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Artificial Intelligence and Market Dynamics in Africa Abstract

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Abstract

Africa hosts approximately 2,400 AI companies, although nearly two-thirds remain in developmental stages. While the continent's artificial intelligence (AI) ecosystem is expanding, structural constraints including limited capital access, restricted computing power, fragmented data regimes and shortages of specialized AI talent which continue to inhibit scale and competitiveness. Yet the economic promise is considerable: even modest participation in the global AI market could significantly contribute to African GDP growth.

This paper examines how AI reshapes market dynamics in Africa and presents new competition law challenges. It argues that AI differs fundamentally from earlier general-purpose technologies due to its reliance on data accumulation, computational scale, algorithmic learning, and network effects. These structural characteristics generate new forms of market power, including data-driven dominance, gatekeeping behavior, algorithmic collusion, and self-preferencing.

The paper evaluates whether existing African competition frameworks such as the AfCFTA Protocol on Digital Trade and regional instruments like COMESA competition regulations, are adequate to address AI-driven market concentration without stifling innovation. It concludes by proposing regulatory pathways that balance innovation incentives with competition safeguards, while emphasizing institutional capacity building among African competition authorities.

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1. Introduction

Artificial intelligence (AI) does not have a single universally agreed definition, largely because it draws from multiple disciplines, including computer science, cognitive science, statistics, data science, robotics, among others. Early scholars approached the concept from different angles. For example, Richard Bellman (1978) described AI as the automation of tasks associated with human cognition such as learning, decision-making, and problem-solving. John Haugeland (1985) referred to AI as the effort to create machines capable of genuine thought. Similarly, Eugene Charniak and Drew McDermott (1985) defined AI as the study of human mental processes through computational systems. The term “artificial intelligence” itself was introduced by John McCarthy in 1955, who defined it as the science and engineering involved in building intelligent machines, a definition that still underpins much of today’s its understanding.

AI has evolved into a foundational technology shaping modern economies including Africa. Advances in machine learning, data processing and computational capabilities have enabled AI systems to perform increasingly complex functions, from language translation and image recognition to predictive analytics and autonomous decision-making. Reports by institutions such as McKinsey & Company and the Organisation for Economic Co-operation and Development (OECD), highlight AI’s growing role as a general-purpose technology with the capacity to transform industries, improve efficiency and address global challenges across sectors such as healthcare, finance, agriculture and governance. These developments reflect a growing awareness of AI’s potential to accelerate economic growth and improve service delivery.

AI is poised to become a major driver of economic expansion across markets. Research examining its long-term macroeconomic effects suggests that AI could potentially increase a country’s GDP growth rate twofold by 2035². Even capturing a modest share of these gains would significantly support development objectives and contribute to poverty alleviation. The benefits are expected to be particularly pronounced in sectors that are central to Africa’s economies, including agriculture, healthcare, public administration, and financial services, where AI can enhance productivity, efficiency, and service delivery.

This global expansion of AI has also extended to Africa where a number of countries are actively exploring its potential. Countries such as Kenya, Nigeria, South Africa and Rwanda have begun developing national AI strategies, fostering innovation

² <https://newsroom.accenture.com/news/2016/artificial-intelligence-poised-to-double-annual-economic-growth-rate-in-12-developed-economies-and-boost-labor-productivity-by-up-to-40-percent-by-2035-according-to-new-research-by-accenture>

ecosystems as well as introducing regulatory initiatives. At the continental level, the African Union has initiated efforts to establish guiding frameworks for AI governance, with an emphasis on ethical use, data protection and inclusive development.

However, despite the promising developments, AI governance and policy frameworks across Africa remain in their early stages. Many countries are still in the process of formulating coherent and enforceable regulations. Research by organizations such as the United Nations Economic Commission for Africa and the World Bank indicates that structural constraints continue to limit the continent's ability to fully harness AI. One key challenge is the relatively low level of investment in research and development, which restricts domestic innovation and increases reliance on externally developed technologies.

In addition, there is a notable shortage of skilled professionals in AI-related fields, including data scientists, engineers and researchers. This skills gap is further exacerbated by the migration of talent to more developed markets. Infrastructure deficits also present a major barrier, particularly in relation to reliable electricity, high-speed internet and access to reliable data storage and computing resources. These limitations have hindered the full deployment of AI systems in Africa.

Data-related challenges further complicate AI adoption as effective AI systems depend on the availability of large, quality datasets. Presently, many African countries face issues of limited data availability, inconsistent data standards coupled with evolving regulatory frameworks governing data use and sharing. Without strong data governance systems, jurisdictions will find it difficult to develop AI solutions that are both locally relevant and trustworthy.

Overall, while AI offers significant opportunities for innovation and socio-economic advancement across Africa, realizing these benefits will require deliberate efforts to address existing gaps in policy, infrastructure and human capital. Strengthening regional cooperation while investing in education and digital infrastructure and developing adaptive regulatory frameworks will be critical to ensuring that AI adoption is both inclusive and sustainable.

The central policy question for African regulators should therefore be how African markets can regulate AI-driven market power without undermining innovation and investment. Premature or overly rigid regulation may deter investment in nascent AI ecosystems. Conversely, under-regulation may entrench foreign gatekeepers and foreclose local competitors. This tension forms the core of AI competition policy in Africa.

2. Why AI is structurally different from previous technologies

In general, AI represents a structural break from earlier waves of technological innovation because it is not confined to automating routine physical or computational tasks. Rather, it extends into domains traditionally associated with human cognition. Unlike earlier general-purpose technologies such as the steam engine or electricity, which primarily augmented human labor and industrial capacity, AI systems can perform functions such as learning, reasoning, pattern recognition and decision-making. This shift from mechanization to cognition fundamentally alters the scope of automation, enabling machines to substitute for, and not merely complement, human judgment in areas ranging from finance and healthcare to legal analysis and public administration.

AI differs structurally from previous technologies in its societal and institutional implications. Because AI systems can influence or even autonomously make decisions, they raise complex issues relating to accountability, transparency and fairness. Unlike earlier tools whose impacts were more predictable and easier to regulate, AI systems often operate unpredictably, making it difficult to trace how specific outcomes are generated. This opacity complicates the application of existing legal and regulatory frameworks and necessitates new approaches to governance, including algorithmic auditing, ethical design principles and adaptive regulation. Consequently, AI is not merely a technological advancement but a transformative socio-technical system that reshapes economic structures, legal norms, and human interactions in fundamentally new ways³.

2.1 Data as a Strategic Asset

A defining feature that distinguishes AI from earlier generations of digital technologies is the central role of data as a strategic economic asset rather than a mere operational input. Traditional digital technologies including enterprise software or early internet platforms, primarily relied on fixed code and standardized inputs, meaning their performance and value were relatively static once deployed.

By contrast, AI systems are fundamentally dependent on data and are data-enhancing, deriving their capabilities from large, continuously expanding datasets. Research emphasizes that data functions not only as an input but as a strategic variable shaping firm behavior, market outcomes and innovation trajectories, enabling personalization,

³ Journal of Industrial and Business Economics (2022) 49:635–665 <https://doi.org/10.1007/s40812-022-00220-6>

prediction and improved efficiency across sectors⁴. This transforms data into a core source of competitive advantage, akin to capital or infrastructure, rather than a passive by product of digital activity.

What further differentiates AI is the emergence of data network effects, whereby the accumulation of data directly improves algorithmic performance which in turn attracts more users and generates even more data in a self-reinforcing cycle. This “data feedback loop” creates increasing returns to scale that were largely absent in earlier digital technologies. As studies on AI strategy demonstrate, successful AI systems rely on initiating and sustaining this cycle, where more data enhances model accuracy, which then draws additional users and data. This leads to entrenching market leadership and raising barriers to entry⁵. Unlike traditional technologies whose value does not necessarily improve with use, AI systems learn and evolve dynamically, making data accumulation a critical determinant of long-term competitiveness.

Moreover, the economic properties of data itself reinforce AI’s structural distinctiveness. Data is non-rivalrous, meaning it can be reused across multiple applications without depletion and often exhibits context-dependent and networked value, meaning its utility increases when combined with other datasets or shared across ecosystems⁶. This contrasts sharply with traditional factors of production such as labor or capital, which are rival in nature and subject to diminishing returns. As a result, firms that control large and quality datasets can achieve disproportionate advantages, contributing to the emergence of data-driven market concentration and even “data monopolies” in AI-intensive industries⁷. In this sense, data transforms AI into a fundamentally different class of technology, one in which value creation is cumulative, scalable and deeply tied to control over information resources. This redefines both competitive dynamics and the broader architecture of the digital economy.

In many African markets, the scarcity of high-quality, locally relevant datasets creates a structural asymmetry that places domestic firms at a competitive disadvantage compared to global incumbents. Because effective AI systems depend heavily on large volumes of context-specific data, limited access to such datasets constrains the ability of local firms to develop accurate, scalable and commercially viable solutions tailored

⁴ Pino, F. The microeconomics of data – a survey. J. Ind. Bus. Econ. 49, 635–665 (2022)

⁵The cold-start problem in nascent AI strategy: Kickstarting data network effects, Journal of Business Research, Volume 168, 2023

⁶ <https://ssrn.com/abstract=5183829>

⁷ The Economics of AI Training Data: A Research Agenda* Hamidah Oderinwale and Anna Kazlauskas, April 2026

to domestic conditions. In contrast, multinational technology companies who enjoy cross-market integration including Google, Meta (Facebook, Instagram, and WhatsApp), Amazon, Microsoft, and Apple, benefit from vast and diversified data pools, advanced data infrastructure and cross-border data flows, enabling them to train more robust models and rapidly deploy AI-driven services. This imbalance not only reinforces existing market power but also raises barriers to entry and expansion for indigenous innovators, thereby entrenching dependency on foreign technologies and limiting the development of competitive local AI ecosystems in Africa.

2.2 Computational Scale and Infrastructure Dependency

Dependence on computational scale is a central feature that sets AI apart from earlier forms of digital technology. It fundamentally reshapes how innovation is produced and diffused. Traditional software systems such as databases, enterprise applications, or early internet services, were largely constrained by algorithmic design and human programming effort, and their performance did not systematically improve with additional computing power beyond certain thresholds.

By contrast, modern AI systems, particularly those based on machine learning and deep learning exhibit strong scaling properties, whereby increases in computational resources (processing power, memory, and storage) directly enhance model performance, accuracy and generalization capabilities. This relationship between scale and capability has been widely observed in large language models and other advanced AI systems including BloombergGPT (finance and fintech), AlphaFold (healthcare and life sciences), and PlantVillage Nuru (agriculture), where expanding model size and training data, enabled by massive computational resources leads to qualitatively new functionalities. As a result, AI innovation is no longer driven solely by better algorithms but by the ability to mobilize and sustain vast computational capacity, marking a structural departure from traditional digital technologies.

Empirical research has demonstrated that performance in large-scale AI models follows predictable “scaling laws,” with accuracy and generalization improving as a function of compute, data, and parameters (Kaplan et al., 2020; Hoffmann et al., 2022). This indicates that, unlike traditional technologies, AI progress is tightly coupled to the ability to mobilize vast computational resources, transforming scale itself into a primary determinant of technological advancement (Sutton, 2019).

Closely linked to computational scale is AI’s profound infrastructure dependency, which introduces new economic and competitive dynamics absent in earlier technological paradigms. AI development and deployment require access to specialized hardware (such as GPUs and TPUs), large-scale data centers, high-speed connectivity and cloud computing platforms. These infrastructural requirements are

capital-intensive and exhibit significant economies of scale, meaning that only a relatively small number of firms, primarily large multinational technology companies, can afford to build and maintain such systems⁸.

Consequently, AI ecosystems are increasingly organized around centralized cloud infrastructures provided by a handful of dominant actors, including Google Cloud, Microsoft Azure and Amazon Web Services. This creates a form of gatekeeping in the form of infrastructure, where access to critical computational resources becomes a prerequisite for participation in AI development. This further raises barriers to entry and shaping market structure in ways that differ significantly from earlier, more decentralized digital technologies.

Furthermore, the interaction between computational scale and infrastructure dependency generates self-reinforcing advantages that amplify concentration and technological divergence. Firms that control large scale infrastructure can train more advanced models, attract more users and generate more data, which in turn justifies further investment in computational capacity. Eventually, this creates a cycle of capability accumulation. This dynamic contrasts sharply with traditional digital technologies, where competitive advantages were often more contestable and less dependent on continuous capital-intensive scaling.

The high fixed costs and ongoing operational demands of infrastructure create persistent asymmetries between global incumbents and smaller or resource-constrained firms, particularly in developing markets including Africa. As such, computational scale is not merely a technical requirement but a strategic determinant of market power, which influences who can innovate, compete and shape the trajectory of AI development.

Finally, the infrastructural intensity of AI raises broader implications for technological sovereignty, resilience, and equitable access. Countries and firms lacking domestic high-performance computing capabilities are often dependent on foreign cloud providers for AI development and deployment, which introduces risks related to data governance, regulatory control and strategic autonomy (UNCTAD, 2025; World Bank, 2021). This dependency contrasts sharply with earlier digital technologies, which could be more easily localized and deployed without extensive infrastructure. As a result, computational scale and infrastructure are not merely technical considerations but structural determinants of participation in the AI economy, shaping global inequalities in innovation capacity and reinforcing the position of a small number of dominant actors. In this sense, AI represents a paradigm shift toward a capital-

⁸ <https://www.cambridge.org/core/journals/data-and-policy/article/artificial-intelligence-digital-colonialism-and-the-implications-for-africas-future-development/4BD73E9129A9CD9E9301C61CB2401450?utm>

intensive, infrastructure-bound model of technological development, fundamentally differentiating it from prior forms of digital innovation⁹.

2.3 Network Effects and Platform Integration

In competition law, network effects refer to a market phenomenon where the value of a product or service increases as the number of users grows, thereby creating feedback loops that can significantly influence market structure, entry conditions and the exercise of market power. In simple terms, the more users a platform has, the more valuable it becomes to each individual user, which in turn attracts even more users. This concept is particularly rampant in digital and platform markets where products and services often connect multiple groups of users, mainly consumers, advertisers, and service providers. As recognised in modern competition economics, network effects can be direct (where users benefit from being connected to more users of the same service, such as messaging platforms), or indirect (where one group's participation increases the value for another group such as buyers and sellers on e-commerce platforms) (OECD, 2019; Motta, 2004).

Network effects and platform integration fundamentally distinguish artificial AI from earlier generations of digital technologies, reshaping both market structure and competitive dynamics. Traditional digital technologies including standalone enterprise systems, early mobile applications or basic web platforms, tended to generate value in a largely linear manner, where the usefulness of a product was relatively independent of the number of users.

By contrast, AI systems embedded within platform ecosystems exhibit strong multi-sided network effects where value increases as participation grows across different user groups. In the African context, this is particularly evident in mobile-first platforms in fintech, e-commerce and digital communications, where user growth directly enhances data availability which in turn improves AI model performance. Research on African digital platforms shows that indirect network effects, linking consumers, service providers and advertisers, are central to platform expansion and consolidation, reinforcing scale advantages and accelerating market dominance (UNCTAD, 2021; Graham, 2020).

Deep platform integration of AI systems is another critical differentiator which contrasts sharply with the fragmented architecture of traditional digital technologies. Unlike earlier technologies that functioned as discrete applications, AI is increasingly

⁹ <https://www.worldbank.org/en/publication/dptr2025-ai-foundations>

embedded within vertically and horizontally integrated digital ecosystems that combine data collection, cloud infrastructure and algorithmic decision-making.

In Africa, major platform firms such as Jumia (e-commerce), Safaricom's M-PESA (fintech and mobile money), Flutterwave and Paystack, alongside global technology platforms including Google, Amazon and Microsoft, have integrated services such as payments, messaging and logistics within unified digital environments, enabling continuous data flows that enhance AI learning capabilities. According to the World Bank's analysis of data-driven development, integrated digital platforms allow firms to leverage cross-sector datasets to generate predictive insights in areas such as credit scoring, consumer behaviour analysis and service personalization (World Bank, 2021). This integration significantly increases efficiency but also consolidates control over data and infrastructure within a limited number of platform operators.

The interaction between network effects and platform integration produces self-reinforcing competitive dynamics that are structurally distinct from traditional digital markets. In AI-driven ecosystems, increased user participation generates more data, which improves algorithmic performance, which in turn attracts more users—a feedback loop that intensifies concentration. This dynamic is especially pronounced in African markets where early-stage digital platforms can rapidly entrench dominance due to limited interoperability and high switching costs. The OECD notes that data-driven network effects in AI systems create increasing returns to scale, enabling first movers to consolidate market power more effectively than in traditional digital sectors (OECD, 2019). As a result, competition increasingly shifts from firm-level rivalry to ecosystem-level competition, where control over platforms and data infrastructure becomes more important than individual product innovation.

Finally, these structural characteristics have significant implications for competition policy and digital development in Africa. Platform-based AI ecosystems create opportunities for inclusion and innovation through scalable digital services, but they also raise concerns about market concentration, data asymmetries, and dependency on global technology firms. Studies by UNCTAD and the World Bank highlight that African digital economies risk becoming dependent on foreign platforms that dominate data infrastructure and AI capabilities, limiting the growth of local innovation ecosystems (UNCTAD, 2025; World Bank, 2025).

Moreover, the integration of AI into dominant platforms can reinforce barriers to entry by combining data control, infrastructure ownership and algorithmic visibility within a single entity. Consequently, network effects and platform integration do not merely enhance efficiency but fundamentally restructure competitive relationships in African digital markets, distinguishing AI-driven ecosystems from earlier, more fragmented digital technologies.

2.4 Algorithmic Learning and Dynamic Pricing

Another fundamental feature that distinguishes AI from earlier forms of digital technology is its capacity for algorithmic learning (AL). AL enables systems to continuously adapt and improve through exposure to new data and user interactions. Traditional digital technologies generally operated through static programming and predetermined rules meaning that, their functionality remained largely fixed unless manually updated by developers.

By contrast, AI systems, particularly those based on machine learning such as Google translate and AlphaFold are capable of autonomously identifying patterns, refining predictions and modifying outputs over time without direct human intervention. This adaptive capability fundamentally changes the nature of digital competition because the quality and effectiveness of AI systems improve dynamically as they process larger and more diverse datasets¹⁰.

In African markets where mobile-based digital ecosystems generate vast streams of transactional and behavioural data, algorithmic learning has become central to sectors such as fintech, e-commerce, agriculture and digital communications. Studies by OECD and UNCTAD note that AI-driven learning systems derive competitive advantages from continuous data feedback loops, allowing firms to optimize services, personalize offerings and predict consumer behaviour with increasing accuracy (OECD, 2019; UNCTAD, 2021).

One of the clearest manifestations of algorithmic learning is the emergence of dynamic pricing systems which represent a significant departure from traditional pricing models used in earlier digital technologies. Conventional digital platforms generally relied on static or periodically adjusted pricing structures determined through human decision-making. AI-enabled systems, however, can analyse real time market conditions, consumer preferences, geographic patterns and behavioural data to automatically adjust prices continuously at scale.

In African digital markets, this is increasingly evident in ride-hailing, e-commerce, airline booking and financial services platforms. For example, ride-hailing platforms such as Uber and Bolt deploy AI-driven surge pricing algorithms that respond instantly to fluctuations in demand, traffic conditions and driver availability. Similarly, digital lending platforms use AI-based risk assessment tools to dynamically determine credit terms and pricing based on real-time borrower data. These systems fundamentally differ from traditional digital technologies because they enable

¹⁰ <https://competition-bureau.canada.ca/en/how-we-foster-competition/education-and-outreach/publications/algorithmic-pricing-and-competition-discussion-paper>

continuous, autonomous market adjustment, allowing firms to optimize revenue and allocate resources with unprecedented speed and precision (Ezrachi & Stucke, 2016).

The combination of algorithmic learning and dynamic pricing also reshapes competition and market power in ways that were largely absent in earlier technological paradigms. AI systems can learn from vast volumes of market data to anticipate consumer behaviour, identify profitable pricing strategies and personalize offers at the individual level. This creates significant informational asymmetries between platforms and users as firms gain unprecedented visibility into consumer preferences and purchasing behaviour.

In African markets, where digital platforms increasingly mediate commerce and financial transactions, these asymmetries can reinforce market concentration by enabling dominant firms to optimize pricing and engagement more effectively than smaller competitors with limited data access. Available literature on algorithmic competition further suggests that AI-driven pricing systems may facilitate tacit coordination or algorithmic collusion even without explicit agreements between firms, because algorithms can learn to respond strategically to competitors' pricing behaviour (OECD, 2017; Ezrachi & Stucke, 2016). Consequently, competition concerns in AI-driven markets extend beyond traditional theories of price fixing or dominance to include the autonomous and adaptive behaviour of algorithms themselves.

Furthermore, the growing use of algorithmic learning and dynamic pricing in African markets has broader regulatory implications. While these technologies can improve efficiency, expand access to digital services and enhance consumer targeting, they also raise concerns regarding transparency, fairness, and exclusion. AI-driven systems may inadvertently reinforce discriminatory outcomes where training data reflects existing inequalities particularly in areas such as digital lending, insurance and employment platforms.

In addition, dynamic pricing mechanisms may lead to unequal treatment of consumers based on location, purchasing history or inferred income levels, thereby raising questions about exploitative pricing and consumer protection. The African Union and international policy institutions are increasingly emphasizing the need for governance frameworks capable of addressing the opacity and accountability challenges posed by algorithmic decision-making (African Union, 2024; OECD, 2019). Thus, algorithmic learning and dynamic pricing fundamentally differentiate AI from earlier digital technologies because they transform digital systems from static tools into adaptive, autonomous market actors capable of continuously shaping economic outcomes in real time.

3. Emerging Competition Concerns in African AI Markets

3.1 Data-Driven Market Power

Data-driven market power is emerging as one of the most significant competition law concerns because access to and control over large-scale datasets increasingly determines the ability of firms to innovate, compete and expand. Unlike traditional market structures where competitive advantage was primarily derived from physical assets, pricing or distribution networks, AI-driven markets are heavily dependent on the accumulation and processing of data. AI systems improve through continuous exposure to for instance user interactions, behavioural information, financial transactions, geolocation records and other forms of digital data.

Consequently, firms that control large and diverse datasets are able to train more accurate algorithms, improve service personalization and optimize predictive capabilities and may end up reinforcing their market position. The OECD has observed that data can function as a strategic barrier to entry because firms with superior data access can create self-reinforcing feedback loops that entrench dominance and reduce market contestability (OECD, 2019). In African markets where digital ecosystems are rapidly expanding but local data infrastructure remains uneven, this creates structural asymmetries between large incumbent platforms and smaller domestic innovators.

The emergence of data-driven market power is particularly visible in Africa's rapidly growing fintech and mobile money sectors. Platforms such as Safaricom in Kenya, through its M-Pesa ecosystem, accumulate vast volumes of transactional and behavioural data from millions of users across payments, savings, credit and merchant services. This data enables the deployment of AI-driven products such as credit scoring, fraud detection and targeted financial services, creating advantages that smaller competitors without comparable datasets cannot easily replicate. Similarly, fintech firms such as Flutterwave and Paystack leverage cross-border payments data and merchant information to optimize digital financial services and strengthen platform integration. These dynamics illustrate how control over data increasingly functions as a source of market power in African digital economies, enabling dominant firms to improve algorithms, attract more users and generate even more data in a reinforcing cycle.

Data-driven concentration is also reinforced by the growing influence of global technology firms operating across African digital markets. Companies such as Google, Meta, Amazon and Microsoft possess unparalleled advantages in data aggregation, cloud infrastructure and AI research capabilities. Through services such as search engines, social media platforms, mobile operating systems and cloud computing,

these firms collect and process vast amounts of user data across multiple sectors and jurisdictions. This scale enables them to train sophisticated AI models and offer highly personalized services, while local firms often struggle with limited access to quality datasets, computing infrastructure as well as technical expertise. According to UNCTAD, the concentration of data and AI capabilities within a small number of global firms risks deepening digital dependency in developing economies, particularly where domestic firms lack the scale necessary to compete effectively (UNCTAD, 2021).

From a competition law perspective, data-driven market power raises several concerns, key among them being barriers to entry, exclusionary conduct and market tipping. Because AI systems improve with access to larger datasets, new entrants may find it difficult to compete against incumbents that already possess extensive user data and established feedback loops. In African AI markets, this challenge is compounded by infrastructural constraints including limited broadband access, fragmented data ecosystems and inadequate public data governance frameworks. Dominant platforms may also engage in practices such as self-preferencing, restrictive access to application programming interfaces (APIs) or discriminatory control over data portability, thereby foreclosing competitors and reinforcing ecosystem dependency. The European Commission and the OECD increasingly recognize that data accumulation can create durable forms of dominance comparable to control over essential facilities in traditional markets (European Commission, 2019; OECD, 2020).

Furthermore, data-driven market power has broader developmental and socio-economic implications in African markets. Because AI systems rely on large and representative datasets, firms controlling data infrastructures can shape not only market outcomes but also patterns of financial inclusion, consumer access and public service delivery. For example, AI-driven lending systems that rely on proprietary user data may exclude individuals lacking extensive digital footprints, reinforcing existing socio-economic inequalities.

Similarly, localized datasets remain scarce in many African countries, meaning that domestic firms are often dependent on foreign-controlled platforms and cloud infrastructures for AI development. The World Bank has emphasized that unequal access to data and digital infrastructure may widen developmental disparities and limit the emergence of competitive local AI ecosystems (World Bank, 2021). Accordingly, data-driven market power in African AI markets is not merely a question of economic concentration but a broader structural issue affecting innovation and inclusive digital development.

3.2 Gatekeeping and Self-Preferencing

Gatekeeping and self-preferencing are emerging competition law concerns due to the increasing concentration of digital infrastructure, data and platform ecosystems within a small number of dominant firms. In digital and AI-driven markets, a “gatekeeper” refers to a platform or firm that controls access to critical digital ecosystems, users or infrastructure, enabling it to influence market participation and competitive outcomes.

Unlike traditional digital technologies where firms competed within relatively open and decentralized environments, AI systems are typically embedded within integrated platforms that control cloud infrastructure, app distribution, search visibility, digital advertising and user data simultaneously. This creates a structural dependency where businesses, developers and consumers rely on dominant platforms to access digital markets.

In Africa, these concerns are particularly relevant because AI innovation and deployment are increasingly mediated through global technology ecosystems controlled by firms such as Google, Meta, Amazon and Microsoft, which provide essential services ranging from cloud computing and mobile operating systems to search engines and digital advertising infrastructure. Digital gatekeepers derive competitive advantages from strong network effects, data accumulation and ecosystem integration, enabling them to shape access conditions for rivals and users alike¹¹.

A closely related concern is self-preferencing where a dominant platform privileges its own products or services over those of competitors operating within the same ecosystem. In AI-driven markets, self-preferencing can occur algorithmically through search rankings, recommendation systems, app store visibility, advertising placement, or preferential access to data and computational infrastructure. This differs fundamentally from traditional digital technologies because AI systems enable continuous, automated optimization of platform outcomes based on user data and predictive analytics. For example, a platform controlling a search engine or marketplace can use AI algorithms to prioritize its own services in rankings or recommendations, therefore steering user traffic toward affiliated products and disadvantaging rivals.

The European Commission has identified self-preferencing as a major concern in digital markets because dominant platforms can leverage their gatekeeping position to extend market power into adjacent markets (European Commission, 2019). In

¹¹ <https://www.econstor.eu/bitstream/10419/169484/1/Mitomo.pdf>

African digital economies, where local firms often depend on dominant platforms for visibility and distribution, such practices can significantly undermine competitive opportunities for domestic innovators and startups.

This concern of gatekeeping is especially pronounced in African digital ecosystems because many local AI developers and businesses depend on foreign-owned cloud infrastructure and digital platforms to deploy AI services. Providers such as Amazon Web Services, Google Cloud and Microsoft Azure increasingly function as foundational infrastructure providers for AI development across the continent. While these platforms enable access to advanced computational resources and AI tools, they also create dependency relationships where platform operators may influence pricing, interoperability or access to critical APIs and datasets. This infrastructural control can raise barriers to entry and expansion for smaller African firms lacking alternative computing resources.

In fintech and digital commerce, gatekeeping concerns are also evident where dominant platforms integrate payments, advertising, logistics and data analytics within single ecosystems. For example, platforms controlling mobile operating systems or app marketplaces can influence which financial or AI-driven applications gain prominence or access to consumers which in turn, affects competitive neutrality.

Self-preferencing concerns are further intensified by the interaction between AI systems and data-driven market power. AI algorithms learn from user behaviour and platform interactions, meaning that dominant firms with privileged access to platform data can continuously optimize their own products and services more effectively than competitors. This creates a reinforcing cycle where gatekeepers benefit from superior data access which improves algorithmic performance as well as attracts more users and further entrenches dominance.

In African markets, this dynamic is particularly problematic because local firms often lack access to comparable datasets and infrastructure which limits their ability to compete on equal terms. Studies show that concentration of data and digital infrastructure within a few global firms risks creating structural dependencies that inhibit the growth of domestic digital ecosystems in developing economies. Consequently, gatekeeping and self-preferencing are not merely issues of unfair conduct but broader structural concerns affecting innovation and market access.

From a competition law and policy perspective, these developments raise difficult regulatory questions for African jurisdictions. Existing competition frameworks in many African countries were designed primarily for traditional industries and may not adequately address algorithmic discrimination and ecosystem dominance, or AI-enabled self-preferencing practices. The Competition Authority of Kenya (CAK) and

the COMESA Competition and Consumer Commission (CCCC) are increasingly confronted with challenges involving digital platforms, data access and ecosystem control.

Internationally, the emergence of the European Commission Digital Markets Act reflects growing recognition that gatekeeper platforms may require ex ante obligations to ensure interoperability, transparency and non-discriminatory treatment of competitors. Similar concerns are beginning to emerge in African AI markets, particularly as AI-driven services become more integrated into sectors such as finance, communications, transport and e-commerce. Accordingly, gatekeeping and self-preferencing represent critical emerging competition concerns because they fundamentally alter the conditions of market access and competition in AI-driven digital ecosystems.

3.3 AI-Enabled Collusion

AI-enabled collusion is another emerging competition law concern due to the fact that AI systems increasingly influence pricing, market coordination and strategic decision-making in ways that differ fundamentally from traditional forms of collusion. Conventional cartel behaviour generally required explicit communication or agreements between competing firms to coordinate prices/ output, or market allocation. By contrast, AI-driven systems particularly those based on machine learning and algorithmic pricing, can independently analyse market conditions, monitor competitors' behaviour in real time and adapt pricing strategies dynamically without direct human coordination. This creates the possibility of algorithms facilitating tacit or autonomous forms of collusion by learning that cooperative pricing strategies maximize profits.

Studies have noted that algorithmic systems can increase market transparency and reaction speed hence reducing uncertainty among competitors and potentially enabling coordinated outcomes even in the absence of explicit agreements. In the African context where e-commerce, ride-hailing, fintech and online marketplaces increasingly rely on AI-driven pricing and recommendation systems, these risks are becoming more pronounced.

A key feature that differentiates AI-enabled collusion from traditional competition concerns is the ability of machine-learning systems to engage in continuous market adaptation and predictive coordination. Unlike earlier digital pricing tools that merely automated pre-programmed rules, modern AI systems can autonomously identify optimal pricing responses by analysing massive volumes of transactional and behavioural data. For example, ride-hailing platforms such as Uber and Bolt use AI-driven surge pricing systems that continuously adjust prices based on demand, traffic

conditions, driver availability and user behaviour. Similarly, e-commerce marketplaces increasingly deploy algorithmic pricing tools that monitor competitors' prices and instantly recalibrate offerings to maximize profitability.

Although these systems are designed to improve efficiency, researchers argue that algorithmic learning can facilitate forms of tacit collusion where pricing algorithms converge toward supra-competitive outcomes without direct human agreement (Ezrachi & Stucke, 2016). This creates substantial enforcement challenges because traditional competition law frameworks are primarily built around evidence of communication or intent between firms.

The risk of AI-enabled collusion may be particularly acute in African digital markets due to increasing concentration and platform dependency. Many African markets are characterized by a relatively small number of dominant digital platforms operating in sectors including mobile money, digital lending, transport, telecommunications, and e-commerce among others. In concentrated markets, algorithms have fewer competitors to monitor and can predict rival responses more easily, increasing the likelihood of coordinated outcomes.

For instance, dominant fintech ecosystems such as Safaricom's M-Pesa platform process vast volumes of transactional data and increasingly deploy AI tools for pricing, fraud detection, and consumer targeting. Likewise, digital lending platforms across East and West Africa increasingly rely on AI-driven risk scoring and dynamic pricing mechanisms to determine loan conditions in real time. While these innovations may improve efficiency and financial inclusion, they also create the potential for algorithmic convergence around similar pricing or lending strategies, particularly where firms rely on shared datasets and third-party software providers or common cloud infrastructure.

Another emerging concern is the role of shared algorithms and common technology providers in facilitating coordinated conduct. Many African firms, more so smaller enterprises, depend on third-party AI solutions, cloud services and pricing software supplied by global technology providers mainly Google, Microsoft and Amazon¹². Where multiple competitors use similar AI pricing tools or machine-learning systems trained on comparable datasets, there is a risk that these systems may generate aligned market behaviour or parallel pricing strategies. The OECD has highlighted that algorithms can facilitate coordination by enhancing market transparency, enabling rapid retaliation against price deviations and reducing the uncertainty that traditionally destabilized collusion (OECD, 2017). In AI-driven environments,

¹² <https://africadca.org/wp-content/uploads/2026/02/DataCentresInAfrica2026-EN.pdf>

collusion may therefore emerge not through explicit cartel agreements but through algorithmic optimization processes that reward stable and non-competitive outcomes.

AI-enabled collusion raises profound regulatory and evidentiary challenges for African competition authorities. Existing competition laws across many African jurisdictions including frameworks enforced by the CAK¹³ and the CCCC¹⁴ were developed primarily to address conventional anti-competitive agreements and abuse of dominance. However, AI-enabled coordination may occur without clear human intent or direct communication, making it difficult to establish liability under traditional legal standards. Questions also arise regarding accountability where anti-competitive outcomes are generated by autonomous learning systems rather than deliberate managerial decisions. This calls for the need for competition authorities to adopt new analytical tools, including algorithmic audits, transparency obligations, and ex ante regulation of high-risk AI systems (European Commission, 2021).

The implications of AI-enabled collusion extend beyond pricing and market coordination to broader developmental concerns in African economies. Because AI systems can optimize market behaviour at unprecedented scale and speed, dominant platforms may be able to entrench market power more effectively than under traditional technological conditions. In transport, digital finance, telecommunications and online commerce sectors, algorithmic coordination could reduce price competition or limit consumer choice which inhibits the growth of smaller domestic firms lacking comparable AI capabilities. Developing economies face heightened vulnerabilities in digital markets due to infrastructure dependence, concentrated data ownership and limited regulatory capacity (UNCTAD, 2021). As a result, AI-enabled collusion represents not only an emerging competition concern but also a structural challenge for ensuring fair, innovative and inclusive digital markets in Africa.

3.4 Killer Acquisitions

Killer acquisitions refer to transactions in which a dominant or established firm acquires a smaller, innovative company primarily to eliminate a potential future competitor rather than to improve efficiency or expand productive capacity. These acquisitions are particularly common in digital and technology markets where startups may have limited current revenues but possess valuable innovations, data, algorithms, or disruptive potential that could threaten incumbent firms in the future.

¹³ <https://www.cak.go.ke/sites/default/files/Competition-Act-No-1-%20of%202010-Amended-as-at-2019.pdf>

¹⁴ <https://comesacompetition.org/regulations/>

Facebook's acquisition of Instagram in 2012 and WhatsApp in 2014 are widely considered as killer acquisitions. The concern is that the acquiring firm may discontinue, absorb or limit the development of the target's products or technologies in order to protect its existing market power. Killer acquisitions therefore raise concerns about reduced innovation, weakened market contestability and long-term harm to consumers and competition.

Killer acquisitions are increasingly emerging as a competition law concern due to the growing tendency of dominant digital and technology firms to acquire smaller innovative startups before they can evolve into meaningful competitive threats. Traditionally, mergers and acquisitions were assessed primarily on the basis of current market shares, pricing overlaps and direct horizontal competition. However, AI-driven digital markets deviate from this as competitive threats often arise from future innovation potential rather than existing market power.

Many AI startups operate with relatively low revenues or small user bases during their early stages. However, they possess strategically valuable assets such as proprietary algorithms, highly skilled talent, unique datasets or innovative machine-learning applications. Dominant firms may therefore acquire these startups not necessarily to improve efficiency, but to eliminate potential future rivals or absorb disruptive technologies before they can mature into independent competitors.

The concept of killer acquisitions has become increasingly central in global competition policy debates, particularly in digital markets characterized by network effects, data accumulation and rapid technological scaling (Cunningham, Ederer & Ma, 2021). In African markets, the risk of killer acquisitions is heightened by the structure of the continent's digital innovation ecosystem, where many startups rely heavily on external investment and strategic partnerships to scale. AI startups in sectors such as fintech, health technology, logistics, agritech, and e-commerce frequently face limited access to long-term capital, computational infrastructure as well as advanced technical resources. As a result, acquisition by large multinational technology firms often becomes one of the few viable exit strategies. While such acquisitions can provide funding and accelerate innovation, they may also reduce long-term market contestability if dominant firms systematically absorb emerging competitors¹⁵.

For example, acquisitions involving African fintech and payments startups by larger global firms have raised concerns regarding the concentration of digital financial infrastructure and data ecosystems. The acquisition of Nigerian payments company

¹⁵ https://unctad.org/system/files/official-document/wir2025_ch04_en.pdf

Paystack by Stripe in 2020 illustrated how global technology firms are increasingly targeting African digital innovators with scalable AI-enabled financial technologies. Similarly, investments and acquisitions involving African logistics, mobility and e-commerce startups demonstrate the strategic importance of acquiring access to localized data, digital infrastructure and regional user networks.

A defining characteristic of killer acquisitions in AI markets is the strategic importance of data and machine-learning capabilities as competitive assets. Unlike traditional industries where acquisitions often focused on physical assets or distribution networks, AI acquisitions frequently revolve around access to proprietary datasets, predictive algorithms or highly specialized engineering talent. Large technology firms can integrate acquired startups into broader digital ecosystems, combining user data, cloud infrastructure and AI capabilities to strengthen existing market positions.

In African contexts, where localized datasets remain relatively scarce, startups capable of generating region-specific AI solutions become especially valuable acquisition targets. For example, agritech AI firms using machine learning for crop diagnostics, climate prediction or supply-chain optimization may be acquired not because of current market dominance, but because their localized data ecosystems and predictive capabilities could become strategically important in the future. This dynamic departs from earlier digital technologies given that AI markets are heavily shaped by expectations of future learning potential and ecosystem integration rather than present market share alone.

Killer acquisitions also raise concerns regarding innovation suppression and reduced dynamic competition in African digital ecosystems. AI innovation is highly cumulative, meaning that future technological breakthroughs often emerge from small, experimental firms rather than established incumbents. When dominant firms systematically acquire promising startups, the incentive for independent innovation may diminish because emerging firms are absorbed before they can challenge incumbent market power. Research has emphasized that acquisitions in digital markets can harm competition even where the target firm has limited current turnover as the transaction may eliminate future competitive pressure or prevent disruptive innovation (European Commission, 2019).

In African AI markets, this is important because the continent's startup ecosystem remains relatively young and concentrated in a small number of technology among them, Nairobi, Lagos, Cape Town and Kigali¹⁶. The removal of high-potential startups

¹⁶ <https://medium.com/included-vc/whats-going-on-with-ai-in-africa-3509fdafa456>

through acquisition could therefore significantly weaken the long-term development of indigenous AI ecosystems.

From a competition law perspective, killer acquisitions present substantial enforcement challenges for African regulators because traditional merger thresholds often focus on turnover and existing market concentration rather than future innovation potential. Many AI startups generate limited revenue despite possessing highly valuable data assets, intellectual property or technological capabilities. Therefore, acquisitions capable of significantly affecting future competition may fall below mandatory notification thresholds in several African jurisdictions. The CAK and CCCC continue to face pressure to modernize merger control frameworks to address digital and AI-related transactions more effectively. Internationally, policymakers have proposed incorporating other factors including innovation potential, data concentration and ecosystem effects into merger analysis, particularly in technology markets characterized by rapid scaling and network effects (Furman Report, 2019).

Ultimately, killer acquisitions represent a broader structural concern for African AI markets because they tend to undermine the emergence of competitive local innovation ecosystems at an early stage of development. While acquisitions can provide capital and international integration opportunities for African startups, unchecked consolidation risks entrenching the dominance of global technology firms and limiting the ability of local firms to evolve into independent regional competitors. Given the strategic importance of AI for economic development, there is need for competition authorities in Africa may increasingly need to adopt forward-looking merger assessment frameworks capable of evaluating not only present market effects, but also the long-term implications for innovation, ecosystem diversity, and technological independence.

4. Challenges confronting the regulation of AI markets in Africa

The regulation of AI markets in Africa faces numerous structural, institutional, economic and technological challenges that complicate the development of effective governance frameworks. Although AI technologies are increasingly being adopted across many sectors, many African countries are still at an early stage of developing legal and regulatory systems capable of addressing the unique risks and competitive dynamics associated with AI-driven markets.

These challenges are unique, particularly because AI differs from traditional technologies through its dependence on data, computational infrastructure, algorithmic learning and platform ecosystems. As such, African regulators are required to confront not only conventional competition and consumer protection

issues, but also emerging concerns relating to data governance, digital sovereignty, market concentration, algorithmic accountability and cross-border platform power.

4.1 Institutional and technical capacity constraints

Many African regulators including competition authorities, communications regulators and data protection agencies were originally designed to oversee traditional industries and therefore often lack the technical expertise needed to regulate AI systems effectively. Similarly, most African competition authorities are primarily staffed by lawyers and economists whilst AI markets require technical understanding of algorithmic decision-making systems, model training processes, data governance structures, interoperability standards and cloud computing dependencies, among others.

AI technologies involve machine learning, predictive analytics, automated decision-making, biometric recognition and generative AI systems, all of which require regulators to possess highly specialized legal, economic and technical expertise. Its regulation increasingly requires specialized knowledge in machine learning, data analytics, cloud infrastructure and algorithmic auditing. However, there remains a shortage of AI specialists and forensic technology experts within many African regulatory institutions.

Regulatory institutions in developing economies frequently struggle to keep pace with rapidly evolving digital technologies due to inadequate technical and financial capacity. Effective oversight of AI systems depends heavily on access to accurate market data, transparency regarding algorithmic operations and the ability to monitor digital transactions in real time. However, many African regulators lack adequate access to platform data or the technical authority to audit AI systems. In sectors such as fintech, e-commerce, and digital advertising, dominant platforms often control the underlying data ecosystems, creating informational asymmetries that limit regulatory visibility. The Competition Authority of Kenya and the COMESA Competition and Consumer Commission are increasingly dealing with digital platform and data-related competition issues but often face resource and expertise limitations when assessing AI-driven conduct such as algorithmic pricing, digital mergers or data concentration.

In Kenya, this challenge is particularly visible in digital finance and healthcare. AI technologies such as Tala and Branch use machine-learning algorithms to assess borrower risk through mobile phone metadata, transactional histories and behavioural indicators. Similarly, AI-powered healthcare tools such as Ilara Health are increasingly deployed in primary healthcare. Kenyan regulators have struggled to

monitor algorithmic lending practices, transparency in automated decision-making and potential discriminatory outcomes in digital credit markets.

In Nigeria, AI-driven payment systems such as Flutterwave and Paystack rely on machine learning for fraud detection, transaction monitoring and customer verification. Nigerian regulators face increasing pressure to supervise these systems while balancing innovation and financial inclusion objectives.

4.2 Data concentration and digital infrastructure

Concentration of data and digital infrastructure within a small number of dominant global technology firms has raised challenges in regulation of AI as the systems depend heavily on access to large-scale datasets and computational resources, both of which are largely controlled by multinational firms including Google, Meta, Amazon, and Microsoft. These companies provide critical infrastructure such as cloud computing, digital advertising networks, mobile operating systems and AI development tools used across African markets. AI systems improve through access to large-scale and high-quality datasets. Consequently, firms controlling substantial user data gain structural advantages that can reinforce market power and create barriers to entry.

The above creates dependency relationships where African businesses and governments rely on foreign-controlled platforms for AI deployment and digital services. In sectors such as fintech and e-commerce, firms like Safaricom and Jumia in Kenya also accumulate substantial user data that can reinforce market dominance through AI-driven analytics and personalization. The concentration of data and infrastructure raises concerns regarding barriers to entry, platform gatekeeping and self-preferencing practices that may limit market contestability and local innovation (OECD, 2019).

In Kenya, Safaricom uses AI across the M-Pesa ecosystem for fraud detection, credit scoring and customer analytics. Through services such as Fuliza and M-Shwari, AI systems analyse millions of user transactions to assess risk and personalize lending. This extensive data ecosystem gives Safaricom a significant competitive advantage over smaller fintech firms in the same market.

In South Africa, Digital platforms with significant market share such as Takealot increasingly use AI-driven recommendation systems, predictive inventory tools and targeted advertising algorithms. In addition, banks, among them, Standard Bank and Absa deploy AI-based fraud detection and credit analytics systems, creating significant data-based competitive advantages.

In Egypt, AI is heavily integrated into smart city and government digital transformation initiatives like New Administrative Capital, where AI technologies support traffic management, facial recognition and predictive urban planning. This increases the importance of data governance and infrastructure control.

4.3 Fragmented and underdeveloped legal frameworks

Many African countries lack dedicated AI laws thus forcing regulators to rely on outdated competition, telecommunications and privacy laws that do not adequately address several emerging issues including algorithmic accountability and automated decision-making. In addition, legal and policy approaches vary significantly across jurisdictions, creating inconsistencies that complicate cross-border enforcement in regional digital markets.

For example, while a number of countries including Kenya, South Africa and Nigeria have introduced data protection or digital economy frameworks, many others remain at preliminary stages of AI governance development. The African Union has acknowledged the need for harmonized continental AI governance mechanisms to address these inconsistencies and promote coordinated regulation (African Union, 2024).

In Kenya, the Data Protection Act provides some safeguards, but there is still no dedicated AI statute addressing algorithmic accountability in products like ChatGPT or automated financial systems. Nigeria has launched a National AI Strategy and adopted digital policy reforms but regulatory fragmentation persists across the Central Bank of Nigeria, data protection authorities and competition regulators, complicating oversight of AI-driven financial technologies.

South Africa's Competition Commission South Africa has taken a more proactive role through digital market inquiries but legal uncertainty remains regarding generative AI tools and algorithmic market manipulation. Egypt also has adopted a national AI strategy albeit rapid deployment of public-sector AI technologies such as facial recognition and surveillance systems has outpaced legal reform.

4.4 Cross-border enforcement and digital sovereignty concerns

Cross-border enforcement and digital sovereignty concerns also significantly complicate AI regulation in Africa. This has manifested itself in market definition during merger analysis, for example, in the merger involving Safaricom and Vodacom

as analyzed by the CCCC with support from National Competition Authorities¹⁷. AI markets are inherently global, with data flows, cloud services and digital platforms often operating across multiple jurisdictions simultaneously.

However, many African regulators possess limited jurisdictional reach over multinational technology firms whose infrastructure and decision-making centers are located outside the continent. This creates challenges relating to taxation, data localization, competition enforcement and compliance monitoring. For example, cloud infrastructure used by African AI firms is often hosted by foreign providers—Amazon Web Services, Google Cloud and Microsoft Azure, raising concerns about dependency and external control over critical digital infrastructure. UNCTAD has warned that unequal control over data and AI infrastructure may reduce the ability of developing countries to exercise digital sovereignty and shape domestic digital policy effectively (UNCTAD, 2021).

4.5 Algorithmic discrimination and lack of transparency

Many machine-learning systems operate as opaque “black boxes,” making it difficult for regulators, businesses or consumers to understand how decisions are reached. In African markets, where socio-economic inequalities are already significant, opaque AI systems may reinforce exclusion or discriminatory outcomes. For instance, AI-driven digital lending platforms may use behavioural and transactional data to determine creditworthiness without transparency regarding the criteria used. Similarly, recruitment algorithms or biometric identification systems may produce biased outcomes if training datasets are incomplete or unrepresentative. These concerns are especially serious in contexts where legal remedies, digital literacy as well as consumer awareness remain limited.

In Kenya and Nigeria, digital lending platforms such as Tala, FairMoney and Carbon use alternative data for credit scoring. These systems may unintentionally exclude users with limited smartphone activity or those operating in informal economies. In Egypt, AI-enabled public surveillance and facial recognition tools deployed in urban security systems have raised concerns regarding privacy, consent, and discriminatory profiling.

5. Regulatory Approaches: Global Lessons and African Realities

The emergence of AI has generated significant global debate regarding the appropriate balance between innovation, competition, consumer protection and

¹⁷ <https://comesacompetition.org/notice-of-inquiry-into-the-merger-between-vodafone-kenya-limited-and-safaricom-plc/>

fundamental rights. Some global jurisdictions have developed regulatory frameworks for AI governance through various instruments which seek to regulate AI systems according to risk levels, address market concentration in digital ecosystems, strengthen data governance and ensure algorithmic accountability.

5.1 European Union Model

The European Union has developed one of the most comprehensive and influential regulatory frameworks for AI governance through instruments such as the AI Act, the General Data Protection Regulation (GDPR), the Digital Markets Act (DMA) and the Digital Services Act (DSA). The EU model has increasingly become a global reference point for AI governance because of its broad extraterritorial influence and emphasis on human rights, transparency and competition regulation. However, while the EU framework offers important lessons for African countries, significant structural, and technological differences between Europe and Africa complicate direct transplantation of the European regulatory model into African contexts.

A major lesson from the EU model is its adoption of a risk-based approach to AI governance, where AI systems are regulated according to their potential societal harm. High-risk AI applications in areas such as healthcare, credit scoring, employment, law enforcement and biometric surveillance are subjected to strict obligations relating to transparency and accountability. This model provides important guidance for African countries because AI systems are increasingly shaping various sectors among them being digital finance, telecommunications, e-commerce, healthcare and public administration across the continent.

For example, AI-powered lending applications such as Tala in Kenya and FairMoney in Nigeria rely on algorithmic credit scoring systems that may affect financial inclusion and consumer welfare. However, unlike Europe, many African countries face serious institutional and technical capacity constraints, including shortages of AI experts, inadequate digital infrastructure, and weak enforcement institutions, making direct implementation of complex EU-style regulatory systems difficult.

Another important lesson from the EU concerns the regulation of data governance and digital platform dominance. Through the GDPR and DMA, the EU recognized that data constitutes a strategic economic asset and that dominant digital platforms can leverage data concentration, network effects, and AI-driven recommendation systems to entrench market power. These concerns are highly relevant in African markets where firms such as Safaricom, Google, and Meta increasingly control digital ecosystems involving mobile payments, online advertising, telecommunications, and cloud infrastructure.

African regulators have begun responding to these concerns through interventions by institutions including the CAK and the Competition Commission South Africa. Nevertheless, African economies remain heavily dependent on foreign digital infrastructure and investment, meaning that overly aggressive regulation of multinational technology firms could potentially undermine digital growth, innovation, and connectivity expansion.

The EU model also provides important lessons regarding human rights and algorithmic accountability. European regulation strongly emphasizes transparency, explainability, non-discrimination, privacy protection, and safeguards against harmful automated decision-making. These principles are increasingly relevant in African contexts where AI technologies are being deployed across various sectors. For instance, facial recognition technologies used in South Africa and Egypt have generated concerns regarding racial bias, privacy violations, and discriminatory profiling, while algorithmic lending systems in Kenya and Nigeria may disadvantage users operating in informal economies with limited digital footprints.

However, African realities differ significantly from Europe because policymakers must simultaneously pursue broader developmental goals like financial inclusion, poverty reduction, digital access, and infrastructure expansion. As a result, African AI governance frameworks may require more flexible and development-oriented approaches that balance human rights protections with socio-economic transformation objectives.

Ultimately, the EU model demonstrates the importance of proactive, interdisciplinary, and forward-looking AI regulation, but African realities highlight the need for context-specific governance frameworks rather than wholesale transplantation of European rules.

5.2 United States of America Approach

The United States offers a different model of AI regulation from the EU, emphasizing innovation, market-driven growth, and sector-specific oversight rather than comprehensive centralized regulation. The U.S. does not currently have a single comprehensive AI law comparable to the EU AI Act. Instead, the U.S. regulates AI through a combination of competition law, consumer protection law, privacy regulation, sector-specific legislation, executive orders, and antitrust enforcement actions. This decentralized approach has produced several important regulations, policy frameworks, and landmark cases that provide useful lessons for AI governance and digital market regulation globally.

Unlike the EU's precautionary and rights-based approach, the U.S. has historically

adopted a relatively flexible regulatory framework that seeks to encourage technological innovation and maintain global competitiveness in AI development. The U.S. model is heavily shaped by the dominance of large technology firms such as Google, Microsoft, OpenAI, Amazon, and Meta, which collectively control substantial AI infrastructure, cloud computing systems, large-scale datasets, and advanced AI models.

A major lesson for African countries from the U.S. approach is the importance of fostering innovation ecosystems- research institutions, venture capital investment, and private-sector participation in AI development. The rapid emergence of notable generative AI systems including ChatGPT, Gemini and Claude demonstrates how strong private-sector innovation ecosystems can accelerate technological advancement. For African countries, where AI ecosystems remain relatively underdeveloped, the U.S. model highlights the importance of investment in AI research, digital infrastructure, talent development and startup ecosystems.

Another important lesson from the United States concerns the role of competition enforcement in addressing digital platform dominance and AI market concentration. The Federal Trade Commission (FTC) and the United States Department of Justice (DOJ) have increasingly investigated dominant technology firms over concerns involving monopolization, anti-competitive acquisitions, digital advertising dominance, and control of AI infrastructure among others. Cases involving Google's dominance in online search and digital advertising, Meta's acquisitions of Instagram and WhatsApp, and Microsoft's partnerships with AI firms reflect growing concern regarding data-driven market power and AI ecosystem concentration. These lessons are particularly relevant for African markets where dominant firms such as Safaricom and multinational platforms increasingly control digital ecosystems through data accumulation, network effects, and AI-enhanced services.

However, unlike the United States, most African competition authorities lack the financial resources, technical expertise, and investigative capabilities necessary to conduct large-scale digital competition investigations. African regulators therefore face the challenge of adapting competition law tools to AI markets while operating within significantly weaker institutional environments.

6. Conclusion and recommendations

Africa faces broader developmental challenges relating to inadequate digital infrastructure, limited internet penetration, unreliable electricity supply and insufficient investment in AI research and education. AI systems require stable connectivity and computational resources as well as highly skilled personnel, all of which remain unevenly distributed across the continent. Although countries like

Kenya, South Africa, Rwanda and Nigeria have emerged as important digital innovation hubs, many regions continue to experience significant infrastructural deficits. These inequalities risk creating a two-tier AI economy in which only a limited number of countries and urban centers can meaningfully participate in AI-driven growth.

The regulation of AI markets in Africa requires a careful balance between encouraging innovation and preventing anti-competitive conduct. Addressing these challenges will require stronger institutional capacity, harmonized regulatory frameworks, investment in digital infrastructure, localized data ecosystems, and enhanced regional cooperation under institutions such as the African Union and regional competition bodies. Without such reforms, African countries may struggle to ensure that AI contributes to inclusive economic development while safeguarding competition, consumer welfare, and digital sovereignty.

6.1 Proportionate, phased regulation

African jurisdictions should avoid premature, heavy-handed AI-specific regulation. Instead, a proportionate and phased approach to regulating AI markets is the most practical strategy for African countries due to the continent's unique developmental and institutional realities. Unlike jurisdictions such as the EU or the U.S., many African states still face significant challenges including limited digital infrastructure, inadequate regulatory capacity, shortage of AI expertise, and dependence on foreign technology platforms and cloud infrastructure.

Consequently, the immediate adoption of highly complex AI regulatory systems may hinder innovation, discourage investment, and overwhelm regulatory institutions. A proportionate regulatory framework therefore recognizes that AI systems present different levels of risk and should be regulated according to their potential impact on society. Low-risk AI applications in areas such as logistics, agriculture, or customer service may require limited oversight, while high-risk systems involving digital lending, biometric surveillance, healthcare diagnostics, and automated public decision-making may justify stricter obligations relating to transparency, accountability, and consumer protection.

A phased regulatory model further enables African countries to gradually strengthen institutional capacity while supporting innovation and digital transformation. Regulators such as the Competition Authority of Kenya, the Federal Competition and Consumer Protection Commission (Nigeria), and the Competition Commission South Africa are still developing expertise in digital competition enforcement, data governance, and algorithmic accountability.

Under a phased approach, African governments can initially focus on foundational areas such as data protection, cybersecurity, digital competition, and consumer rights before gradually introducing more sophisticated AI-specific regulations. This approach also allows African countries to balance innovation with safeguards against harmful practices such as algorithmic discrimination, data concentration, and digital market dominance. Ultimately, context-sensitive and gradual AI regulation aligned with Africa's developmental priorities, including financial inclusion, digital access, infrastructure expansion, and technological sovereignty, offers a more sustainable pathway for governing AI markets across the continent.

6.2 Regional Coordination

Digital platforms, cloud infrastructure, telecommunications systems, and AI-driven services increasingly operate across multiple jurisdictions simultaneously. Many African countries individually lack sufficient technical expertise, institutional capacity, and financial resources to regulate rapidly evolving AI ecosystems independently. As a result, fragmented national regulation may create inconsistent standards, regulatory loopholes, and weak enforcement against dominant multinational technology firms.

Regional cooperation through institutions such as the African Union, the COMESA Competition Commission, the East African Community, and the Economic Community of West African States (ECOWAS) could therefore enable African countries to harmonize AI governance standards, coordinate digital competition enforcement, and pool technical expertise. For example, the increase of Vodacom's stake in Safaricom attracted scrutiny not only from Kenya's national regulators but also from regional competition bodies because Safaricom's mobile money and telecommunications ecosystem affects digital markets across East Africa. Similarly, multinational platforms such as Google, Meta, and TikTok operate across virtually all African markets, making isolated national regulation ineffective in addressing concerns relating to data concentration, digital advertising dominance, and algorithmic market power.

Regional coordination will also support broader African goals of digital integration, innovation, and technological sovereignty under initiatives such as the African Continental Free Trade Area (AfCFTA). Currently, African countries maintain highly fragmented regulatory frameworks relating to data protection, digital competition, cybersecurity, and AI governance, which increases compliance costs for startups and weakens cross-border digital innovation.

For example, Flutterwave and M-Pesa operate across multiple African jurisdictions but must navigate different licensing systems, consumer protection rules, and data

governance standards in each jurisdiction. Similarly, AI-powered digital lending applications operating in Kenya, Nigeria, and South Africa often process cross-border consumer data using cloud infrastructure controlled by Amazon Web Services, Google Cloud, and Microsoft Azure.

Coordinated regional regulation could therefore establish common standards for cross-border data transfers, algorithmic transparency, AI ethics, and digital competition enforcement. The African Union's Continental Artificial Intelligence Strategy already reflects growing recognition that Africa requires a collective and context-sensitive governance framework capable of addressing market concentration, digital dependency, and algorithmic risks while simultaneously promoting innovation, regional integration, and inclusive digital transformation across the continent.

6.3 Data Portability and Interoperability

Data portability and interoperability help reduce market concentration, promote competition, and prevent dominant digital platforms from locking users and businesses into closed digital ecosystems. AI systems derive significant competitive advantages from access to large volumes of user data, and firms that control extensive datasets are often able to strengthen their market power through network effects, algorithmic learning, and ecosystem integration.

In many African markets, dominant telecommunications, fintech, and digital platform firms increasingly accumulate vast amounts of consumer data that smaller firms cannot easily access or replicate. Safaricom's M-Pesa ecosystem in Kenya and Ethiopia integrates mobile money services, digital lending, telecommunications, and merchant payments, generating extensive behavioural and financial datasets that reinforce its dominance in Kenya's digital economy. Similarly, multinational platforms such as Google, Meta, and TikTok leverage user data across search, social media, advertising, and AI-driven recommendation systems to strengthen their market positions across Africa.

Data portability rules, which allow users to transfer their personal data between platforms, and interoperability obligations which require competing systems to communicate and function together, can help lower barriers to entry, reduce consumer lock-in, and encourage innovation by smaller African startups and technology firms.

Interoperability and data portability are particularly important in Africa because digital markets on the continent are still developing and are often characterized by high levels of platform dependency and limited competition. Paystack and

Interswitch for example, operate across multiple African jurisdictions and depend heavily on the ability to integrate with mobile money systems, banking infrastructure, and digital payment platforms. Without interoperability requirements, dominant firms may restrict access to critical digital infrastructure or refuse to share essential interfaces and data, thereby limiting competition and innovation.

6.4 Merger Review Reform

Traditional competition law frameworks often struggle to address the unique competitive dynamics of digital and AI-driven economies. Conventional merger analysis has historically focused on factors such as market shares, pricing effects, and short-term consumer welfare. However, AI markets are largely shaped by control over data, computational infrastructure, network effects, platform ecosystems, and future innovation potential. As a result, many acquisitions involving AI startups, digital platforms, cloud infrastructure providers, and fintech firms may appear insignificant under traditional turnover-based thresholds while still posing substantial long-term risks to competition.

In African markets, dominant firms increasingly acquire emerging technology companies to strengthen their access to datasets, AI capabilities, and digital ecosystems. For example, the acquisition of Paystack by Stripe attracted significant regulatory attention because Paystack had become a strategically important fintech platform within Nigeria's digital payments ecosystem. Similarly, the Vodacom/Safaricom merger raised questions relating not only to telecommunications concentration, but also to control of mobile money infrastructure, financial data ecosystems, and AI-driven digital services across East Africa. These demonstrate that merger review in AI markets must increasingly assess issues such as data concentration, innovation suppression, ecosystem integration, and digital gatekeeping rather than relying solely on traditional market share analysis.

Reforming merger review frameworks will therefore enable African competition authorities to respond more effectively to emerging competition risks in AI-driven digital markets. The Competition Authority of Kenya, the Federal Competition and Consumer Protection Commission, and the Competition Commission South Africa increasingly recognize that digital mergers may eliminate future competition even where target firms generate relatively low revenues at the time of acquisition.

Global examples also illustrate these concerns. The acquisitions of Instagram and WhatsApp by Meta were initially approved under traditional competition frameworks but later became widely cited as examples of "killer acquisitions" that strengthened platform dominance in digital advertising and social networking markets. African regulators can therefore draw lessons from reforms introduced in

the EU and the U.S., where authorities consider innovation effects, data accumulation, AI infrastructure control, and ecosystem entrenchment during merger assessments.

However, African reforms must remain proportionate and context-sensitive because excessive merger restrictions could discourage foreign investment and technological development in the emerging AI ecosystems. Therefore, merger review reforms in Africa may include lower notification thresholds for strategic digital acquisitions, enhanced scrutiny of data-driven mergers, regional coordination among competition authorities, and post-merger monitoring mechanisms. Such reforms will help African countries prevent excessive concentration in AI markets while still encouraging innovation, investment, and digital economic growth.

6.5 Capacity Building

Regulatory effectiveness ultimately depends on the availability of technical expertise, institutional strength, financial resources, and analytical tools capable of understanding and supervising complex digital ecosystems. Many African regulatory institutions, including the Competition Authority of Kenya, the Federal Competition and Consumer Protection Commission, and the Competition Commission South Africa, face constraints in recruiting and retaining specialized expertise in data science, artificial intelligence, digital forensics, and algorithmic auditing. This creates a significant asymmetry between regulators and powerful multinational technology firms such as Google, Meta, and Microsoft, which possess advanced AI research capabilities, large datasets, and sophisticated computational infrastructure. Without targeted capacity building, regulators risk being unable to detect anti-competitive conduct such as algorithmic self-preferencing, data-driven market foreclosure, or AI-enabled collusion.

Effective capacity building in African AI regulation must therefore extend beyond traditional legal training to include interdisciplinary technical skills development and institutional modernization. Competition authorities and sector regulators require expertise in machine learning systems, data governance, cloud computing architectures, and digital platform economics. For example, assessing mergers involving AI-enabled fintech firms such as Flutterwave or evaluating algorithmic pricing systems used by e-commerce platforms requires technical understanding of how predictive models, recommendation systems, and real-time data analytics function.

Similarly, regulating mobile money ecosystems such as M-Pesa in Kenya requires expertise in digital payments infrastructure, network effects, and data interoperability. Lessons from the European Union and the United States, where regulators increasingly collaborate with academic institutions, technology experts,

and specialized digital units to enhance enforcement capacity. African regulators can adopt similar models by establishing dedicated AI and digital markets units, investing in forensic data tools, and strengthening partnerships with universities and research institutions.

Regional and international cooperation also plays a critical role in addressing capacity gaps in African AI governance. Because AI markets are inherently cross-border, individual national regulators often struggle to match the scale and sophistication of global technology firms. For example, coordinated scrutiny of cross-border digital platform practices will be more effective than isolated national interventions. Additionally, partnerships with global institutions and development agencies can help African regulators access technical assistance in areas such as algorithm auditing, AI impact assessment, and digital market monitoring. Such collaboration is essential because AI regulation requires not only legal authority but also technological literacy and real-time analytical capabilities.

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