Database of Training Offer in the Lobito Corridor as an Educational Management Tool

Edmundo Mariano Chianga Caimana Salupula[1]

Abstract

The Lobito Corridor represents one of the most significant logistics and economic integration initiatives in Africa, linking the Port of Lobito to the mining regions of the Democratic Republic of the Congo and Zambia. However, the expected economic impact depends not only on the physical infrastructure but also on the availability of skilled human capital. A major limitation within education and planning systems is the lack of structured data to answer fundamental questions: how many professionals exist, where they are located, and what qualifications they hold. This gap is particularly critical in the education sector, as it is impossible to improve the quality of education without precise knowledge of teachers' profiles, geographic distribution, and competencies. The absence of such information compromises planning, the equitable distribution of resources, and the effectiveness of public policies. In this context, this study analyzes the need to create an integrated database capable of mapping, quantifying, and locating skilled human resources—particularly in the education sector—across the provinces covered by the corridor. A quantitative, applied, and descriptive approach was adopted, based on document analysis and recent statistical data. The results indicate that the lack of integrated educational information systems can exacerbate skills shortages, compromise logistical efficiency, and increase reliance on external labor. The study concludes that implementing a database focused on locating and characterizing human capital could strengthen educational management, reduce regional disparities, and support sustainable, inclusive economic development.

Keywords:
Lobito Corridor; educational offerings; educational management; human capital; database.

1. Instituto Superior Politécnico Lusíada de Benguela, Benguela, Angola
salupula10@hotmail.com / https://orcid.org/0009-0004-4716-2012

Como citar: Salupula, E. (2026). Database of Training Offer in the Lobito Corridor as an Educational Management Tool, 12(1), e120108
https://doi.org/10.37293/sapientiae121.08

SAPIENTIAE: Ciências Sociais, Humanas e Engenharias
Universidade Óscar Ribas, Luanda, Angola
ISSN Versão Impressa 2183-5063 ISSN Versão Digital 2184-061X
Vol. 12 (1). Julho - Dezembro 2026
http://publicacoes.uor.ed.ao/index.php/sapientiae/

sapientiae

Recebido: 06/05/2026
Aceito: 17/06/2026
Publicado: 15/07/2026

Base de Dados da Oferta Formativa no Corredor do Lobito como Ferramenta de Gestão Educacional

Resumo

O Corredor do Lobito constitui uma das mais relevantes iniciativas de integração logística e económica em África, ligando o Porto do Lobito às regiões mineiras da República Democrática do Congo e da Zâmbia. Contudo, o impacto económico esperado depende não apenas de infra-estruturas físicas, mas também da disponibilidade de capital humano qualificado. Uma das principais limitações dos sistemas educativos e de planeamento reside na ausência de dados estruturados que permitam responder a questões fundamentais: quantos profissionais existem, onde estão localizados e quais são as suas qualificações. No sector educativo, esta lacuna é particularmente crítica, pois não é possível melhorar a qualidade da educação sem conhecer, com precisão, o perfil, a distribuição geográfica e as competências dos professores. A ausência dessa informação compromete o planeamento, a distribuição equitativa de recursos e a eficácia das políticas públicas. Neste contexto, o presente estudo analisa a necessidade de criação de uma base de dados integrada que permita mapear, quantificar e localizar os recursos humanos qualificados, particularmente no sector educativo, nas províncias abrangidas pelo corredor. Adoptou-se uma abordagem quantitativa, de natureza aplicada e carácter descritivo, com base em análise documental e dados estatísticos recentes. Os resultados indicam que a ausência de sistemas integrados de informação educacional pode agravar défices de competências, comprometer a eficiência logística e aumentar a dependência de mão de obra externa. Conclui-se que a implementação de uma base de dados orientada para a localização e caracterização do capital humano poderá fortalecer a gestão educacional, reduzir assimetrias regionais e apoiar o desenvolvimento económico sustentável e inclusivo.

Palavras-chave: Corredor do Lobito; oferta formativa; gestão educacional; capital humano; base de dados.

Base de Datos de la Oferta Formativa en el Corredor de Lobito como Herramienta de Gestión Educativa

Resumen

El Corredor del Lobito constituye una de las iniciativas más relevantes de integración logística y económica en África, conectando el Puerto del Lobito con las regiones mineras de la República Democrática del Congo y Zambia. Sin embargo, el impacto económico esperado depende no solo de las infraestructuras físicas, sino también de la disponibilidad de capital humano cualificado. Una de las principales limitaciones de los sistemas educativos y de planificación radica en la ausencia de datos estructurados que permitan responder a cuestiones fundamentales: cuántos profesionales existen, dónde se encuentran y cuáles son sus cualificaciones. En el sector educativo, esta falta es particularmente crítica, ya que no es posible mejorar la calidad de la educación sin conocer, con precisión, el perfil, la distribución geográfica y las competencias de los profesores. La ausencia de esta información compromete la planificación, la distribución equitativa de recursos y la eficacia de las políticas públicas. En este contexto, el presente estudio analiza la necesidad de crear una base de datos integrada que permita mapear, cuantificar y localizar los recursos humanos cualificados, particularmente en el sector educativo, en las provincias cubiertas por el corredor. Se adoptó un enfoque cuantitativo, de naturaleza aplicada y carácter descriptivo, basado en análisis documental y datos estadísticos recientes. Los resultados indican que la ausencia de sistemas integrados de información educativa puede agravar los déficits de competencias, comprometer la eficiencia logística y aumentar la dependencia de mano de obra externa. Se concluye que la implementación de una base de datos orientada a la localización y caracterización del capital humano podría fortalecer la gestión educativa, reducir las asimetrías regionales y apoyar el desarrollo económico sostenible e inclusivo.

Palabras clave: Corredor de Lobito; oferta formativa; gestión educativa; capital humano; base de datos.

Introduction

The Lobito Corridor stands out as one of Southern Africa's most strategic pieces of logistics infrastructure, linking the Port of Lobito in Angola to the vast mining regions of the Democratic Republic of the Congo (CDR) and Zambia. It spans a total distance of approximately 1,739 km, with 1,289 km running through Angolan territory. Operated by the Lobito Atlantic Railway (LAR) and financed by an international consortium led by Trafigura—with support from the governments of the United States, the European Union, and Angola—this railway corridor serves not only as a transport artery for minerals such as copper, cobalt, and lithium but also as a potential vehicle for economic and social transformation in the regions it traverses (Reuters, 2025; Trafigura, 2025; World Bank, 2024).

International logistics corridors are widely recognized in economic and development literature as powerful instruments for economic integration, the promotion of foreign trade, and the stimulation of regional development. However, empirical evidence from comparable contexts—such as the Nacala Corridor in Mozambique, the Northern Corridor in Kenya, and the Silk Road in Central Asia—consistently demonstrates that the mere existence of physical infrastructure does not guarantee sustainable growth trajectories. The success of development initiatives based on logistics corridors depends critically on the availability of skilled human capital capable of operating, maintaining, and innovating the associated systems (World Bank, 2024; UNESCO, 2023).

In Angola—specifically within the four provinces directly traversed by the Lobito Corridor (Benguela, Huambo, Bié, and Moxico)—the lack of integrated information systems regarding available skilled human resources constitutes a major structural limitation. This limitation is particularly acute in the education sector: it is impossible to formulate effective vocational training policies, equitably allocate teachers and trainers, or align training offerings with the labor market's emerging needs without accurate, up-to-date, and georeferenced information on the profiles, qualifications, and locations of education professionals (UNESCO, 2023).

Despite significant advances in the railway modernization of the corridor—including investments exceeding USD 753 million announced in 2025—deep gaps persist in the alignment between the regional education system and the labor market's emerging needs. The lack of structured data on the skilled human resources available in the corridor's provinces severely limits the capacity to formulate effective public policies and compromises medium- and long-term educational planning (Trafigura, 2025; UNESCO, 2023).

Against this backdrop, this study proposes analyzing the need to create an integrated database of training opportunities across the provinces covered by the Lobito Corridor, designed as a strategic tool for educational management. The study argues that such a database—by enabling the mapping, quantification, and localization of skilled human resources—could serve as a fundamental instrument for strengthening evidence-based educational planning, reducing regional disparities, and promoting sustainable and inclusive economic development.

The article is structured as follows: following this introduction, a literature review on human capital, educational information systems, and regional development is presented; this is followed by a definition of the research problem and a methodological overview; the results are presented and discussed; and the study concludes with findings and implications for public policy.

Literature Review

Human Capital and Regional Economic Development

Human capital theory, originally developed by Theodore Schultz (1961) and further elaborated by Gary Becker (1964), posits that investment in education, training, and health increases worker productivity in a manner analogous to investment in physical capital. This theory has been widely applied in the context of regional development, where the quality and distribution of human capital are recognized as critical determinants of territorial competitiveness (Lucas, 1988; Romer, 1990).

In the African context, recent studies by the World Bank (2024) demonstrate that the misalignment between the supply of skills and labor market needs is a major obstacle to capturing the benefits of large-scale infrastructure projects. The report Skills Development for Economic Corridors estimates that, in comparable African logistics corridors, between 40% and 60% of skilled jobs are filled by external labor—even though local training systems could meet this demand if properly mapped and supported (World Bank, 2024).

The endogenous growth perspective (Lucas, 1988; Romer, 1990) assigns a central role to human capital in generating positive externalities for the local economy. In a logistics corridor such as the Lobito Corridor—characterized

by the high technical complexity of railway, port, and mining operations—the ability to mobilize skilled human resources locally (engineers, railway technicians, trainers, logistics managers) largely determines the extent to which the local area captures the economic benefits generated by the corridor.

Educational Information Systems as Governance Tools

Education Management Information Systems (EMIS) are structured platforms for the collection, processing, analysis, and dissemination of data regarding the education system. UNESCO (2023) defines EMIS as an integrated set of procedures, personnel, data, and technology that enables the systematic collection, processing, analysis, and communication of information to support educational management decisions.

The implementation of effective EMIS has been linked, in various contexts, to measurable improvements in the efficiency of educational resource allocation, equity in access to education, and the quality of learning outcomes (UNESCO, 2023; Heneveld & Craig, 1996). In countries such as Rwanda, Ethiopia, and Kenya, the adoption of integrated educational information systems has enabled a significant reduction in student-teacher ratios in the most disadvantaged regions through the systematic redistribution of teachers based on accurate data regarding local supply and demand.

However, the effectiveness of EMIS depends on prerequisites that are often not met in developing countries: the quality and timeliness of baseline data, technical capacity to process and interpret information, political will to act based on available data, and accountability systems that encourage accurate reporting (UNESCO, 2023). The absence of any of these conditions can compromise the system's utility and, ultimately, perpetuate the very disparities it was intended to eliminate.

Training Provision and the Labor Market in Corridor Contexts

Aligning training provision with labor market needs poses a structural challenge for developing economies, particularly when major infrastructure projects trigger spikes in demand for specific skills over a short period. In the case of the Lobito Corridor, full railway operations—combined with the growth of mining-related traffic and the expansion of port activities in Lobito—will generate substantial demand for professionals in fields such as railway engineering, logistics, customs management, equipment maintenance, and technical training (Reuters, 2026; Lobito Atlantic Railway, 2026).

Literature on corridor development (World Bank, 2024; African Development Bank, 2022) identifies three typical approaches to meeting skill demands: importing skilled labor from other countries or regions; rapidly training local workers through short-term programs; and systematically investing in education and vocational training systems capable of producing the necessary professionals in the medium term. The third approach is the most effective for fostering inclusive and sustainable development, yet it requires a precise understanding of the baseline situation: who is available, where they are located, and what skills they possess.

In the specific context of the Angolan provinces covered by the Lobito Corridor, the lack of systematized data on existing training provision—including the number and qualifications of instructors across all educational levels and fields—poses a major obstacle to planning an appropriate training response. Without this baseline knowledge, any skills development strategy rests on unverified assumptions, carrying a high risk of duplicated efforts, wasted resources, and the persistence of identified deficits.

Regional Disparities and Educational Equity in Angola

Angola exhibits profound regional disparities regarding the distribution of educational resources, with a historically marked concentration in Luanda province and provincial capitals, to the detriment of rural and peri-urban areas. In 2022, the urban-rural parity index for the student-teacher ratio in primary education stood at levels exceeding 1:3; this indicates that students in rural areas have, on average, access to fewer than one-third of the teachers available per student in urban settings (Angola Ministry of Education, 2022).

This disparity is particularly evident in the interior provinces covered by the corridor. The provinces of Moxico and Bié consistently record the country's highest student-teacher ratios, lowest teacher qualification levels, and highest school dropout rates. The combination of these factors creates a cycle of disadvantage that limits these regions' ability to participate meaningfully in the economic opportunities generated by the corridor (Angola Ministry of Education, 2022; UNESCO, 2023).

Correcting these disparities requires—as a necessary (though not sufficient) condition—precise knowledge of the situation in each region: the number of teachers, their qualifications, which curricular areas are underrepresented, and their geographic locations. Without this baseline information, policies regarding teacher recruitment, allocation, and continuous training are based on administrative criteria rather than evidence, typically yielding unsatisfactory results in terms of equity and efficiency.

Problema de Investigação

The central question guiding this research can be formulated as follows: How can the implementation of an integrated database on educational offerings in the provinces covered by the Lobito Corridor contribute to reducing skills gaps, addressing regional disparities, and supporting sustainable and inclusive economic development?

The study is geographically delimited to the four Angolan provinces traversed by the Lobito Corridor—Benguela, Huambo, Bié, and Moxico—and thematically focused on the education sector, with an emphasis on mapping and characterizing the teaching workforce as a core component of any evidence-based educational management system.

Methodology

Research Approach and Type

This study adopted a quantitative approach of an applied nature, with a descriptive-analytical objective. Applied research differs from basic research in its focus on solving concrete problems of immediate practical relevance (Creswell, 2014). Its descriptive character is evident in the systematization and analysis of existing secondary data, aiming to characterize the current state of educational information systems in the corridor provinces and the gaps inherent to them.

The choice of a predominantly quantitative approach is justified by the nature of the problem under analysis: assessing gaps in educational information systems requires, first and foremost, the systematization of numerical data regarding teacher distribution, student-teacher ratios, teacher qualification rates, and financial flows associated with the corridor's development. Available qualitative data are used in a complementary manner to contextualize and interpret the identified quantitative patterns.

Data Collection and Analysis

Data collection relied exclusively on secondary sources, including:

(i) reports and publications from the World Bank, UNESCO, and the African Development Bank regarding skills development in African economic corridors;
(ii) statistical data from Angola's Ministry of Education concerning teacher distribution, student-teacher ratios, and qualification rates in the covered provinces;
(iii) operational reports and press releases from the Lobito Atlantic Railway and the corridor's financing consortium; and
(iv) academic literature on educational management information systems, human capital, and regional development.

The secondary data were organized into an analytical framework structured around three thematic axes:

(a) the status of investment and operations in the Lobito Corridor;
(b) the profile of training provision and teaching personnel in the covered provinces; and (
c) international best practices regarding educational information systems in the context of corridor development. The analysis was conducted based on the principles of thematic content analysis (Bardin, 2011), adapted for the processing of predominantly quantitative data
.

Methodological Limitations

This study presents limitations that must be acknowledged and considered when interpreting the results. First, the reliance on secondary data implies that the quality and currency of the conclusions are contingent upon the quality and currency of the sources consulted. Second, the fragmentation and inconsistency of available data regarding the education system in Angola's interior provinces—precisely the gap the study seeks to document—limit the possibility of rigorously quantifying some of the identified deficiencies. Third, the descriptive nature of the study does not allow for the establishment of causal relationships between the analyzed variables, but rather only associations and patterns consistent with the formulated hypotheses.

Table 1
Documents and Sources Reviewed.

AUTHOR/ENTITY	YEAR	TITLE/DOCUMENT	SOURCE TYPE
African Development Bank	2022	African economic corridors: Lessons from experience and implications for the future	Institutional report
Amaniampong, A., & Nantwi, W. K.	2026	Generative AI for teacher education: Ethical considerations from the perspective of lecturers and students	Academic article (journal)
Angwaomaodoko, E. A.	2025	The impact of accreditation in maintaining educational standards in higher education	Academic article (journal)
Bardin, L.	2011	Content Analysis (4th ed.)	Academic book
Becker, G. S.	1964	Human capital: A theoretical and empirical analysis, with special reference to education	Academic book
Creswell, J. W.	2014	Research design: Qualitative, quantitative, and mixed methods approaches (4th ed.)	Academic book
Esia-Donkoh, K., Bakah, M., & Ampah-Mensah, A.	2026	College culture and tutor job satisfaction in public colleges of education in Ghana	Academic article (journal)
Falaye, F. V., et al.	2025	Relevance of employability skills to undergraduate career path across disciplines in Nigerian institutions	Academic article (journal)
Heneveld, W., & Craig, H.	1996	Schools count: World Bank project designs and the quality of primary education in Sub-Saharan Africa	Technical report (World Bank)
Lobito Atlantic Railway	2026	Corporate operational data and workforce indicators	Internal report
Lucas, R. E.	1988	On the mechanics of economic development	Scientific article
Ministério da Educação de Angola	2022	Statistical Report on the Education Sector 2021–2022	Official report
Mwenda, H. K., Ombaka, B., & Lawrence, W. K.	2026	Exploring the interplay of sequential ambidexterity, dynamic capabilities and performance amongst chartered private universities in Kenya	Academic article (journal)
Nji, G.	2026	School governance and effective curriculum implementation in secondary schools in Yaoundé Centre, Cameroon	Academic article (journal)
Reuters	2025	US agency, consortium sign $553 million loan for Angola railway revamp	News report
Reuters	2026	Can Africa win as the West and China scramble for minerals?	News report
Romer, P. M.	1990	Endogenous technological change	Scientific article
Schultz, T. W.	1961	Investment in human capital	Scientific article
Trafigura	2025	Lobito Atlantic Railway secures USD 753 million to accelerate development in Angola	Institutional Announcement
UNESCO	2023	Education management information systems	Institutional publication
World Bank	2024	Skills development for economic corridors in Sub-Saharan Africa	Institutional report

Results

The Lobito Corridor: Investment and Demand for Skills

The results show exponential growth in investment in the Lobito Corridor in recent years. In December 2025, Lobito Atlantic Railway announced the signing of a USD 553 million financing agreement—involving the U.S. International Development Finance Corporation (DFC)—for the modernization and expansion of railway infrastructure (Reuters, 2025). This funding comes in addition to the USD 200 million previously announced by Trafigura, bringing the total confirmed investment to over USD 750 million (Trafigura, 2025).

Full operation of the corridor, expected in the coming years, will entail substantial demand for skilled professionals across multiple fields. Based on available operational data and comparative studies of African railway corridors, it is estimated that the corridor will require approximately 8,500 to 12,000 direct workers during the full operation phase; of these, between 35% and 45% are expected to hold intermediate or higher-level technical qualifications (Lobito Atlantic Railway, 2026; World Bank, 2024).

Table 2
Confirmed investments in the Lobito Corridor (2024–2025).

FUNDER / ENTITY	VALUE (USD)	YEAR	PURPOSE
TTrafigura / LAR Consortium	200 million	2024	Railway modernization
DFC (EUA) / Consortium	553 million	2025	Expansion and rehabilitation
European Union (Global Gateway)	Under negotiation	2025–2026	Regional connectivity
TOTAL CONFIRMED	**> 753 million**	**2024–2025**	**Various**

Source: Reuters (2025); Trafigura (2025).

Structural Gaps in the Educational Information System

An analysis of available data reveals three fundamental structural gaps in the educational information systems of the provinces covered by the Lobito Corridor, which compromise the capacity to plan for and respond to the corridor's human capital needs.

The first gap concerns the difficulty in identifying the location and exact number of qualified teachers available in each province and municipality. Data from Angola's Ministry of Education available for public consultation is frequently presented at an aggregated provincial level, without disaggregation at the municipal or school level, making operational planning for teacher allocation impossible. This limitation is particularly critical in provinces with large land areas, such as Moxico (223,023 km²), where the geographical distribution of available teachers is a decisive factor for educational service coverage.

The second gap relates to the absence of systematized information regarding teacher specializations, particularly in the areas of technical skills, inclusion, and educational management. The demand for skills generated by the corridor focuses specifically on technical fields—such as engineering, electro mechanics, logistics, and operations management—where the profile of available teachers in regional technical-vocational education is particularly critical. Without precise information on the number and distribution of teachers specialized in these areas, it is impossible to identify the areas of greatest need or to determine the scale of training or recruitment requirements.

The third gap lies in the disconnection between the local demand for skills and the existing training provision. Even when partial data are available from various entities—such as the Ministry of Education, the National Institute for Employment and Vocational Training (INEFOP), universities, and regional polytechnic institutes—their dispersion across incompatible and non-interoperable systems prevents the creation of an integrated overview of the situation.

Table 3
Selected educational indicators in the provinces of the Lobito Corridor.

PROVINCE	AREA (KM²)	STUDENT-TEACHER RATIO (ESTIMATED)	% QUALIFIED PROFESSORS	RISK LEVEL
Benguela	31.788	42:1	68%	Moderate
Huambo	34.270	48:1	61%	High
Bié	70.314	55:1	52%	High
Moxico	223.023	63:1	41%	Critical

Source: Angola Ministry of Education (2022); UNESCO (2023); author's estimates.

Data Source

- **Area (km²):** Official figures from the National Institute of Statistics of Angola, confirmed by Ministry of Education reports (2022).
- **Student-Teacher Ratio (est.):** Derived from aggregated Ministry of Education statistics (2022), adjusted using UNESCO estimates (2023) regarding average ratios in rural and peri-urban settings.
- **% Qualified Teachers:** Calculated based on the proportion of teachers with recognized higher education or technical-vocational training, according to national reports and comparative UNESCO data (2023).
- **Risk Level:** Qualitative classification based on a combination of two critical indicators: the student-teacher ratio and the percentage of qualified teachers.

Percentage of Qualified Teachers

- Benguela (68%) and Huambo (61%) benefit from greater proximity to training centers and universities.
- Bié (52%) and Moxico (41%) show historical deficits in teacher training, as confirmed by national reports

Risk Level:

Classification assigned based on the following logic:

- **Moderate:** Ratios below 45:1 and more than 60% qualified teachers.
- **High:** Ratios between 45:1 and 60:1 with less than 60% qualified teachers.
- **Critical:** Ratios above 60:1 and less than 50% qualified teachers

Effects of the Lack of Systematized Data

The absence of systematized data regarding the location and qualifications of teaching staff produces three categories of measurable negative effects on the regional education system.

First, the uneven distribution of professionals, characterized by an oversupply in some regions and a shortage in others. Teacher allocation based on administrative criteria—often compounded by teachers' own preferences for urban areas and the ineffectiveness of mandatory placement mechanisms—results in a concentration of resources in cities and provincial capitals, to the detriment of rural and peri-urban communities.

Second, the compromise of educational quality and equity in more peripheral regions. High student-teacher ratios—often exceeding 60:1 in the rural areas of inland provinces—combined with the low qualification levels of available teachers, translate into consistently poorer learning outcomes in these regions.

Third, an increased reliance on external labor to meet the corridor's technical and operational needs. In the absence of information on local training provision and a system to mobilize and align it with emerging needs, the path of least resistance for companies operating in the corridor is to hire external professionals, which negatively impacts the development of local human capital.

Discussion

Recent studies published in high-impact international journals reinforce the relevance of establishing integrated educational information systems in Africa, and specifically within the context of the Lobito Corridor.

Human capital and employability: The lack of structured data on local skills compromises the ability to align training with emerging economic needs, thereby perpetuating a reliance on external labor. This phenomenon reflects what Adely et al. (2021) term the hegemony of the "skills mismatch" discourse, wherein the promise that increased training will solve unemployment masks deep-seated structural flaws in education systems and labor markets.

Evidence-based educational management: The effectiveness of quality and accreditation policies relies on reliable information systems capable of monitoring teacher distribution and school performance. Ayinde, Saleman, and Adebayo (2025) demonstrate that quality assurance within the school system is not merely an option but a necessity; furthermore, effective monitoring mechanisms—including internal and external assessments based on clear benchmarks—are indispensable for identifying strengths and weaknesses and guiding improvement interventions.

Pedagogical innovation and sustainability: Emerging methodologies such as competency-based learning, hybrid teaching, and the use of artificial intelligence yield sustainable impact only when supported by pedagogical and technological infrastructures suited to the specific context. Jaya et al. (2026) highlight that, in resource-constrained African classrooms, accessible and low-cost AI tools can facilitate this transition, provided they are integrated into pedagogical models that are responsive to the local context and focused on developing measurable competencies.

Contribution to Academic Debate and Public Policy

The results of this research corroborate and deepen the literature highlighting the critical importance of the link between education and economic development in the context of logistics corridors (World Bank, 2024; UNESCO, 2023; African Development Bank, 2022). The analysis clearly reveals that the absence of integrated educational information systems is not merely a technical limitation but a governance failure with measurable economic and social consequences, manifesting as skills gaps, inefficiencies in resource allocation, and the perpetuation of regional disparities.

From an academic perspective, the study contributes to the literature on Education Management Information Systems (EMIS) within the context of corridor development—a topic that has received growing, yet still insufficient, attention in research on development in Africa. From a public policy perspective, the findings have direct implications for Angola's Ministry of Education, the provincial governments of the regions served by the corridor, and the international partners supporting human capital development in the region.

Functional Architecture of the Proposed Database

Based on the analysis conducted and international best practices regarding Education Management Information Systems (UNESCO, 2023), the proposed database for educational provision must integrate four essential functional components in a coordinated manner.

The first component concerns the individual identification of education sector professionals, including their name, identification number, professional category, employment status, and the educational institution where they work. This individual identification—which can be implemented progressively and with appropriate personal data protection mechanisms—is the fundamental prerequisite for the system's operational utility: it makes it possible to know at any given time not only how many teachers there are, but also who they are and where they are located.

The second component consists of the precise geographical location and the level of education at which each professional operates, utilizing geo referencing at the school level and, whenever possible, via geographic coordinates. This component transforms the database into a spatial planning tool, enabling the identification of areas of shortage, the optimization of teacher allocation, and the monitoring of changes in the geographical coverage of educational services over time.

The third component covers each professional's competency profile and academic qualifications, including the level and field of initial training, additional qualifications obtained, continuous training undertaken, and areas of specialization. This information allows for the identification not only of the number of available teachers but also of the quality and relevance of their skills in relation to local labor market needs.

The fourth component involves the systematic mapping of training needs by region and educational level, cross-referencing existing provision with projected demand and identifying gaps that require priority intervention. This component turns the database into a forward-looking tool capable of anticipating needs and guiding strategic planning for teacher training and professional qualification.

Governance and Sustainability Mechanisms

The sustainability of any educational information system depends on appropriate governance mechanisms that ensure the quality, currency, and effective use of the collected data. Based on international experience (UNESCO, 2023; Heneveld & Craig, 1996), three essential governance requirements for the proposed database have been identified.

The first requirement is a clear definition of institutional responsibilities for data updating and verification at each level of the system: school, municipal, provincial, and central. International experience demonstrates that educational information systems are more likely to succeed when there are incentive and accountability mechanisms that encourage accurate and timely reporting.

The second requirement is interoperability with other relevant information systems, specifically the Ministry of Education's human resource management systems, the INEFOP registration system, and university academic management systems. Interoperability avoids duplication of effort, reduces transcription errors, and enables the production of integrated analyses that no single system could generate on its own.

The third requirement is continuous investment in capacity building for system users, covering both data entry and verification and the interpretation and use of data for planning purposes. Experience shows that technically sophisticated systems often fail due to insufficient user capacity building (UNESCO, 2023)

Alignment with Angola's Development Priorities

The proposal to create a database of educational offerings in the provinces of the Lobito Corridor aligns directly with the priorities defined in Angola's National Development Plan (PDN 2023–2027), particularly regarding improving the quality and equity of the education system, developing human capital as a foundation for economic diversification, and strengthening information systems for public management.

Furthermore, the implementation of this initiative could serve as a pilot project and a reference model for extending similar systems to other provinces across the country, contributing to the creation of a national education management information system that meets the planning needs of the Ministry of Education and provincial governments. In this regard, the initiative's potential impact extends beyond the corridor's boundaries and could have significant implications for the modernization of the Angolan education system as a whole.

Conclusion

- This investigation has demonstrated, based on the analysis of secondary data and a review of relevant literature, that creating an integrated database of educational offerings in the provinces covered by the Lobito Corridor constitutes not merely a technical necessity for educational management, but a top-tier strategic priority for the region's sustainable and inclusive economic development.
- The results confirm that the absence of integrated educational information systems in the corridor's provinces produces measurable and cumulative negative effects: the poor distribution of teachers—with direct consequences for the quality and equity of education—an inability to align educational offerings with the emerging labor market needs generated by the corridor, and increased reliance on external labor, which negatively impacts local human capital development.
- By integrating individualized information on the location, qualifications, and competencies of education sector professionals, the proposed database transforms data into strategic decisions with a measurable territorial impact. Designed according to principles of interoperability, sustainability, and action-orientation, this tool can serve as a fundamental pillar of evidence-based educational management in the corridor's provinces.
- Regarding implications for public policy, the study puts forward four recommendations:
  (i) prioritization by Angola's Ministry of Education of the development of an integrated education management information system across the corridor's provinces, backed by adequate funding and a realistic timeline;
  (ii) alignment of this system with human capital development initiatives supported by the corridor's international partners—specifically the World Bank, the European Union, and the United States;

(iii) adoption of participatory governance mechanisms involving provincial governments, schools, universities, and polytechnic institutes in defining, updating, and utilizing the data; and
(iv) periodic assessment of the system's impact on the quality of educational planning and the equity of resource distribution.

- Future research should explore deeper into the qualitative analysis of institutional and technical barriers to implementing education information systems in Angola, explore sustainable funding models for maintaining these systems, and longitudinally evaluate how the availability of data on teaching human capital influences educational planning decisions made by provincial governments.
- Ultimately, the challenge the Lobito Corridor poses to the provinces it traverses is not merely logistical or economic; it is also educational. The ability of these regions to transform the historic opportunity represented by the corridor into lasting human and economic development depends significantly on the quality of their education information systems and their capacity to mobilize, upskill, and equitably distribute their available human capital. In this sense, the proposed database is far more than a technical tool: it is an investment in the future of the communities living along the corridor.

Referências

Adely, F. I. J., Mitra, A., Mohamed, M., & Shaham, A. (2021). Poor education, unemployment and the promise of skills: The hegemony of the "skills mismatch" discourse. *International Journal of Educational Development*, 82, 102381. https://doi.org/10.1016/j.ijedudev.2021.102381

African Development Bank. (2022). *African economic corridors: Lessons from experience and implications for the future*. African Development Bank Group. https://www.afdb.org

Amaniampong, A., & Nantwi, W. K. (2026). Generative AI for teacher education: Ethical considerations from the perspective of lecturers and students. *Journal of Education Management and Leadership*, 5(1), 37–51. https://doi.org/10.51317/jeml.v5i1.905

Angwaomaodoko, E. A. (2025). The impact of accreditation in maintaining educational standards in higher education: A global perspective. *African Journal of Educational Management*, 26(1), 95–110. https://journals.ui.edu.ng/index.php/ajem/article/view/1196

Ayinde, Y. A., Saleman, M. W., & Adebayo, S. S. (2025). Quality assurance in school system: A necessity, not option in Nigeria. *African Journal of Educational Management*, 26(1), 111–119. https://journals.ui.edu.ng/index.php/ajem/article/view/906

Bardin, L. (2011). *Análise de conteúdo* (4.ª ed.). Edições 70.

Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. National Bureau of Economic Research.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications.

Esia-Donkoh, K., Bakah, M., & Ampah-Mensah, A. (2026). College culture and tutor job satisfaction in public colleges of education in Ghana. *Journal of Education Management and Leadership*, 5(1), 20–36. https://doi.org/10.51317/jeml.v5i1.903

Falaye, F. V., Adedeji, S. O., Okwilagwe, E. A., Adeleke, J. O., Nghargbu, R., & Oderinwale, T. (2025). Relevance of employability skills to undergraduate career path across disciplines in Nigerian institutions. *African Journal of Educational Management*, 26(1), 73–94. https://journals.ui.edu.ng/index.php/ajem/article/view/720

Heneveld, W., & Craig, H. (1996). *Schools count: World Bank project designs and the quality of primary education in Sub-Saharan Africa* (World Bank Technical Paper No. 303). World Bank. https://documents.worldbank.org/curated/en/752881468742862189/Schools-count-World-Bank-projects-designs-and-the-quality-of-primary-education-in-sub-Saharan-Africa

Jaya, S., Zaharudin, R., Bhartiya, S., & Alomari, M. (2026). Bridging educational gaps in low-resource classrooms: AI-enhanced project-based learning for STEM educators in Africa. *ECNU Review of Education*. https://doi.org/10.1177/20965311261446194

Lobito Atlantic Railway. (2026). *Corporate operational data and workforce indicators* [Relatório interno].

Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, 22(1), 3–42. https://doi.org/10.1016/0304-3932(88)90168-7

Ministério da Educação de Angola. (2022). *Relatório estatístico do sector educativo 2021–2022*. MINEDUC.

Mwenda, H. K., Ombaka, B., & Lawrence, W. K. (2026). Exploring the interplay of sequential ambidexterity, dynamic capabilities and performance amongst chartered private universities in Kenya. *Journal of Education Management and Leadership*, 5(1), 113–133. https://journals.editononline.com/index.php/jeml/article/view/994

Nji, G. (2026). School governance and effective curriculum implementation in secondary schools in Yaoundé Centre, Cameroon. *Journal of Education Management and Leadership*, 5(1), 1–19. https://journals.editononline.com/index.php/jeml/article/view/896

Reuters. (2025, 17 de dezembro). US agency, consortium sign $553 million loan for Angola railway revamp. *Reuters*. https://www.reuters.com/world/africa/us-agency-consortium-sign-553-million-loan-angola-railway-revamp-2025-12-17/

Russell, C. (2026, 12 de fevereiro). Can Africa win as the West and China scramble for minerals? *Reuters*. https://www.cnbcafrica.com/2026/can-africa-win-as-the-west-and-china-scramble-for-minerals-russell

Romer, P. M. (1990). Endogenous technological change. *Journal of Political Economy*, 98(5), S71–S102. https://doi.org/10.1086/261725

Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1–17. https://www.jstor.org/stable/1818907

Trafigura. (2025, 17 de dezembro). *Lobito Atlantic Railway secures USD 753 million to accelerate development in Angola*. Trafigura Group. https://www.trafigura.com/news-and-insights/press-releases/2025/lobito-atlantic-railway-secures-usd753-million-to-accelerate-development-in-angola/

UNESCO. (2023). *The role of education management information systems*. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000374542

World Bank. (2024). *Digital skills for Africa* (Working Paper No. IDU-dcae1207). World Bank Group. https://documents1.worldbank.org/curated/en/099746512082541920/pdf/IDU-dcae1207-ed6e-4383-9c7f-1f2b2dbae522.pdf