Suma CivicData Engine: A Subnational CivicData Engine for Fair Tariffs and User-Centred Public Services

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Briefing title

Suma CivicData Engine: A Subnational CivicData Engine for Fair Tariffs and User-Centred Public Services

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INTRODUCTION

The Suma CivicData Engine is a shared data infrastructure built by Suma Gestión Tributaria, the public body that collects taxes on behalf of almost all municipalities in the Spanish province of Alicante, to help those municipalities set their waste charges on the basis of reliable evidence. Spanish Law 7/2022, which transposes the revised EU rules on waste, requires every municipality to charge a specific waste fee that covers the full cost of the service and reflects the waste each property is likely to generate, in line with the 'polluter pays' principle. Most municipalities in the province held the information needed for this in separate, outdated and sometimes paper-based registers, and had no staff able to combine it. Suma cleaned and linked these registers, located each record on the map through the cadastral reference of the property, and built a standard tariff model that each town hall adapts to its own territory before approving it. The result is a charge that municipalities can justify to residents and defend legally, and a model of shared technical capacity that other intermediate levels of government could apply when small local authorities face a demanding new obligation.



Key facts

- **Project:** Suma CivicData Engine: A Subnational CivicData Engine for Fair Tariffs and User-Centred Public Services.
- **Applicant:** Suma Gestión Tributaria, an autonomous tax-management body of the Provincial Council of Alicante, with around 500 employees and 47 offices across the province.
- **Country and level of government:** Spain; provincial (subnational) level, serving the municipalities of the Province of Alicante in the Valencian Community.
- **Duration and key dates:** 2 years, the project started on 1 April 2024. Under Law 7/2022, municipalities were given a maximum of three years to adapt their regulations and establish a specific, separate and non-deficit-generating fee for waste management, in line with the polluter-pays principle.
- **Funding:** financed by Suma from its annual investments, Suma itself being funded by a percentage commission paid by municipalities for its tax collection services
- **Main components:** register consolidation, georeferencing and cleaning; indirect estimation of waste generation; tariff scenarios and tax zones; municipal validation and approval.
- **Headline results:** more than 119,000 records georeferenced and 43 million related data points integrated into the system; full correspondence achieved between the Real Estate Tax register and cadastral mapping; hundreds of omissions and inconsistencies identified; and approximately €5.3 million in additional municipal revenue generated through the detection of previously unregistered or incorrectly recorded properties.
- **EPSA category:** Category III - Delivering User-Centric Services at Subnational Level.
- **EPSA Prize:** 3rd Place Winner in Category III

EPSA Category

Delivering User-Centric Services at Subnational Level

Prize

3rd Place Winner

1. Relevance

Before the reform, waste charges in many municipalities in the Province of Alicante covered only part of the actual cost of waste collection and treatment, with the remainder financed from municipal budgets. Coverage levels varied between municipalities and could be relatively low; for example, San Vicente del Raspeig reported that the charge previously covered around 45-47% of the service cost. As an indication of the scale of the change, annual waste charges can now be around €200 per year, compared with around €40 per year under the previous system.

The change was triggered by Directive (EU) 2018/851, which amended the EU's framework rules on waste, and its transposition into Spanish law through Law 7/2022 on Waste and Contaminated Soils, referred to by the applicants as the Circular Economy Law. The law requires each municipality to establish a specific waste fee that does not generate a deficit, meaning that its revenue must cover the cost of the service, calculated on the actual or estimated waste generated by each dwelling and economic activity, in keeping with the 'polluter pays' principle that those who generate waste should bear the cost of managing it, and accompanied by incentives for residents who separate waste or use recycling centres. Municipalities have a maximum of three years to adapt their tax ordinances, the local regulations that set each tax and its rates, and the applicants identify litigation, lost revenue and unequal treatment of taxpayers as the consequences of failing to do so.

Meeting these requirements presupposes that municipalities are able to bring together reliable information at property level, including occupancy, economic activity, relevant consumption data and whether the property is correctly registered for the waste charge. In practice this information was spread across separate registers: the cadastre (the national register of land and buildings), the municipal population register (padrón), the register of the Real Estate Tax (Impuesto sobre Bienes Inmuebles, IBI), the waste and water registers, urban planning records and other local databases. These used different identifiers and formats, were often outdated and, in many small villages, were kept as PDF files or on paper, so any charge based on them would have been neither fair nor easy to defend. Earlier attempts to tackle the problem had been limited to isolated geocoding exercises or manual reviews of individual registers, without an overall view of how the data fitted together.

The Province of Alicante, in the Valencian Community, comprises 141 municipalities, ranging from coastal tourist cities to inland villages. Elche has more than 245,000 inhabitants, while Tollos has only 32, and coastal municipalities such as Torrevieja can see their population increase four- to five-fold during the tourist season. Most municipalities have fewer than 20,000 inhabitants and lack the geographic information system (GIS) expertise, data analysts or software needed to comply on their own. Suma already managed waste taxes for 139 of the 141 municipalities, with only Jávea and the city of Alicante not included.

The question that framed the project was how municipalities could make sound decisions if they could not trust their own data. Suma's answer rested on the principle that no municipality should face the new obligation alone, so that one shared public infrastructure would serve the whole province while each municipality remained free to adapt the result. The service is designed around two groups of users: municipalities that need a legally sound tariff without new investment, and residents who need a charge that reflects their situation and can be explained to them. Its relevance beyond Alicante lies in this pattern rather than in waste policy as such, since legislation increasingly asks local authorities to base charges on detailed evidence that the smallest of them are least equipped to produce.

2. Project design and implementation

The project rests on a clear division of roles between Suma and the municipalities. Suma acts as a centre of competence in GIS, data analysis and data cleaning, with a core team of five specialists who carry out the technical work and propose a standard tariff model. The municipalities validate the data against their knowledge of the territory, review the zones used for taxation, adjust the tariff scenarios and take the final decisions through their own ordinances; in the applicants' words, they remain the 'co-owners' of the model. The charge a resident pays is thus still set by an elected town hall rather than by the tax agency. The legal basis for combining sensitive data, such as water consumption and the regional register of tourist dwellings, lies in the delegation of tax competences from the municipalities to Suma, which allows the data to be processed within the framework of the General Data Protection Regulation (GDPR) and the Spanish National Security Scheme for public-sector information systems.

Suma's existing local presence made this workable: besides its 47 offices, it has dedicated staff in larger municipalities (for example 14 employees in Benidorm and 12 in Torrevieja), and a staff member visits smaller municipalities monthly. The project reused Suma's corporate GIS architecture and data the municipalities already held, avoided large-scale outsourcing and combined automated processing with manual work for complex cases, so that municipalities gained analytical capacity without investment or new staff of their own.

The technical work was organised in five operational blocks, each building on the one before:

1. **Consolidation of data sources**: the Real Estate Tax register, users, waste, water, terraces, mapping and cadastral reference values.
2. **Mass georeferencing**, using the cadastral reference (the unique identifier given to each property in the cadastre) as the common key.
3. **Homogenisation and cleaning** of heterogeneous and frequently outdated municipal registers.
4. **Modelling and indirect estimation** of each property's potential waste generation, combining number of residents, consumption, type of use and territorial patterns.
5. **Generation of tax intelligence**: simulations, tariff scenarios and tax zones (referred to in the application as 'tax polygons').

The first step is to bring together and clean data from different sources. Duplicate records are removed, errors and inconsistencies are corrected, and formats are standardised before the information is integrated into a common system for analysis. The records are then linked to cadastral references, parcels, buildings, orthophotos (aerial photographs corrected for use as accurate maps), LiDAR data (laser-based surveys of terrain and buildings) and other territorial layers, with the QGIS software as the integrating hub. The cadastral reference is the decisive design choice, because it is the one identifier that every property has and to which national, regional and municipal registers can all be matched. Artificial intelligence (AI) supports tasks such as linking addresses to cadastral references and detecting omissions, while judgement on each case remains with technical staff. Quality is controlled through targets of at least 90% georeferencing of the waste and population registers and at least 99% correspondence between the Real Estate Tax register and the cadastral map, together with cross-validation, topological checks of spatial consistency and stress testing of the models.

Since few municipalities can measure the waste produced by each household, the model estimates it indirectly from the number of users per property, the economic activity carried out, terraces, cadastral reference values and spatial patterns. On this basis Suma proposes a standard tariff model that each municipality can adjust to its own zones and priorities; Benidorm, for example, is divided into 12 zones. The criteria available include property type, the intensity of public services in an area, green waste, tourist dwellings and the number of bins, as well as social considerations such as reduced tariffs for pensioners or large families. Scenarios are presented to town halls as maps and figures showing the effect of each option on neighbourhoods, property

types and economic activities.

Implementation required several adjustments. Population registers in several municipalities proved more obsolete than expected, requiring more manual cleaning and GIS resources, and Suma reallocated staff to the municipalities with the most complex registers. Town halls also asked for zones to be recalibrated for particular neighbourhoods, commercial areas or property types, which made the results fit local conditions more closely.

Communication is also shared between Suma and the municipalities. While town halls are responsible for approving the local ordinances, Suma supports communication with residents through channels such as mailings and newspapers. Municipalities also play an important role in broader awareness-raising on waste management, including initiatives in schools and visits to recycling facilities. Collection is largely automated through direct debit from residents' bank accounts, and because the province has many foreign residents, Suma is developing a system to improve collection where the account is held in another EU Member State and has insufficient funds.

3. Outcome

One of the project's most immediate results is a more reliable and interconnected body of municipal data. The Real Estate Tax register achieved full correspondence with cadastral data, while correspondence between the waste and population registers and the Real Estate Tax register exceeded 90%. More than 119,000 records have been georeferenced and 43 million related data points connected, creating a much more complete picture of municipal territory and taxpayers. The project team described this level of geographical reconciliation as something that would not have been possible two years earlier.

Matching previously disconnected registers also made it possible to identify omissions and inconsistencies in the waste-tax base. Correcting these records generated around €5 million in additional municipal revenue. Beyond the financial effect, bringing previously unregistered properties into the system supports greater tax fairness by distributing the cost of the service more accurately among users. The new model also strengthens the financial sustainability of waste management. Whereas municipalities previously financed a substantial share of the service from their general budgets, the revised tariffs allow many of them to move towards covering around 95% or more of the actual cost of waste collection and treatment.

The three municipalities met during the validation visit show how the model is adapted locally. In Torrevieja, a coastal municipality of around 100,000 inhabitants, Suma presented a model in 2024 based on population density and economic capacity calculated from cadastral information, which the municipality adapted: 70% of the tariff distributes the net cost of the service by zone according to the number of containers required, 10% reflects economic capacity based on floor area, distinguishing homes (including garages) from economic activities such as bars and hospitals, and 20% reflects waste-generation capacity across 10 zones, calculated from the number of registered residents**.** San Vicente del Raspeig, with around 60,000 inhabitants, previously recovered only 45 to 47% of the cost of the service through the charge; its new ordinance entered into force on 1 January 2026 and now covers around 92%, against a target of at least 95%. Its tariff is 80% based on economic capacity and 20% on waste generation, the latter split into 18% by registered residents and 2% by number of containers, with a specific quota for pruning waste in one zone and a reduced coefficient for the Santa Isabel neighbourhood, which has lower economic capacity. Elche, with around 240,000 inhabitants, a central urban area and 17 dispersed zones, took a different route: whereas Torrevieja and San Vicente del Raspeig delegated management of the service to Suma, Elche worked with Suma through a management mandate (encomienda de gestión). Its water and waste charges had been managed together by one company since 2001; in 2024 the municipality separated them, so that residents now receive two invoices, and chose to introduce the new model progressively, reaching full cost coverage for waste service in 2026.

The effect on residents is the most sensitive part of the outcome, since in many cases the charge has risen considerably. The project team reported that citizen complaints rose by only 0.8% despite these increases. The new tariffs are also based on more objective and verifiable criteria, helping residents understand more clearly how the charge relates to the cost of the service and to local waste-management conditions. This is linked to the objective and verifiable criteria behind the charge, which lead residents to see it as payment for a functioning service rather than an arbitrary increase. The tariff model can also incorporate incentives for more sustainable behaviour. Municipalities may apply reductions for residents who separate waste correctly or use recycling centres, while further expansion of these incentives for active recyclers is planned as part of the project's next phase.

Within Suma, the engine is no longer treated as a project but, as the Suma team put it during the validation visit, as part of its operating system. It is integrated into ordinary register updates and aligned with the Suma 2025 Strategic Plan. The same infrastructure has already produced three further tools: one that flags buildings with commercial cadastral use that do not pay the waste charge and refers them to the municipality for review; one that cross-checks the waste register with the official register of tourist dwellings of the Generalitat Valenciana, the regional government, to identify holiday lets and calculate their charge according to size and characteristics; and an AI tool that reads approved Real Estate Tax ordinances and extracts taxable events, taxpayers, amounts and deadlines into a database.

Outside the province, Suma has worked with two municipalities in the Community of Madrid, mainly on the technological side, and has supported the Province of Albacete in Castilla-La Mancha and two of the Canary Islands. It offers a methodology guide, specialised staff for onboarding and support 365 days a year, and is considering the European Commission's Technical Assistance and Information Exchange instrument (TAIEX) as a route for sharing the practice with other EU Member States.

Success factors

- A precise response to an urgent legal obligation: the evaluators found the needs well defined, the gap clearly identified and the solution closely aligned with national and EU law and with the territory concerned.
- A multidimensional approach covering governance, management and capacity building alongside technology, which evaluators saw as enabling problems during implementation to be resolved, as shown by the reinforcement of manual work and the recalibration of zones.
- A well-structured five-block architecture with clear, measurable targets, and an organisational design (a specialised competence centre at Suma combined with municipal validation) that evaluators judged clear and proportionate.
- Cost-effectiveness achieved by reusing existing GIS technology, relying on a small, specialised team and funding the work internally, with a substantial revenue return relative to cost.
- High transferability across technology, governance and capacity building, conditional on close cooperation between Suma and the municipalities.
- Embedding in the Suma 2025 Strategic Plan and in ordinary data-updating processes, backed by political and managerial commitment.

- Strong support from the outset: four of the five evaluators placed the project among their top three from the start of the consensus meeting, where it was described as an extraordinary achievement and a long-term project with sustained relevance and impact.

Lessons learned and recommendations

1. **Pool scarce technical capacity at the level that can sustain it.** Where a new obligation demands skills that small municipalities cannot afford, a province, regional agency or association of municipalities can build that capacity once and offer it as a shared service, so that a small team serves many authorities.

2. **Fix the data before building the model.** Agree a single common identifier, such as the cadastral reference, set explicit quality targets for matching registers, and expect worse data than planned by keeping capacity for manual cleaning, because every tariff decision depends on the underlying records.

3. **Separate the technical proposal from the political decision.** A standard model proposed centrally but adjusted and approved locally gives consistency across a territory without removing local accountability, and allows municipalities to reflect tourist peaks, dispersed settlements or lower-income neighbourhoods.

4. **Settle the legal basis for data sharing early.** Delegation of competences gave Suma a clear framework for cross-referencing sensitive registers in line with the GDPR; administrations replicating the approach should establish an equivalent basis before combining data from different sources.

5. **Explain charges with the same evidence used to set them.** Maps and figures that show why a property pays what it pays, communicated through town halls, local media and schools, make higher charges easier to accept and reduce the risk of complaints and litigation.

6. **Use phasing and social adjustments where increases are steep.** Gradual introduction, as in Elche, and reduced coefficients for pensioners, large families or less affluent neighbourhoods can soften the transition to full cost recovery without undermining it.

7. **Treat the data infrastructure as a reusable public asset.** Once registers are cleaned and linked, the same infrastructure can support other taxes and services, as Suma's tools for inactive business premises, tourist dwellings and tax ordinances show.

EPSA 2025-26 OFFICIAL PARTNERS

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