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GEOSPATIAL DATA MANAGEMENT AT IPHAN: TRAJECTORY, CHALLENGES AND PERSPECTIVES

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INTRODUCTION

- ✓ The National Institute of Historic and Artistic Heritage (Iphan), established in 1937, plays a central role in preserving **Brazil's cultural heritage**;
- ✓ Throughout its history, the institution has progressively incorporated the use of geospatial data, transitioning from analog records to digital systems in line with advances in information technologies;
- ✓ This article discusses Iphan's trajectory in the territorial management of cultural assets, addressing historical, normative, and technological achievements that have shaped its practices of documentation, protection, and oversight;
- ✓ It presents the main systems and tools developed for handling geospatial data, as well as the institutional and technological challenges that influence their consolidation;
- ✓ The study aims to contribute to the debate on the modernization of cultural heritage management by situating Iphan within the broader context of national geoinformation policies and its integration into the **National Spatial Data Infrastructure (INDE)**.

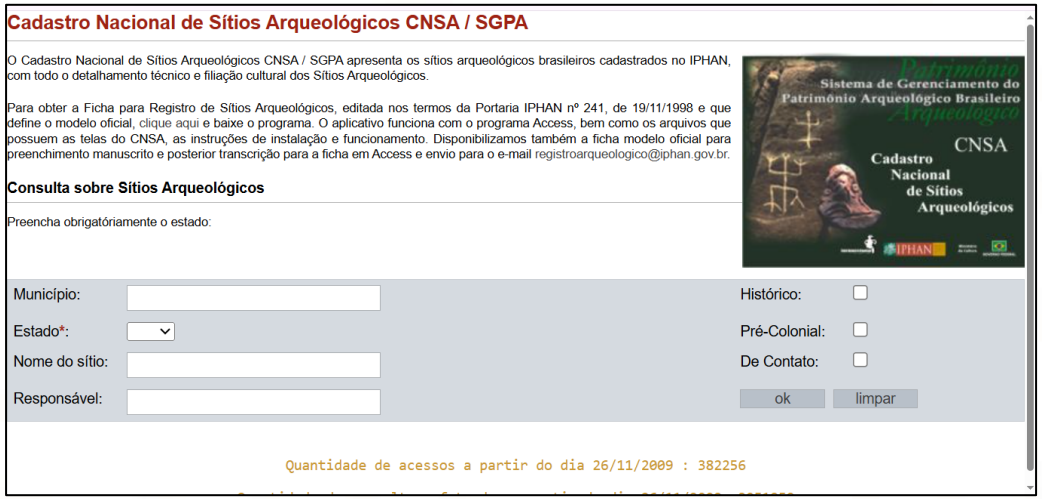
HISTORY OF IPHAN AND GEOSPATIAL MANAGEMENT

The Analog Phase (1930-1990)	The Digital Transition Phase (1990-2015)	Present Day (2015-2025)
1930s: Foundation of the institution (1937) - focus on defining what would be considered “national heritage”, without a geospatial approach	1990s: Creation of the National Registry of Archaeological Sites (CNSA, 1997) - Iphan's **first georeferencing system**; Consolidation of national inventories with maps of assets’ locations	2014-2017: Creation of the Integrated Knowledge and Management System (SICG), Iphan's first system with geographic intelligence applied to cultural heritage
1960s: International influences such as the Venice Charter (1964) broaden the notion of heritage to include spatial contexts and ensembles	2000s: New Categories and Expansion of the Collection - Cultural Landscape Seal (2009) and railway heritage (2007); Structuring of INDE (2008)	2015: Normative Instruction No. 01/2015 requires submission of areas in **shapefile** format in environmental licensing processes
1970s to 1990s: Creation of state and municipal preservation agencies; IPHAN adopts mapping and regional records, valuing the territorial context and identity; Cataloging practices lay the foundation for territorial heritage management.	2010s: IPHAN Archives Network: digital repository with search by asset type, location, and cartographic documents; Implementation of the Electronic Information System (SEI!), eliminating paper processes; Digital transition and the beginning of the integration of geotechnologies into asset management.	2021: Creation of the Heritage Impact Assessment System (SAIP, 2021), which cross-references IPHAN georeferenced data with licensing of large projects; 2025: Expansion of SAIP to the state and municipal levels, integrating with SisG-LAF (IBAMA) and strengthening the territorial management of cultural heritage.

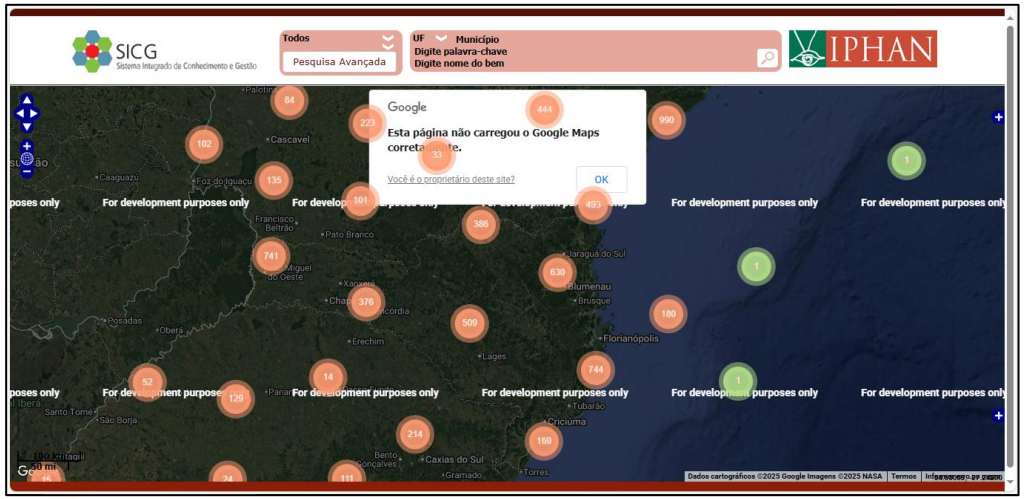
EXPERIENCES IN PROCESSING GEOSPATIAL DATA

The National Register of Archaeological Sites (CNSA) was Iphan's first concrete action in geospatial data management. It can still be accessed today. Although there is a field for recording coordinates in the CNSA form, this information is not disclosed to the public.

The Integrated Knowledge and Management System (SICG) was Iphan's first platform to use geographic intelligence resources to structure, access, and disseminate data on cultural heritage. Browsing SICG's website revealed some difficulties, such as slow information loading and a lack of responsiveness.



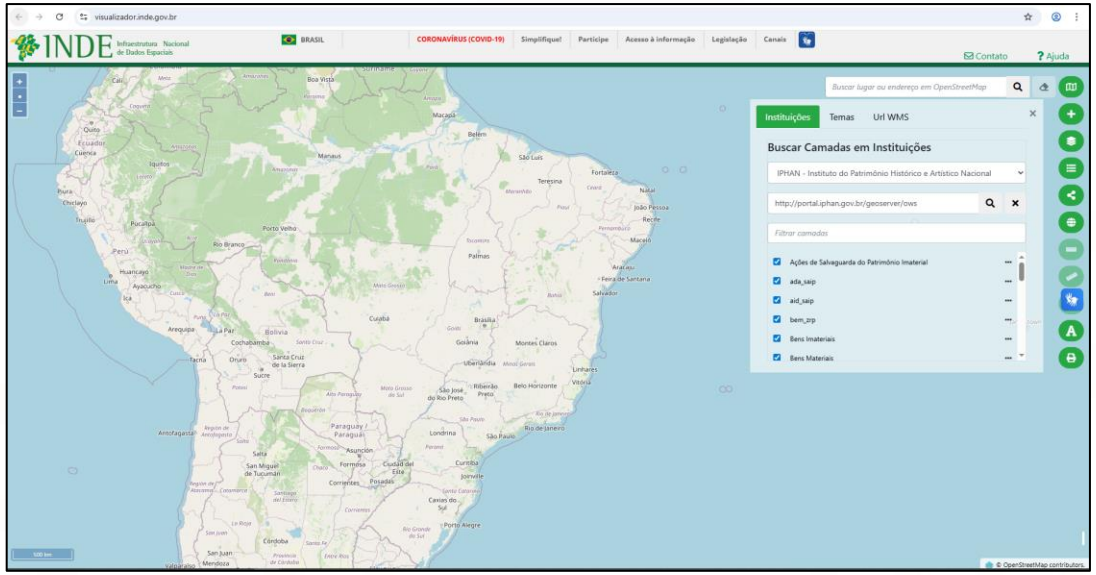
National Registry of Archaeological Sites search page, 2025.



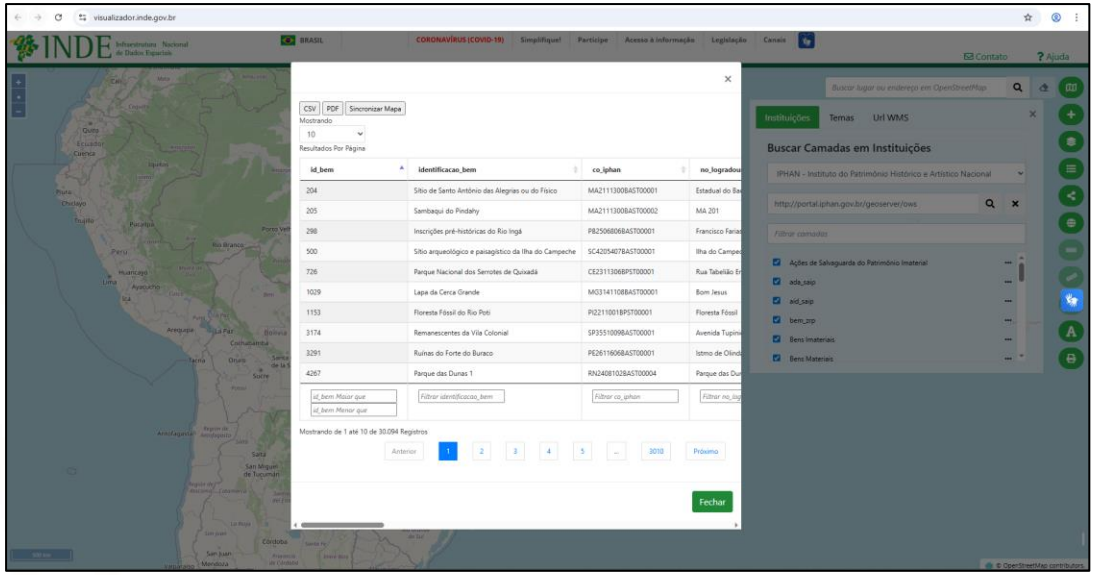
SICG website interface for the State of Santa Catarina.

EXPERIENCES IN PROCESSING GEOSPATIAL DATA

- ✓ More than 25 layers are available for selection integrating Iphan's information with INDE, regarding intangible heritage, archaeological sites, enterprises etc.. However, none of the layers, when selected, return graphic data for the map;
- ✓ The metadata and alphanumeric data are present in the integration between Iphan and INDE systems;
- ✓ Spatial integration elements are lacking for the data to effectively appear on the map in georeferenced form.

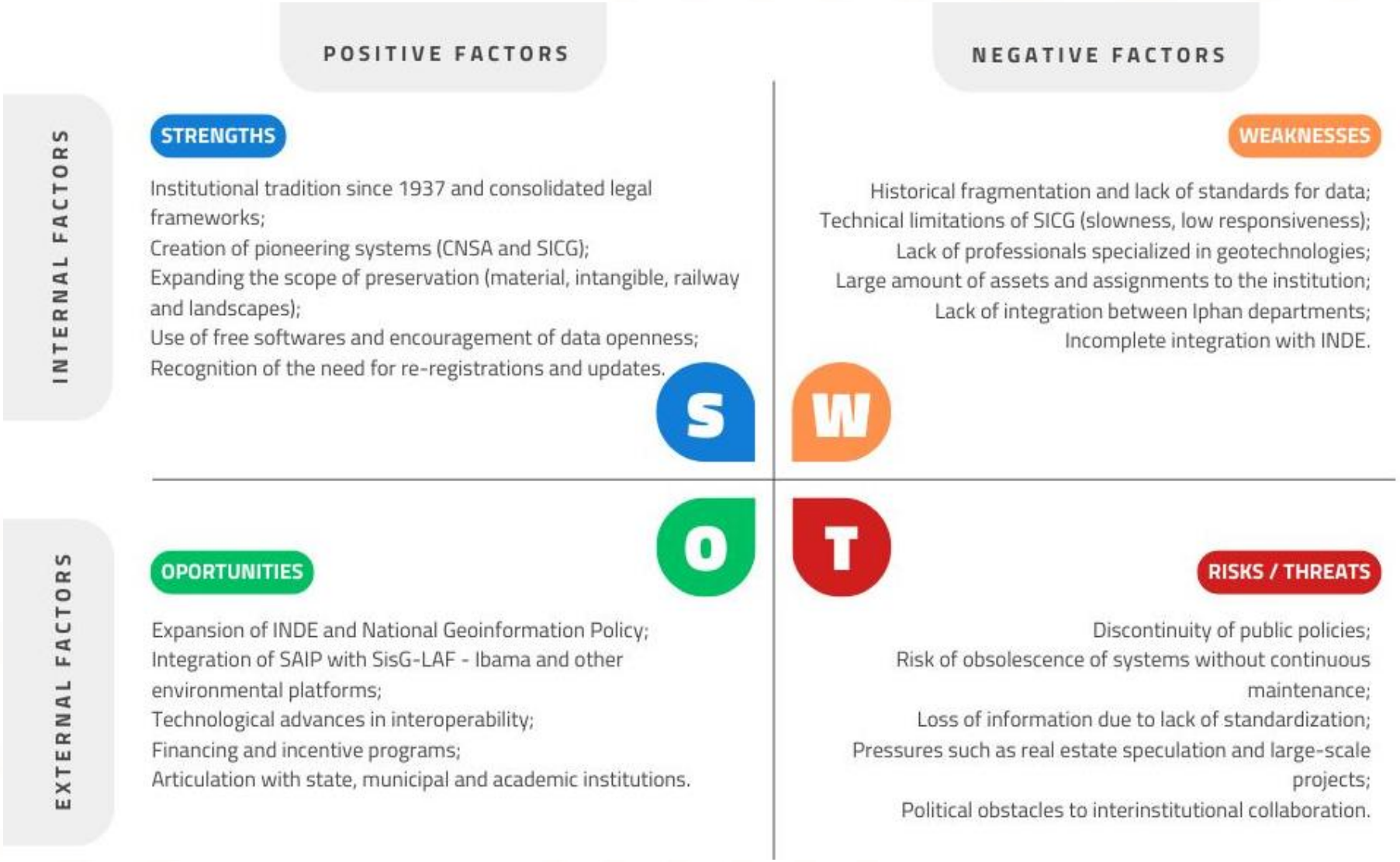


Result of the search for Iphan layers, in INDE viewer, 2025.



Example of attribute table of the "Archaeological Sites" layer of Iphan, in INDE viewer.

CHALLENGES AND PERSPECTIVES



CONCLUSIONS

- ✓ Iphan's historical trajectory highlights the gradual and fragmented transition from analog records to digital systems, but reflects continuous modernization efforts;
- ✓ There are interoperability gaps, limited integration between departments and with the INDE, restricting the full use of geospatial data;
- ✓ It is essential to implement a comprehensive data governance policy, ensuring complete geospatial integration, map visualization, and greater efficiency in accessing and using information;
- ✓ The standardization of the INDE, the advancement of systems such as SAIP, and new technologies offer a favorable scenario for strengthening territorial heritage management;
- ✓ It is recommended to strengthen SICG as a central platform, invest in technical training, systematically update collections and expand inter-institutional partnerships, consolidating an integrated, interoperable and up-to-date cultural heritage management system.

ACKNOWLEDGEMENTS

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