DKSR
Data Competence for Cities and Regions

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INTRODUCTION
Technological sovereignty in public contracts

In this introduction to the topic of technological sovereignty you will learn how to remain independent of external providers in the implementation of digital solutions as a municipal actor by defining open source and open standards in your contracts.

You have questions? Feel free to reach out to us anytime via square@dksr.city!

Public contracts and technological sovereignty

Technological sovereignty is the ability of a city to provide and be able to develop the technologies critical for its welfare and its ability to act in a manner that is free of one-side dependencies. Public procurement can provide strategic impulses to technological sovereignty by bounding digital projects on the principles of open-aource software and open standards.

Open-Source Software

Source code lays at the core of digital and technological innovation. The general principles of **open-source software** are **freedom of use** and **access** to the source code. According to the Paris Declaration on the Open Government Partnership[1], this is important for fostering transparency, collaboration, and knowledge-sharing among cities and municipalities. Open-source software has distinguished legal characteristics concerning its conditions of use and distribution of their licenses. It is not subject to the same rules as traditional "proprietary" software which typically limit its uses.

Based on the principles of free competition and non-discrimination, no European country has made the use of open-source software mandatory. However, an increasing number of cities in Europe and around the world are introducing requirements on Open Source in their regulatory frameworks and procurement policies. There are many examples of this approach:

- The rolling out of **open technologies** and **open software** is part of the strategic digital approach of the **Barcelona City Council**. This has been set as a cornerstone guiding decisions concerning the acquisition, development, and deployment of solutions and technological tools in the city. The basic open software principle establishes that the city public procurement tools and system shall **prioritize** open software. At the same time, all municipal technology projects that develop software internally or are subject to contract need to ensure that such software **is made available** as open software. In 2020, 70% of the city's IT budget went towards open-source software.

- The **city of Munich** has favoured open-source licensed software, with a vision entailing that, if no confidential or personal data is involved, the source code of the city's software will be **made public**. As part of this, a unique **desktop infrastructure** based on Linux code named "LiMux" was created[2]. Other cities that have started their own open-source initiatives in Germany include Belin, Dortmund, and Leipzig.

1 The full Paris Declaration for Open Government Partnership is available at https://www.opengovpartnership.org/paris-declaration/

2 The Limux project in Munich and its approach to open source can be accessed at https://joinup.ec.europa.eu/collection/open-source-observatory-osor/document/declaration-independence-limux-project-munich

- The **city of Montrea**l recognizes the advantages of open-source software in terms of quality, security of information, functionality, sharing and interoperability and has introduced a **policy** that sets and guides the selection and use of open-source software and hardware and applies to all the administrative units of the city[3]. The city is committed to systematically **consider** solutions proposed by the open-source industry, and to ensure that the code and design of technological material developed by or for the city will be done and **published** under open-source licenses.

If you want to find out more about open-source cases and best practices in the EU, the European Commission has established an "Open Source Observatory" (OSOR).

Interoperability and open standards

Interoperability is the term used to refer to the capacity of information systems, sometimes from different providers, to **communicate** with each other and **work together**. Cities can set standards and norms to foster interoperability. By doing so, city administration and the end users are not bound to a particular provider. Open standards are generally based on the principle that access is available to users, who can read it and implement it without royalties or costs. Open standards set rules and reduce the differences between technical specifications, thus creating a favourable environment and minimizing obstacles for the development of services that can be deployed locally, regionally, and internationally. Open standards can also facilitate the interaction between citizens, government, and private entities as no specific software must be used. Like open-source software, several cities have introduced open standard requirements in their digital strategies.

- The **city of Barcelona** has set open standards as a **core of its digital policy** to promote interoperability and integration between information systems and data sets of the City Council. It has thus stablished that all the city council's digital services will support interoperability, based mainly on the use of open standards and formats. This applies to systems internally and externally. The city has established minimum characteristics for open standards including:

  - ✓ It is a public standard and can be used open of charge or at a cost that poses no difficulty in terms of access.
  - ✓ Its use and application are not dependent on the payment of an intellectual or industrial property right.

  The **Municipal Institute of Informatics (Institut Municipal d'Informàtica)** maintains a **public list of technical formats and standards in use**. These are categorized as mandatory, priority or

[3] The complete policy document is available at https://portail-m4s.s3.montreal.ca/pdf/politique_sur_lutilisation_et_le_developpement_des_logiciels_et_du_materiel_libres.pdf

recommended. The city has also introduced guidelines to detail the interoperability needs of each system in the tender process, according to circumstances, as such[4]:

- ✓ If a specific interoperability need is covered by an internationally accepted open standard, the tender specifications shall provide the name and version of this standard.

- ✓ When a specific interoperability need cannot be covered by an existing standard, the technical documents attached to the tender specifications shall contain full details of the information, protocols, interfaces, formats, and processes to be used. These details shall make its implementation possible without having to resort to specific products or providers.

Other cities have also incorporated open standards to their data strategies and procurement process. The city of Ulm[5], for example, also relies on a mandatory adoption of open standards to enhance transparency, coordination between city institutions and cooperation with stakeholders. This is combined with an approach that favours open-source software, including open programming interfaces, also called APIs, to enable the communication between different data sources. Similarly, the city of Soest has included Open Standards as a cornerstone of digital sovereignty in its data strategy. [6]

Open standards only develop their full potential if they are used in as many areas of the city as possible: If they remain theoretical commitments, no added value can come from them. Do you want to learn how to introduce standards to your administration's data management and bring all stakeholders to the table to make practical use of digitization? We'll show you how it's done! Feel free to contact us at any time - via square@dksr.city!

[4] More information on Barcelona's strategy for technology sovereignty can be found at https://www.barcelona.cat/digitalstandards/en/tech-sovereignty/0.1/policy
[5] The approach of the city of Ulm to open source and open standards can be accessed at https://www.ulm.de/aktuelle-meldungen/z%C3%B6a/oktober-2020/datenethikkonzept-2020_10

[6] The approach of Soest can be seen here https://smartcities-suedwestfalen.com/wp-content/uploads/2021/06/Datenstrategie_soest.pdf