**PROJECT OVERVIEW: DATA VISUALIZATION PROJECT (POWER Bi)**

**TITLE: UNRAVELING THE CHALLENGES OF HEALTHCARE ACCESSIBILITY IN AFRICA**

**OUTLINE**

* Introduction
* Problem Statement
* Objectives
* Data Overview
* Tools/Software used
* Data Transformation process
* Data Analysis (Research Questions for Visualization)
* Summary (Key Insight and Recommendations)
* Conclusion

1. **INTRODUCTION**

Healthcare accessibility is essential for improving health outcomes, reducing mortality rates, and ensuring timely medical interventions, especially in emergencies. It helps bridge the gap between urban and rural areas, preventing healthcare inequalities that disproportionately affect low-income and underserved communities. Accessible healthcare also strengthens economies by maintaining a productive workforce and reducing the financial burden of preventable diseases. Quality healthcare services enhance overall well-being, increasing life expectancy and improving maternal and child health. Additionally, strong healthcare systems are crucial for controlling disease outbreaks, ensuring rapid responses to pandemics and public health crises. Ultimately, healthcare accessibility is a fundamental human right that promotes social equity, economic stability, and a healthier global population**.**

1. **PROBLEM STATEMENT**

Healthcare accessibility remains a critical issue across Africa, with significant disparities between rural and urban regions. Challenges such as uneven distribution of healthcare facilities, insufficient medical personnel, inadequate funding, and poor infrastructure hinder access to quality healthcare. This project aims to analyze healthcare facility data to identify disparities, assess resource allocation efficiency, and propose recommendations to improve healthcare service delivery across Africa.

1. **OBJECTIVES**

* Compare healthcare accessibility in rural vs. urban areas.
* Analyze healthcare funding distribution and its impact on service efficiency.
* Evaluate patient satisfaction and healthcare outcomes.
* Develop visual insights and recommendations to improve healthcare access.

1. **DATA OVERVIEW**

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| Metrics | Definition |
| Region | The geographical area where the healthcare facility is located. |
| Country | The country where the facility operates. |
| Population | The total number of people in the region served by the facility. |
| Facility Name | The unique name of the healthcare facility. |
| Facility Type | The type of healthcare center (Clinic, Health Center, or Hospital). |
| Number of Beds | The total number of hospital beds available at the facility. |
| Number of Doctors | The number of doctors working at the facility. |
| Number of Nurses | The number of nurses available at the facility. |
| Annual Patient Visits | The total number of patients visiting the facility per year. |
| Emergency Response Time (minutes) | The average time taken to respond to an emergency in minutes. |
| Funding Received (USD) | The total financial resources received by the facility in U.S. dollars. |
| Electricity Availability | Indicates whether the facility has access to electricity (Yes/No). |
| Internet Availability | Indicates if the facility has internet access (Yes, No, or Limited). |
| Patient Satisfaction Rate (%) | The percentage of patients satisfied with healthcare services. |
| Average Distance to Facility (km) | The average distance (in kilometers) patients travel to reach the facility. |
| Urban/Rural | Classifies the facility’s location as either Urban or Rural. |

1. **TOOLS/SOFTWARE USED**

Data Cleaning: Microsoft Excel/Power Query in Power BI

Data Visualization: Power BI

Documentation: Microsoft Word

Presentation: PowerPoint

1. **DATA TRANSFORMATION PROCESS**

The dataset was cleaned using Microsoft Excel, leveraging Power Query for transformation. The following steps were performed:

Data Type Corrections – Ensured that each column had the appropriate data type, making necessary adjustments where needed.

Duplicate Removal – Identified and removed duplicate records to maintain data integrity.

Handling Missing Values – Checked for missing values and addressed them accordingly to ensure completeness.

1. **DATA ANALYSIS**

**Research Questions**

1. How does the distribution of healthcare facilities compare between rural and urban regions?

2. Are urban healthcare facilities receiving more funding than rural ones?

3. Are healthcare facilities with higher funding more likely to have shorter emergency response times?

4. Which facility types (hospitals, clinics, health centers) show the highest efficiency in terms of funding per patient visit?

1. **SUMMARY**

**Key Insights**

Funding Distribution Imbalance: Rural areas receive more funding, but urban regions have a higher concentration of healthcare facilities, creating inefficiencies.

Infrastructure Gaps: Limited Road networks, inadequate transport, and fewer healthcare professionals hinder access to medical care, especially in rural areas.

Emergency Response Challenges: Rural areas experience longer response times due to distance and limited ambulance availability.

Facility Distribution Disparities: Urban areas have more clinics and hospitals, while rural populations rely on fewer, often under-resourced facilities.

Financial Barriers: High healthcare costs and lack of insurance coverage prevent low-income groups from accessing essential medical services.

**Recommendations**

Optimize Funding Allocation – Shift from a region-based model to a data-driven funding system based on patient demand, disease burden, and facility workload.

Expand Healthcare Infrastructure in Underserved Areas – Build more clinics, deploy mobile health units, and enhance telemedicine services to improve accessibility.

Strengthen Emergency Response Systems – Invest in ambulance networks, first responder training, and medical drone deliveries to reduce delays.

Enhance Public-Private Partnerships – Encourage NGO and private sector investment to scale healthcare services and improve efficiency**.**

1. **CONCLUSION**

The analysis of healthcare data reveals significant disparities in funding, infrastructure, emergency response, and accessibility between rural and urban regions. While rural areas receive more funding, urban areas benefit from a higher concentration of healthcare facilities, creating inefficiencies in resource allocation. To bridge this gap, data-driven funding models, infrastructure expansion, emergency response improvements, and workforce incentives are essential. By implementing these strategic interventions, policymakers can create a more accessible, efficient, and equitable healthcare system that serves all populations effectively**.**

[Healthcare Accessibility Presentation](Unraveling%20the%20Challenges%20of%20Healthcare%20Accessibility%20in%20Africa.pptx)

[Healthcare Accessibility Visualization](Healthcare%20Accessibility%20in%20Africa.pbit)