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Beyond Chatbots Building Economic Intelligence Infrastructure for AI-Driven Decision-Making in Africa

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Abstract

Artificial intelligence is increasingly presented as a development accelerator for Africa, yet much of the policy debate focuses on visible applications such as chatbots, predictive models, automated services, and generative interfaces rather than on the information systems that determine what those applications can reliably know. This paper argues that Africa's central AI challenge is not merely access to advanced models, but the representativeness, accessibility, interoperability, and governance of the economic information ecosystems on which AI depends. The paper develops the concept of the Digital Representation Gap: the distance between actual economic reality and the reality contained in accessible, usable, and contextually meaningful digital information. It then proposes the African Economic Intelligence Infrastructure (AEII), a six-layer institutional architecture connecting economic reality, representation, digital infrastructure, analytics, accountable decisions, and development outcomes. Complementary tools include the THEVTIG Data Visibility Matrix, an Economic Data-to-Intelligence Maturity Model, and a Responsible Economic Intelligence Test. Comparative illustrations from Kenya, Nigeria, Rwanda, and Côte d'Ivoire/UEMOA demonstrate that African countries face distinct combinations of traceability, fragmentation, representativeness, and institutional coordination. The paper identifies five high-impact applications, trade and supply chains, investment, fiscal intelligence, food and commodities, and macroeconomic early warning, and presents a sequenced roadmap for implementation. The central conclusion is that AI should be embedded within broader economic intelligence institutions. Africa's long-term advantage will depend not only on deploying larger models, but on strengthening its capacity to observe itself, document its knowledge, govern its data, develop analytical sovereignty, and convert intelligence into accountable action.

Keywords: Artificial Intelligence, Economic Intelligence, Africa, Digital Representation, Data Governance, Informal Economy, Digital Public Infrastructure, Early Warning Systems, Data Sovereignty

Research Question

How can African countries move beyond the adoption of general-purpose AI applications and build economic intelligence capabilities that better capture their economic realities, anticipate risks, and support accountable strategic decisions?

Original Contributions

- The Digital Representation Gap, which identifies where economic reality is lost between observation and decision use.
- The African Economic Intelligence Infrastructure (AEII), a six-layer architecture linking economic reality to measurable development impact.
- The THEVTIG Data Visibility Matrix, which assesses whether activities are observed, digitized, structured, accessible, integrated, and used in decisions.
- The Economic Data-to-Intelligence Maturity Model, which describes progression from invisible activity to decision-embedded intelligence.

- The Responsible Economic Intelligence Test, which provides a governance gate for high-impact analytical systems.

Method and Scope

This working paper is a conceptual and policy synthesis derived from the original THEVTIG research report. It integrates official statistics, international policy frameworks, comparative country illustrations, and institutional design analysis. It does not estimate a causal model or produce a country ranking. Instead, it develops testable concepts, diagnostic tools, and an implementation framework that can guide future empirical research and institutional pilots.

Introduction

Artificial intelligence has moved from a specialized technical field into a central theme of economic strategy. Governments are developing national AI policies, firms are incorporating generative systems into operations, and international organizations increasingly view AI as a potential driver of productivity, service delivery, and scientific advancement. The African Union's Continental Artificial Intelligence Strategy reflects this momentum while emphasizing an Africa-centric, development-oriented, responsible, and inclusive approach [1].

Much of the public discussion nevertheless begins with the visible layer of AI: the chatbot, the recommendation system, the predictive model, or the automated service. These applications matter. Conversational systems can widen access to information, support education, translate languages, improve customer service, and assist public administration. But a chatbot is an interface. It is not, by itself, an economic development strategy.

The more fundamental issue is the information ecosystem beneath the interface. What does the system know? Which populations, activities, languages, transactions, and institutions are represented in its information environment? Which remain missing or poorly contextualized? Who controls the data? Can decision-makers access the resulting insight? Can affected communities challenge errors?

These questions are especially important for Africa because the continent combines expanding digital innovation with persistent information gaps. The World Bank's Digital Economy for Africa initiative has supported the objective of digitally enabling individuals, businesses, and governments, while national and regional programs continue to expand connectivity and digital public infrastructure [2]. Yet digitalization remains unequal between countries and between rural and urban areas, large firms and microenterprises, formal institutions and community systems.

Informal economic activity makes the problem more complex. Informality is not simply an absence of registration. It includes economic relationships, employment arrangements, transactions, and financing practices that may be measured only periodically or indirectly. The ILO reports that 87.6 percent of employment in Sub-Saharan Africa was informal in 2025 [3]. That figure does not imply that nearly nine in ten workers are invisible. It does imply that systems centered only on formal payroll, registered enterprises, tax declarations, and conventional banking will observe an incomplete economic universe.

The continent is also producing more digital data than narratives of "data scarcity" sometimes suggest. Mobile money, for example, has generated extensive transactional footprints and expanded financial inclusion. GSMA reported that mobile money services processed more than US\$2 trillion globally in 2025, while Sub-Saharan Africa remained the industry's leading regional ecosystem [4]. Satellite observations, mobile surveys, logistics platforms, electronic customs systems, and administrative databases further expand the potential information base available for economic analysis.

The apparent paradox is therefore instructive. Africa can be both data-rich and intelligence-poor in specific domains. Data may exist without being standardized. It may be digital without being accessible. It may be accessible without being representative. It may be integrated without being trusted. It may be analyzed without being connected to an institutional decision.

This paper argues that the strategic priority is to build the infrastructure that converts fragmented information into trusted economic intelligence. AI is part of that infrastructure, but it enters after—and alongside—observation, documentation, governance, integration, domain expertise, and institutional accountability.

The argument can be summarized in a simple chain: economic reality must first be observed and represented, information must then be integrated and interpreted, only then can analytics and AI reliably support strategic decisions. This paper expresses that chain as Reality → Representation → Intelligence → Decision → Development.

The analysis is conceptual and policy-oriented. It synthesizes official statistics, international policy frameworks, and comparative illustrations. It does not claim to measure the total size of Africa's Digital Representation Gap. Instead, it develops a framework for identifying where the gap may arise and how institutions can reduce it responsibly.

The Information Foundation of Artificial Intelligence

AI systems learn, infer, classify, forecast, and generate outputs from representations. Those representations may include text, tables, code, images, audio, sensor readings, administrative records, or transactional data. Even multimodal

systems do not encounter reality directly. They encounter selected, encoded, and often imperfect traces of reality.

This distinction is familiar in statistics and economics. A model may be internally sophisticated yet produce weak conclusions when the underlying sample is biased, outdated, or inconsistent with the target population. Generative AI introduces new capabilities, but it does not repeal the basic relationship between evidence and inference. The quality of output remains affected by coverage, measurement error, missingness, context, timeliness, and institutional use.

The implication for African economic policy is straightforward. A conversational AI connected to published macroeconomic indicators may summarize inflation, growth, public debt, trade, and financial conditions. It may perform that task impressively. Yet if the official and digital information environment only partially reflects informal employment, localized price pressures, household coping mechanisms, community finance, or unrecorded cross-border commerce, the system's answer may remain incomplete even when every sentence is fluent.

The problem should not be reduced to "garbage in, garbage out." African data are not garbage. Official statistics are indispensable, and many statistical agencies produce high-quality information under demanding resource constraints. The more accurate concern is representational asymmetry: the data that are easiest to structure and access may receive disproportionate weight relative to activities that are economically important but harder to observe.

Digital systems can also reproduce institutional boundaries. Customs data may not align with transport data. Tax records may not connect with business registries. Mobile payment data may be proprietary. Agricultural information may be divided among ministries, meteorological services, private platforms, and development programs. Local-language information may remain outside searchable corpora. Each system sees a portion of reality, but no institution necessarily possesses the integrated view required for strategic intelligence.

Economic intelligence therefore begins before computation. It begins with decisions about what should be observed, how concepts should be defined, whose experience should be represented, how data should be governed, and how uncertainty should be communicated. AI can accelerate these processes, but it cannot replace them.

The paper proposes two foundational principles. First, the quality of economic intelligence cannot exceed the quality and representativeness of the information ecosystem from which it is produced. Second, AI amplifies existing information systems, it does not automatically compensate for systematically missing economic reality. These principles are propositions to guide institutional design rather than universal mathematical laws.

The Digital Representation Gap

Activity	Observed	Digitized	Structured	Accessible	Integrated	Decision use
Formal banking	High	High	High	Medium-High	Medium	High
Registered firms	High	Medium-High	High	Medium	Medium	High
Mobile money	High	Very high	High	Limited-Variable	Low-Medium	Medium
Informal urban commerce	Low-Medium	Low-Medium	Low	Low	Low	Low
Informal employment	Medium via surveys	Low individually	Medium aggregate	Low	Low-Medium	Medium aggregate
Tontines/community finance	Low	Low-Variable	Low	Very low	Very low	Very low
Smallholder agriculture	Medium	Low-Medium	Variable	Low	Low-Medium	Medium
Informal cross-border trade	Low-Medium	Low	Low	Low	Low	Low
Oral/local knowledge	Low	Very low	Very low	Very low	Very low	Very low
Satellite/geospatial signals	High for physical phenomena	High	High	Medium	Medium	Medium-High

Source: Author's framework based on the evidence and concepts synthesized in this paper.

Table 1: THEVTIG Data Visibility Matrix

This paper defines the Digital Representation Gap as the distance between actual economic reality and the representation of that reality contained in accessible, usable, and contextually meaningful digital information. The gap may arise because activity is not observed, because it is observed but not digitized, because it is digitized but privately held, or because it is accessible but not integrated into decision processes.

The concept has four dimensions. The first is economic representation: whether activities, workers, enterprises, transactions, and supply relationships are captured. The second is institutional representation: whether relevant administrative records exist and can be connected across agencies. The third is linguistic representation: whether local languages and oral information are available in formats that digital systems can process. The fourth is contextual representation: whether information includes the social, legal, and institutional meaning needed for interpretation. Informal employment illustrates the economic dimension. Informal workers may be counted through household or

labor force surveys, yet continuous information about earnings, working hours, financing, demand, input costs, or vulnerability to shocks may remain limited. A periodic estimate can reveal scale without fully describing daily dynamics. The ILO's informality indicators therefore provide essential measurement while also highlighting why complementary, responsibly governed information sources may be valuable [3,5].

Mobile money illustrates a different situation. Transactions are digitized and can be analyzed by operators. But public institutions may have access only to aggregated indicators, delayed reports, or selected regulatory data. The activity is digitally visible to one actor and only partially visible to another. This is not necessarily a failure: privacy, commercial confidentiality, and security appropriately restrict access. It does, however, show that digitization and public economic intelligence are distinct.

Language creates another gap. A significant share of knowledge is communicated through oral interaction, local terminology, and languages that remain less represented in digital corpora. The African Union's AI strategy explicitly recognizes the need for Africa-relevant datasets and linguistic inclusion [1]. A system may technically support language generation while still failing to capture the concepts, institutions, and economic practices expressed in underrepresented languages.

The gap is also temporal. Quarterly or annual statistics may be accurate but arrive too slowly for emerging shocks. High-frequency proxies—prices, payments, mobility, satellite observations, and business sentiment—can complement official statistics. They should not replace them. Alternative data often provide speed and granularity, while official statistics provide definitions, representativeness, continuity, and public legitimacy.

The practical question is therefore not "Does Africa have data?" It is: Which parts of economic reality are visible, to whom, in what form, under what legal authority, with what level of representativeness, and for which decisions?

The THEVTIG Data Visibility Matrix

Note: The ratings are conceptual and vary by country, institution, and dataset. They are intended to guide empirical assessment, not to rank the continent as a whole.

The matrix produces a three-part classification. The visible economy is structured, accessible, and routinely analyzed. The traceable but fragmented economy generates digital signals that remain private, disconnected, or insufficiently contextualized. The underrepresented economy is poorly documented, cash-based, oral, or institutionally invisible. Effective intelligence requires different interventions for each category.

From Data to Economic Intelligence

Data are observations or representations: a transaction, a price, a customs declaration, a voice recording, a business registration, or a satellite image. Information emerges when data are organized and interpreted. Analysis explains relationships, evaluates alternatives, and estimates outcomes. Intelligence adds decision relevance: it identifies why the information matters, who is exposed, what may happen next, which options exist, and how uncertainty should influence action.

Business intelligence generally organizes enterprise data to monitor performance. Economic analysis uses theory, statistics, and econometrics to examine economic relationships and policy effects. Artificial intelligence provides capabilities for classification, prediction, generation, pattern recognition, and automation. Economic intelligence integrates these tools with domain knowledge, institutional mandates, strategic foresight, and decision accountability.

This paper defines economic intelligence as the systematic process of observing economic reality, collecting and integrating relevant information, contextualizing and analyzing that information, and transforming it into actionable knowledge for strategic economic decisions.

The definition is intentionally broader than analytics. A model that forecasts food prices is analytical. It becomes part of an intelligence system when the forecast is connected to geographic exposure, confidence levels, operational thresholds, institutional responsibility, and response options. A dashboard becomes intelligence when it supports an identified decision and is evaluated against decision outcomes.

AI should therefore be embedded within economic intelligence rather than treated as a substitute for it. The distinction matters for investment. A government can purchase a powerful model and still lack interoperable databases, statistical expertise, secure infrastructure, governance, and authority to act. Conversely, a country with modest computational resources can improve decisions substantially by strengthening data quality, institutional coordination, and analytical discipline.

The progression can be summarized as Observation → Data → Information → Analysis → Economic Intelligence → Decision → Development. Each stage adds value, but each also introduces potential error. Observation may omit groups. Digitization may encode biased categories. Integration may link incompatible concepts. Models may overfit. Institutions

may ignore valid intelligence or misuse uncertain findings. Governance must therefore operate across the entire chain of information. 

African Economic Intelligence Infrastructure

Level	Institutional condition	Primary priority
1. Invisible	Relevant activity occurs but is poorly observed.	Define the blind spot and collect representative baseline evidence.
2. Documented	Information is captured periodically or inconsistently.	Improve definitions, coverage, and continuity.
3. Digitized	Information exists digitally but remains fragmented.	Create standards, metadata, and lawful access mechanisms.
4. Integrated	Multiple sources can be combined and contextualized.	Strengthen interoperability, quality control, and governance.
5. Intelligent	Analytics and AI generate actionable assessments.	Validate models, disclose uncertainty, and connect outputs to decisions.
6. Decision-embedded	Intelligence routinely informs accountable decisions.	Measure outcomes, audit impacts, and continuously improve.

Source: Author's framework based on the evidence and concepts synthesized in this paper.

Table 2: Economic Data-to-Intelligence Maturity Model

The African Economic Intelligence Infrastructure is proposed as a six-layer ecosystem. It is not a single database or platform. It is a coordinated set of capabilities that can exist at national, regional, and continental levels.

- **Layer 1 — Economic Reality:** Formal and informal enterprises, labor, households, markets, institutions, agriculture, trade, finance, infrastructure, and local knowledge.
- **Layer 2 — Representation:** Official statistics, surveys, administrative records, text, voice, transactions, imagery, geospatial information, market observations, and community reporting.
- **Layer 3 — Digital Infrastructure:** Secure databases, identifiers, metadata, interoperability standards, cloud and computing resources, data exchanges, and access controls.
- **Layer 4 — Analytical Intelligence:** Statistics, economics, econometrics, machine learning, natural-language processing, forecasting, causal analysis, network analysis, and scenario simulation.
- **Layer 5 — Institutional Decision-Making:** Ministries, central banks, statistical agencies, regulators, regional bodies, businesses, investors, and development institutions with defined decision rights.
- **Layer 6 — Development Impact:** Better policy, improved resilience, more efficient resource allocation, inclusive investment, stronger markets, and measurable public value.

The infrastructure must be modular. A ministry of agriculture does not need access to every financial transaction. A central bank does not need individual voice records to monitor inflation. Each decision problem should use the minimum information required, at the appropriate level of aggregation, under clear legal authority.

The architecture also supports regional cooperation. UEMOA, ECOWAS, the East African Community, SADC, COMESA, and the African Union can create shared standards and cross-border intelligence products without centralizing all raw data. Federated approaches, secure research environments, common metadata, and privacy-preserving methods can allow institutions to collaborate while maintaining appropriate control.

The African Union Data Policy Framework emphasizes harmonized governance, trusted data flows, data protection, and the creation of value from African data (African Union, 2022) [6]. The AEII is consistent with that direction but focuses specifically on the pathway from representation to economic decisions.

Economic Data-to-Intelligence Maturity Model

Maturity should be assessed by domain rather than assigning a single score to an entire country. A central bank may have decision-embedded monetary intelligence while agricultural market data remain at the documented or digitized stage. This domain-specific view creates more practical reform priorities.

Comparative African Illustrations

Case	Primary strength	Primary gap	Intelligence priority	Role in paper
Kenya	Digital payments	Access and integration	Aggregated high-frequency intelligence	Traceable economy
Nigeria	Large and diverse data ecosystem	Representativeness and fragmentation	National coordination and contextual analytics	Scale challenge
Rwanda	Coordinated digital public systems	Informal reality beyond platforms	Extend visibility while protecting inclusion	Institutional contrast
Côte d'Ivoire/UEMOA	Regional monetary and financial harmonization	Informal cross-border and multisector visibility	Regional early warning and shared standards	Regional opportunity

Source: Author's framework based on the evidence and concepts synthesized in this paper.

Table 3: Comparative Country Illustrations

Kenya: Digitally Traceable but Fragmented Activity

Kenya demonstrates that informal or small-scale activity can generate rich digital traces. Mobile money has become deeply embedded in payments and enterprise activity. GSMA's country-level analysis estimates that mobile money has contributed materially to Kenya's economic growth [7]. Yet the existence of transaction data does not mean that all institutions can or should access individual records. The intelligence opportunity lies in privacy-preserving, aggregated indicators that help measure demand, business activity, regional stress, and financial inclusion without exposing personal transactions.

Kenya therefore illustrates the traceable but fragmented economy. Data exist, but the pathway from privately generated signals to trusted public intelligence requires legal clarity, technical safeguards, and methodological validation.

Nigeria: Scale, Diversity, and Representativeness

Nigeria presents a different challenge. Its large population, federal structure, regional diversity, substantial informal employment, cash activity, digital platforms, and complex industrial structure create a high-volume but uneven information environment. The policy risk is to confuse data volume with economic representativeness. Large datasets may overrepresent digitally connected urban users while underrepresenting rural activity, informal work, or specific regions.

Nigeria illustrates why national economic intelligence requires coordination across statistical agencies, federal and state institutions, private platforms, and sector regulators. AI can assist with entity resolution, multilingual text analysis, anomaly detection, and nowcasting, but only if data definitions and institutional responsibilities are aligned.

Rwanda: Digital Public Infrastructure and the Limits of Coordination

Rwanda offers a useful institutional contrast. The country has invested deliberately in digital public services and coordinated government systems. These capabilities can improve administrative visibility, service delivery, and data exchange. Yet digital government does not automatically capture all household, agricultural, or informal economic activity. Rwanda shows that institutional coordination is necessary for economic intelligence but is not sufficient to eliminate the representation gap.

Côte d'Ivoire and UEMOA: The Regional Intelligence Opportunity

Côte d'Ivoire and the wider UEMOA region illustrate the potential of regional economic intelligence. BCEAO already produces harmonized monetary, banking, financial inclusion, and digital finance indicators across member states. Regional institutions can combine these foundations with trade, food-price, investment, transport, and alternative data to identify cross-border vulnerabilities that no national system can fully observe in isolation.

A UEMOA Regional Economic Intelligence Platform could monitor supply-chain concentration, food and commodity prices, digital finance, SME activity, investment implementation, and macroeconomic spillovers. Its value would depend on shared definitions, secure exchange, transparent governance, and clear separation between aggregated intelligence and individual monitoring.

Comparative synthesis High-Impact Applications

Application	Primary user	Main representation gap	AI contribution	Intelligence product
Trade	Governments, firms, regions	Informal flows and fragmented logistics	Dependency and disruption detection	Trade early-warning dashboard
Investment	Governments, investors, DFIs	Fragmented projects and ownership	Entity resolution and project tracking	Strategic Investment Observatory
Fiscal	Finance ministries, revenue bodies	Limited view of economic base	Risk analysis and service support	Fiscal Visibility Platform
Food	Agriculture, markets, humanitarian agencies	Disconnected physical and household signals	Localized forecasting and classification	Food and Commodity Early-Warning System
Macroeconomic	Finance ministries, central banks	Delayed indicators and fragmented signals	Nowcasting, anomaly detection, scenarios	Economic Vulnerability Observatory

Source: Author's framework based on the evidence and concepts synthesized in this paper.

Table 4: Priority Economic Intelligence Applications

Trade and Supply-Chain Intelligence

African governments and businesses need to identify critical import dependencies, port and corridor disruptions, supplier concentration, and regional alternatives. A system could combine customs data, shipping information, market prices, transportation signals, and verified reports. AI can detect anomalies and simulate disruption scenarios. The intelligence product should distinguish recorded trade from estimated informal flows and disclose uncertainty.

Investment and FDI Intelligence

Aggregate FDI totals reveal little about project implementation, ownership, geographic concentration, domestic linkages,

and strategic exposure. An African Strategic Investment Observatory could follow projects from announcement to approval, financing, construction, operation, delay, or cancellation. Natural-language processing and entity resolution can reconcile investors and projects across public sources, while satellite information may help verify physical progress.

Fiscal and Revenue Intelligence

The goal should not be to make every informal transaction visible to the state. Fiscal intelligence should improve measurement of the tax base, taxpayer services, compliance simplification, fraud detection, and policy design. Statistical uses must be separated from enforcement uses. High-impact decisions require human review, legal authority, and appeal mechanisms.

Food, Agriculture, and Commodity Intelligence

Food security depends on production, weather, transportation, prices, trade, household purchasing power, and local market conditions. Satellite imagery can reveal crop stress, but it cannot independently explain household access, informal land arrangements, or trader behavior. AI can combine physical and market signals, translate voice reports, and identify localized risks, while field verification remains essential.

Macroeconomic and Early-Warning Intelligence

Official GDP, inflation, fiscal, trade, and financial statistics remain indispensable but may be delayed. High-frequency prices, payments, business sentiment, text, mobility, and remote sensing can provide complementary signals. An African Economic Vulnerability Observatory should report what changed, why it matters, who is exposed, how certain the assessment is, and which response options deserve consideration.

The five applications share an architecture: a defined decision problem, a diagnosis of the representation gap, a limited set of necessary data, analytical methods appropriate to the question, a decision owner, safeguards, and measurable outcomes. This architecture prevents technology from becoming an end in itself.

Governance, Ethics, and Data Sovereignty

Test	Required question
Purpose	What specific decision will the system improve?
Necessity	Are the proposed data genuinely required?
Proportionality	Do the expected benefits justify the risks?
Representation	Which populations or activities may be missing?
Privacy	Can aggregated or anonymized information accomplish the task?
Authority	Who is legally authorized to collect and use the information?
Security	How will data and models be protected?
Accountability	Which human institution owns the final decision?
Contestability	Can affected people challenge errors or adverse decisions?
Impact	Did the system improve decisions fairly and measurably?

Source: Author's framework based on the evidence and concepts synthesized in this paper.

Table 5: Responsible Economic Intelligence Test

Improved visibility can produce public value, but it can also enable surveillance, discrimination, cybersecurity breaches, political misuse, and economic dependency. Governance is therefore not a final compliance step. It is part of the intelligence architecture.

The African Union Data Policy Framework calls for trusted data flows, rights protection, harmonized governance, and equitable creation of value from data [6]. The Continental AI Strategy similarly emphasizes responsible and inclusive AI [1]. These frameworks provide a foundation for economic intelligence systems.

- **Purpose Limitation:** Every data use must be connected to a defined and legitimate decision purpose. Information collected for aggregate statistics should not automatically be reused for enforcement, political monitoring, or unrelated commercial profiling.
- **Data Minimization:** Institutions should use the least sensitive information capable of answering the question.
- Aggregated data should be preferred to identifiable records whenever possible.
- **Proportionality:** Benefits must justify risks. If a regional price index can be produced without linking identities, individual transaction histories should not be collected.
- **Transparency and Explainability:** Institutions should disclose what categories of information are used, why AI is involved, who is accountable, and how errors can be corrected.
- **Human Accountability:** High-impact assessments should support human decisions, not automatically impose penalties, deny benefits, or trigger coercive actions.
- **Inclusion and Representation:** Digitally visible populations should not receive disproportionate policy attention. Surveys, field research, and community consultation remain necessary to represent people with weak digital footprints.
- **Security and Resilience:** Economic intelligence platforms contain strategically sensitive information. Encryption,

access control, audit logs, incident response, continuity planning, and independent testing are essential.

Data Sovereignty as Agency, not Isolation

Data sovereignty should be understood as the capacity of African countries, institutions, and citizens to establish and enforce legitimate rules governing collection, access, processing, sharing, security, and value creation. It includes legal sovereignty, infrastructure choice, analytical capability, intellectual representation, and a fair share of the value generated from African data.

Sovereignty should not prevent beneficial collaboration, cloud innovation, regional sharing, or international research. The objective is agency: the ability to choose, negotiate, audit, and enforce. Sovereignty without interoperability can create fragmentation, interoperability without sovereignty can create dependency.

The THEVTIG Responsible Economic Intelligence Test

A high-impact project should not proceed if it cannot provide satisfactory answers concerning purpose, legal authority, proportionality, security, and human accountability.

Strategic Roadmap

Actor	Priority action	Why it matters	Implementation indicator	Primary risk
National governments	Add an economic intelligence pillar to national AI strategies	Connects AI spending to priority decisions	Published decision map and implementation plan	Technology-led strategy without institutional ownership
Statistical offices	Build high-frequency and alternative-data capability	Improves timeliness while preserving statistical standards	Number of validated high-frequency indicators	Replacing representative statistics with biased digital proxies
Ministries of finance	Create economic early-warning units	Improves fiscal, trade, inflation, and debt anticipation	Response protocols and forecast evaluation	Politicization or duplicated analytical units
Central banks	Integrate digital finance and real-economy signals	Strengthens inflation, inclusion, and stability analysis	Documented use in policy assessment	Confidentiality and model risk
Regional institutions	Develop shared economic intelligence platforms	Captures cross-border dependencies and spillovers	Harmonized datasets and regional alerts	Unequal capacity and governance disputes
African Union	Launch an African Economic Intelligence Initiative	Coordinates standards, training, and pilots	Continental framework and funded pilots	Duplicating existing mandates
Universities	Create interdisciplinary AI and economic intelligence programs	Builds local analytical sovereignty	New curricula, labs, and graduates	Programs disconnected from institutional needs
Technology firms	Design context-aware, auditable decision tools	Moves beyond generic chatbots	Local-language coverage and impact evaluations	Vendor lock-in and opaque models
Development partners	Fund data systems and institutional capacity alongside AI applications	Builds foundations for sustainable use	Share of funding allocated to governance and capacity	Pilot projects without long-term ownership

Source: Author's framework based on the evidence and concepts synthesized in this paper.

Table 6: Recommendations by Institutional Actor

- **Observe:** Identify strategic decisions that are currently impaired by missing, delayed, or fragmented information. Map visible, traceable, and underrepresented activity.
- **Document:** Strengthen surveys, administrative processes, local-language documentation, and representative field evidence. Adopt clear concepts and metadata.
- **Digitize:** Convert relevant records and knowledge into secure, usable formats. Improve connectivity and digital public infrastructure without excluding non-digital populations.
- **Integrate:** Create interoperable standards, data-sharing agreements, secure research environments, and quality controls. Separate statistical, service, regulatory, and enforcement purposes.
- **Analyze:** Combine economics, statistics, econometrics, AI, geospatial methods, and domain expertise. Validate models and communicate uncertainty.
- **Institutionalize:** Assign decision owners, response protocols, and accountability. Train users to interpret intelligence rather than merely consume dashboards.
- **Evaluate:** Measure whether the system improved timeliness, accuracy, inclusion, resilience, and final outcomes. Audit harms and revise the design.

Recommendations by Institutional Actor

The recommendations emphasize sequencing. Countries should not wait for perfect data before using AI. They should, however, ensure that each application simultaneously improves the underlying information ecosystem. A successful pilot should leave behind better definitions, data quality, governance, skills, and institutional coordination and not only a demonstration interface.

Conclusion

Africa does not need to choose between chatbots and economic intelligence. Conversational AI can create value in education, public services, finance, translation, and enterprise. The title of this paper is intentionally provocative because the visible excitement surrounding AI can obscure a deeper strategic requirement. A chatbot is useful only to the extent that the information, context, and institutions beneath it support trustworthy decisions.

The central challenge is representation. Africa's economic reality includes formal and informal enterprises, cash and digital payments, national and regional markets, administrative systems, oral knowledge, local languages, and community institutions. Some of this reality is visible and structured. Some generates digital traces that remain fragmented or inaccessible. Some remains underrepresented. A responsible AI strategy must recognize all three conditions.

The paper has proposed a pathway from reality to development impact. The African Economic Intelligence Infrastructure connects observation, representation, digital systems, analytics, institutional decisions, and measurable outcomes. The Data Visibility Matrix identifies where information is lost. The maturity model shows how capabilities can progress from invisible activity to decision-embedded intelligence. The Responsible Economic Intelligence Test ensures that improved visibility does not become surveillance or exclusion.

The most important policy shift is conceptual. African institutions should stop asking only, "Which AI tool should we deploy?" They should also ask, "Which decision are we unable to make well, what part of reality is missing, and what information ecosystem would allow people and technology to understand it responsibly?"

Africa's AI future will not be determined solely by access to larger models. It will be shaped by the continent's capacity to observe itself, document its knowledge, govern its data, develop its analytical institutions, and convert intelligence into action. The next frontier may therefore begin not with another chatbot, but with something more fundamental: an Africa that can see its economic reality more clearly and decide its future more strategically.

Limitations and Future Research

This paper is a conceptual and policy synthesis rather than a quantitative measurement of Africa's Digital Representation Gap. The proposed matrices and maturity levels require empirical testing and country-specific calibration. Continental indicators can conceal major differences between countries and sectors. The comparative cases are illustrative rather than exhaustive.

Several information sources discussed in the paper—particularly mobile transactions, platform activity, and private business data—are proprietary or legally restricted. The paper does not assume that greater institutional access is always desirable. It argues for purpose-specific, proportionate, and privacy-preserving use when a legitimate public decision requires it.

The paper also recognizes that the term "economic intelligence" has established uses in competitive intelligence, national strategy, and business analysis. THEVTIG's proposed definition builds on these traditions while emphasizing the complete pathway from economic representation to accountable public and private decision-making. Further literature review and peer engagement should refine the boundaries of this contribution.

Future Research Agenda

- Develop an empirical index for the Digital Representation Gap using country- and sector-level indicators.
- Test the Data Visibility Matrix in agriculture, trade, finance, and urban informal commerce.
- Benchmark AEII maturity across selected African institutions rather than ranking countries as single units.
- Evaluate privacy-preserving methods for converting mobile money and platform aggregates into public economic indicators.
- Develop local-language and voice-based approaches for incorporating community knowledge into economic monitoring.
- Build and test a UEMOA Regional Economic Intelligence pilot focused on trade, food prices, digital finance, and early warning.
- Compare decision outcomes before and after implementation of AI-assisted economic intelligence systems.
- • Examine how African institutions can negotiate cloud, model, and data partnerships while maintaining analytical sovereignty.

Research Propositions

- **Proposition 6.** Regional economic intelligence arrangements generate greater value in domains characterized by cross-border spillovers, including trade, food prices, payments, logistics, and financial stability.
- **Proposition 5.** Economic intelligence systems are more sustainable when governance, analytical capacity, and response protocols are built concurrently with technical platforms.
- **Proposition 4.** High-frequency alternative data create public value only when they complement, rather than replace, representative official statistics and contextual field evidence.
- **Proposition 3.** Countries with interoperable administrative systems and clear decision ownership will convert

digital data into policy intelligence more effectively than countries with similarly large data volumes but fragmented institutions.

- **Proposition 2.** Model sophistication cannot fully compensate for systematic absence of economically important populations, activities, languages, or institutions from accessible digital information.
- **Proposition 1.** The usefulness of AI-enabled economic intelligence increases with the representativeness of the underlying information ecosystem, holding model capability constant.

The conceptual framework yields six propositions that can guide empirical testing, institutional benchmarking, and pilot evaluation.

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Appendix A. Evidence Matrix

Major claim	Primary evidence	Confidence	Paper section
Informal employment dominates in Sub-Saharan Africa	ILO 2026 regional estimate: 87.6% in 2025	High	Introduction; Digital Representation Gap
Africa generates substantial digital financial traces	GSMA 2025 and 2026 mobile money reports	High	Executive Brief; Digital Representation Gap
Digitalization does not guarantee responsible public access	AU Data Policy Framework; World Bank digital regulation report	High conceptual support	Digital Representation Gap; Governance
Alternative data can complement conventional records	World Bank alternative data and digital business studies	Medium-High	Applications; Roadmap
African AI policy emphasizes development, inclusion, and governance	AU Continental AI Strategy	High	Introduction; Governance
AEII and THEVTIG matrices are original conceptual propositions	THEVTIG framework developed in this paper	Conceptual—requires validation	Framework sections

Source: Author's framework based on the evidence and concepts synthesized in this paper.

Table A1: Evidence Matrix

Appendix B. Working Definitions

- **Artificial Intelligence:** Computational methods that perform tasks associated with learning, inference, classification, prediction, generation, or decision support.
- **Alternative Data:** Information not traditionally used in a given official or analytical system, including satellite, mobile, platform, sensor, and other digital signals.
- **Administrative Data:** Information generated through the routine operation of government programs, regulations, services, and registries.
- **Business Intelligence:** Systems and practices that organize and visualize organizational data to monitor performance and operations.
- **Economic Intelligence:** The systematic transformation of relevant economic information, context, and analysis into actionable knowledge for strategic decisions.
- **Digital Representation Gap:** The distance between actual economic reality and its accessible, usable, and contextually meaningful digital representation.
- **Decision-Embedded Intelligence:** An institutional condition in which validated intelligence routinely informs accountable decisions and outcomes are evaluated.
- **Data Sovereignty:** The capacity to establish and enforce legitimate rules governing the collection, storage, access, processing, sharing, security, and value generated from data.