

## São Paulo City GIS Platform: GeoSampa

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**Abstract:** Information Technologies are changing paradigms bringing new challenges to Public Administration and its structures need to be renewed in all aspects, not only in technological and material resources, but also in the cultural models and processes in public government. Ethics in the manipulation and processing public data is necessary in the federal, regional and municipal levels. However, it is within the local power sphere where the information and construction of registries occurs in a more sensitive way, due to the direct contact with citizen and society in general. Also, the Local Power is the federative body responsible for the main urban problems of Brazilian cities, accountable specially for Urban Public Policy. Within this perspective, the article presents as object of analysis the recent experience of the city of São Paulo through the city GIS called “GeoSampa”. This platform is part of the Municipal Information System (article 352 of the 2014 Master Plan) and it is a structural element of the Local Urban Public Policy. The GeoSampa initiative has shown to be innovative and resulted in a positive impact for the city and for the local government. But despite the achievements, it is necessary to evaluate the challenges that GeoSampa brings to the surface.

**Keywords:** GeoSampa, Planning Support Systems, (Big) Spatial Data Sources, Public Database, Public Administration.

### Introduction

The objective of this article is to analyze the experience of the GeoSampa, an urban webmap platform of São Paulo city, also part of the Municipal Information System (article 352 of the PDE 2014) and a structural element of the Urban Public Policy of the Municipality of São Paulo. The objective is to understand the role of GeoSampa in its two fronts of action: as an instrument of transparency policy and free access to public data and as a binding tool for decision making, in lato sensu, in territorial policies. We will seek to understand the role of GeoSampa within the institutional structure of the city of São Paulo as public policy, the scope of the instrument and its challenges.

Information Technologies have brought new paradigms and challenges to Public Administration in all aspects, not only in technological and material resources, but also in the cultural models and processes in public government. It is common to encounter lack of integration and inability to share information between departments in Local Public Administrations. In case of the city of São Paulo, the systems of several municipal bodies have been developed over the years in an individualized way and according to the institutional demand. For example, some of the data base often populated without any



institution of a standard and without normative binding that determines its legitimacy. This scenario resulted in a non-standard or redundant information, not reliable for corporate use.

On the other hand, structured and strategic data bases are often susceptible to restriction culture, as they are considered classified data. In general, government departments which have some structure to maintain a organized data base, often do not allow the usage of the data outside of their department. In the city of São Paulo these situations were very common, once public servants do not have free data access culture and practices. Also, they were afraid to be held accountable in case of wrong or mistaken information. Although such information should not be opened to public use in general, specific groups of power end up having access to that information in order to guide their own interests.

Overcoming this scenario, the city of São Paulo built a strong integration of cadastral data of its different departments and implemented a transparency policy through the construction of the city GIS, called "GeoSampa". This platform was launched in december of 2015 and is known to be the main portal of detailed and georeferenced information about the city of São Paulo. The publication of the data is organized by thematic layers that can be linked to the departments and bodies responsible for that specific data.

The intensive usage of this webmap enlarged the access to urban and territorial information, preserving the confidentiality of sensitive attributes to citizen protection. We will try to understand the role of Geosampa within the institutional structure of the city of São Paulo as an essential element of Public Policy, the scope of the instrument and its challenges.

### **Urban Information and data in São Paulo**

GeoSampa is managed by the Production and Information Analysis Coordination (GEOINFO), a department under the responsibility of the Municipal Department of Urban Development. In general terms, GEOINFO is a traditional department within the structure of the city of São Paulo, which originates in the former General Coordination of Planning (COGEP) instituted in the early 1970s and was directly linked to the mayor's office. With the development and improvement of governance and public management, the COGEP was dissolved during the 1980s and was divided into three departments that are responsible for urban planning in the city: the Department of Urbanism (DEURB), that monitors in macro-level the application of the city urban direction determined in the Master Plan; the Land Use Department (DEUSO), which has as its primary responsibility the control of land use and occupation; and the Information Department (DEINFO), currently GEOINFO, which was responsible for consolidating the statistical and spatial information and analysis to support the development and improvement of the urban policy of the city of São Paulo.

The COGEP detachment to the mayor's office demonstrates institutional relaxation in terms of territorial policies: if COGEP was previously directly linked to the highest decision-making and directing body of the city, from the 1980s it became only a secretary. It demonstrates that urban and territorial policy no longer forms part of a strategic vision of government and becomes just a government agenda. DEINFO then becomes part of an Urban Planning Secretariat (now Urban Development Secretariat) and no longer a strategic support body to the city highest power. We will



see later that this current institutional structure can be a barrier to the evolution of GeoSampa as an effective tool for decision making in urban and territorial policies.

The 1990s were marked mainly by the resumption of the construction of a democratic process in Brazil as a whole, as well as strengthening the municipal power over federal and state power allowed by the Federal Constitution of 1988. In this sense, if before the main political guidelines and strategic decision-making processes were still centralized at the federal level, since 1988, the institutional responsibility, especially in what concerns urban issues, is linked to the Municipalities. This strengthens the demand for the Municipality to have total control of its territory and increases the pressure over the municipality to respond urban problems more quickly. In addition to several other factors, the city of São Paulo, through Decree nº 33.532/93, creates the Geographic Information System for the Municipality of São Paulo (GIS-SP), with the purpose of start the work of building a unique information system integrating the various systems and databases dispersed throughout the institutional structure of the city.

Despite the creation of a GIS by legal determination of a decree, the activities of integration and systematization proved to be a very arduous task, since the work culture of the different department were unlike and conflicting. In addition, there was no general understanding of the importance of standardized, effective and organized data collection. Also, the integration of system sometimes was not really a welcoming policy inside technical departments, once it would demand even minor modification in the workflow. Thus, the initiatives for the implantation of the GIS-SP, although important, were very timid and without great advances during the decade of 1990.

In the early 2000s, one of the main products of this period was presented to the city hall technical departments: the implementation of an internal digital map to the city's network called "Geo.SP" (Figure 1), in which the official fiscal information and hand-written documents of public lands could be verified. Also, the historic orthophotos were available in the platform. This tool was for internal use to assist the analysis and answers of the technical level documents within the administrative processes.

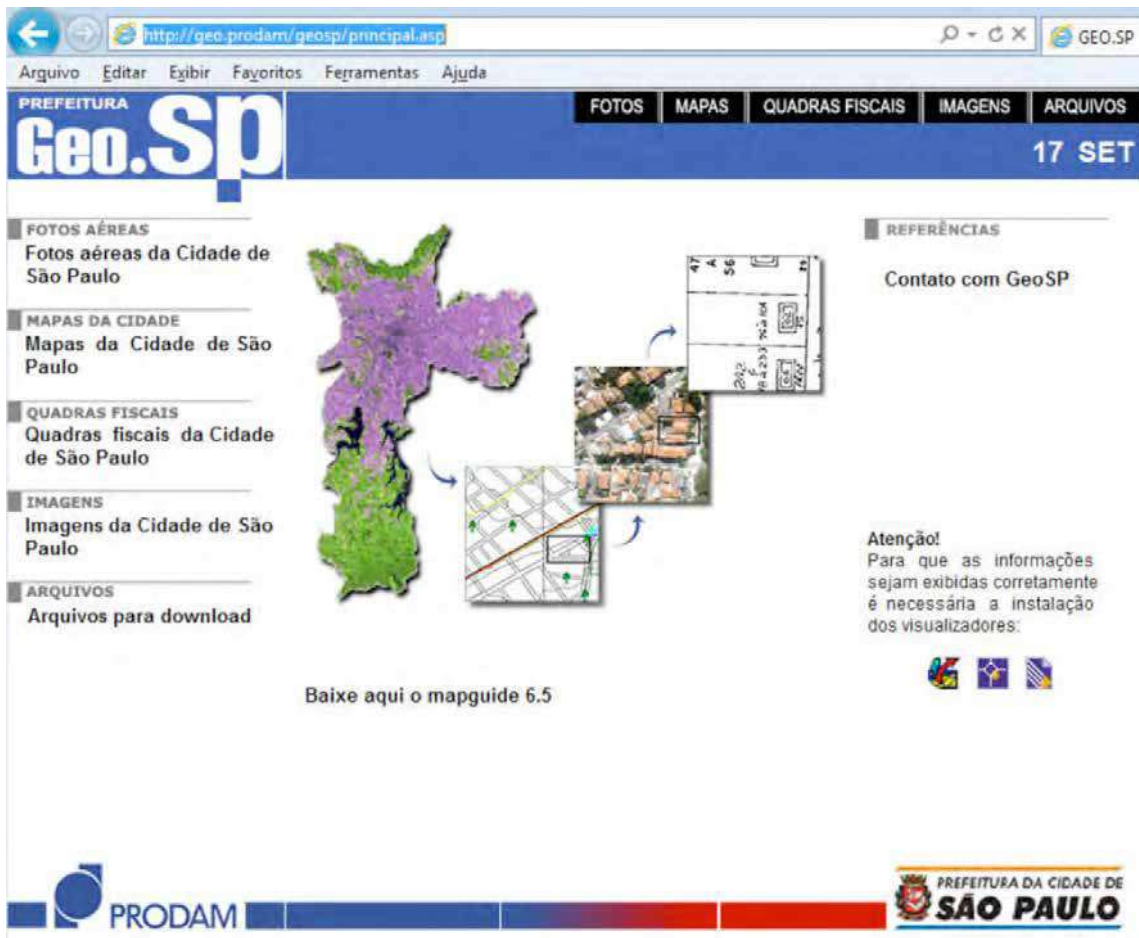


Figure 1: Geo.SP platform – digital map os São Paulo in the early 2000’s.

Source:[https://mundogeoeconnect.com/2014/arquivos/palestras/8\\_mai\\_b-andrea-croso-weick.pdf](https://mundogeoeconnect.com/2014/arquivos/palestras/8_mai_b-andrea-croso-weick.pdf)

In 2007, the Digital City Map (MDC)(Figure 2) was also developed and made available internally. Based on the flight survey carried out through 2004 to 2005, this map is an evolution to Geo.SP since it brings the possibility of layering the different urban information, making it one of the main working tools for the technical analysis of doubts related to the space and territory of the city (WEICK, 2014). The blocks and lots (parcels) of cities were returned on the administrative base map, taking an important step towards the future composition of GeoSampa. Until then the city had never had the vectorization of the layer of parcels, main key as a space unit for the integration with other registers and applications of public policies.



Figure 2: Digital City Map (MDC) launched in 2007.

Source: <http://www.cobreap.com.br/2013/trabalhos-aprovados/2904.pdf>

The two experiences reported above demonstrate the care that these data were treated by being made available only internally to the city hall for exclusive resource for consultation and analysis for lower levels of decision-making, which we will call in this article of 'technical decision-making'. It should be noted that the data were available for consultation only, and raw data were not available for free handling. Moreover, although they were not characterized as classified information, their disclosure was refused by the information agencies.

### GeoSampa and Urban Data

Starting in 2013, the GIS-SP working group is strengthened and building a truly corporate tool becomes a government goal. Thereby, with the necessary political support to acquire financial,



being released internally only. It is certain that this great hub of information help public servant to better analyze problems and make minor decisions on their daily work. Therefore, among other uses, GeoSampa intranet became an enhanced tool to help with the 'technical decision-making' process.

After the tests and improvements, in 2015 GeoSampa is made available to the public with free access. We will refer to this module as *GeoSampa internet*. We must remember that for the citizen this is the first urban data platform that has been made available, which is why it is so important as a landmark in the policy of access to information. Another important aspect of GeoSampa internet is that the information is available in many different ways, not only for consultation, but also through open source data allowing the final user to manipulate and use them freely. Certainly, it is an important experience if we compare with other cities in national scale. GeoSampa internet had helped not only citizens to access informations of a complex zoning law for instance, but also, and specially, the real estate agents and several research centers. It means that to handle all GeoSampa internet potential, the final user has to have a previous knowledge of map language, for example. It is true that in certain level, a map already is a technical basis language, but as a challenge to complete better transparency policy, GeoSampa internet needs to improve better communication aspect to reach more out democratically.

As we can verify, GeoSampa allowed databases and informations previously dispersed within the different departments to be organized, treated and made available to free access. Moreover, it allowed the policy of transparency of information reach another level of performance and responsibility acknowledgement by the city hall. However, it is important to verify the potentialities and the challenge that the current scenario proposes for the instrument.

### **GeoSampa as instrument of Urban Policy**

GeoSampa as verified embodied the responsibility of being an essential element in the data transparency policy. If before, Geo.SP and MDC, created mainly to support the interests of tax by Treasury Secretary, were used only for minor decision-making, GeoSampa, besides allowing an improvement in the decision-making instruments by the technical team, made the information access policy of the city of São Paulo reached another level. However, we must discuss the real potential of an integrated system such as GeoSampa in the construction of a territorial public policy, its role and the possible impacts.

Article 352 of the Master Plan establishes the Municipal Information System, which was later regulated by Decree nº 57.770/17. By reading both legal texts it is understood that GeoSampa is not only a GIS, but also a urban planning system to help higher decision-making levels to design better plans and policies. In this sense, it seems that GeoSampa as currently dictated does not yet play a binding role for decision making at governance and strategic levels, which in this article we will call 'government decision-making'.

In order to reach this level of impact, it is necessary to analyze the institutional structures of the city hall. Recapitulating, the body responsible for the management of GeoSampa is GEOINFO, a department linked to the Secretariat of Urban Development. In addition to the technical management of the platform, GEOINFO has had as its function to carry out the various integrations of the teams,



also aligning concepts and understandings about what is ‘data’ and what is ‘information’ within the city of São Paulo. However, we understand that there are limitations to its performance since it does not have any power to regulate broadly over other secretariats of the city hall. In this sense, the department centrally linked directly to a higher decision-making over all secretariat, as was COGEP previously, seems to be a better fit structure for GeoSampa to evolve as an effective tool in strategic decision making. It is worth mentioning that GeoSampa contains information about the territory in a broad way and knowledge of the territory is paramount for any public policy, not just urban development policy. GeoSampa would be than a strategic tool at the service of high levels of decision-making, not just decisions related to urban development. However, centralizing the performance and management of GeoSampa to the mayor's office, for instance, also does not seem to be an optimal solution, once the data transparency policy, more than simplify data access, also includes the *bona fide* of the information.

Regardless of the solution to be adopted, it is important to bring freedom to the managing body to regulate the integration of the information of several secretariats without bureaucratic ties so that they can break traditional cultural barriers like those that tend to treat all the information as confidential and that duplicates databases for not trusting other internal departments.

## **Final Conclusions**

The intent of this article was to discuss the potentialities and challenges that current scenario brings to GeoSampa. Throughout this paper we verified the changes of the role of GIS in the city of São Paulo, since the evolution from an internal tool for ‘technical decision-making’ to become a reference on transparency policy. Although this development there is an public interest, provided by law, to use GeoSampa as a ‘governance decision-making’ tool. To achieve this level of performance this paper brought suggestions that may help improve GeoSampa as a governance tool bringing the managing body in a strategic position allowing it to centralize the regulation of how public data may be used to support ‘governance decision-making’. This would bring more transparency on the reasons and arguments adopted in any territorial public policy.

Concluding, for this new phase of evolution and growth of the GIS application in the city of São Paulo, to really go beyond the scope of a ‘technical decision-making’ tool to a ‘governance decision-making’ tool, it is fundamental to consolidate a strategic vision of the its use, applied from the transversality between databases, now facilitated by many mechanisms of the I.T., giving continuity to the updating, crossing and availability of its datasets.

## **References**

- Aguilar, C. B. D., Flain, E.P., Coelho, E.C.R., 2018, O mundo das geotecnologias: ferramentas de análise e representação territorial. Mackenzie.
- Davis Jr, C. A., de Souza, L. A., & Borges, K. A., 2005, Disseminação de dados geográficos na Internet, pp. 341-366.



Elias, R.D., 2013. Planta de decreto, planta expropriatória e planta ampliada executadas a partir do Mapa Digital da Cidade de São Paulo – MDC. In: XVII Congresso Brasileiro de Engenharia de Avaliações Periciais, October. Date of access: 05/05/2019.

<http://www.cobreap.com.br/2013/trabalhos-aprovados/2904.pdf>

São Paulo (City). Decree nº 33.532/1993, creates the Geographic Information System - GIS of São Paulo.

São Paulo (City). Law nº 16.050/2014, Strategic Master Plan.

São Paulo (City). Decree nº 57.770/2017, creates the Geographic Information System - GIS of São Paulo.

Seo, H. N. K., 2019, The Map and the Law: Evolution of the Use of Cartography in the Urban Planning Law of the Municipality of São Paulo. Faculty of Architecture and Urbanism of University of São Paulo.

Ugeda, L. A., 2017, Direito Administrativo Geográfico: Fundamentos na geografia e na cartografia oficial do Brasil, Brasília: Geodireito.

Weick, A. C., 2014, Projeto SIG-SP: Solução Corporativa de Dados Espaciais do Município de São Paulo, Date of access: 05/05/2019. [https://mundogeoconnect.com/2014/arquivos/palestras/8\\_mai\\_b-andrea-croso-weick.pdf](https://mundogeoconnect.com/2014/arquivos/palestras/8_mai_b-andrea-croso-weick.pdf)

