

## Creation of a data portal for Angola: a proposal for transparency, development and innovation

Creating a data portal for Angola: a proposal for transparency, development and innovation

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### SUMMARY

This study proposes the implementation of a national data portal for Angola, highlighting its role in consolidating and modernizing information management, promoting government transparency, economic development, encouraging innovation and democratizing access to public information in a structured, reliable and accessible way.

In the current context, Angola lacks a centralized platform that integrates government, economic, social and scientific data, which limits transparency, efficiency in decision-making and the development of data-driven innovations. The lack of such a resource also compromises the quality of academic research and the formulation of evidence-based policies. The objective of this study is to support the modernization of information management in the country, facilitating access to qualified data by government officials, researchers and citizens, thus promoting government transparency, sustainable economic development and technological innovation. The methodology adopted was based on successful international initiatives, including cases of emerging countries and Angolan limitations, raised through observations and concerns on the part of national researchers and students. The results indicate that the implementation of a centralized data portal in Angola is feasible and strategic, as long as challenges such as standardization of data formats, security and privacy issues are addressed. The discussion shows that, throughout its use, it can increase trust in public and private institutions, stimulate digital entrepreneurship and support the formulation of more effective public policies.

**Keywords:** Data portal, Government transparency, Digital innovation, Angola.

### ABSTRACT

This study proposes the implementation of a national data portal for Angola, highlighting its role in consolidating and modernizing information management, promoting government transparency, economic development, encouraging innovation and democratizing access to public information in a structured, reliable and accessible way. In the current context, Angola lacks a centralized platform that integrates government, economic, social and scientific data, which limits transparency, efficiency in decision-making and the development of data-based innovations. The lack of this resource also compromises the quality of academic research and the formulation of evidence-based policies. The aim of this study is to support the

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modernization of information management in the country, facilitating access to qualified data for government officials, researchers and citizens, thus promoting government transparency, sustainable economic development and technological innovation. The methodology adopted was based on successful international initiatives including cases from emerging countries and Angolan limitations, raised through the findings and concerns of national researchers and students. The results show that the implementation of a centralized data portal in Angola is feasible and strategic, as long as challenges such as standardization of data formats, security and privacy issues are considered. The discussion shows that its use could increase confidence in public and private institutions, stimulate digital entrepreneurship and subsidize the formulation of more effective public policies.

**Keywords:** Data portal, Government transparency, Digital innovation, Angola.

## 1. INTRODUCTION

Promising a world of endless opportunities, open data is becoming increasingly a global phenomenon, attracting the interests of many governments, such as the United States States of America, Germany, United Kingdom, Canada and Kenya to name a few. In addition, institutions such as the United Nations, the World Bank and the African Development Bank Development. Looking for ways to harness the value of open data, these countries and institutions have established open data portals to serve as technical facilitators, facilitating access to public data and acting as a one-stop shop for a wide variety of of data, from environment, education, health, transportation, geolocation, budget, climate, consumer products and consumer financing (AMUGONGO; NGGADA; SIECK, 2016).

The growing interest and adoption of open data initiatives is mainly due to to the countless opportunities that open data offers both to government and to citizens (MANYIKA *et al.*, 2013). As pointed out worse (Cappelli, 2009), transparency informational depends on the characteristics structured in the disclosure process organizational. A data portal, therefore, must be accessible, reliable and adapted to the Angolan context, considering cultural, linguistic and technological aspects.

The first open data portal was launched in the United States of America in May Since 2009, this platform has encouraged governments, cities and institutions to publish their sets of historical data; thus increasing citizens' ability to locate, share and easily use data collected by the government (Stephenson, Di Lorenzo, Aonghusa, 2012).

Soon after this initiative, many other governments, institutions, agencies and authorities opened their datasets to the public; for example, the United Kingdom, Germany, Canada, as well as public institutions such as the World Bank and the African Development Bank. The disclosure of public data on portals allows all citizens to have access, consume and visualize data (AMUGONGO, NGGADA, SIECK, 2016).

While there is a growing number of nations that have active data initiatives open, more are launching such initiatives every year, but African open data initiatives are very scarce. According to (Davies, 2013) in Africa, the impact of open data initiatives can only be found in a few countries; Kenya, Morocco, Tunisia, Africa South, Uganda and Cameroon. Like many other African countries, Angola has witnessed the expansion of the telecommunications network and broadband coverage; driven by the rapid international connectivity through ANGOSAT-2, an Angolan satellite in orbit since 2022, has supported several telecommunications operators by providing a service of quality transmission in satellite communications (MINTTICS, 2024).

In the digital age, access to reliable data is crucial for development socioeconomic. In Angola, the lack of a unified data portal makes it difficult to obtaining up-to-date and secure information. This work proposes the creation of a platform that centralizes relevant data, promotes transparency, encourages citizen participation and contribute to the formulation of effective public policies. This open data portal will be beneficial, as it would fill the gap between information and people; thus closing the exclusion digital that restricted data and information to a few. The portal will also serve as a platform to inform, encourage citizen participation in civic affairs; therefore, increase transparency and accountability

## 2 THEORETICAL FRAMEWORK

### 2.1 RELATED WORKS

Open data portals are a global trend, promoted by organizations such as the UN and the World Bank, aiming to democratize access to information. Countries like Brazil,

The United States and the United Kingdom have already implemented public data platforms, allowing greater social control and innovation. In Angola, this initiative does not yet exist, but there is a growing demand for access to structured information. As an example in the study published by (Kitoko and Painho, 2023) highlight that Angola currently lacks a cohesive strategy for management of geographic information, which makes it difficult to disseminate and use data, putting forward a strategy for establishing a national framework for production and management of geospatial data, ensuring that local organizations contribute effectively to a sustainable development model. In the study by (Noemi, *et al*, 2023), their research research focused on historical transportation data in Angola, providing insights for modeling and improvement of transportation and energy improvement areas and showed the difficulties found in the search for them.

Examples of data portals in other countries (e.g. US data.gov, Data Open Brazil and Open Data Portal).

(Diniz, 2010) considers that the provision of open data allows information to be mation are used according to the interests of users, making it possible to aggregate more value to the data. However, the author highlights that it will be useless to make data available that does not are in the interest of society.

(Parket *et al*, 2006) identify dimensions such as accessibility, diversity relevance, consistency and added value as fundamental to ensuring quality informational portals.

## 2. MATERIAL AND METHOD

This study creates and explores the impact that an open data portal can have on promoting and driving innovation in Angola. The following open data initiatives:

<http://dados.gov.br> , <http://dados.pt> , <http://data.gov.uk> were studied and their impact

evaluated. These open data portals were carefully selected because they are leaders in open data initiatives and also for the impact they have in their respective countries.

best practice lessons from each initiative were then used as a comprehensive basis for

design and develop an open data portal for Angola, which follows an open data approach open innovation to create solutions that deliver better services, keep citizens informed and hold the government accountable for its promises. The open innovation approach is adopted because of the opportunities it presents to exponentially boost the innovation, enabling innovators around the world to flexibly use their creativity to develop cheaper and faster solutions (Bughin *et al.*, 2008).

The development of the portal was carried out in stages, including requirements analysis, design architecture, implementation and testing. Languages such as PHP were used for the data management and Microsoft SQL Server, while the Bootstrap framework was used to ensure a responsive interface.

We use the following methods for development:

- a) Content Analysis: study cultural portals from other countries to identify elements successful projects that can be adapted to the Angolan context;
- b) Field Research: interviews were conducted to collect data on various subjects, related to cultures, arts, organizations and ministries focused on the Angolan sphere;
- c) Comparative method: the comparison of realities in time and space is a procedure methodological of great utility, since it is through it that contrast and similarity. The comparative method consisted of explanations of the comparisons of the por- such data in the present, in the past, or between platforms of the same or different es- stages of development.
- d) Deductive method: this method consisted of making a qualitative and quantitative description. tive of the problem presented, as a prediction of its future behavior. Per- allowed us to make normative proposals on what should be done to overcome, improve, reduce or eliminate the effects of the identified problem.

### 3. RESULTS AND DISCUSSION

These results indicate that the use of the data portal for Angola has improved significantly improve access to data. The user-friendly interface and integrated features

facilitate access to data available on the portal. The creation of the digital portal that represents Angola must take into account the country's cultural diversity, including its traditions, languages and artistic expressions. Art can be a powerful means of engaging people, promoting a sense of identity, (Silva, 2020).

Prototyping: development of a portal prototype that includes sections on art, history, music, and cultural events in Angola.

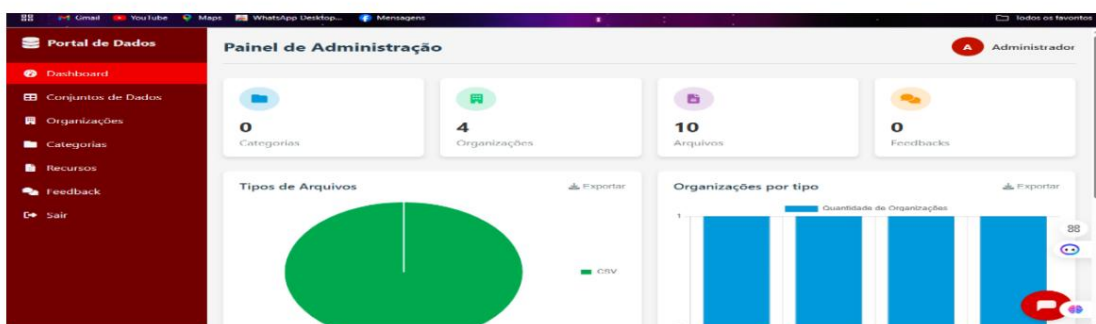
Community Feedback: Collecting feedback from the community about the prototype, aiming to improvements and adjustments.

Data portal home page, in this tab we find buttons like “Home, Dataset, Activities, Contact Publish” to navigate the portal.



Figure 1/ main page.

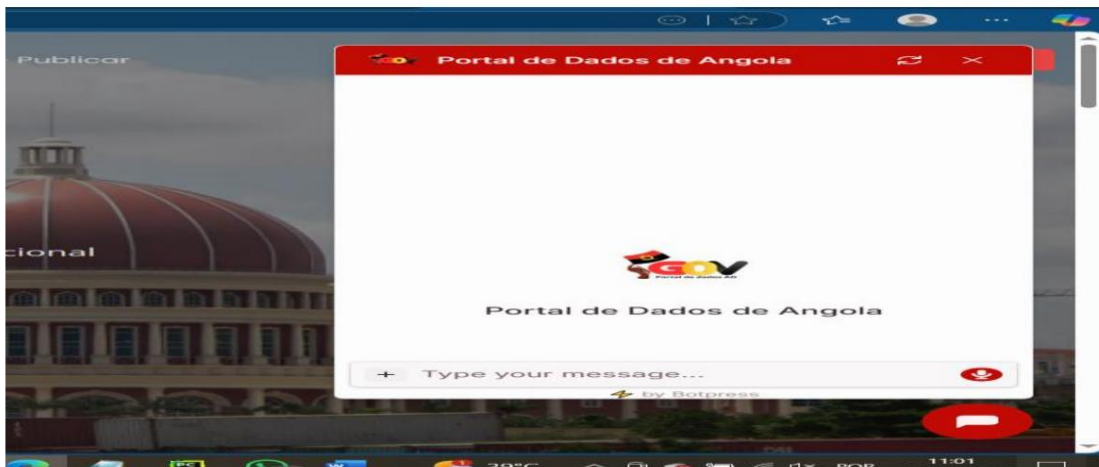
In this tab you can see the portal administrator panel, which has the following functions: manage the data portal, from files and feedback.



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**Figure 2/ Administrator page.**

A chatbot has also been implemented, which is located in the lower corner right of the main panel. Where the user can keep up to date with all information available on the portal. Previous experience in applying machine learning techniques in development of a data portal (Nkanga *et al.*, 2024) underpins and validates the current proposed extension with AI conversational agents. This advancement allows not only the automated data processing, but also dynamic and personalized interaction with the users on the portal.



**Figure 3/ chatbot panel .**

## FINAL CONSIDERATIONS

However, we conclude that the lack of an efficient data portal in Angola has been one of the main reasons that leads the Angolan state to make poorly informed decisions, making it difficult to formulate evidence-based public policies where decisions tend to be based on implicit estimates, which in the economic sphere leads the state to harm to the country's economic development, low transparency and accountability prevents civil society and regulatory bodies from monitoring government actions

control, which leads to the perception of mismanagement and corruption. However, it is concluded that with the implementation of a data portal, Angola, will have several benefits such as: government transparency that will facilitate public access to administrative information, budgetary and public policy measures, which will promote trust between the state and citizens, improvement in decision-making by the public and private sectors in the country's development and will offer researchers quick and easy access to data.

### **Suggestions for Future Research**

Studies for the implementation of a data platform in Angola have the potential to become a strategic tool for economic, social and political development. This project is ongoing, for this, future suggestions for improvement should be taken into account following elements:

- a) Open and Reusable Data: Publish more data in open formats and structured (CSV, JSON, XML). Ensure that data is reusable, up-to-date, regularly and with clear metadata. Encourage the creation of applications, dashboards, cards and analyses based on this data.
- b) APIs for Developers: Provides public APIs so that developers can integrate data into software and services. This encourages innovation and customer participation. technological sector in the country.
- c) Citizen Participation and Transparency: Allow citizens to contribute data (e.g.: reports of problems in public infrastructure). Promote fiscal transparency with easy access to public budget and spending data.
- d) Data by Region, Province and Municipality: Detail information by geo-location. graphical to enable decentralized planning. Example: health data in Luanda vs. Huambo, or even at the municipal level.
- e) Mobile Access and Low Data Consumption: develop an optimized version for mobile devices. Reduce data consumption to facilitate access in areas with limited internet connectivity.
- f) Multilingual Inclusion: make the portal available in several local languages (Portuguese, English, bundo, kimbundu, etc.), in addition to English, for greater inclusion.

- g) Partnerships with Universities and Startups: Support hackathons, competitions and projects academics using the portal's data. And partnerships with startups can generate solutions real from this data.
- h) Alerts and Notifications System: Allow users to subscribe to alerts when certain data is updated (e.g. climate, health, safety data).
- i) User profile creation: with this feature, the identification of each user within of the portal, allowing the creation of more personalized and relevant experiences, increasing ensuring customer satisfaction and ideality.

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