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Transforming traditional waste management in cities into zero waste cities, through the digitization of municipal plans for integrated management of urban solid waste. Case study in Florianópolis

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Abstract

The article reports the first digitalization experiences of the integrated management plan for urban solid waste [PMGIRS](#), in the municipality of Florianópolis, Santa Catarina, Brazil. This is the legal urban planning instrument for cities to plan and manage urban solid waste in accordance with the principles and objectives of the National Solid Waste Policy Law [12305\2010](#)

The municipality of Florianópolis is known in Brazil as one of the most advanced cities in urban solid waste management. The local government has [decreed](#) to become a zero waste city by the year 2030, and has been demonstrating some initiatives and innovations in the sector. Proof of this is the [residueometer](#), a first digital experience, the result of this work, which tries to digitize some essential indicators of the program, such as a) diversion of waste from the solid landfill, b) the total of recyclables collected, c) the total of organics collected, d) total CO2 emission avoided, e) value saved by diverting resources from the landfill and f) percentage of landfill diversion.

Even so, the municipality is far from innovative models of management, articulation and promotion of public policies in the sector, proof of which is the fact that it has not achieved the goals stipulated by the National Solid Waste Policy L 12,305.

One of the initiatives of the local government has been the attempt to digitize, not only the internal processes of the local government related to PMGIRS, as well as to provide digital services to citizens, companies and organizations that have a direct relationship with the value chain of generation and management of urban solid waste. Thus, this article aims to show the evolution of the residueometer to the new version that is being developed, applying geotechnologies, management principles and territorial planning and digitization of processes.

Initially, a direct impact on the management, planning and response speed of the local government to waste management demands is observed. The [Floripa Lixo Zero platform](#) is intended to be a planning, management and multi-user interface tool for all actors in the urban solid waste value chain, in order to collaborate with the implementation of the Floripa Zero Waste Capital program, with the objective of zeroing sending natural resources to the landfill by the year 2030. The article presents the first development methodologies, results and perspectives presented by the interested parties in the project.

Keywords

digitalization, zero waste cities, geotechnologies, natural resources, innovation in governments