

Analytical Report n 11



Analytical Report 11: Re-use of PSI in the public sector



EUROPEAN DATA PORTAL

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Re-use of PSI in the public sector

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Last update: November 2018

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1 Introduction to PSI re-use in the public sector

1.1 The digital transformation of solving problems

To solve a problem, we need information to develop insights, services, products or processes. More specifically, we must find, understand and re-use information to successfully address our problems. If we get information easily and have the capability to make use of it, we are well equipped for solving problems.

In the stone age, or simply before we had powerful computers and GPS devices in our pockets, when we were thirsty and could not find water, we asked someone who knew. After being given the information, we made sure we understood and trusted that information. Then, we solved our problem by walking to the water source.

Fast forward to today. We have the *privilege* and the *challenge* of having an abundance of information at our feet and the digital means to generate, store, share, process and re-use it.

The *privilege* is: sharing and re-using data enables people and organisations to solve their problems more effectively and efficiently because more data is available, digitally accessible and re-useable. In addition, it helps people and organisations to solve others' problems and needs. Existing processes, services and products can be improved, and new initiatives implemented. Benefits are time saving, cost reduction and quality improvement.



Figure 2 Process of publishing and re-using PSI

The *challenge* is: the complexity of the process of publishing, finding and re-using information leads to manifold factors in each step that determine its success and impact. Rising complexity together with increasing potential generally calls for transformation. More specifically, transformation of mind-set, skill-set, strategy and processes to leverage the potential and tackle the complexity of a situation and its challenges. The processes of re-using information to solve problems is going through a major, unprecedented transformation.

To help leverage the benefits of this transformation within the European Union (EU) and address factors that hinder PSI re-use, the European Commission (EC) supports and guides data publication and re-use.

When PSI is published under an open licence, it becomes Open Government Data. Open data is available for anyone to be re-used. Thereby, the first barrier to solve tasks and problems by re-using government information is reduced.

Open data refers to data which is open for access, use and re-use for any purpose. The principles for open data are described in detail in the Open Definition. The licence specifies the terms of use.

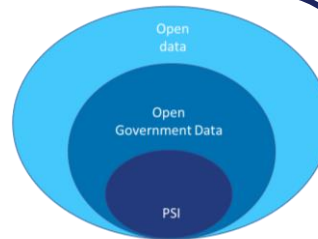


Figure 3 Data spectrum

Open Government Data refers to open data generated, created, collected, processed, preserved, maintained, disseminated or funded by or for the government or public institution.

Public Sector Information (PSI) is information generated, created, collected, processed, preserved, maintained, disseminated or funded by or for the government or public institution that falls under the PSI directive, hence must be made accessible to be used, re-used and redistributed by anyone. The licence specifies the terms of use.

The opening of government information for re-use is defined in the Directive on Public Sector information². It entails requirements on who must publish PSI and how to select and publish it. Since the introduction and implementation of the PSI Directive, more Public Sector Information has been published by government institutions. Over the years, research such as the European Data Portal's "Open Data Maturity Report"³ has showed that governments across Europe have started acknowledging the need to open up more data.

The Directive on the re-use of Public Sector Information (PSI Directive)

The PSI Directive provides a solid common legislative framework for an European market for Public Sector Information. The first iteration of the Directive - PSI Directive 2003/98/EC - was the first attempt to encourage EU member states to open their PSI for re-use. It enables strategic planning and funding on national, regional and local level.

In 2013, the PSI Directive was amended to include cultural heritage data and introduced the general principles that all accessible data should be re-usable and that charges for re-use should be set at marginal cost. The Directive also states that "to facilitate re-use, public sector bodies should, where possible and appropriate, make documents available through open and machine-readable formats and together with their metadata, at the best level of precision and granularity, in a format that ensures interoperability [...]"⁴ emphasising to focus on PSI re-use when publishing it.

² Directive 2013/37/EU amending Directive 2003/98/EC on the re-use of Public Sector Information

³ European Data Portal (2017): Open Data Maturity Report: https://www.europeandataportal.eu/sites/default/files/edp_landscaping_insight_report_n3_2017.pdf

⁴ Directive 2013/37/EU amending Directive 2003/98/EC on the re-use of Public Sector Information

The PSI Directive also addresses the re-use of PSI in the public sector itself, which is the core focus of this report. It states that, “if public organisations provide added-value information, products or services based on PSI, they have to apply the same conditions and charges to their own re-use as to their private sector competitors” (Article 10.2 of the PSI Directive).

As foreseen in the May 2017 mid-term Review of the [EU Digital Single Market strategy](#)⁵ and in the [Commission work programme 2018](#)⁶, the commission initiated a public consultation on how to improve the PSI Directive.

Use and re-use of PSI

We talk about *PSI use* when PSI is used for the same purpose as the initial purpose for which the data were produced. For example, if someone collects data about the route of waste collection trucks with the purpose to improve the route and then uses this data to define better routes, he or she simply used PSI.

We talk about *PSI re-use* when PSI is re-used for a different purpose from the initial one. In this scenario, transport and road works data from another public source may be re-used to adapt the route of the waste collector vans. The data on transport and road works was not generated to improve the waste collection but is re-used for that purpose.

In addition to that, PSI can be re-used to develop new services or products. For example, the PSI re-user from the previous example could create an application about the waste collection routes. Everyone interested could use the app to stay informed about the new routes, understand changes made to the previous routes and give feedback about it.

⁵EU Digital Single Market strategy: <https://ec.europa.eu/digital-single-market/en/policies/shaping-digital-single-market>

⁶Commission work programme 2018: https://ec.europa.eu/info/sites/info/files/cwp_2018_en.pdf

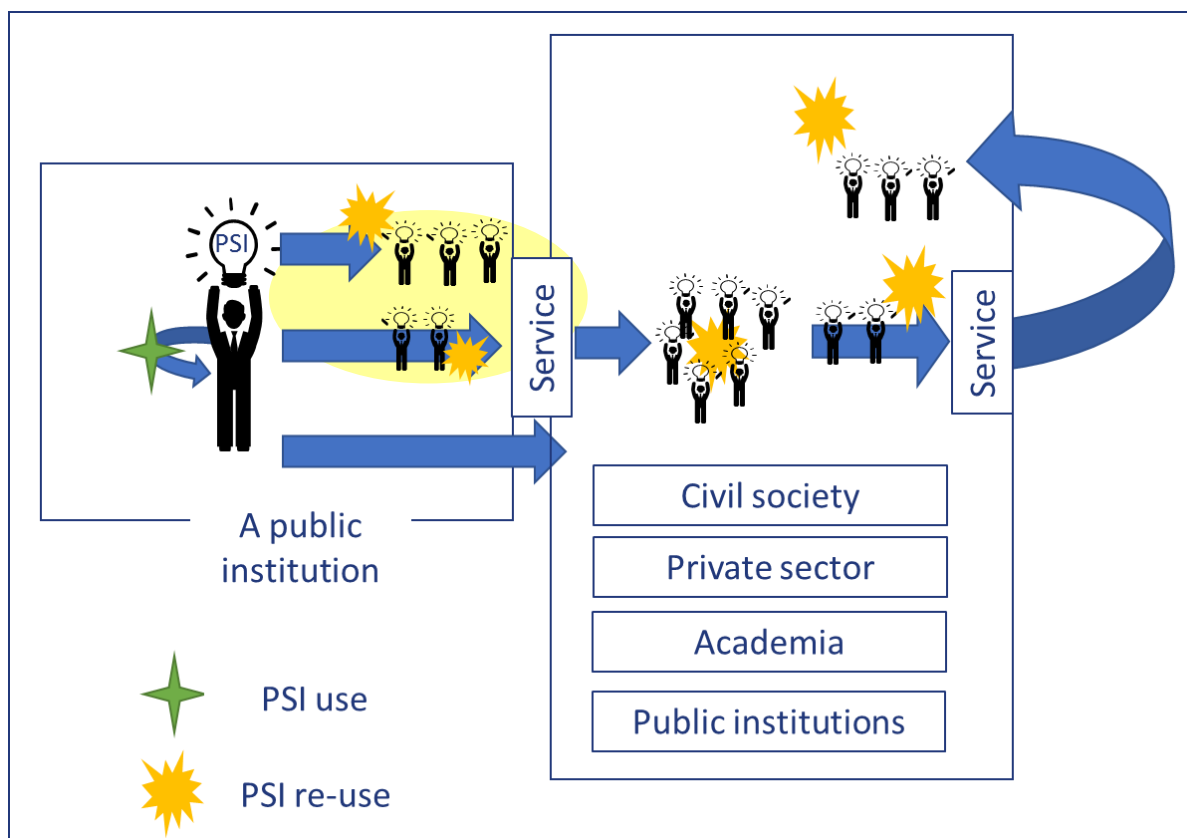


Figure 4 PSI re-use

What are the benefits of re-using PSI in the public sector?

This report focuses on PSI re-use in the public sector, marked in yellow in the figure above. Public institutions generate, collect, process, preserved, maintained or funded by or for public institutions every day. Where the PSI Directive is applicable, this data is made open and publicly available. PSI is open for re-use by anybody, including the public sector itself. For the public sector, re-using PSI increases transparency, accountability and efficiency. It can improve internal processes, service delivery and foster data-driven decision making, which supports better policies and therefore positively affects society.

OECD's "Rebooting Public service" study⁷ highlighted several of the potential benefits of PSI re-use for the public sector, such as:

- innovating citizens' experience;
- building the next generation of empowered civil servants;
- innovating public procurement;
- evolving public sector internal dynamics;
- using predictive data analytics to spot trends and societal needs;
- promoting collective intelligence and social participation in service delivery and policy making.

⁷ OECD (2015): [Rebooting-Public-Service-Delivery](#)

The “Creating Value through Open Data” report by the European Data Portal⁸ identifies several direct and indirect benefits of re-use of open data and measures the value it created. The study predicts in 2020 for the EU28+ approximately 1.7 billion Euro annual cost savings thanks to better decision making and efficiency gains within the public sector. However, research also suggests that the potential benefits are not fully exploited by public organisations yet.⁹ The OECD’s “Rebooting-Public-Service-Delivery” states: “Having access to data is not necessarily sufficient to create impact.”¹⁰

1.2 Structure and methodology

This report examines the barriers that hinder further exploitation of the benefits of PSI re-use in the public sector in Europe. Solutions to overcome the barriers are identified and evaluated. Recommendations enabling PSI re-use conclude the report.¹¹

In a first stage, semi-structured interviews with PSI experts were conducted allowing in depth insight, to find out more about perspectives and experiences. The findings were structured and abstracted. In a second stage, participants were given the opportunity to discuss the barriers and solutions in a workshop and developed actionable recommendations. Five research questions guided the research:

1. What is the status of PSI re-use in the public sector?
2. What are the benefits of PSI re-use in the public sector?
3. What PSI is re-used and for what purpose? Where lies future potential?
4. What are the barriers to leverage the benefits of Open Government Data?
5. What are solutions that enable PSI re-use in the public sector?

The selection of research participants followed a purposive sample. In this report we assume that countries with high open data maturity have a relatively higher focus on PSI re-use compared to other countries. Therefore, expert civil servants from ministries, universities and public bodies in charge of Public Sector Information from more mature open data countries (according to the Open Data Maturity in Europe Report) were interviewed.

The selection of participants also aimed at covering a geographically diverse sample. From the “trend-setters” cluster¹², the countries covered were Finland, France, Ireland, Italy, the Netherlands, Norway and Spain. Given the high volume of datasets accessible on the European Data Portal and its open data maturity score of 70% in 2017, Germany has also been included into this sample.¹³ The list of research participants can be found in the appendix. The sample ensures that a sufficient variety of perspectives

⁸ European Data Portal (2015): [Creating Value through Open Data](#)

⁹ For example: Financial times (2018): [Governments fail to capitalise on swaths of open data: https://amp.ft.com/content/f8e9c2ea-b29b-11e8-87e0-d84e0d934341](#)

¹⁰ OECD (2015): [Rebooting-Public-Service-Delivery: http://www.oecd.org/gov/Rebooting-Public-Service-Delivery-How-can-Open-Government-Data-help-to-drive-Innovation.pdf](#)

¹¹ The challenges around the publication of PSI are not in the scope of the report.

¹² European Data Portal (2015): [Creating Value through Open Data: https://www.europeandataportal.eu/sites/default/files/edp_creating_value_through_open_data_0.pdf](#)

¹³ The final selection was also influenced by the availability of the experts from the countries to which inquiries were sent.

is included. The report aims at building knowledge, based on qualitative data rather than achieving population representativeness.

2 Barriers to PSI re-use in the public sector

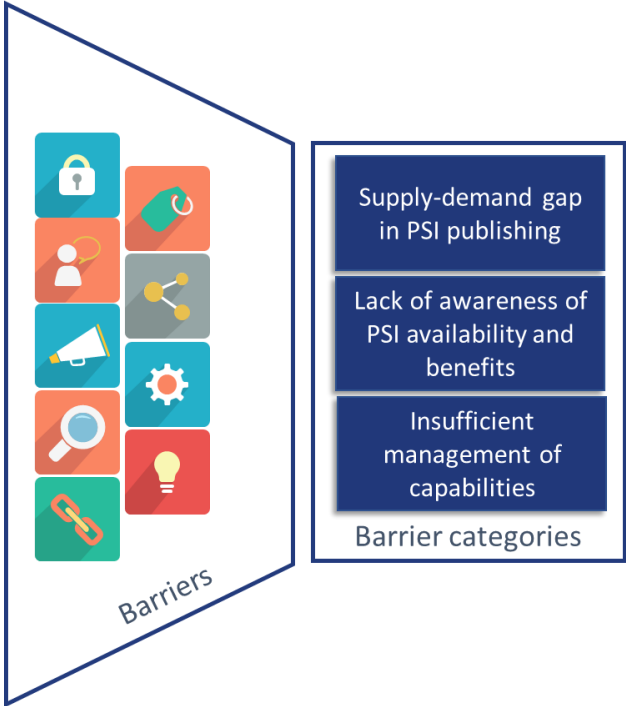


Figure 5 Barriers to PSI re-use in the public sector

Research showed that, despite the fact that more PSI is available, there are still barriers to re-use. The degree of re-use is heterogeneous across member states and public sector bodies and goes from a few inspiring applications and best practices on the one hand, and a need for further support on the other. The state of development, and the attitude and approach towards further progress, differ.¹⁴ Barriers can be grouped into three categories (Figure 5) that prevent success of PSI re-use in the public sector:

- Supply-demand-gap in PSI publishing
- Lack of awareness of PSI availability and its benefits
- Insufficient management of capabilities

There is an interesting parallel between some of the barriers preventing successful PSI re-use identified in this report and the outcome of a similar study researching barriers to artificial intelligence (AI) implementation¹⁵: a lack of appropriate skills and talent within the organisation, data privacy concerns, and resistance to change. The results suggest that the factors influencing PSI re-use in the public sector are not solely PSI or public sector-specific but are often linked to a general struggle for government bodies to develop and improve literacy in process transformation.

2.1 Supply-demand gap in PSI publishing

Sufficient supply of PSI is a prerequisite for its re-use. Despite the PSI Directive, the main barrier to data re-use is still the availability of PSI. This is not limited to the quantity of data, but also the selection,

¹⁵ Capgemini Digital Transformation Institute, State of AI survey, N=993 companies that are implementing AI, June 2017

the quality and the consistency of publication. We see the root cause in a lack of dialogue and exchange between publishers and re-users.

Selection of PSI to be made open

The prioritisation and selection of PSI that is made open is often not demand-driven. Depending on the country or the public body involved, there may be no effective channels to influence the supply from a re-user’s perspective. Furthermore, there may be limited visibility of what data exists but is not yet open, in order to demand its opening, nor it may be clear who and how to ask. The data that is currently most in demand, according to the research participants is shown in table 1.

The focus areas in the PSI Directive are geospatial data, earth observation data and environment, transport data, statistics and company data (e.g. the companies register in the countries where this is not already available). This can indicate that the selection and prioritisation of PSI supply based on the prioritisation in

the PSI Directive meets the demand of PSI re-users. It can also mean that the demand for PSI simply adapted to PSI that is available.

Type of data	Mentioned by
Maps and geo data	14
Transport data	13
Weather data	13
Company registers	11
Government procurement and spending	11
Financial data	9
Business registries	8
Air quality, water quality, pollution data	6
Land use data	6
Purchasing data	3

Table 1 PSI currently demanded by PSI re-users

The types of data and the fields of re-use expected to have the highest impact according to the research participants are:

- real-time data on transport and urban infrastructure, e.g. for smart transport, city maintenance and mobility as a service;
- financial data, e.g. to support detecting fraud;
- public procurement data, e.g. for improved decisions making and spending, monitoring and assessing decisions and guide policy making;
- statistical sociocultural data, combined with anonymised personal health data, e.g. for analysing the relation between sleep patterns, weight, behaviour or fitness.

The PSI recast references many of the aspects to be included in the revised PSI Directive.

Poor quality of PSI complicates re-use

If PSI is made open but its quality is not sufficient, it acts as a main barrier to re-use. The “cleaning up” time and transformation of data can make the re-use inefficient and costly, surpassing capabilities and capacity of the re-user. The lack of comparability and interoperability can also limit re-use options and

benefits. for example, when data expanding regional borders cannot be linked or compared, when existing data and metadata standards and formats are not applied. Missing documentation in the metadata can make high quality PSI impossible to understand and re-use.

Reliability, consistency and sustainability are more important than costs

The reliability and consistency of PSI supply are vital topics determining potential for re-use. A lack of security about a consistent supply without variation in quality or quantity hinders re-users and compromises sustainability of re-use. It makes strategic planning of processes or business models based on PSI risky and unfavourable.

2.2 Lack of awareness of PSI availability and benefits

A lack of general awareness of PSI and its benefits is a main reason why the potential impact of PSI is not yet leveraged in the public sector. A user who is not aware of PSI availability and potential will not even try using it to solve a problem, well before dealing with other issues, such as availability or quality.

Awareness of the benefits for the public sector of PSI

On an abstract level, awareness of open data and PSI is rising. Almost all participants to our study acknowledge that the benefits of PSI re-use hold actual or at least potential impact for the public sector. An increase in transparency, reputation, reliability and trust are the more commonly understood advantages of PSI.

However, it is important to note that, though considered advantageous, for almost half of the participants these effects are considered as side effect of publishing PSI rather than a benefit of re-use. The impact of re-use is seldomly measured. Benefits specifically linked to re-use are efficiency in procurement, communication, government spending, decision making or enabling innovation and creation outside the public sector. Many benefits mentioned by other studies (see 1.1) are not acknowledged by the participants.

Perception of duty rather than opportunity

On a practical level, the opportunity and responsibility to re-use PSI is considered a prerogative of the private sector only. The focus of the Member States' national open data teams is on publishing and on setting the right conditions for their re-use by businesses, rather than by the public sector. This also contributes to the issue we have observed in the lack of awareness of PSI re-use in the public sector. PSI seems to be perceived more like a duty rather than an opportunity. Public institutions may follow policies and measure KPIs on publishing PSI but do not realise the rationale behind the policies, to increase impact of PSI within the public sector. Actually, participants expressed concern that the EU policies – expressed also through the PSI Directive - may misleadingly overemphasise re-use of open data in business, potentially understating the potential for the public sector.

2.3 Insufficient management of capabilities

Exaggerate competence expectations

Re-using PSI is not fundamentally different from re-using other data, however participants suggested that public servants may think that some extra special skill is required. The use of IT jargon among experienced re-users supports this misleading perception.

The majority of skills needed for PSI re-use are not different than the skills needed to process any other data. It underlines that PSI is sometimes perceived more as a new and difficult task rather than a handy new way of producing insight or supporting processes.

Moreover, not all data problems require data science or statistics competence, but general computing skills and tools like basic Excel can suffice. These skills are usually acquired on the job or via pre-existing trainings to ensure that public servants can perform their everyday tasks.

Lack of process transformation competence

The perceived lack of skills hindering PSI re-use is often evidence of a slow change of capabilities and mind-set during transformation. This does not mean that lack of competence is not an important barrier to PSI re-use. It means that it is a common barrier of process transformation hindering multiple aspects of digital ways of working. In many cases it is a lack of attitude and literacy towards PSI re-use that acts as a barrier and supports a lack of skills especially when the level of skills is expected to be extensive. Even if awareness and motivation is present, if an incentive and enablement for learning and development is not given, learning will be deprioritised.

Lack of organisational competence

There are scenarios where advanced IT knowledge is needed to re-use PSI. Data can be complex and require experienced professionals. However, the challenge of training existing personnel or of procuring skilled resources is not PSI re-use specific, but rather calls for HR processes, procurement processes and acquisition and the implementation of supporting tools and methods.

A lack of procurement skills can be a significant barrier to PSI re-use, just as a mismatch in job descriptions and actual requirements. Insufficient acquisition of talent, procurement of the task or forms of collaboration, hinder PSI re-use. Hence, apart from the need for digital skills, there is a fundamental need for organisational skills to manage new ways of working that the transformation entails and where PSI re-use is a part of. Capabilities of how to enable a team, set up a project, receive funding and support PSI re-use are needed.

Lack of confidence in the data and the re-use possibilities

Often, data licensing terms and conditions are not clear or missing, and lead to legal uncertainty. The fear of violating intellectual property rights or the privacy of individuals described in the data got worse, e.g. after the recent implementation of GDPR. Lacking the literacy to understand licences and legislation are a common barrier to re-use. Closely intertwined with this is a gap in knowledge and a lack of confidence, which prevents re-users from further exploiting the data's potential.

Lack of leadership

Another finding is that the success of PSI re-use often relies on single individuals to lead projects and act like a role model with a digital mind- and skill-set. The absence of these leaders can result in stagnation of PSI re-use initiatives. This shows the importance of the implementation of new and sustainable roles and responsibilities for data management.

Resistance to openness and collaboration

The mind-set to collaborate within the organisation and with other stakeholders is not common yet, instead working in silos can be observed. The personal skills to understand working procedures in different regions, department and governmental institutions and to make use of a network to proactively share knowledge, if lacking, hinders PSI re-use.

Often, public servants run insular PSI re-use initiatives that – though potentially successful - are not rolled out and extended to the rest of the organisation. Internal barriers of working in silos hinder knowledge exchange and the sharing of best practices. Joined efforts and joint learning and development are often ineffective.

PSI re-use as a part of process transformation

A common thread to the issues described in the latter section is how PSI re-use is part of a transformation of processes and therefore part of the process management of public organisations. The lack of awareness, competence and confidence for PSI re-use can ultimately be traced back to a lack of management of capabilities and processes. Apart from technical skills, organisational capability is needed for a successful PSI re-use. Organisational capability is necessary to set up a strategy, recruit and support people with the right competences, manage resources and responsibilities, improve and steer processes accordingly, and procure tasks.

These aspects may explain why the status and the challenges of PSI re-use have not significantly changed over the past years. In fact, researching barriers of PSI re-use in 2018 led to similar results to research the European Data Portal performed already in March 2017¹⁶. The lack of substantial progress suggests achieving PSI re-use is part of the wider challenge of process transformation in the public sector: a lengthy process whose change and impact are not always easy to observe and measure.

3 Solutions for exploiting the benefits of PSI in practice

Many different approaches can help overcome the barriers to PSI re-use. A few solutions are aimed at specific barriers, but many address multiple barriers holistically. These target a common root cause, which leads to synergy effects initiating an upward spiral of positive impact.

¹⁶ European Data portal (2017): Barriers in working with Open Data: https://www.europeandataportal.eu/sites/default/files/edp_analytical_report_n5_-_barriers_in_open_data.pdf

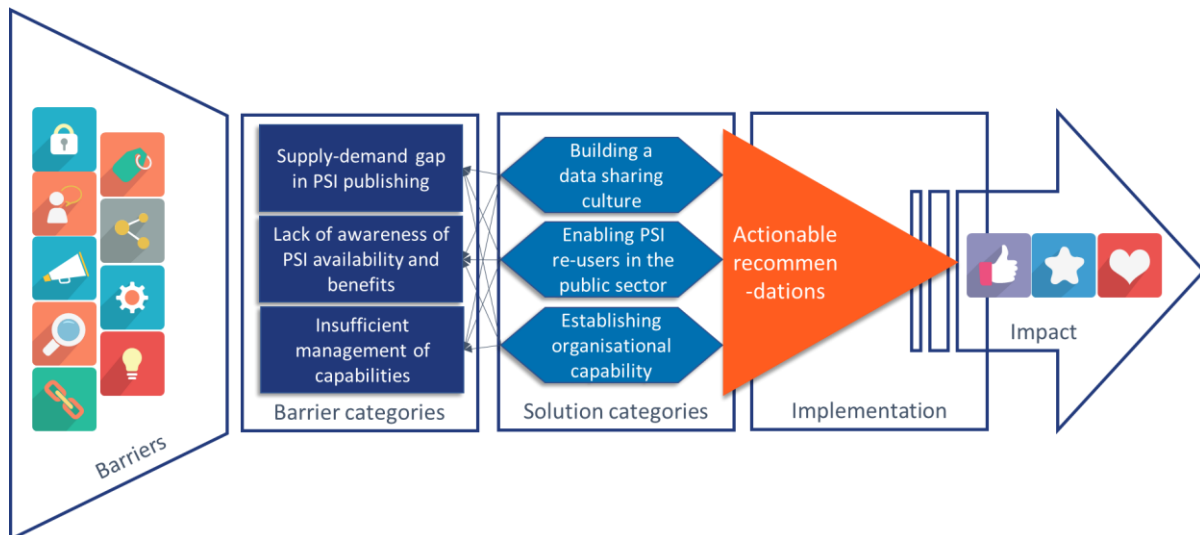


Figure 6 Supporting PSI re-use in the public sector

3.1 Building a data sharing culture

To support PSI re-use, the right datasets need to be selected and opened, based on the actual demand. The quality of the data and metadata has to increase. Consistent publication of PSI has to be ensured.

The gap between how PSI providers supply data and what the re-users demand from them is often caused by a lack of communication. Demand is sometimes not communicated, channels are not available, and publishers are unaware of their audience. A lack of data and metadata quality is often caused by a lack of awareness and encouragement.

By enabling and encouraging communication between the parties involved can close this gap. Effective communication raises awareness and creates a healthy relationship between publishing and re-use, potentially leading to a developed data sharing culture. This in turn enables PSI re-use, incorporating a change of mind and skill-set leading to flagship initiatives.

There are different levels of engaging in communication and knowledge exchange. A simple feedback function linked to a dataset already enables basic information exchange. A community approach enables knowledge exchange and development and peer-to-peer support. Bilateral agreements between re-users and providers enable a strong bond. All three approaches will be further explored in the following.

Enabling simple information exchange

By implementing a channel for information exchange, re-users can share their feedback and expectation on the availability, quality, documentation and publication of datasets with the provider. Sometimes, shortcomings of a datasets or its metadata only get clear when a re-user tries to actually re-use it. The re-user might need a documentation or an update of the data to successfully re-use it. He or she can voice preferred data and metadata formats and standards or the use of APIs or geotagging.

These and any other requests could be voiced via any form of feedback channel, be it a mail address, a feedback form or a comment box below the dataset. In return, PSI providers can clearly communicate which data exists but is not open (yet) or cannot be made open and why. (see [Dutch Open Data Portal](#)¹⁷ in best practice box.)

A channel to exchange information can also document examples how a PSI dataset is re-used to develop products and services. By linking information on these products and services to the respective dataset that was re-used, the provider and other re-users can stay informed. (see [Etalab](#)¹⁸ in best practice box.)

Adding a voluntary registration for re-users supports monitoring of PSI re-use. It can help making a feedback channel more substantial and to convey re-users' interest in a special dataset. However, this solution is seen controversial among the research participants, because it could also act as a barrier to PSI re-use if re-users feel obliged to register or feel monitored.

This information enables providers to make educated decisions about how to best invest their resources on publishing PSI. They can decide to prioritise some datasets when improving the quality or to publish updates more frequently.

Best practice examples

The **Dutch Open Data Portal** publishes information about Data not made open (yet).

Etalab supports the impact of PSI in France by tracking PSI to products and services realised by reusing their datasets increases awareness and knowledge exchange. Their approach to increase PSI quality is to select and prioritise specific datasets and increase the quality of these datasets first.

Creating a community

Dialogue between PSI providers and re-user can be very fruitful. However, to develop a data sharing culture and true knowledge exchange, engaging the community can help overcoming barriers to PSI re-use very effectively. The main benefit of PSI is, that it is re-usable for anyone. PSI providers need resources to process and address the requests by the re-users a community of re-users and providers and any other stakeholder can accumulate their knowledge and resources to find solutions to barriers. In case there is no documentation about the data in the metadata, maybe another re-user already wrote one. Maybe the form of a dataset is inconsistent, a re-user from the community might already transformed a specific dataset or created an useful API. Creating a community supports knowledge exchange. It helps to overcome barriers not just by voicing them but by accepting that PSI, just as other kind of data, has imperfections and taking the opportunity to improve the shortcomings proactively and jointly. After all, PSI is opened to be re-used by anyone. This entails embracing a new attitude towards PSI. It means creating a data sharing culture.

Forming relationships with PSI providers

To make sure specific datasets are continuously supplied in the future, some re-users prefer a stronger commitment and a long-term relationship to PSI providers. Sometimes these ties are also historically

¹⁷ <https://data.overheid.nl/about-dataoverheidnl-english>

¹⁸ <https://www.etalab.gouv.fr/en/>

grown from working together and sharing information before the PSI Directive. This kind of tie between providers and re-users also enables communication and can increase trust. It might support the consistency and reliability of the PSI re-use.

These ties can also entail bilateral agreements on PSI supply. By establishing an agreement on how PSI is published it can support the supply meeting the demand. However, publishing PSI at preferred quantity and quality is determined by the provider's resources. By creating a "service model" in which publishers commit to make a dataset available at a specified level of quality, for a fee – though still under an open licence – and re-users commit to be their "subscribers" would help to overcome the gap. It addresses a lack of resources or incentive on the PSI provider's side. Participants felt conflicted about this scenario, however they also universally accept the rationale that a higher level of service implies additional costs on the data provider, and that must be accounted for in some way. It is, however, a controversially discussed solution and is not necessarily in line with the goals of the PSI Directive. In fact, the "Study to support the review of Directive 2003/98/EC on the re-use of Public Sector Information"¹⁹ suggests the reduction of barriers for accessing data including those linked to costs of datasets and exclusive agreements. This clearly states that bilateral agreements, at least in their current form, are seen as a barrier to PSI re-use across Europe. This will be further discussed in the following, when looking at the role of the recast of the PSI Directive.

Adapting the PSI Directive

The previously elaborated solutions follow a re-user driven approach that includes PSI providers in a knowledge exchange to make supply and demand meet and use the wisdom of the community to enable successful PSI re-use

The PSI Directive is an effective tool that can support and complement this approach.

In our research a demand was voiced to prioritise datasets and types based on demand, in order to reach high impact when publishing new datasets. Increased focus shall lie on making real time data, financial data, and APIs available (see section 2.1). Stronger encourage the use use of standards and provide guidelines is requested to support re-use of PSI.

Many of the requests and demands voiced in our research are already included in the proposal for the PSI Directive recast²⁰ of 25 April 2018. It states: "Increase business opportunities by encouraging the dissemination of dynamic data via application programming interfaces (APIs)" and "Increase the availability of data by bringing new types of public and publicly funded data into the scope of the Directive, such as data held by public undertakings in the utilities and transport sectors and research data resulting from public funding."

An additional option – though controversial among our participants - is to loosen the PSI Directive's requirements on pricing of the data being published, to enable publishers to have better budgets available for open data initiatives, that could be invested, for example, on improving data quality or the

¹⁹ European Commission (2017): Study to support the review of Directive 2003/98/EC on the re-use of Public Sector Information

²⁰ European Commission (2017): Study to support the review of Directive 2003/98/EC on the re-use of Public Sector Information

proper anonymisation of valuable personal data resources that would not be suitable to publish otherwise. With stronger budgets, publishers would reduce the risk of inconsistent supply, making re-users confident that they can rely on the data on longer time horizons.

This would also enable the bilateral agreements and “service models”, mentioned before, in which publishers commit to make a dataset available for a fee. Paying a fee to access open data and engaging in bilateral agreements is also in apparent contradiction with the importance of ensuring a level playing-field for re-use, that the EU considers vital to success and wants to monitor and enforce²¹. Determining if free access to open data is the only option to realise this view is beyond the scope of this document.

Enforce, encourage or enable?

When discussing ways to influence data providers to open PSI, there will always be the need to strike a balance between what to enforce, what to just encourage, and what to enable.

The PSI Directive is an impactful encouragement for Member States to implement the EU directions towards a healthier PSI publishing and re-use ecosystem. Some of our participants would welcome a stronger, stricter PSI Directive, or even a PSI regulation, while others prefer a softer approach.

The risks that come with enforcement are clear to the participants to our research. Enforcing PSI re-use, for example, cannot compensate for lack of understanding of the potential of open data, or for missing intrinsic motivation to share. On the contrary, it can reduce intrinsic drive. Enforcing PSI supply and re-use is in no way a guarantee to creating a genuine culture of data sharing. Instead, it can build new barriers and strengthen existing ones in terms of mind-set, attitude and commitment.

Aspects of enablement and incentivisation in the PSI Directive, complementing regulations, can mitigate these risks. Once good practices are established, and stakeholders are aware of their responsibility and commitment, a sustainable data sharing culture can play the role of a social contract between the parties involved. Instead of seeing PSI re-use as an obligation, it should be perceived as what it is: a way of serving society.

3.2 Enabling PSI re-users in the public sector

Increase awareness with a targeted long-term strategy

The problem of how to increase awareness of PSI has been the subject to extensive conversations. Focus in the past has usually been on the private sector rather than the public, e.g. by promoting PSI and open data in general as enablers for economic development, the creation of new business and jobs.

However, many of the same solutions that were proven to be effective with the private sector can be used in the public sector, too. Tools such as hackathons, for example, can engage the private sector

²¹ European Commission (2017): Study to support the review of Directive 2003/98/EC on the re-use of Public Sector Information.

and academia as much as the private sector, however they are seldomly used to raise awareness on PSI re-use internally.

As with the private sector, a robust communication strategy is key. Targeting influencers and supporting community building for knowledge exchange is impactful and enables feedback loops with stakeholders in businesses as well as in the public sector. Communication channels to communicate insights and trends in PSI re-use enrich the discourse and raise awareness but should be practical and target actual needs in civil society and public administration.

Communicate the applicability of PSI to address actual needs

Gartner highlights that demonstrating the value of open data is not enough: “Open data must help solve today’s problems too, in order to gain the credibility and the support required.” To address the right needs, more attention should turn to the needs that can be targeted by re-use. Therefore, a next step can be to focus on the needs of public organisations itself and how the re-use of PSI can address these to create awareness about the potential of PSI.

This approach can also reduce the exaggerated expectations of skills needed to re-use PSI. Communicating not only that PSI re-use can address actual needs but also how it can be done helps to overcome this barrier. Even in cases where PSI re-use required data scientists, communicating which skills are needed can help to plan feasibility. A potential re-user can assess if their own competence is sufficient or if tasks need to be procured and what kind of expert is needed. Being clear about required competences also helps to understand which competences are needed and potentially still missing.

Develop competences

Competence is not just the skill to do a task. It also involves general literacy and attitude. Competence is the demonstrated ability to apply knowledge, skills and attitudes to achieve observable results. A lack of competence to re-use information is often reduced to a lack of skills while, in many cases, a lack of literacy and attitude is the root cause. A resistance to openness and collaboration can hinder the acquisition of competence. ([section 2.3](#)) Competence has to be supported and developed holistically, as part of the job. Recommended solutions to tackle the lack of competences voiced by the participants are:

- Making sufficient digital attitude, literacy and skills a mandatory qualification to work on certain positions in the public sector.
- Setting up mandatory training schemes for public sector employees that target literacy and skills in technical, organisational and personal aspects.
- Develop certificates that testify PSI experts and make them ambassadors and advisors.
- Foster a knowledge sharing culture that extends beyond teams and departments, e.g. bringing together civil servants with similar challenges and enabling them to share knowledge and create peer-to-peer learning opportunities.
- Extend this sharing and collaborative culture beyond the boundaries of the public sector organisation, for example engaging academia or collaborating with companies to find solutions and learn.

In addition, a particular lack of competence when it comes to licensing and data protection was voiced by the participants. Additional guidance is requested by the participants, such as:

- Creating a manual to support PSI re-use, explaining key subjects such as licensing.
- Providing clear guidelines on how to comply with data privacy regulations.

Support competence development as part of the organisation's capability

It is arguable if an additional source of information, like a manual or guidelines will help develop the competences necessary. Our findings (section 2.2) suggest that a lack of competence does not trace back necessarily to a lack of training opportunities. Insufficient literacy and attitude often hinder skill development. In addition, an insufficient supporting framework that does not enable and incentivise learning makes individual competence development challenging. The individual's competence is linked to the capability of the team, department or organisation she or he belongs to. The next chapter focuses on the approach to support PSI re-use by establishing organisational capability.

3.3 Establishing the organisational capability for PSI re-use

Capability is the ability of an organisation to systematically and repeatedly mobilise processes, people and technology towards achieving specific outcomes. To exploit the benefits of PSI re-use, an organisation's leadership has to set an ecosystem that incubates and supports development of competencies. That includes acquiring talent with a suitable competency-set for defined roles and responsibilities, to implement tools needed for the job and the administrative and technical infrastructure. Projects have to be planned and managed, and results monitored and analysed to achieve process excellence. Important steps to achieve this voiced by the participants are:

- Acquiring and developing the right talent
- Implementing tools and processes that enable PSI re-use.
- Defining roles and responsibilities, including a product manager who is capable of leading PSI driven projects. Incentivising learning, cultural change and digital process transformation by implementing respective forms of recognition.
- Encouraging joint initiatives that can be scaled up instead of working in silos.
- Setting up projects by being aware of the business cases that show the costs and benefits of re-using PSI, and the costs of *not* using PSI.

The report *Rebooting Public service*: argues that public entities should not work in isolation in establishing goals and strategies for Open Data, in measuring impact and performance of Open Data programmes and in sharing results. The study underlines the need for public bodies to partner with non-institutional actors and non-governmental organisations in order to make performance comparable in relation to targeted goals, increase impact of re-use and foster innovation.

- Proactively managing the risks of poor PSI quality, by accepting and anticipating imperfections and finding solutions.
- Collaborating with academia, the private sector and civic tech, and actively engaging stakeholders. Civic tech in particular, made of engaged citizens, can provide skills and extra capacity suitable to develop and test governmental organisational structures and user centric services. Civic tech is being pioneered though out Europe, e.g. [DataLab](#)²² or [MindLab](#)²³ (see best practice box).
- Monitoring performance, comparing it with other organisations inside and outside the public sector to learn from others and support improvement, development and innovation.

Best practice examples

DataLab is a knowledge centre, a workplace and open podium for data professionals and data enthusiasts in the Netherlands. It engages in smart, innovative and careful data use.

MindLab is a cross-Ministry innovation lab in Denmark that facilitates the active involvement of citizens and businesses in developing new public sector solutions.

4 How to become a PSI re-user in eight steps

Public organisations are not the same: they are at different stages of development and their needs depend on their size, role and position as part of the larger governmental system, the national context and their open data maturity. However, we can see re-occurring patterns of barriers and solutions that make it possible to conclude with a set of actionable recommendations to support PSI re-use in the public sector.

1. Take advantage of learning resources such as the European Data Portal's eLearning and complete modules on open data and PSI. You are now qualified to be a PSI expert and ambassador.
2. Share your insights and thoughts within your team and organisation, learn from mistakes and scale up.
3. Make open data an integral part of the business cases of your future projects. Showcase the benefit of PSI re-use to justify any necessary investment.
4. Reach out to the providers of the PSI you re-use, give them feedback, contribute to make the data better. Let them know you rely on their work and their data.
5. Get talent from inside and outside the organisation on board your project by reaching out, e.g. to your nearest university and start up community.

²² https://www.amsterdam.nl/bestuur-organisatie/organisatie/overige/datalab-amsterdam/?utm_source=www.amsterdam.nl&utm_medium=internet&utm_campaign=datalab&utm_content=redirect

²³ <http://mind-lab.dk/>

6. Engage the communities that work in the same space and re-use the same data as you. Promote your project and publish it on the Internet. Get more people involved and gain confidence.
7. Organise a hackathon to generate ideas and create solutions to your problem collaboratively.
8. Re-use PSI to research and target societal needs by offering new and improved public services, hence becoming a role model for PSI re-use in the public sector.

This list of recommendations is not exhaustive and does not claim to be a formula to solve the challenge of low PSI re-use, that will take more years, initiatives and research to be truly overcome. However, the ambition of this report is to show that for every barrier to PSI re-use there are strategies, best practices, solutions and actionable steps to overcome them.

In which way a future PSI Directive will support PSI re-use and where it set its focus remains to be seen. However, the ultimate opportunity and responsibility to make the best out of the value offered to you through PSI is yours.

Appendix

List of research participants:

Name	Organisation	Country
Bastiaan van Loenen	Associate professor at Delft University of Technology, chairing the Knowledge Center Open Data at the Faculty of Architecture and the Built Environment	The Netherlands
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Evelyn O'Connor	Data.gov.ie, Government Reform Unit of the Department of Public Expenditure and Reform	Ireland
Frederika Welle Donker	Researcher at the OTB Research Institute for Housing, Urban and Mobility Studies, Delft University of Technology	The Netherlands
Gabriele Ciasullo	Agenzia per l'Italia Digitale (Digital Italy Agency)	Italy
Heather Broomfield	Agency for Public Management and eGovernment	Norway
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Martín Álvarez-Espinar	World Wide Web Consortium (W3C) Spain Office, Fundación Centro Tecnológico de la Información y la Comunicación (Center for the Development of Information and Communication Technologies)	Spain
Nils Boernsen	Bundesministerium für Wirtschaft und Energie (Federal Ministry of Economics and Energy)	Germany
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Pekka Koponen	Helsinki Region Infoshare	Finland
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Simon Steuer	Project Assistant at the Publications Office of the European Commission	EU
Tanja Lahti	City of Helsinki, Helsinki Region Infoshare	Finland
Teemu Ropponen	Executive director Open Knowledge Finland	Finland