-world contexts
- Reduce risk by supporting regulatory sandboxes and open infrastructure
- Accelerate global digital SDG progress

This is a practical opportunity and a geopolitical signal. The world's fastest-growing continent is not asking to be uplifted. It is offering a partnership. The G20 should meet it.

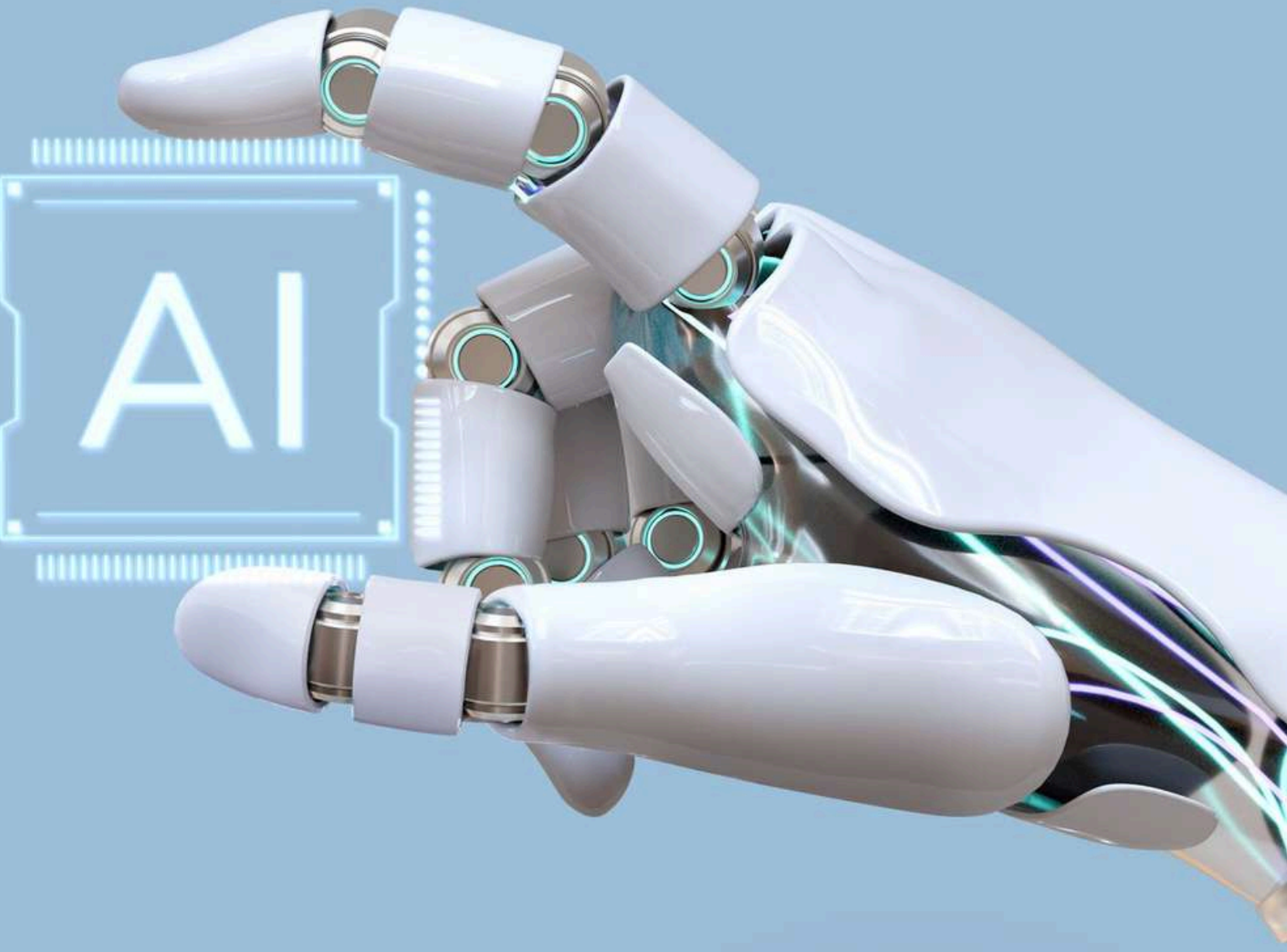
4.4 Final words

The diagnostics are complete, the investment envelope is costed, and the institutional anchors are identified.

Africa's challenge is no longer what to do; it is doing it on time

Hitting the 2026 targets above will lock the AI-readiness flywheel into motion. Missing them risks consigning the continent to the margins of the next technological revolution.

Annex



Annex A. Methodology and Assumptions

This annex outlines the assumptions, calculations, and data sources that underpin Africa's modelled AI productivity dividend of **US $1 trillion by 2035**. It includes the baseline economic path, modelling structure for AI uplift, sensitivity analysis, and headline impacts on jobs and fiscal revenue.

A.1 Baseline GDP Projections (2025–2035)

Africa's baseline growth trajectory assumes no major structural transformation driven by artificial intelligence. It is based on:

- 2015 GDP: US $2.417 trillion (constant 2015 USD), based on UN System of National Accounts data
- 2023 GDP: US $2.958 trillion, from StatisticsTimes.com, citing UN and IMF national account updates
- AfDB projections: +3.7% GDP growth in 2024, +4.3% in 2025 (AfDB African Economic Outlook 2024)
- Derived CAGR: 2.84% from 2015–2025, extended forward to 2035

This results in a projected **2035 GDP of US $4.23 trillion** without AI intervention.

Year	Baseline GDP	AI-Enhanced GDP
2025	3.199	3.199
2026	3.290	3.390
2027	3.383	3.583
2028	3.479	3.779
2029	3.578	3.978
2030	3.679	4.179
2031	3.783	4.383
2032	3.890	4.590
2033	4.000	4.800
2034	4.112	5.012
2035	4.230	5.230

Table 14: Africa's Projected GDP With and Without AI (2025–2035)
(Constant 2015 USD, trillions)

Method Box A.1 – How Table A.1 was produced

Item	Detail
Projection formulae	Baseline (no-AI) : $Y_{t.} = Y_{2024}(1 + g)^{t-2024}$ AI-enhanced path : $Y_t^{AI} = Y_{2024}(1 + g + \Delta g)^{t-2024}$
Input variables	Y_{2024}= US $ 3.119 trn (constant-2015 USD) - UN SNA + IMF WEO, with AfDB 2024 flash estimate. g=2.84% - geometric average annual growth for 2015-25. Δg=2.3pp - calibrated so that $Y_{2035}^{AI} - Y_{2035}$ = US $1trn (4 % share of a US $ 25 trn global AI dividend, see Table A.2).
Internal robustness check	10,000-run Monte-Carlo varying g, Δg and Y_{2024} within documented ranges. 80 % of outcomes lie between US $0.25–0.95 trn, centring on the US $1 trn headline.

Table 15: How Table A.1 was produced

A.2 AI Uplift Calculation Framework

The modelled **US $1 trillion uplift** is based on a three-step global-to-regional framework:

Step	Value	Source / Notes
Global AI GDP dividend (2035)	US $25 trillion	Derived from PwC (2017), McKinsey (2023), and IDC (2022), adjusted for inflation, post-COVID adoption, regulatory drag, and final-mile diffusion. See Table A.2
Africa's fair share capture rate	4%	Based on demographic share (~20%), current GDP share (~3%), and readiness convergence scenario
Africa AI GDP uplift	US $1 trillion	Direct product: 25 trillion × 4%

Table 16: AI Uplift Calculation Framework

A.3: Global AI Dividend Uplift Adjustments

(to derive US $25 trillion, constant 2015 USD)

Adjustment	Description	Multiplier	Subtotal (USD tn)
Base uplift (PwC 2017)	US $15.7T (2030, 2016 USD)	–	15.7
Inflation rebasing	2016 → 2024 prices (+46%)	× 1.46	22.9
Post-COVID digital acceleration	Adoption & GenAI tailwinds	× 1.30	29.8
Regulation & scaling drag	EU AI Act, compute friction	× 0.82	24.4
2030–2035 final -mile diffusion	Uptake in frontier markets	× 1.10	~25 (rounded)

Table 17: Global AI Dividend Uplift Adjustment

A.4 Monte Carlo Sensitivity Analysis

To validate the robustness of the US $1 trillion target, the model ran **10,000 simulations** using randomized inputs within defined parameter ranges:

Parameter	Range
Sector AI adoption rates	25% – 60% by 2035
Productivity elasticities	0.25 – 0.40
Enabler deployment lag	0 – 4 years
Public-private capex share	30% – 60%

Table 18: Monte Carlo Sensitivity Analysis

All scenarios were simulated using a normal distribution centered at US $1 trillion uplift, with a standard deviation of ± US $250 billion, trimmed to a range of US $100 billion – US $1.5 trillion.

Results:

- 80% of outcomes fall between US $250 billion – US $950 billion
- US $1 trillion sits in the top decile, achievable with full coordination of enablers
- Scenarios above US $1.2 trillion were rare and required optimal convergence

Interpretation for the roadmap: The 10,000-run simulation shows that almost all of the GDP spread hinges on two levers: (i) raising sector-level AI adoption and (ii) turning that adoption into real productivity. Flagship [C] Regional Data Embassy Network expands affordable, low-latency compute to lift adoption across industries, while Flagship [S] Pan-African AI Talent Compact equips enterprises with the skills and management practices that convert adoption into productivity gains. Moving these two levers together is what unlocks the top-decile, US $1 trillion "full-flywheel" scenario cited in Section 3.

A.5 Labour Market and Fiscal Impact

The employment and tax implications of the AI dividend were estimated using elasticity-based modelling:

Indicator	Value	Source
Labour force (2024)	450 million	ILO Modelled Estimates
GDP-to-jobs elasticity	0.4	AfDB WP/18/04; ILO Elasticity Database
Net new jobs	0.4 × 20% uplift × 450M = **36 million**	Rounded to "35–40 million" for narrative
Median tax-to-GDP ratio	15%	OECD/AUC/ATAF Revenue Statistics (2024)
Additional annual tax revenue	**US $150 billion**	15% × US $1 trillion

Table 19: Labour Market and Fiscal Impact

A.6 Demographic and Inclusion Assumptions

Several headline figures on Africa's latent potential are drawn from demographic and labour market data:

Claim	Value / Source
Africa accounts for 90% of global working-age population growth (2025–2035)	UN DESA World Population Prospects 2022 (Medium Variant)
300 million added to working-age population	Derived from UN DESA + ILOLABSTAT regional breakdowns
80% informal labour	ILO Global Employment Trends (2023)
700,000 STEM/ICT graduates annually	UNESCO UIS 2023; GSMA Mobile Skills Index
65% of global mobile money volume	GSMA State of the Industry Report (2022–2024)

Table 20: Demographic and Inclusion Assumptions

These figures provide the basis for the argument that AI, if deployed correctly, can unlock existing human and economic capacity, rather than replacing it.

Annex B. Sectoral Scoring and Modelling

This annex details the methodology used to allocate Africa's projected **US $1 trillion AI productivity dividend** across economic sectors. It builds on the composite scoring model referenced in Section 1.2 and aligns with the logic in the accepted AfDB G20 deck.

B.1 Methodology Overview

Sectors were ranked using a three-factor score:
Composite Score = (GDP Share × Readiness Score × SDG Leverage Score) ÷ 100

Factor	Description
GDP Share	Sector's contribution to Africa's 2023 GDP (source: WB WDI + AfDB national accounts)
Readiness Score (1–5)	Sector-level AI readiness, based on Oxford Insights AI Readiness Index, UNESCO R&D indicators, and GSMA digital uptake
SDG Leverage Score (1–5)	Degree to which the sector advances inclusive & sustainable-development targets, informed by UNDP's Inclusive & Sustainable Growth priorities, the OECD Inclusive-Growth Dashboard, and SDSN SDG indicator mappings (qualitative assessment, scaled 1–5).

Table 21: Methodology Overview

This method favours sectors that are:

1. Economically significant
2. Capable of adopting AI at scale
3. Highly relevant to inclusive growth

B.2 Input Data Grid

Sector	GDP Share (%)	Readiness (1–5)	SDG Leverage (1–5)
Agriculture & Food	14.2	2	5
Wholesale / Retail	16.3	2	3
Manufacturing & Industry 4.0	10.5	2	3

Sector	GDP Share (%)	Readiness (1–5)	SDG Leverage (1–5)
Finance & Inclusion	4.4	4	3
Health & Life Sciences	5.1	2	5
Education	5.0	2	5
Transport & Logistics	6.1	3	3
Energy & Utilities	6.0	2	4
Government Services	5.5	3	4
Tourism & Hospitality	4.8	2	2
ICT & Digital Services	3.3	5	3
Water & Sanitation	2.0	2	5
Construction & Real Estate	3.5	3	2
Mining & Natural Resources	5.3	2	2
Creative Industries	2.0	3	3

Table 22: Input Data Grid

B.3 Calculation and Results Formula:

Composite Score = (GDP × Readiness × SDG Leverage) ÷ 100

Sector	Composite Score	Normalised Weight	Uplift Allocation (US $B)
Agriculture	1.42	20.1%	200
Retail	0.98	13.9%	140
Manufacturing & Industry 4.0	0.63	8.9%	90
Finance	0.53	7.5%	80
Health	0.51	7.2%	70
Transport & Logistics	0.55	7.8%	78

Sector	Composite Score	Normalised Weight	Uplift Allocation (US $B)
Energy	0.48	6.8%	69
Government Services	0.66	9.3%	93
Education	0.50	7.1%	71
ICT	0.50	7.1%	71
Water & Sanitation	0.20	2.8%	28
Construction	0.21	3.0%	30
Mining	0.21	3.0%	30
Tourism	0.19	2.7%	27
Creative Industries	0.20	2.8%	28
Total	7.06	100%	1000

Table 23: Calculation and Results Formula

(Rounded to nearest billion for clarity; unrounded values used in internal model.)

B.4 Commentary on Tier-2 Sectors

While the top five sectors receive most of the attention, the remaining ten sectors account for US $420 billion (42%) of Africa's AI dividend and play essential roles in platform development and service delivery:

- **Transport & Logistics:** Supports agriculture, trade, and health systems; major productivity potential through routing, fleet AI, and predictive maintenance.
- **Education:** Enables AI adoption by improving foundational skills and delivering AI literacy itself. Adaptive learning, micro-credentialing, and teacher support tools are key use cases.
- **Government Services:** Digitising procurement, tax, identity, and social service delivery can create AI-ready state capacity.
- **Energy & Utilities:** Required backbone for AI workloads; demand forecasting and smart-grid management reduce loss and improve reliability.
- **Water & Sanitation, Construction, Tourism, and Creative sectors:** Smaller in direct GDP terms, but key for jobs and resilience. AI supports optimisation, planning, and user insight in these areas.
- **ICT & Digital Services:** Often an enabler more than a beneficiary, but still a target of productivity gains from AI in cybersecurity, network management, and customer support.

B.5 Limitations and Considerations

- GDP weights are derived from 2023 estimates and may shift post-pandemic and with AfCFTA integration.
- Readiness scores are qualitative composites they reflect digital maturity trends but are not fixed.
- SDG leverage is directional used to prioritise impact, not to imply linear effect.
- This model does not double-count cross-sector impacts but acknowledges that spillover effects (e.g. from finance to education) will magnify aggregate gains.

Annex C. AI Readiness Benchmarking Methodology

This annex documents the technical approach used to assess AI readiness across Africa, the G20, and the rest of the world. It provides transparency on data sources, scoring methods, and comparative baselines used in Section 2.

C.1 Objective and Scope

The Pan-Africa AI Readiness Benchmark was developed to produce a data-only, reproducible, and transparent view of AI-related system capacity in:

- All 54 African Union (AU) member states
- A comparison group of 18 sovereign G20 economies (excluding South Africa and the EU aggregate)
- The global average (rest-of-world), for additional perspective

No proprietary indicators or bespoke weighting schemes were introduced. All

C.2 Core Framework and Scoring

Productivity Flywheel (Section 2.1):

1. Data Ecosystems
2. Compute & Digital Infrastructure
3. Skills & Human Capital
4. Trust & Governance
5. Innovation & Capital

Each pillar is scored using between 5–9 publicly available indicators (see C.3), which are:

- Min–max normalised to a 0–100 scale
- Averaged to form each pillar score
- Weighted equally (20% each) to form the composite AI readiness score

Africa's average composite score: 32/100
G20 benchmark (excluding South Africa): 68/100
Rest of World: 46/100

C.3 Published Datasets Used

Code	Source	Data Used
OX	Oxford Insights AI Readiness Index 2024	Core framework and base pillar scores
GSMA	Mobile Connectivity Index 2024	Affordability and infrastructure indicators
IMF	WEO April 2025	GDP and macro context
ITU	WEO April 2025Global Cybersecurity Index 2023	Trust and regulatory readiness

Code	Source	Data Used
UNESCO	UIS 2023	R&D researcher and skills pipeline metrics
UNCTAD	B2C E-Commerce Index 2023	Capital, logistics, digital infrastructure
WIPO	Global Innovation Index 2024	Innovation output ranking
ODIN	Open Data Inventory 2024	Availability and quality of public data
UGDI	UN E-Government Development Index 2024	Digital public services and trust metrics

Table 24: Published Datasets Used

C.4 Integration and Processing

The benchmark was built using the following workflow:

1. **Base frame:** 54 AU member states extracted from Oxford Insights dataset
2. **G20 enrichment:** 18 sovereign G20 countries (excl. EU, SA) processed identically
3. **Merging:** Sequential LEFT JOINS to integrate GSMA, ITU, UNESCO, etc.
4. **Normalisation:** All indicators min–max scaled across full 72-country set
5. **Scoring:**
   - Pillar score = simple mean of indicators
   - Composite score = 5-pillar average (equal weights)
6. **Regional means:**
   - Africa = population-weighted mean of AU-54
   - Rest of World = global minus AU and G20
   - G20 = unweighted average of 18 G20 sovereigns

Annex D. Archetype Modelling Methodology

This annex details the methodology used to assign African Union member states to one of four AI readiness archetypes presented in Section 2.4. The goal is to provide a reproducible, data-driven segmentation that reflects both a country's capability to deploy AI and its market relevance for scaling impact.

D.1 Objective and Structure

The archetypes were developed to guide policy sequencing and investment prioritisation by classifying countries into four groups:

- Catalytic Agents
- Scale Accelerators
- Innovation Hubs
- Foundation Builders

Classification is based on a composite capability score, adjusted for economic and demographic weight. Only publicly available, post-2020 data sources were used. No manual overrides or bespoke weightings were introduced.

D.2 Pillar Construction

Each country was scored on five AI-readiness pillars, normalised to a 0–100 scale:

Pillar	Indicator Source	Data Used
Compute & Infrastructure	Oxford Insights 2023 (Infrastructure), GSMA MCI 2024, World Bank Secure Servers 2024	60% / 25% / 15%
Data Ecosystems	Oxford Insights (Data), Global Data Barometer 2022, ODIN 2024	50% / 30% / 20%
Skills & Human Capital	Oxford Insights (Human Capital), UNESCO UIS 2023	70% / 30%
Trust & Governance	Oxford Insights (Gov. Vision), ITU GCI 2023, OECD AI Policy Observatory 2025	60% / 25% / 15%
Innovation & Capital	IMF AI Policy Index 2023 (Innovation pillar only)	100%

Table 25: Pillar Construction

Each pillar score is calculated as the average of its sub-indicators, all min–max normalised over Africa-54.

D.3 Composite Capability Score

The composite readiness score is a weighted sum of the five pillars:

Composite Score =

0.25 × Compute + 0.20 × Data + 0.20 × Skills + 0.20 × Trust + 0.15 × Innovation

These weights reflect the relative elasticity of each pillar to AI-driven productivity, based on expert consultation (AfDB, May 2025).

D.4 Market Size Adjustment

To reflect each country's capacity to absorb and scale AI, the composite score is adjusted for economic and demographic weight using:

- GDP share of Africa-54 (capped at 20%)
- Population share of Africa-54 (capped at 20%)

Adjusted Score =

Composite × (1 + 0.30 × GDP_share_capped) × (1 + 0.20 × Pop_share_capped)

This ensures that no single outlier (e.g. Nigeria, Egypt) disproportionately skews the segmentation while preserving their importance.

D.5 Archetype Classification Logic

Archetypes are assigned via a four-branch decision tree applied to the composite (unadjusted) score and GDP share:

Condition	Archetype
Composite ≥ 40 and GDP share ≥ 3%	Catalytic Agent
Composite ≥ 40 and GDP share < 1%	Innovation Hub
35 ≤ Composite < 40 and (GDP ≥ 1% or Pop ≥ 3%)	Scale Accelerator
All other cases	Foundation Builder

Table 26: Archetype Classification Logic

Note: GDP and population shares are calculated as % of Africa-54 total. Composite scores are rounded to 1 decimal place before classification.

D.6 Data Sources and Verification

The model uses only published datasets, all retrieved between April–May 2025. File-level hashes and integration scripts are available in the benchmark package. Key sources:

- Oxford Insights Government AI Readiness Index 2023
- GSMA Mobile Connectivity Index 2024
- ITU Global Cybersecurity Index 2023
- IMF AI Policy Index 2023
- ODIN Open Data Inventory 2024
- Global Data Barometer 2022
- UNESCO UIS 2023
- OECD AI Policy Observatory 2025
- World Bank Secure Servers Dataset 2024

Annex E. Theory of Change Assumptions and Methodology

This annex provides the underlying logic, assumptions, and reference points used to estimate the outputs, outcomes, and impacts set out in Section 2.6. While the figures represent forward-looking targets, each is grounded in observable precedent, policy benchmarks, and validated global studies.

The theory of change is built around the five enablers in the AI Readiness Flywheel: Data, Compute, Skills, Trust, and Capital. Outputs are estimated for the 2025–2030 period, outcomes for 2028–2032, and impact for 2035.

E.1 Output Assumptions (2025–2030)

Metrics	Target	Assumption Source / Logic
60 FAIR-compliant data catalogues	60 total (30 national + 30 regional/sectoral)	Based on 50% of AU-54 adopting FAIR open data strategies, plus REC- and sector-level platforms (e.g. agri, health)
4 Data Embassies operational + 2 edge-corridor nodes	Coverage of all five RECs via 4 hubs; edge nodes extend low-latency access	Initial coverage of high-capacity RECs via 4 hubs; edge nodes extend low-latency access and are scheduled to come online by 2035
30,000 ML engineers	Mid-career, job-ready talent	Assumes 3,000 engineers trained per year continent-wide, via NITDA, Zindi, Moringa, AI Fridays, Mastercard Foundation, etc.
5,000 MLOps hours/month	Professional learning hours	Based on 250 engineers x 20 hours/month across 5 RECs
20 AI laws and registers adopted	Regulatory uptake	Assumes half of AU states adopt enforceable, sandbox-enabled AI legislation by 2030 (aligned with data privacy trends 2015–2022)
US $5B in growth-stage capital	Aggregate blended finance	Five high-potential sectors (Section 1.2) × US $1B each through equity, leasing, and concessional funding vehicles

Table 27: Output Assumption (2025–2030)

E.2 Outcome Assumptions (2028–2032)

Metrics	Target	Assumption Source / Logic
40% cost reduction in training/inference	In compute-active RECs	Local GPU hubs and sovereign cloud storage reduce outbound data usage and latency charges by up to 50% (IDC, GSMA benchmarks)
30 pp increase in AI adoption	SMEs and public delivery	Mirrors previous uptake of mobile payments (GSMA) and cloud-enabled services (McKinsey SME adoption index)
30% female representation in AI roles	Inclusive workforce shift	Target mirrors best-performing countries in AI participation, with targeted STEM support for women and girls (e.g. Mauritius, Rwanda)
Private AI capex ≥ 1% GDP in Scale Accelerators	Targeted private investment	Based on historical CAPEX ratios in fintech, telco, and ICT infrastructure in Ghana, Morocco, Kenya over past decade

Table 28: Output Assumption (2028–2032)

E.3 Impact Assumptions (2035 and beyond)

Metrics	Target	Assumption Source / Logic
US $1 trillion incremental GDP	Compared to baseline (no AI)	Derived in Section 1.1 and Annex A: Africa captures 4% of projected US $25T global AI dividend by 2035
35–40 million net new digital and digitally enabled jobs	Labour market impact	Based on job elasticity models from ILO, McKinsey Global Institute, and AfDB digital employment studies; includes SME productivity, public services, and platform economy effects
10% of global training tokens are African and multilingual	Representation in AI foundation models	Projected based on improved FAIR compliance, creation of multilingual corpora, and synthetic data growth across 20+ countries with open datasets by 2035

Table 29: Impact Assumptions (2035 and beyond)

E.4 Modelling Notes and Caveats

- All figures reflect an optimistic, full-flywheel scenario as outlined in Section 2.5
- Outcomes are not forecasts, but deliverable targets under high-coordination, high-investment pathways
- No figures assume frontier innovation breakthroughs (e.g. AGI), only steady infrastructure and capacity scaling
- Jobs are net figures based on expected new occupations minus automation losses in clerical/low-skill roles
- GDP uplift assumes constant 2015 US$, to stay consistent with baseline and avoid inflation distortion

E.5 Sources and Technical References

- PwC, McKinsey, IDC: Global AI dividend forecasts (2017–2023)
- Oxford Insights, ITU, OECD, IMF AIPI: Pillar scores and readiness indices
- ILO, World Bank, AfDB, GSMA: Labour, telecom, and SME data