PROJECT FACTSHEET

SWAM

Optimize the waste collection process via a connected business intelligence platform

Inspiration

Every day, waste collection vehicles drive through the streets to tirelessly collect the rubbish produced by individuals. This collection process is generally based on fixed calendars and decision-making systems, which only have a limited knowledge of the area. This observation is even more important for the collection of waste emitted by professionals, such as restaurants, shops or craftspersons with obligations and needs that are very different to those of individual users.

The waste recycling industry is therefore looking to automatically adapt collection itineraries to the changing needs and obligations of their clients. This way of working has been possible for several years thanks to the rise of information technologies, in particular, by using sensors or connected objects (*Internet of Things* - IoT), and the associated data platforms. Indeed, these offer the waste recycling industry new opportunities for reducing pollution, improving the quality of services and creating new performance indicators.

Already a user of itinerary optimization models to a great extent, the waste recycling industry now has a new need: that of using sensor network technologies and data analysis platforms. There are not many technological devices that can be used in a way that brings together all needs, obligations and even the priorities of both end users and businesses, and the urban environment in which they evolve.

Innovation

With the SWAM project, the company Polygone and the Luxembourg Institute of Science and Technology (LIST) aim to co-design and co-build an intelligent waste collection platform based on optimization processes combining business, client and operational criteria with data generated by sensor technology, directly integrated into waste containers, in particular indicating how full they are.

A new multi-channel analysis approach will thus be developed by the LIST research teams and their partner in order to create the said platform, which will compile two fundamental systems. A first data management system will collect and supply multiple data flows transmitted by Polygone and external services, such as the level of traffic or road incidents. On the basis of the dynamic flow of data collected, a second system will enable logistic processes to be optimized, from client needs to the mobile assistants used during the collection.

Once co-developed, the solution will be evaluated and validated during real scenarios led by LIST researchers and Polygone employees in partnership with clients from Luxembourg industry.

Impact

At the end of the project, a prototype of a business intelligence platform for the waste recycling industry will be developed. This prototype will pave the way for the implementation of new business models to fulfil the service and new opportunities for the market, first and foremost for Polygone. Thanks to its participation in the project, the company will be able to develop new services for waste management, and even implement, at the heart of its activities, new business models and commercial outlets.

More generally, the approach developed throughout the project will bring new knowledge to current issues related to possible innovation for data collection, forecasting and multi-objective constrained optimization for technological platforms adapted to smart cities.

Partners
Polygone Sàrl (LU)

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