# Towards An Abundance Frontier For Africa

Commentary

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Africa's Abundance Frontier for Transformative AI

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AI (Commentary)

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# Contents (Abundance)

1 Introduction
1.1 What is Abundance?
2 Why Africa Needs an Abundance Frontier
3 Infrastructure Demands of AI
3.1 Compute Dynamism (Global AI Summit on Africa – 2025)7
3.2 Infrastructure Supply & Demands7
4 Reframing Scarcity through Dynamism
4.1 The Abundance Mindset
4.2 Afro-Dynamism (Abundance Through Scarcity)9
4.3 Galor's Unified Growth Theory
4.4 AGI as a Multiplier
4.5 Escaping Traps (Malthusian and Bagel Traps)9
4.6 Past Development Theories
4.7 Case study: Cassava Technologies & NVIDIA10
5 What Should Be Done?
5.1 Abundance Recommendations 11
5.2 Towards Post-Scarcity Frontier11
5.3 Towards Democracy for Abundance11
5.4 Towards Innovation Under Constraints12
5.5 Towards Building for Abundance12
5.6 Conclusion
F Appendix13
F.1 AI factory
F.2 2. Assessment Framework: The Abundance Readiness Index (ARI)
F.3 2.1. Resource Assessment Matrix 13
F.4 Risk Assessment Matrix
F.5 Implemeting Framework for Abundance Approach in African Contexts
Bibliography15

#### 0.1 Glossary

The following terms are central to the arguments and proposals in this report. Each is defined to clarify its role in reframing Africa's potential in the AGI era.

- Abundance a political and economic philosophy aimed at overcoming the systemic shortages and unaffordability plaguing modern America. It's a call to shift from a mindset and policy framework of scarcity—where regulations, bureaucratic inertia, and risk-averse governance stifle progress—to one that prioritizes building, innovating, and delivering more of what society needs: housing, clean energy, infrastructure, healthcare, and opportunities for a better life.
- **Transformative AI** is AI that precipitates a transition comparable to (or more significant than) the agricultural or industrial revolution. Unlike the related terms *Superintelligent* AI and *Artificial General Intelligence*, which refer to specific capabilities the AI may have, Transformative AI refers to the effects the AI would have on humanity's well-being; through impacting the global economy, state power, international security, etc.
- Dynamism The quality of being characterized by vigorous activity and progress abundance
- **Afro-Dynamism** A framework synthesizing constraint-driven innovation and cultural diversity, positing that Africa's scarcity and historical legacies catalyze resilience and leadership in AI-driven economies .
- **Artificial General Intelligence (AGI)** AI with human-level intellect, capable of transforming sectors like agriculture and healthcare. Its compute demands necessitate sustainable infrastructure.
- **Galor's Unified Growth Theory** Oded Galor's theory that adversity and diversity spark technological and demographic breakthroughs, applied to Africa's innovation potential (Galor, 2011).
- National Sustainable Compute Zones (NSCZs) Proposed regional hubs for AI infrastructure, targeting 50 80% renewable energy and water efficiency (≤0.2L/kWh) to support equitable AGI deployment.
- **AI-Ready Networks** Policy-driven initiatives for spectrum reform and rural connectivity to ensure Africa's digital infrastructure supports AGI and economic inclusion (UNCTAD, 2023).
- **Bagel Trap** Ezra Klein's concept of policy overcomplexity, where competing priorities (e.g., equity, sustainability) hinder progress, as seen in some AI strategies (Klein, 2023).
- **Malthusian Trap** Historical cycle where technological gains fuel population growth without raising per capita income, potentially reimposed by AI unless inclusive policies are adopted (Korinek & Suh, 2024).

# **1** Introduction

In 2025, as the world races toward artificial general intelligence (AGI), Africa stands at a crossroads. The continent, often framed by scarcity narratives, holds immense potential—natural resources, a youthful population, and cultural dynamism (Farrell, 2024). Yet, challenges like failing infrastructure, political instability, and fragile democracies persist. To unlock Africa's future, we need a new lens: a theory of abundance. This article explores why Africa needs this mindset, how evolutionary perspectives and AGI can shape its trajectory, and what practical steps can ensure the continent leads in prosperity.

#### 1.1 What is Abundance?

The authors of the book "Abundance" Ezra Klein and Derek Thompson describe abundance as "a vision of a *future where society has plenty of what it needs—such as housing, clean energy, and skilled workers—achieved through proactive building and innovation rather than a focus on scarcity and limitation*" (Farrell, 2024). Abundance, has been the focal point of conversations about the ability of the U.S. government to deliver effective services and promote growth and innovation. In Africa, Abundance could unlock the continent's strategy through vast potential—30% of global mineral reserves, 60% of uncultivated arable land, and a population set to double by 2050—through innovation tailored to its realities (African Development Bank, 2023). Despite a billions of infrastructure gap and governance challenges, Africa's mobile banking revolution, like M-Pesa, and renewable energy solutions, such as cultural and linguistic diversity, demonstrate a dynamism and abundance that needs to be understood alongside it's structural constraints to drive prosperity (World Bank, 2017; World Resources Institute, 2022).

"The answer to a politics of scarcity is a politics of abundance, a politics that asks what it is that people really need and then organizes government to make sure there is enough of it. Sometimes government has to get out of the way, as in housing. Sometimes it has to take a central role, creating markets or organizing resources for risky technologies that do not yet exist. Abundance reorients politics around a fresh provocation: *Can we solve our problems with supply? If we need new technologies to solve our important problems, how do we pull these inventions from the future and distribute them in the present?*"

— Derek Thompson

Key Ideas of Abundance

- **Post-Scarcity**: Klein and Thompson critique the prevailing scarcity mindset, which emphasizes conserving or redistributing limited resources. Instead, they advocate for an abundance mindset that seeks to create more of what society needs.
- Post-Stagnation: The book highlights how shortages in areas like housing and energy result from not building enough. For example, restrictive land-use regulations have limited new housing construction, while inadequate investment has slowed the growth of clean energy.
- **Post-Governance**: The authors direct their argument particularly at liberals, urging them to move beyond a governance model that protects and preserves. They propose a liberalism that actively builds the future by tackling barriers to progress.

#### 2 Why Africa Needs an Abundance Frontier

Africa's structural constraints—a \$100 billion annual infrastructure deficit, weak governance, and exclusionary politics—perpetuate zero-sum conflicts and stifle progress (African Development Bank, 2023; Mo Ibrahim Foundation, 2023). An abundance frontier, rooted in proactive innovation, reframes these challenges as opportunities to build resilient systems. By leveraging 30% of global mineral reserves and a population set to double by 2050, Africa can drive economic growth through intra-African trade (UNCTAD, 2023). Innovations like M-Pesa and decentralized solar grids demonstrate how constraint-driven solutions outpace traditional models (World Bank, 2017; World Resources Institute, 2022). This mindset counters scarcity-driven narratives, fostering inclusive prosperity and positioning Africa to lead in AGI-driven economies, provided equitable policies prevent elite capture (Centre for the Fourth Industrial Revolution Rwanda, 2025). However, the Abundance theory does not translate well to leveraging AI for localized innovation, such as precision agriculture to boost food security or AI-driven education platforms to bridge literacy gaps. The theory emphasizes bottom-up solutions, empowering communities to harness technology for their specific needs. Africa's challenges are well-documented:

- **Infrastructure Capacity**: A \$100 billion annual funding gap for roads, power grids, and ports stifles growth (African Development Bank, 2023).
- **Political Economy**: Corruption and weak institutions drain resources. Governance improves slowly, but many states prioritize survival over strategy (Mo Ibrahim Foundation, 2023).
- **Democracy**: Elections are often zero-sum contests rather than collective visioning tools, reinforcing exclusion and instability across key regions like West Africa (Mo Ibrahim Foundation, 2023).
- Funding Capacity: Nearly half of African countries exceeded the 60% debt-to-GDP threshold in 2023, constraining fiscal space for renewable energy and innovation despite vast solar and wind potential (UNCTAD, 2023).

Open Philanthropy's fund operationalizes this by funding advocacy, research, and policy reforms to dismantle bottlenecks, directly reflecting Klein's critique of scarcity-driven governance and his push for a **"politics of building."** This politics of building approach functions optimally in developed countries.

The abundance frontier reframes governance stagnation, exclusionary politics, and funding scarcity as opportunities for inclusive, scalable innovation ecosystems capable of driving AGI-era leadership—provided elite capture is curtailed and participatory institutions embedded (Mo Ibrahim Foundation, 2023). The Abundance Frontier could benefit from:

- **Demographic Dividend**: With 60% of Africans under 25, the continent is positioned to become a global hub for consumer markets, digital labor, and entrepreneurial innovation (UNCTAD, 2023).
- Energy Abundance: Africa holds vast untapped renewable resources—solar, wind, and geothermal—with countries like Kenya already demonstrating scalable clean energy models, offering a leapfrog opportunity for sustainable industrialization (UNCTAD, 2023).
- **Critical Mineral Abundance**: Africa holds at least 20% of global reserves of transition-critical metals, including 19% of the global supply for electric vehicle batteries, placing it at the heart of the green tech supply chain (United Nations Economic Commission for Africa, 2023).

A mission-oriented, public-common good strategy can align investments, innovation, and governance toward shared prosperity—recasting African governments not as market fixers but as market shapers (Mazzucato, 2020).

#### 3 Infrastructure Demands of AI

Building more—housing, infrastructure, energy—reflects a mindset of abundance, often rooted in optimism about technological progress. The expansion of AI infrastructure, driven by a mindset of abundance, underscores both opportunity and strain, particularly in the Global South, where scarcity amplifies the impact. These efforts coalesce in regional collaboration, as seen in Kigali's summit fostering collective strategies for economic growth and workforce development. This isn't abundance imposed from above, but forged through shared ingenuity amid constraints. With only 1% of global data center capacity and 39% internet penetration, Africa's infrastructure lags behind AGI's compute–intensive requirements (African Development Bank, 2023).

#### 3.1 Compute Dynamism (Global AI Summit on Africa – 2025)

The Kigali summit's discussions on compute capacity, data sovereignty, and inclusive AI were groundbreaking, attracting over 2,000 delegates from 97 nationalities, but its Africa Declaration's call for simultaneous innovation, competitiveness, and sustainability lacks clear prioritization (Centre for the Fourth Industrial Revolution Rwanda, 2025). For example, the summit's push for sustainable compute infrastructure, highlighted in sessions like "Building Africa's Compute Capacity—Sustainably and Equitably," competes with immediate needs like affordable energy access. An abundance mindset demands streamlined policies—prioritizing trade-offs like water-efficient data centers or renewable energy—and enforceable transparency in resource usage.

The Rwanda summit's MoU for a Rwanda AI Scaling Hub is a step toward focused infrastructure, but without clear hierarchies of goals, Africa risks conflating its AI ambitions in well-intentioned but paralyzing complexity. The Rwanda AI Summit, aimed to position Africa as an AI innovation leader but highlighted the "bagel" trap, with discussions on ethical AI, job creation, and climate resilience lacking clear prioritization. An abundance mindset demands streamlined policies—prioritizing trade-offs like water-efficient data centers or renewable energy—and enforceable resource transparency to avoid paralyzing complexity.

#### 3.2 Infrastructure Supply & Demands

**Abundance** by Ezra Klein and Derek Thompson argues for a "liberalism that builds" to overcome systemic scarcity in housing, energy, and innovation, primarily focusing on U.S. policy failures. For Africa's context, its principles apply to power infrastructure and AI demands, aligning with the **Afro-Dynamism** vision of transforming energy poverty into opportunity (Perspective, 2025) Book – Abundance **197**. They emphasize that clean energy infrastructure is critical for economic growth but stalled by overregulation. They cite U.S. environmental laws (e.g., NEPA) blocking solar and wind projects, arguing for streamlined permitting to scale renewables. For example, Tanzania's grid challenges with 14.2% losses and overloaded transformers, needing focused reforms over romanticized off-grid solutions (Perspective, 2025). However, Abundance advocates nuclear and geothermal alongside solar, which could address Africa's baseload needs for industrial growth.

#### 3.2.1 Energy

Africa's ambition to lead in the AGI era hinges on addressing its power and compute infrastructure deficits. With 600 million Africans (43% of the continent) lacking electricity and a projected quadrupling of energy demand by 2040, reliable power is a prerequisite for AGI's compute-intensive requirements (African Development Bank, 2023; Perspective, 2025). The Mission 300 initiative, aiming to connect 300 million Africans to the grid by 2030, underscores the urgency of electrification (African Development Bank, 2023). For example, Tanzania targets 8.3 million new connections, a leap from 500,000 annually, requiring significant grid upgrades (Perspective, 2025). Nigeria's grid, limited to 6GW for a 200B USD economy, forces firms to spend 10.3B USD yearly on off-grid power, highlighting the need for reliable systems (Perspective, 2025).

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Figure 1: Sub-Saharan and MENA region Africa has 500M-600M people with access to power, from a 1.3B population

To meet AI's needs, Africa requires 27B USD annually to achieve universal electrification by 2030, leveraging regional power pools (e.g., EAPP, SAPP) and renewable sources like solar and geothermal (Perspective, 2025; UNCTAD, 2023). The **power scarcity** in Africa underpins its under-developed roadmap towards transformative AI.

#### 3.2.2 Water

The massive infrastructure demands of AI, particularly in the Global South, reveal a tension between this vision and local realities, such as *water scarcity*. AI data centers, requiring billions of liters of freshwater for cooling and power, strain already limited water supplies in regions. With AI's water usage projected to hit  $4.2-6.6B \text{ m}^3$  globally by 2027, it risks exacerbating water stress for 1.5 billion people in water-scarce Global South regions. For example, South Africa's data center growth in Cape Town raises concerns about exacerbating water stress in a city scarred by the 2018 near "Day Zero" crisis, when reservoirs nearly ran dry, echoing California's housing delays due to progressive policy complexity (Baker, 2018; Klein, 2023). "Chronically water-stressed countries in the Global South stand to be impacted more adversely" by AI data centers' massive water consumption, yet this issue also ripples into advanced economies like the U.S. by Lawfare as

#### 3.2.3 Connectivity

Parallel to this, are subsea cables—stretching from Europe to landing points in Nigeria, Namibia, and South Africa—embodies infrastructure as a backbone of dynamism. Enhanced connectivity promises not just faster internet, but a platform for African voices to resonate globally. This could enable large-scale connectivity of AI model inference from rural innovators to urban hubs, creating a networked abundance. Compute infrastructure—internet, data centers, computing power—is critical for AGI and the digital economy. Sub-Saharan Africa has 1% of global data center capacity, with 39% internet penetration (African Development Bank, 2023). Undersea cables and satellite internet (e.g., Starlink) are expanding access, but governments must prioritize investments to close the gap.

# 4 Reframing Scarcity through Dynamism

To unlock Africa's potential in the AGI era, we need a new intellectual framework that transforms scarcity into opportunity. This section synthesizes the abundance mindset, Afro-Dynamism, and Oded Galor's unified growth theory to argue that Africa's constraints—resource scarcity, governance gaps, and historical legacies—can catalyze innovation when channeled effectively. By reframing scarcity as a driver of resilience, these theories provide the foundation for practical strategies to position Africa as a leader in AI-driven prosperity.

#### 4.1 The Abundance Mindset

The abundance mindset, inspired by Ezra Klein and Derek Thompson, envisions "a future where society has plenty of what it needs" through proactive innovation rather than scarcity-driven conflict (Farrell, 2024). In Africa, this shifts the focus from redistributing limited resources to creating more (World Resources Institute, 2022). Unlike traditional development models that preserve the status quo, abundance encourages bold investments in infrastructure and human capital. Practically, this mindset supports policies as growth-centric anchors which optimize limited resources for AI infrastructure.

#### 4.2 Afro-Dynamism (Abundance Through Scarcity)

Afro-Dynamism synthesizes the abundance mindset with Africa's unique context, positing that scarcity and diversity drive innovation when optimally channeled (Mo Ibrahim Foundation, 2023) – it posits that constraints—including scarcity, diversity, and colonial legacies—can drive innovation when optimally channeled, positioning Africa to lead in economic resilience and social cohesion With 87% mobile penetration by 2023 despite infrastructure gaps, Africa exemplifies how constraints foster resilience (GSMA, 2023).

Afro-Dynamism is a concept that reframes Africa's scarcity as a catalyst for innovation. The core idea is that constraints, such as scarcity, diversity, and colonial legacies, can drive innovation when optimally channeled.

— Equiano Institute

Nigeria's Alaba market, generating billions with minimal formal support, reflects cultural adaptation under pressure (BBC News, 2021). Afro-Dynamism aligns with practical recommendations with fore-knowledge of limitations, such as regional AI research hubs, which leverage Africa's linguistic and cultural richness to develop normative AI systems.

# 4.3 Galor's Unified Growth Theory

Oded Galor's unified growth theory argues that adversity, under optimal conditions, sparks technological and demographic breakthroughs (Galor, 2011). Africa's historical diversity and resource scarcity mirror Galor's "optimal diversity," fueling innovation. For instance, mobile platforms thrive where traditional systems falter, as seen in Kenya's M-Pesa (World Bank, 2017). Galor's framework suggests that Africa's cultural richness can drive AI systems tailored to local languages and needs, enhancing education and economic growth. This theory underpins investments in talent agglomeration centers, which harness diversity to position Africa as a global AI leader.

# 4.4 AGI as a Multiplier

Artificial general intelligence (AGI)—AI with human-level intellect—amplifies Africa's potential by automating agriculture, scaling healthcare, and expanding education (Patel, 2024). Dario Amodei envisions AGI driving "radical abundance" by 2026, while Demis Hassabis sees climate solutions (Business Insider, 2024; DeepMind, 2024). However, AI's compute demands strain resources, with data centers consuming vast energy and water, threatening Sub-Saharan water security (Sharma, 2024).

# 4.5 Escaping Traps (Malthusian and Bagel Traps)

Historical Malthusian traps, where technological gains fueled population growth without raising per capita income, were overcome through innovation (Galor, 2011; Kremer, 1993). In Africa, solar microgrids and informal economies bypass traditional constraints, fostering resilience (World Resources Institute, 2022).

However, superhuman AI risks reimposing Malthusian limits by capping wages below AI replication costs (Maximum Progress, 2024). Inclusive AI policies can accelerate technological progress, raising wages and escaping these constraints (Korinek & Suh, 2024). Similarly, Ezra Klein's "everything-bagel liberalism" warns against policy overcomplexity, as seen in the African Union's Continental AI Strategy, which risks diluting impact by balancing competing priorities (African Union, 2024; Klein, 2023). Practical strategies must prioritize high-impact goals, such as renewable-powered compute zones, to avoid paralyzing complexity.

#### 4.6 Past Development Theories

Traditional development theories, rooted in scarcity-driven paradigms, have shaped global approaches to economic and social progress, often with mixed outcomes for Africa.

- **Modernization** theory assumed linear economic growth would lead to societal progress, yet frequently overlooked local cultural and historical contexts (Rostow, 1960).
- **Dependency Theory** highlighted how colonial legacies and global trade structures perpetuated African nations' reliance on Western economies, trapping them in unequal exchange (Frank, 1966).
- Structural Adjustment Programs, imposed by international financial institutions, prioritized short-term fiscal stability but often undermined long-term growth by cutting public services (Cornia et al., 1987). These approaches, critiqued for their universalist assumptions, faltered in addressing Africa's unique challenges (BBC News, 2012).
- **The Fourth Industrial Revolution (4IR)**, characterized by digital technologies like AI, promised a new era of development but is increasingly seen as outdated for its one-size-fits-all framework (Schwab, 2016).

It emphasized technological integration yet failed to fully account for Africa's infrastructure gaps and local priorities. Leapfrogging, another paradigm, offered a more tailored approach, enabling African nations to bypass traditional development stages (Jack & Suri, 2010).

#### 4.7 Case study: Cassava Technologies & NVIDIA

In March 2025, Cassava Technologies, an African technology infrastructure company, announced a groundbreaking partnership with NVIDIA to deploy 10,000 GPUs across Africa, creating the continent's first AI factory. The establishment of Africa's first AI factory by Cassava Technologies in partnership with NVIDIA by June 2025 represents a significant step toward technological sovereignty for the continent. This sovereignty implies greater control over data, infrastructure, and innovation, allowing African nations to tailor AI solutions to their unique challenges—like agriculture, healthcare, or energy—without relying solely on foreign tech.

This initiative exemplifies abundance-through-scarcity thinking:

- Resource Pooling: Rather than each country attempting to build subscale infrastructure, resources were pooled into strategically located regional hubs
- Constraint-Driven Innovation: Power and water limitations drove adoption of advanced cooling technologies and energy efficiency measures
- Skills Multiplication: A "train the trainer" approach to create growth in technical capacity
- Sovereign Cloud Architecture: A distributed design balanced regional compute needs with continental scale
  advantages

# 5 What Should Be Done?

To harness abundance, African leaders must prioritize foundational infrastructure—reliable power and water—before scaling AGI, as these underpin economic and societal resilience (African Development Bank, 2023). Investments in education and build human capital for AI-driven economies (Galor, 2011). Promoting intra-African trade and data governance policies and leveraging local markets (UNCTAD, 2023) could boost AI readiness and strategies. Responsible AI governance, rooted in the Africa Declaration's inclusive principles, mitigates risks of elite capture and job losses (Centre for the Fourth Industrial Revolution Rwanda, 2025).

# 5.1 Abundance Recommendations

To implement an abundance-based AI strategy, African governments should adopt policies across infrastructure, energy, and talent development.

- Establish National Sustainable Compute Zones (NSCZs) with renewable energy targets (50-80%), water efficiency, and compute reserved for local use.
- Establish **AI-Ready Networks** through spectrum reform, infrastructure sharing, and rural connectivity guarantees.
- Establish **Sustainable AI-Energy** program to integrate AI-optimized grids and incentivize sustainable data center practices.
- Establish **Research Centers** (5–7 regional hubs) should drive contextual innovation and diaspora engagement.
- Establish Talent Agglomeration Centers, this could enable knowledge transfer and innovation

Together, these policies offer a scalable model for equitable AI-led development. This implementation framework transforms the theoretical concept of Afro-Dynamism into practical action. By systematically assessing constraints, mapping innovation pathways, implementing sequenced policies, and managing trade-offs transparently, African nations can harness the paradoxical power of scarcity-driven abundance. (see Appendix F)

#### 5.2 Towards Post-Scarcity Frontier

These scarcity-driven approaches faltered, and the Fourth Industrial Revolution framework is outdated. Abundance offers a new paradigm, focusing on local innovation. The 4IR's focus on incremental technologies neglects critical gaps—data sovereignty, energy reliability, and parallel infrastructure readiness(such as state capacity and resource supply). For instance, Nigeria's \$29 billion annual power outage losses undermine AI deployment (NPR Staff, 2019). Unlike Afro-Dynamism, which leverages constraints for innovation, 4IR frameworks often assume stable systems, misaligning with Africa's realities. The AU's Continental AI Strategy aims to bridge these gaps, but without addressing structural barriers, 4IR risks entrenching dependency on external AI systems (African Union, 2024). Afro-Dynamism prioritizes systems co-evolved with scarcity, ensuring robust outcomes over engineered abundance.

# 5.3 Towards Democracy for Abundance

Abundance, as framed by Klein and Thompson, emerged from resource-rich contexts like California's housing debates, overlooking developing nations' structural constraints (Farrell, 2024; Klein, 2023). Without inclusive policies, such as citizen assemblies or transparent AI governance, abundance concentrates benefits among elites, deepening inequality. Democratic reforms must accompany abundance. Its optimism risks underestimating persistent structural barriers, such as unreliable electricity or unequal access to tech education, which could exacerbate digital divides (World Bank, 2020). Moreover, reliance on global tech ecosystems for AI tools may replicate dependency patterns, albeit in a new form. For instance, partnerships with tech giants for AI infrastructure, while enabling rapid progress, could limit sovereignty if proprietary systems dominate (United Nations Economic Commission for Africa, 2023). Transparent democratic reforms, such as Ghana's voter inclusion, ensure equitable access to prosperity (USAID, 2024). However, trade-offs are critical: AGI's compute demands strain water and energy resources, risking environmental

degradation and social unrest (Sharma, 2024). Leaders must balance automation's benefits with democratic accountability and ecological sustainability, favoring adaptive, constraint-driven solutions.

#### 5.4 Towards Innovation Under Constraints

Adaptive innovation leverages scarcity for high-impact solutions, outperforming externally imposed abundance. Klein and Thompson's scarcity-elimination, akin to AI sparsification (Louizos et al., 2017; Molchanov et al., 2017), falters in Africa's unstructured contexts—projects like the Addis Ababa-Djibouti Railway faced delays (The East African, 2020), or cross-border data flows at African Union.

#### 5.5 Towards Building for Abundance

Abundance's "build more" ethos supports Africa's need for energy growth to fuel AI, aligning with Mission 300's 300 million new connections goal (African Development Bank, 2023). Yet, its U.S.-focused solutions underplay Africa's unique challenges—70% rural unelectrification, political economy risks, and colonial legacies (Mo Ibrahim Foundation, 2023). The document's emphasis on pro-growth policies and governance reforms better addresses these, complementing Abundance's vision with practical steps (Perspective, 2025). For Africa's Afro-Dynamism, combining the book's streamlined policy approach with local strategies (e.g., National Sustainable Compute Zones) could unlock AI-driven abundance. Review of renewable energy are

# 5.6 Conclusion

Africa's path to abundance lies in seeing opportunity in challenges. By leveraging AGI, strengthening democracy, and investing in compute infrastructure, Africa can lead. Africa stands at a pivotal juncture, uniquely positioned to redefine global economic paradigms through transformative artificial intelligence (AI) by leveraging its resource wealth, demographic vitality, and Afro-Dynamism. This lens, rooted in Galor's unified growth theory and post-Malthusian dynamics, **reframes scarcity not as a barrier but as a catalyst for innovation**, where constraints birth breakthroughs. Transformative AI—capable of automating complex systems, optimizing resource allocation, and scaling human capital. Yet, this hinges on bold investments in compute infrastructure, energy, and water systems to support AI's voracious demands, balanced against environmental limits to avert crises. Unlike **traditional development models** that faltered under universalist assumptions, Africa's path demands a radical synthesis: **harnessing AI to amplify its cultural and linguistic diversity**, as Galor's optimal diversity suggests, while **asserting data sovereignty to break free from global tech dependencies**. By embracing adaptive, **constraint-driven innovation over engineered abundance**, Africa can transcend the "**everything-bagel**" trap of overcomplexity, forging a future where it doesn't merely participate in the AI-driven economy but commands it, reshaping global prosperity on its own terms.

# **Appendix F: Appendix**

# F.1. AI factory

Table 1: As of early 2025, Africa faced major barriers to AI participation. Cassava Technologies partnered withNVIDIA to launch Africa's first AI factory with 10,000 GPUs.

Context & Challenge	Abundance Response	Implementation Highlights
<1% of global data center capacity	Regional hubs across countries	Hub-and-spoke model: 4 hubs +
		15 edge sites
High latency accessing overseas	Liquid cooling technology	Reduction in water and energy
infrastructure		usage
Data sovereignty concerns	Energy Efficient Compute	Direct renewable energy sourcing
Unreliable power + costly cooling	Sovereign cloud with local	30% compute reserved for
	priority access	innovation
Limited AI infrastructure	Local skills multiplication	Scaled workforce pipeline
expertise		

# F.2. 2. Assessment Framework: The Abundance Readiness Index (ARI)

Before implementing abundance-oriented policies, policymakers should assess their context using the following dimensions:

# F.3. 2.1. Resource Assessment Matrix

Resource Type	<b>Current Status</b>	Constraints	Abundance Potential
Physical Infrastructure			
Human Capital			
Digital Infrastructure			
Governance Systems			00000
Financial Capital	00000	00000	00000

Instructions: Rate each dimension from 1–5 (), where 1 represents severe limitation and 5 represents optimal conditions. **F.4. Risk Assessment Matrix** 

<b>Risk Category</b>	Potential Risks	<b>Mitigation Strategies</b>	<b>Contingency Plans</b>
Political	Policy discontinuity with	Institutional anchoring,	Resilient implementation
	leadership changes	multi-stakeholder	structures independent of
		ownership	political cycles
Financial	Resource volatility affecting	Diversified funding sources,	Core functionality
	implementation	phased implementation	preservation protocols
			during resource constraints
Technical	Implementation capacity	Phased capability building,	Technical assistance rapid
	constraints	strategic partnerships	response mechanisms
Social	Resistance to new	Community engagement,	Adaptive communication
	approaches	demonstration effects	strategies, benefit sharing
			mechanisms
Environment	Resource consumption of AI	Efficiency requirements,	Development of low-
	infrastructure	circular economy	resource alternative
		approaches	pathways

The framework emphasizes that abundance emerges not from ignoring constraints, but from embracing them as catalysts for context-appropriate innovation. Success requires rejecting false choices between immediate needs and future capabilities, instead pursuing strategic sequencing that builds foundations

#### F.5. Implemeting Framework for Abundance Approach in African Contexts

#### Towards An Abundance Frontier For Africa

This framework provides African policymakers with a structured approach to implement abundanceoriented policies that leverage existing constraints as catalysts for innovation. Building on the concept of Afro-Dynamism introduced in the main report, this framework offers practical tools to transform resource limitations into strategic advantages.

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