



## Assessing the Impact of Programme for Infrastructure Development on Intra-African Trade Growth (2013–2023)

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### Abstract

The Programme for Infrastructure Development in Africa (PIDA) was launched to address the continent's critical infrastructure deficits and to foster economic integration and trade. This study evaluates the impact of PIDA on intra-African trade growth between 2013 and 2023. Drawing from qualitative data, project reports, and trade analyses, the research finds that while PIDA has made substantial contributions to regional infrastructure, the influence on trade varies across regions and sectors. The study adopts the Theory of Regional Integration and the Infrastructure-Led Growth Theory to frame its analysis. It hypothesizes that the implementation of PIDA infrastructure projects has significantly contributed to increased intra-African trade volumes by improving connectivity and reducing trade costs. Methodologically, the research utilizes a qualitative approach, incorporating document analysis, expert interviews, and case studies to explore the relationship between infrastructure development and trade outcomes. The study highlights areas of progress, ongoing challenges, and offers recommendations for enhancing the effectiveness of infrastructure investments.

**Keywords:** PIDA, intra-African trade, infrastructure, regional integration, AfCFTA

### I. Introduction

Intra-African trade has historically lagged behind other regions of the world, accounting for less than 20% of the continent's total trade. Infrastructure bottlenecks, including inadequate road and other transport networks, unreliable energy supply, and limited ICT connectivity, have been major obstacles. The African Union's Programme for Infrastructure Development in Africa (PIDA), initiated in 2012, seeks to overcome these challenges through coordinated investment in regional infrastructure. This paper examines how PIDA has influenced intra-African trade growth over the last decade, especially in the context of regional integration initiatives such as the African Continental Free Trade Area (AfCFTA).

### II. Background of the Study

Africa's economic growth and regional integration agenda have been significantly hindered by infrastructure challenges. Many African countries continue to suffer from fragmented transport systems, inadequate energy supply, poor ICT connectivity, and limited access to trans-boundary water resources (AfDB, 2021). These infrastructural



deficits not only constrain economic productivity but also severely impede trade across the continent.

Recognizing the importance of infrastructure for achieving sustainable development, the African Union (AU), in collaboration with the African Development Bank (AfDB), the United Nations Economic Commission for Africa (UNECA), and the New Partnership for Africa's Development (NEPAD), launched the Programme for Infrastructure Development in Africa (PIDA) in 2012. PIDA was envisioned as a long-term strategic framework aimed at bridging the infrastructure gap and boosting intra-African trade and integration.

The PIDA Priority Action Plan (PAP) 2012–2020 outlined 51 cross-border infrastructural projects across the transport, energy, ICT, and trans-boundary water sectors. PAP 2 (2021–2030) builds on the progressive successes and lessons learnt from the first phase, with a focus on job creation, gender inclusivity, and alignment with the goals of the African Continental Free Trade Area (AfCFTA) (African Union Commission, 2022).

The growing emphasis on regional integration, as exemplified by the AfCFTA agreement, has magnified the urgency of infrastructure development in Africa. Without adequate infrastructure, the potential benefits of AfCFTA such as increased market access, economies of scale, and improved competitiveness will remain unrealized (UNECA, 2020). Moreover, persistent insecurity and regional conflicts in some African countries further complicate the realization of infrastructure objectives. For example, terrorism and political instability in parts of West Africa have disrupted trade corridors and hindered project implementation (Ilo, Ikegbunam, Okoye, & Onyejebu, 2023, Idigo, 2019).

The background of the study underscores the need to critically examine the actual impact of PIDA investments on intra-African trade over the last decade. Doing this provides insights into how infrastructure planning and delivery can be maximised to drive Africa's trade and development goals.

### 1. Theoretical Framework and Application

This study is anchored in two core theoretical frameworks: the Theory of Regional Integration and the Infrastructure-Led Growth Theory. These theories provide a foundation for understanding the mechanisms through which infrastructure

investments under PIDA influence trade dynamics within the African continent.

#### 1.1 Theory of Regional Integration

The Theory of Regional Integration, particularly as articulated by Haas (1958) and further advanced by neo-functionalists, argues that economic cooperation among nations leads to deeper regional integration through a spill over effect. In this context, sectoral integration, such as transport and energy, creates a domino effect encouraging integration in other policy areas, including trade and customs regulation. This theoretical lens is particularly relevant to PIDA's approach, which emphasizes the development of cross-border infrastructure to facilitate regional economic cohesion (Haas, 1958; Mattli, 1999).

In the African context, the theory helps explain the rationale behind initiatives such as the African Continental Free Trade Area (AfCFTA) and PIDA, both of which are aimed at reducing barriers to trade and fostering market integration. By improving physical connectivity and aligning regulatory environments, PIDA serves as a practical manifestation of regional integration theory in action (UNECA, 2020).

#### 1.2 Infrastructure-Led Growth Theory

The Infrastructure-Led Growth Theory is rooted in endogenous growth models, which posit that public infrastructure investment is a key driver of economic performance. Aschauer (1989) famously argued that infrastructure investment, especially in transportation and communication systems, has a strong positive effect on productivity and private sector output. In the African context, this theory supports the view that infrastructural bottlenecks are a major constraint on trade and economic growth.

PIDA's emphasis on energy interconnectivity, road and rail networks, and ICT corridors is aligned with the infrastructure-led growth paradigm. These investments are intended to lower transaction costs, expand market access, and reduce the time and cost of moving goods across borders—factors that are crucial for stimulating intra-African trade (Calderón & Servén, 2010; AfDB, 2021).

#### 1.3 Application of Theories to the Study

The integration of the Theory of Regional Integration and the Infrastructure-Led Growth Theory enables a multidimensional assessment of PIDA's outcomes. The former provides insights into the political and institutional processes driving



infrastructure collaboration across African nations, while the latter underscores the economic benefits derived from these projects.

The study's hypothesis—"The implementation of PIDA infrastructure projects has significantly contributed to increased intra-African trade volumes by improving connectivity and reducing trade costs"—is derived from the confluence of these theories. The evaluation focuses on whether PIDA projects have achieved their intended integration outcomes and whether these efforts have translated into tangible trade gains. These theories also guide the interpretation of qualitative data, helping to identify causal links and assess policy coherence.

## 2. Conceptual Literature Review

The conceptual literature establishes the foundational understanding of the role played by infrastructure in regional trade integration, economic growth and development. Several scholars agree that infrastructure is not merely a support sector but a crucial driver of trade facilitation and economic development.

Buys, Deichmann, and Wheeler (2010) provided a conceptual model showing how improvements in road networks reduce trade costs and increase trade volumes. They argue that poor road infrastructure in Africa significantly impedes the movement of goods and raises the cost of doing business across borders. Furthermore, Limao and Venables (2001) emphasize the disproportionate effect of infrastructure deficiencies on landlocked countries in African continent. The conceptual analysis of the duo, links poor infrastructure to increased trade costs, explaining why African countries face higher logistics costs compared to other developing regions of the world especially from the capitalist economies.

Substantiating further, Matthee and Naudé (2008) introduce the idea that physical infrastructure acts as a necessary precondition for the success of regional trade agreements. They argue that the lack of adequate transport and logistics infrastructure constrains the benefits of trade liberalization efforts. This view is echoed by Francois and Manchin (2013), who conceptualize infrastructure quality as a very critical factor influencing firms' access to export markets.

More broadly, Venables (2016) discusses the importance of infrastructure in connecting economically disparate regions within countries and across borders. He posits that infrastructure development is crucial for spatial economic

effectiveness and reducing regional inequalities or imbalances.

From development planning perspective, the African Union (2022) conceptualizes PIDA as a transformative initiative with the aim of enhancing connectivity and enabling the free flow of goods and services, aligning with the Agenda 2063. The programme envisions regional corridors as tools for unlocking trade and stimulating inclusive growth.

The above conceptual foundations provides the analytical lens through which this study assesses the implementation and outcomes of PIDA projects in Africa. They underscore the need for coordinated infrastructure development, policy harmonization, and institutional capacity building to maximize the trade-related benefits of infrastructure investments.

## 3. Empirical Literature Review

This section reviews existing empirical studies that investigated the relationship between infrastructure development and intra-African trade, with a particular focus on PIDA's impact.

For Carruthers, Krishnamani, and Murray (2009) they analyzed the relationship between infrastructure investments and trade in Sub-Saharan Africa. Their study found a strong positive correlation between improved transport infrastructure and increased trade volume, particularly as it concerns regional economic communities. This finding supports the rationale behind PIDA's corridor development strategy.

In another development, Foster and Briceño-Garmendia (2010), in their comprehensive Africa Infrastructure Country Diagnostic (AICD), found that inadequate infrastructure reduced Africa's economic growth by 2 percent annually. They elaborated that infrastructure bottlenecks, particularly in transport and energy, significantly constrained trade competitiveness, suggesting that large-scale projects like PIDA are essential for economic transformation in Africa.

Also, Martí, Puertas, and García (2014) employed a gravity model to examine the impact of logistics performance on bilateral trade. Their findings indicate that improved logistics infrastructure, including transport and ICT, significantly enhances trade volumes. This empirically validates PIDA's emphasis on multimodal transport and ICT infrastructure.

Furthermore, Khandelwal, Schaefer, and Teachout (2019) evaluated the early effects of regional integration and infrastructure investment on African trade using satellite imagery and customs data. They found that border post modernization and improved roads reduced trade delays by 30–50%, increasing



trade by up to 25% in some regions. These results affirm the importance of PIDA's interventions at border crossings and trade corridors.

Geda and Seid (2015) assessed the challenges and prospects of intra-African trade and concluded that infrastructure development is a critical precondition for the success of regional integration initiatives. Their regression analysis identified infrastructure as a significant determinant of trade flows, alongside tariffs and institutional quality.

The empirical studies collectively supported the hypothesis that infrastructure development, such as that undertaken under PIDA, positively affects intra-African trade by reducing costs, improving reliability, and enhancing regional connectivity.

4. **Hypothesis H1:** The implementation of PIDA infrastructure projects from 2013 to 2023 has had a significant positive impact on intra-African trade growth.

## 5. Methodology

This study adopts a qualitative research methodology to explore the impact of PIDA on intra-African trade from 2013 to 2023. The qualitative approach is suitable for understanding complex relationships between infrastructure development and trade growth, allowing for in-depth analysis of narratives, policy documents, and expert opinions.

### 5.1 Research Design

The research employs a case study design, focusing on selected infrastructure projects under PIDA across Africa. The case study design enables the researcher to investigate multiple dimensions of infrastructure implementation, including context, processes, challenges, and outcomes. Specific case studies include the North-South Corridor, the Abidjan-Lagos Corridor, and the Central African Power Pool projects. These were chosen due to their geographic spread and significance in trade facilitation.

### 5.2 Data Collection

Data was collected from a range of qualitative sources, including:

- Policy documents and official reports from the African Union Commission, NEPAD, and the African Development Bank
- PIDA project completion reports and performance reviews
- Regional Economic Community (REC) trade assessments
- Expert interviews and stakeholder statements from public conferences and published interviews

- Academic journal articles and working papers related to regional infrastructure and trade
- Purposive sampling was used to select documents and reports that directly relate to PIDA's implementation and its trade-related impacts. Secondary data was triangulated with expert insights to ensure credibility and depth.

### 7.3 Data Analysis

Thematic analysis was used to analyze the qualitative data. This involved coding textual data to identify recurring themes and patterns related to infrastructure impacts, trade facilitation, institutional challenges, and regional integration outcomes.

Key themes included:

- Reduction in transport time and costs
- Improvements in border post operations
- Enhancement of cross-border electricity access
- Increased regional market connectivity
- Challenges in financing and implementation

## 6. Data Analysis and Findings

### 6.1 Reduction in Transport Time and Costs

One of the most significant achievements of PIDA has been the reduction in transport time and logistics costs. The development of regional transport corridors has improved road quality and reduced the number of checkpoints and border delays. For example, the completion of the Kazungula Bridge not only cut travel time across the Zambezi River from days to minutes but also streamlined border procedures between Botswana and Zambia, contributing to lower transaction costs (AfDB, 2021).

The Abidjan-Lagos Corridor, which connects five West African countries, has similarly facilitated faster movement of goods and services, directly impacting regional trade volumes. Prior to the corridor's rehabilitation, traders faced long wait times and high transportation expenses due to poor road conditions and inefficient border controls (UNECA, 2020). With improvements, average cargo delivery times have decreased significantly, enhancing the competitiveness of regional exports.

According to Buys, Deichmann, and Wheeler (2010), a 10% reduction in transport costs can increase trade volumes by up to 25%. This relationship underscores the importance of PIDA's infrastructure investments in trade facilitation. Furthermore, the reduction in transport costs has had spillover effects on other sectors, such as agriculture and manufacturing, by improving access to markets



and lowering input costs (Foster & Briceño-Garmendia, 2010).

These improvements also align with findings from Calderón and Servén (2010), who note that better infrastructure enhances firm productivity and regional trade integration. The effectiveness of these interventions, however, depends on complementary measures such as harmonization of regulations, customs modernization, and sustained maintenance of infrastructure assets.

### 6.2 Improvements in Border Post Operations

Another significant impact of PIDA on intra-African trade has been the improvement in border post operations. Efficient border crossings are essential for facilitating trade, reducing delays, and lowering transaction costs. Many African countries have long suffered from congested and inefficient border posts, which have led to extended waiting times and increased costs for traders (World Bank, 2020).

PIDA-supported projects have contributed to the modernization of border posts, especially through the development of One Stop Border Posts (OSBPs) and improved customs harmonization processes. The OSBP initiative, implemented under PIDA in collaboration with regional economic communities (RECs) such as COMESA, EAC, and SADC, has significantly reduced clearance times. For example, the Busia and Malaba OSBPs between Kenya and Uganda have cut border crossing times from days to a matter of hours (UNECA, 2021).

These developments are aligned with the goals of the AfCFTA, which aims to eliminate non-tariff barriers and facilitate seamless intra-African trade. Improved border post operations support this goal by enhancing transparency, reducing opportunities for corruption, and promoting digital customs management (African Union Commission, 2022).

Furthermore, infrastructure upgrades at borders have included the installation of ICT systems for tracking cargo and managing data exchange. According to the African Development Bank (AfDB, 2021), the integration of technology in customs operations has improved efficiency and facilitated better coordination among border agencies. Such reforms have had a measurable impact on trade volumes and cost reductions.

Empirical findings by Raballand, Kunaka, and Giersing (2012) suggest that delays at border posts can account for as much as 40% of transport costs in landlocked African countries. Thus, streamlining these operations through PIDA initiatives directly

contributes to reducing the cost of trade and improving the competitiveness of African goods.

Despite these gains, challenges remain. Some border posts still face bureaucratic inefficiencies and lack of adequate infrastructure. Political instability and insufficient inter-agency coordination also hinder progress in some regions. To fully capitalize on the benefits of improved border operations, continuous investment in human capacity, technology, and policy harmonization is necessary (UNECA, 2020).

### 6.3 Enhancement of Cross-Border Electricity

Access to reliable and affordable electricity is crucial for industrial development, trade facilitation, and economic competitiveness. Inadequate electricity infrastructure in many African countries has hindered value-added production and cross-border trade, particularly in energy-intensive sectors. One of PIDA's strategic objectives has been to facilitate regional power interconnections and enhance cross-border electricity trade to address the continent's chronic energy deficits (African Union Commission, 2022).

PIDA has supported key energy infrastructure projects such as the Central African Power Pool (CAPP), West African Power Pool (WAPP), East African Power Pool (EAPP), and Southern African Power Pool (SAPP). These regional power pools are aimed at integrating national grids, reducing electricity costs, and enabling surplus electricity generation in one country to be transmitted to neighboring countries with deficits (AfDB, 2021).

A notable example is the North-South Power Transmission Corridor project, which connects countries in the Southern African Development Community (SADC) through a unified grid. This initiative has improved electricity reliability and access, particularly in landlocked nations like Zambia and Zimbabwe (IEA, 2019). Similarly, the Ethiopia-Kenya power interconnection project, completed in 2022, has enabled the transmission of surplus hydropower from Ethiopia to Kenya, reducing reliance on fossil fuels and lowering energy costs (UNECA, 2021).

The availability of cross-border electricity has enhanced the productivity of small and medium-sized enterprises (SMEs) and improved the operational efficiency of border posts and transport corridors. Electrified border facilities and customs processing centers are now more capable of operating efficiently, even during off-peak hours,



contributing to smoother and faster trade flows (World Bank, 2020).

Empirical studies have supported the positive relationship between electricity access and trade performance. Calderón and Servén (2010) found that improvements in electricity infrastructure are correlated with increased exports and industrial output. Furthermore, studies by Eberhard et al. (2011) show that integrated power systems in Africa can reduce generation costs by 10–15% and enhance regional cooperation.

However, the success of cross-border electricity projects faces several challenges. These include political instability, inconsistent regulatory frameworks, and financing constraints. The African Union has called for stronger institutional frameworks and public-private partnerships to accelerate the implementation and sustainability of energy infrastructure (AUC, 2022).

Overall, PIDA's efforts in enhancing cross-border electricity access have contributed significantly to trade-enabling environments by lowering production costs, stabilizing energy supply, and improving industrial competitiveness across regions.

#### 6.4 Increased Regional Market Connectivity

One of the foundational goals of PIDA is to foster deeper market integration by enhancing physical connectivity across African regions. Regional market connectivity plays a crucial role in facilitating the movement of goods, services, and people, thereby driving trade and economic development. Through projects focusing on transportation corridors, trade facilitation, and multimodal logistics, PIDA has made significant strides in improving regional market access (UNECA, 2020).

The development of key trans-African highway corridors—such as the Dakar–N'Djamena–Djibouti and North–South Corridors—has improved inter-regional transport, enabling better market access for landlocked countries and reducing dependence on single export-import routes (AfDB, 2021). These corridors have connected major trade hubs and enhanced regional value chains by supporting faster and more reliable movement of agricultural and manufactured goods.

Market connectivity has also been improved through port and rail infrastructure development under PIDA. For instance, the Lamu Port–South Sudan–

Ethiopia Transport (LAPSSET) Corridor has increased connectivity between East African markets, promoting regional trade in oil, livestock, and manufactured goods (African Union Commission, 2022). The development of rail links such as the Ethiopia–Djibouti railway and the revitalization of the Tanzania–Zambia Railway Authority (TAZARA) line have further facilitated trade by reducing transport time and costs (World Bank, 2020).

Digital connectivity initiatives under PIDA have also played a role in strengthening regional markets. Investments in broadband infrastructure and fiber-optic cables have enabled cross-border digital services and e-commerce, particularly in the EAC and ECOWAS regions. This development aligns with the African Union's Digital Transformation Strategy, which recognizes the role of ICT in expanding trade (UNECA, 2021).

Empirical research by Francois and Manchin (2013) suggests that better infrastructure connectivity increases market size and reduces transaction costs, thereby encouraging business expansion and trade diversification. Similarly, Limao and Venables (2001) emphasize that inadequate infrastructure is a key determinant of high transport costs in Africa, which hampers market integration.

Despite notable improvements, challenges such as financing gaps, poor maintenance of infrastructure, and lack of harmonized regional policies still limit the full potential of market connectivity. Regional coordination mechanisms and public-private partnerships are essential for maintaining and expanding the infrastructure gains achieved through PIDA (AfDB, 2021).

In summary, PIDA has significantly enhanced regional market connectivity by improving physical and digital linkages, facilitating access to new markets, and promoting regional economic integration. These gains are foundational to the success of the AfCFTA and broader continental development goals.

#### 6.5 Challenges in Financing and Implementation

Despite PIDA's transformative vision, the implementation of infrastructure projects across Africa has been hampered by significant financing and operational challenges. Infrastructure investment in Africa faces a chronic funding gap, estimated at between USD 68 and 108 billion



annually (AfDB, 2018). While PIDA has mobilized resources from development banks, public-private partnerships, and international donors, many projects remain underfunded or stalled due to inadequate financial arrangements.

A major obstacle to financing lies in the perceived high risk associated with African infrastructure projects. Political instability, weak institutional capacity, and inconsistent regulatory frameworks often deter private investors (UNECA, 2020). In some regions, the lack of well-prepared project pipelines and feasibility studies further reduces bankability and delays project execution (World Bank, 2020).

Moreover, the heavy reliance on external donors and multilateral finance institutions has exposed projects to geopolitical shifts and donor fatigue. For instance, some infrastructure commitments under PIDA have experienced delays or scaling down due to shifting priorities among international partners (African Union Commission, 2022).

Implementation challenges also stem from weak coordination among stakeholders. The complexity of cross-border projects requires synchronized efforts from multiple national governments, regional economic communities (RECs), and implementing agencies. However, varying levels of political commitment, regulatory fragmentation, and administrative bottlenecks often hinder progress (OECD, 2021).

Additionally, corruption and mismanagement of public funds continue to undermine project efficiency. Transparency International (2022) reports that infrastructure sectors in many African countries are among the most susceptible to corruption, which inflates costs and reduces quality. These issues have raised concerns about the long-term sustainability and value-for-money of large infrastructure investments.

Addressing these challenges requires comprehensive policy reform, improved governance frameworks, and capacity building at both national and regional levels. Encouragingly, initiatives like the Africa Infrastructure Development Index (AIDI) and the establishment of the African Investment Forum (AIF) have begun to improve project visibility and attract investment by reducing perceived risk and promoting coordination (AfDB, 2021).

In summary, while PIDA has laid the groundwork for transformative infrastructure, the full realization of its objectives depends on overcoming substantial

financial and implementation hurdles. Strengthening domestic resource mobilization, enhancing public sector capacity, and fostering a conducive investment climate are essential for accelerating PIDA's impact on intra-African trade.

#### 6.6 Trade Volume Trends

Between 2013 and 2023, intra-African trade increased from approximately 11% to over 18% of total African trade (UNCTAD, 2023). Transport corridors like the North-South Corridor and the Abidjan-Lagos Corridor have facilitated this growth.

#### 6.7 Infrastructure Investment Data

PIDA's first phase attracted over \$80 billion in commitments, with significant investments in road, rail, and energy interconnectors (AfDB, 2021).

#### 8.3 Project Completion Reports

Reports from the AfDB and African Union indicate that over 30 PIDA projects reached substantial completion by 2023. These include cross-border road upgrades, energy interconnections, and ICT backbone expansions (AfDB, 2021).

#### 7. Recommendations

Based on the analysis and discussions, the following recommendations are proposed to enhance the effectiveness of PIDA and its impact on intra-African trade:

##### 7.1 Strengthen Project Financing Mechanisms

African governments and regional bodies should focus on diversifying financing sources for infrastructure development. This includes leveraging innovative financing models such as infrastructure bonds, sovereign wealth funds, and blended finance. Efforts should also be made to improve the investment climate to attract private sector participation by minimizing regulatory uncertainty and political risk (AfDB, 2021).

##### 7.2 Enhance Institutional and Governance Capacity

Successful infrastructure development requires robust institutions and governance mechanisms. Capacity building for national implementing agencies and regional economic communities (RECs) is critical for effective project management, procurement, and oversight. Anti-corruption measures and transparent project monitoring systems should be strengthened to ensure accountability and cost-efficiency (Transparency International, 2022).

##### 7.3 Improve Cross-Border Coordination

Given that many PIDA projects span multiple countries, improving regional coordination is essential. The African Union and RECs should



establish clear frameworks for harmonizing policies, standards, and timelines across borders. Institutionalizing joint planning and implementation mechanisms will help mitigate political and bureaucratic delays (UNECA, 2020).

#### **7.4 Prioritize Maintenance and Sustainability**

While new infrastructure development is important, equal attention must be given to maintaining existing infrastructure. Establishing dedicated infrastructure maintenance funds and adopting performance-based maintenance contracts can ensure the longevity and sustainability of projects (OECD, 2021).

#### **7.5 Promote Digital and Energy**

Connectivity In light of growing demand for digital trade and green energy, PIDA should place increased emphasis on expanding ICT networks and cross-border electricity grids. These investments not only improve productivity but also support the development of regional value chains and integration into the global digital economy (UNECA, 2021; IEA, 2019).

#### **7.6 Facilitate Trade Through Policy Alignment**

Infrastructure must be complemented by trade facilitation policies to maximize its impact. Simplifying customs procedures, improving border management, and implementing the AfCFTA trade protocols will further enhance the utility of PIDA's infrastructure investments (World Bank, 2020).

#### **7.7 Strengthen Monitoring and Evaluation Frameworks**

Robust monitoring and evaluation (M&E) frameworks are necessary to track progress, identify bottlenecks, and measure outcomes. PIDA stakeholders should adopt standardized M&E tools, including key performance indicators (KPIs), to ensure data-driven decision-making and adaptive project management (African Union Commission, 2022).

Implementing these recommendations can significantly enhance the impact of PIDA on intra-African trade, accelerate regional integration, and contribute to the broader objectives of Agenda 2063. Enhance project implementation capacity at the national level. Prioritize maintenance and sustainability of completed infrastructure. Strengthen institutional coordination among RECs, AU, and national governments. Increase private sector participation and innovative financing mechanisms.

## **8. Conclusion**

The Programme for Infrastructure Development in Africa (PIDA) has played a pivotal role in laying the

groundwork for intra-African trade growth between 2013 and 2023. Through targeted investments in transport, energy, ICT, and trans-boundary infrastructure, PIDA has contributed to reducing trade barriers, lowering transport costs, and enhancing regional market connectivity. The integration of trade and infrastructure strategies under initiatives such as AfCFTA underscores PIDA's central role in Africa's development trajectory.

However, the analysis also reveals persistent challenges that undermine the full realization of PIDA's objectives. Financing gaps, limited institutional capacity, coordination inefficiencies, and governance issues continue to pose significant hurdles to project implementation and sustainability. These challenges have led to delays, cost overruns, and uneven distribution of benefits across the continent.

Notwithstanding these constraints, there is evidence of substantial progress. Improvements in transport networks, border post operations, and energy interconnections have begun to stimulate cross-border commerce and regional economic integration. Digital infrastructure has also emerged as a critical enabler of trade, particularly in response to global shifts toward e-commerce and digital service delivery.

The study's findings support the call for strengthened financing mechanisms, better governance structures, enhanced cross-border collaboration, and policy alignment to complement infrastructure development. Future success will depend on African countries' collective will to implement bold reforms, mobilize domestic and international investment, and institutionalize sustainable infrastructure practices.

In conclusion, PIDA remains a transformative framework with the potential to reshape Africa's trade landscape. Its continued success hinges on a commitment to addressing structural constraints and leveraging regional integration platforms to amplify trade opportunities. As Africa advances toward the goals of Agenda 2063, enhancing the implementation and impact of PIDA will be instrumental in building a resilient and interconnected continent.

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