



Establishment of Circular Open Data Ecosystems: Supporting the Transition to Urban Greening and Sustainability

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As urban populations burgeon globally, the imperative to foster sustainable cities becomes increasingly pressing. One primary challenge in urban sustainability is the fragmented data silos within different stakeholders. Addressing these barriers, the key term of the Open Data Ecosystem (ODE) has started to gain a wider appreciation, as it emphasises the need to not only provide free and accessible data assets, but rather a circular, sustainable, demand-driven environment. Towards this perspective, the European-funded project Urban ReLeaf capitalised on the Data Landscape Playbook (DLP) methodology, launched by the Open Data Institute (ODI) to dismantle the data silos in six European cities, i.e., Athens (Greece), Dundee (Scotland), Cascais (Portugal), Mannheim (Germany), Riga (Latvia), and Utrecht (The Netherlands).

Four steps of DLP were adopted, called Plays, to examine the objectives of each city, identify the data owners and infrastructure, and assess the ethical context behind data accessibility. For the first play, a three-tier approach was established to (i) evaluate the initial objectives of the cities, (ii) transform them based on the latest perspectives, and (iii) correlate them with the project. Subsequently, the Data Ecosystem Mapping (DEM) was formulated and provided valuable information about the data assets, the data owners and the formal value exchanges between stakeholders that are generating jointly a data source. Continuing, we addressed key aspects related to the data itself. An early outcome of this process was that the majority of pilot cities chose to disseminate their data sources in open-access data repositories and machine-usable data formats. Unfortunately, most of the identified datasets were an outcome of individual data collection campaigns revealing any intention to continue.

Through the fourth step, we investigated the ethical content following FAIR guidelines. Each data source was classified according to ODI's Data spectrum scheme (i.e., Closed, Shared, Open) and thus identified the tendency of the European cities towards open access policies. The latest was verified through the identification of the open-accessed data dashboards and licences. An exemption from the general adoption of the Creative Common (CC) licenses was Mannheim, which established the tailored dl-de-by-2.0 license of Germany. Finally, a preliminary review was applied towards the trustworthiness of the released data, investigating methodological procedures that safeguarded the inner trust of data, or the outer trust by the requested public's opinion.

In conclusion, the integration of the ODI-DLP in urban contexts holds the promise of breaking down data silos, fostering circularity, collaboration, and propelling cities towards sustainability. By investigating the existing open data principles, and interoperable technologies that are used and engaging citizens, cities could harness the full potential of their data to inform policies and initiatives that enhance the Quality of Life (QoL) for residents and pave the way for a more sustainable urban future.

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