



PUBLISHING OPEN DATA IN LOCAL GOVERNMENT – DRIVERS AND BARRIERS

INTRODUCTION

Access to public sector data and the tools to make use of it is useful to citizens and businesses alike and can reduce the demand on municipalities to answer queries which available data could have dealt with.

Among public sector organisations, there are differing views on whether private sector companies can access data and, if they can, how easy it is, what it may cost, and under what conditions data can be used. These legal and privacy barriers need to be broken down.

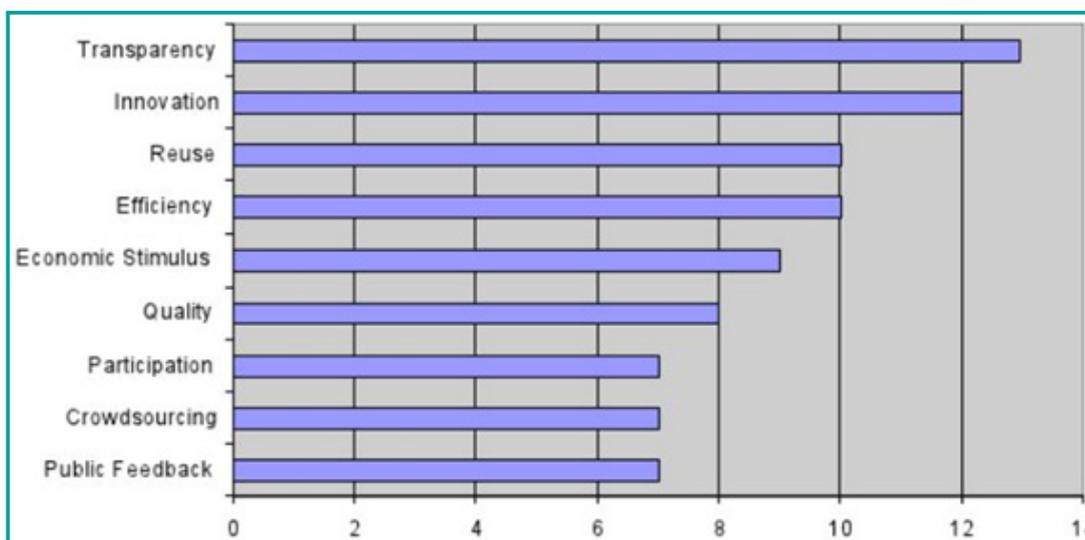


Figure 1: Drivers for open data

Where data is openly published, others can develop applications which make use of it and build a business around such applications. Citizens and other organisations can then see such data in innovative ways which make the information easily accessible to them.

However, the lack of any common practice and standards for publishing and accessing public data can constitute a barrier for both businesses and citizens.

One result of this is that many businesses and entrepreneurs do not know specific data exists, while many authorities are not aware of the potential benefits of private re-use of their data.

Figure 1 above shows some of the key drivers for publishing open data and their perceived importance.

More information on some of the drivers to making public data is available below, as well as the current barriers and innovative ways of overcoming them.



WHY PUBLISHING OPEN DATA IS HARD

The technical aspect of open data is by far the easiest part. When you start with open data in a big organisation like a municipality, it is important to have the management with you, starting from the top and working down in the organisation. Otherwise, you become a lobbyist with thousands to persuade both inside and out.

Politicians are often more open to releasing data while officers are not, so it is important that leading politicians give a clear directive on how to work with open data and make it a priority. Open data creates a totally different approach to governance and we move from the expertise of a few towards the wisdom of the crowd.

Public sector officers are not always used to the eye of the public and may feel uncomfortable with it. Today, we have Freedom Of Information legislation

and are required by law to give out information if citizens ask for it. But often the legislation hasn't kept up with technology so you still have to ask for it in person or by phone/mail. This might give a certain feel of control that public officials are uncomfortable to lose.

It is also hard for public officials to see a meaningful use for open data in their own work and it can be a hard topic to grasp if not well informed. Perhaps the first step would be to start talking about what open data is, only later moving on to why it should be open and the benefits.

The key lesson learned: it is not about data but the uses it is put to, and that focus needs to move away from the data cities produce and the technical aspects of publishing. How can the municipality and government use the data from statistics and social activity to improve the lives of citizens?

INFORMING DEMOCRACY

Open data, or more precisely, administratively produced data, is one pillar of democracy so far kept out of the public eye. With the Open Data Directive, the EU has taken a vital step in giving the public the opportunity to access data that gives the basis for most political and administrative decisions in a community.

The same data can be used to show measures of performance by a local administration both in the services it delivers to the community and in how it delivers them (cost, time taken etc). It can also show a direction of travel over time to indicate whether an administration is improving or not, reflecting the impact of earlier decisions taken. The public can, when given access to such data, be a part of the democratic process and partner with politicians and administrative bodies in a far more involved way than before.

If the public takes advantage of the opportunity, this will lead to an open and more transparent government of municipalities, regions and nations. In addition, it could be the start of a wider scale of management information since new groups are invited to not only see the data, but use and explore it in new settings with new relations and find new views on old truths.

Juggling public perception and policy can often be a source of grief for local authorities. In the UK, ever since the Telegraph exposed the [MPs' expenses scandal](#) five years ago, the public's perception of those in charge has been undoubtedly tainted by the crisis, which doesn't always make it easy for councils to engage with their communities. Thankfully, a recent survey by the LGA found that [the general public trusts their council](#) to make decisions more than those in Westminster – so breathe a sigh of relief.



The scandal concerned the openness and clarity of government and whether taxpayers' money was being spent wisely for the benefit of those who need it most. Transparency has been a prominent topic for a while now and, despite public focus on central government, it hasn't fallen short of the localist's radar. It will come as welcome news, then, to hear local government can make a discerned step towards 'democratic accountability', and put power in the hands of the people, using the Department for Communities and [Local Government's Local Government Transparency Code](#) published earlier this month.

The code was guided by three tenets of transparency that will prove to be [constraints on an authority's resources](#) but, nevertheless, should help usher councils and their constituents into a more collaborative future, helping to shape public services for the common good. Data should be demand-led, pertinent to the needs of the community; it should be open, its availability publicised and accessible; and it should be timely, available as soon as possible even without accompanying analysis.

DATA QUALITY IMPROVEMENTS FROM BEING OPEN

Publishing local data is often relatively easy, however publishing good quality local data in a format for use by others can be harder.

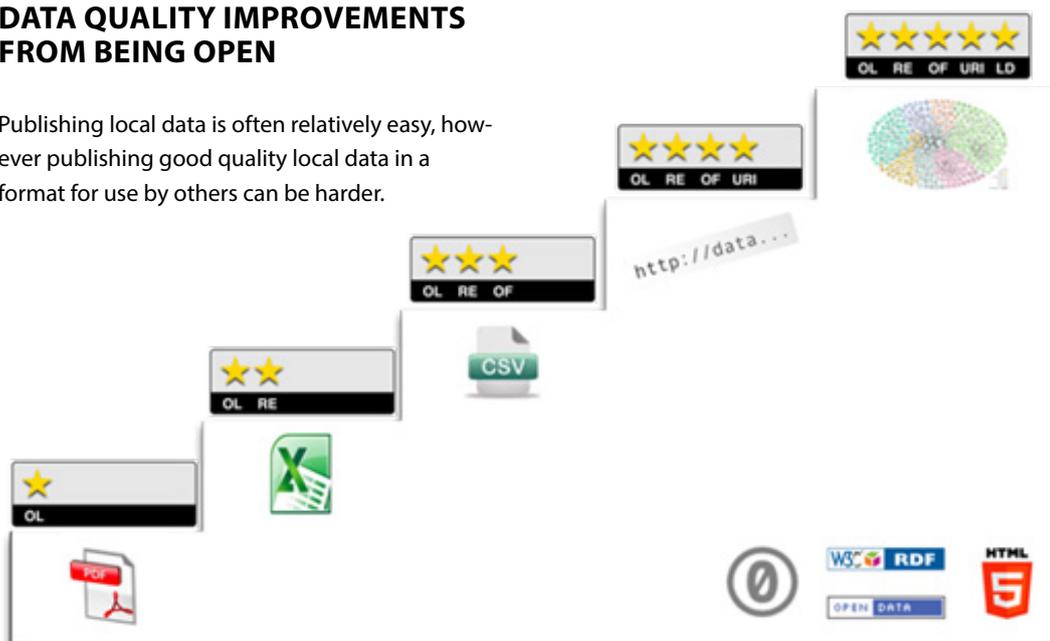


Figure 2 – Levels of open data

Figure 2 above shows the different grades of data that can be published – from one star, such as a PDF file, to five star, which is linked open data or data which can be linked to other similar data to provide context.

All data of at least one star is open, and all except one star data can be re-used by others and is published in a structured way.

The five star model is seen as a progressive scheme for publishing open data, with increased benefits the more stars the data has. Five star data:

- Is structured
- Is published to a pre-defined standard (schema)
- Uses URIs to reference items within the data such that others can point at them
- Can be linked to data from other organisations which is published according to the same schema



Where an organisation currently publishing data at one star level aims for two star, or an organisation publishing at two star aims for three star and so on, data quality (in terms of openness, consistency and standardisation) will improve with each step up in star level.

In Denmark, business to business (B2B) and business to consumer (B2C) publication of data is now possible without huge data cost, therefore more

data is available. As a result, it is now much quicker to test if a new idea with real data is possible. Users are interested in having good quality data and will help to identify and correct errors and inconsistencies. They get involved.

An example from user input to Open Street Map shows this:

Figure 3 – User input to Open Street Map in Denmark

Tidligere	Nyt navn	Forklaring	Oprettet af	Oprettet	info	ret	map
Gl. Allervej	Gammel Allervej	Forkortelse	Hjart	11:22 26/12-2013	info	ret	map
Nr. Egsgårdvej	Norre Egsgårdvej	Forkortelse	Hjart	15:13 19/12-2013	info	ret	map
Sdr. Egsgårdvej	Sønder Egsgårdvej	Forkortelse	Hjart	19:17 9/10-2013	info	ret	map
H/F Solpl-Lærkevej	Lærkevej	Haveforening	tagg	13:59 8/9-2013	info	ret	map
H/F Solpl-Pilevej	Pilevej	Haveforening	tagg	13:59 8/9-2013	info	ret	map

POLITICAL, ADMINISTRATIVE AND BUSINESS DRIVERS FOR OPEN DATA

For local government, there are a number of benefits a municipality can take advantage of if they publish open data. Some of those benefits are political or social, such as:

- More transparency/democratic accountability: in a well-functioning, democratic society, citizens need to know what their government is doing. Therefore, they must be able to freely access government data.
- Spur greater citizen engagement: more participation and self-empowerment of citizens/users.
- More opportunities to interact with your citizens
- Create trust in government
- Improve citizen services, citizen satisfaction
- Impact measurement of policies (improvement of the policy-making processes)
- Fair decision-making by enabling comparison
- Creation of new insights in the public sector: e.g. new knowledge from combined data sources and patterns in large data volumes. These new

combinations of data create new knowledge and insights, leading to whole new fields of application.

Others are more to do with administrative, business or technical issues. For example:

- Improved efficiency and effectiveness of government services: e.g. when citizens/companies consult data themselves, this will reduce administrative enquiries.
- Streamlines internal processes and makes your data better: underpins feedback loops, improves the quality of your data and service.
- The ability to reuse data/not having to collect the same data again: counteracts unnecessary duplication and associated costs (both within the organisation and across other public institutions)
- Easier access to data and discovery of data
- Creation of new data based on combining data
- External quality checks of data (validation)
- Sustainability of data (no data loss)
- The ability to merge, integrate and mesh public and private data



In Norway since the “Open data directive” was introduced it has taken a long time to understand and start using the data. There are many different reasons for that some of which are discussed below.

First of all, a lot of open data has been published in Norway, although it’s often not downloadable by citizens or interested companies. Public administration has been given data by request from a variety of sources such as:

- national statistics;
- meteorological data;
- company information (registration and performance);
- public administrations spending and services (Kostra data);
- GIS information;
- and many more.

There have also been initiatives to add quality by taking existing data and adding information and comparison data, with other municipalities, counties and nationally, to improve the quality. Existing data used includes the Kostra data, key figures and data about municipalities in Norway, with comparisons such as the 10 largest of these (called the ASSS).

All initiatives have, however, been taken by mutual agreement between public bodies. So far there have been few business drivers and initiatives albeit the ones implemented have been very successful. Two notable stories used free meteorological data to develop:

- a) a weather forecast for the biggest commercial TV-station in Norway, along with associated web-pages, created by a company called Storm weather.
- b) a co-operation between two public bodies - the Norwegian Meteorological Institute and the Norwegian broadcasting corporation.

Other examples concentrate around applications for time-schedules for public transport, such as

plane, train and ferry information. Other business initiatives have been implemented, or at least considered, but not with the same level of success.

From the examples to date, we can see this is still new and immature, and a lot of companies have not yet found the best commercial approach for refining and developing business ideas on open data.

In England, a scheme is being implemented to encourage municipalities to publish datasets according to a single national standard for three themes:

- Planning applications
- Public toilets
- Premises licences

The schemas for each of these three have been agreed with experts for publication on the esd [Local Government Data Schemas](#) pages.

All councils in England are encouraged with a financial incentive to publish their data for the three datasets.

To comply with the scheme, councils are required to:

- publish open data in comma separated variables (CSV) format compliant with a schema which defines the columns and rules for their content
- use URIs from recognised public URI sets for common values like geographical area and service category
- publish metadata for each dataset on data.gov.uk
- publish data under open government license
- self-register for an Open Data Institute [Open Data Certificate](#)

Councils are also encouraged to include their datasets in inventories that comply with the inventory standard.



GETTING BUSINESSES TO DELIVER FOR LOCAL GOVERNMENT

One of the objectives in publishing open local government data is to try and encourage businesses, especially local small and medium businesses (SMEs), to use the data to create applications that show the data in different ways.

If this works, it would achieve three key things:

- Provide opportunities for local business to sell their products using the data
- Reduce the effort and resources needed by local government in publishing the data in various formats that can be easily understood by citizens
- Encourage new and innovative ways of presenting the data

However, to date there has not been significant interest in making use of the data by business in the majority of partner countries.

In order to establish whether this could be made to work, Groningen undertook a trial project with three objectives:

- Show the world that Groningen is working on open data
- Learn how to obtain the data and transform it such that it could be published as open data
- Understand the business case for open data by getting in touch with potential users

To try and achieve their objectives, the project went through the following stages:

- Built a simple web site to publish the data, choosing datasets relevant to the participants, the province and the municipality
- Collected 40+ datasets, transformed them and checked there were no legal or privacy reasons they could not be released as open data
- Added metadata
- Published the data as static files or URIs to geographical data

The lessons learned from the project concluded:

- There was not a lot of interest in downloading the data – only a few requests
- Obtaining the data in the first place was not easy due to concerns about data quality, espe-

- cially if it was to be released to the public
- Working with existing 'data collectors' internally within the organisation to collect the data worked best
- Creating the platform for publishing the data helped to express political opinions
- Maintenance of static data is time consuming

A second project aimed to find out the need for open data from entrepreneurs in the local area, collect experience from other organisations about the overall approach to open data and develop concept applications based on municipal data.

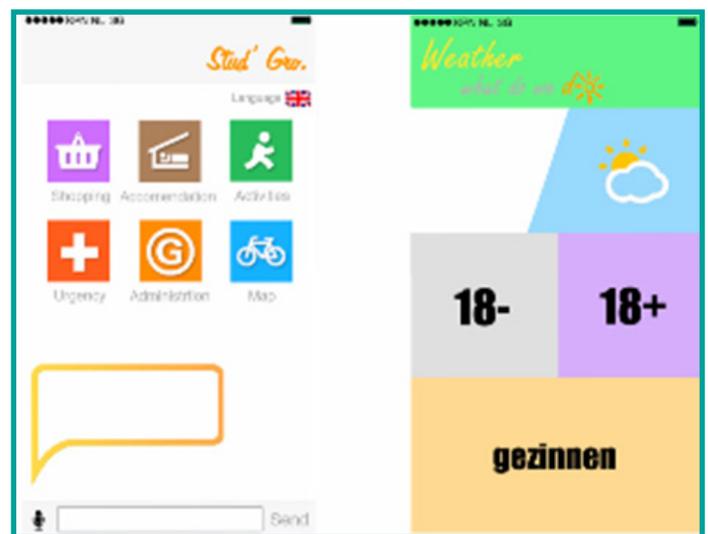


Figure 4 – Sample application

The project worked with students from the local university to carry out desk based research, interviews with local businesses and sample applications using the Groningen data.

Conclusions of the research were:

- The data of most interest to entrepreneurs is demographic data, data about the local infrastructure and geospatial data
- Students developed interesting concept-applications, but it is very hard to create a feasible concept based on the data of a single municipality
- General tips/advice like: start small, organise sponsorship, work in a multi-disciplinary team

The overall conclusion from pilots and projects run by various partners in Opening Up is that whilst



there is some interest from businesses in developing applications to use local data at present, there is not huge demand and it is hard to get businesses interested.

Data for a single municipality is of little interest because of the limited market for any applications developed. Until there is sufficient reliable data available for applications developed to work nationally, demand is unlikely to increase.

ECONOMIC BENEFITS OF OPEN DATA ESTIMATE IN DENMARK

On a national level, much basic geographical data has been made freely available since 1 January 2013. The data is all published in a single location and includes:

- Basic map data
- Topographical data
- Aerial photographs
- Place names
- Administrative boundaries
- Property register
- and much more.

More information about the geographical data can be found here:

An overview and links to open public geographic data: <http://eng.gst.dk/media/gst/2364689/Openpublicgeodataoverview1.pdf>

The Danish Government and Local Government Denmark produced a report in Oct 2012 - [Good Basic Data for Everyone – A Driver for Growth and Efficiency](#) - which sets out a programme for the publication of key basic data, commonly used and re-used throughout the public sector. This includes core information about individuals, businesses, real properties, buildings, addresses and more.

The report identifies the benefits of having open public data to:

- The public
 - Smoother interaction with public authorities
 - Improved services
 - Less need to re-enter data or correct errors

- Businesses
 - Less red tape, more growth
 - Cheaper procurement of public data
 - Opportunities to develop new services and applications
 - Opportunity to work collaboratively with the public sector
- Public authorities
 - More efficient and effective administration
 - Operational savings on local IT systems and maintenance of data
 - Cheaper development of IT systems when data from a single source
 - Shorter case processing times
 - Improved auditing to reduce fraud

In the report, there are already estimates of significant savings to the public sector. For example, when looking at the property register the report states: "In 2002, address data from the Building and Dwelling Register was released, making many public-sector procedures far more efficient.

"According to an analysis, benefits for society in the period 2005 to 2009 amounted to DKK 471 million. The public sector saved DKK 38 million alone on not having to negotiate purchase agreements, manage rights etc."

"Once the initiatives are fully phased in 2020, they are expected societal benefits to be around 105 million € per year."



BRINGING COMMUNITIES TOGETHER

One of the key objectives of publishing local government open data is to make it easier for the local community to find out information and to make that information available in easy to use ways.

Historically, the process of a local citizen or business finding information from their local council or municipality has been a lengthy and sometimes difficult process, both for the citizen and the municipality.

Making the data open means that the community can help themselves to a lot of information for which they would previously have had to contact the municipality. It often also means that if a citizen does go to the municipality, the officers have faster and easier access to the information they need.

Some examples of projects directly involving the community are given below.

In Karlstad, Sweden a pilot project aimed to make it easier for parents of pre-school children to communicate with the school – bringing school and parents closer together. The project aims, implementation and results are described below.

Karlstad - Making daily lives easier

You wake up in the middle of the night and your child is sick. You have been up all night taking care of him/her, but still have to wait until pre-school/school opens in order to call and tell them that your child is sick and won't be attending today. To make this easier for both parents and teachers, Karlstad started a pilot with a mobile application for smartphones.

During 2011-2013, a pilot project was implemented in the city of Karlstad for parents of pre-school children. The pilot project aims to evaluate a web portal for parents and employees of the school. The aim of the portal is to improve communication between parents and staff by making information on school attendance open and updateable by both staff and parents.

The purpose of the pre-school portal is to improve

the service to parents as well as streamlining the work of the staff. The portal consists of the following interfaces:

- Web interface for parents
- Web interface for staff
- Touch screen GUI for parents
- Touch screen GUI for staff

The images below show some pages of the different interfaces.

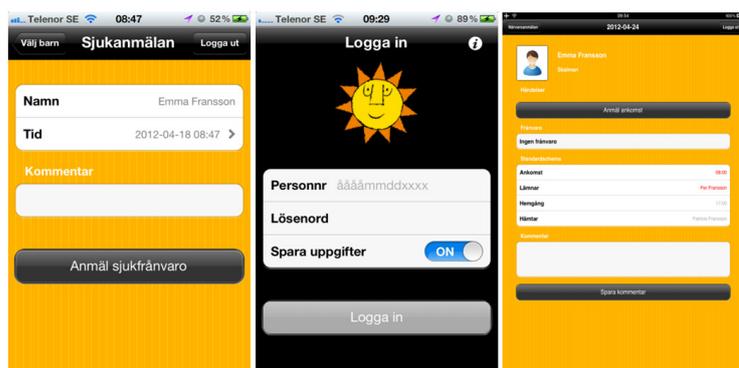


Figure 5 – Karlstad pre-school portal

The application allowed staff and parents to register attendance, absence/holidays or sickness and also gave staff a quick way to send out reminders/messages to parents and so on.

During the pilot project, a mobile application was developed (funded by the EU Opening Up project) as an additional option for parents to access information in the pre-school portal.

Following the pilot, the pre-school portal was evaluated but was withdrawn in 2013.

The application and the features it delivered was greatly appreciated by both school and parents but ultimately the system is considered too costly to implement on a large scale as it needs to be funded by the municipality, which must prioritize other areas of development in an already strained economy.

Groningen – International business connections

In Groningen in The Netherlands, the International Business School (IBS) is working on setting up a site to enhance international networking. It is a joint project of the Collaborating Partners of the North Netherlands on Internationalisation (Samenwerkings Partners Internationalisering Noord Nederland,



SPINN), who are key partners in the Innl initiative to support and align international activities of the region.

The site has two main objects:

1. Put yourself on the global map
2. Find people on the map who know people who know their business

The site is already online, but before its official public launch it needs to be properly tested and filled with content.

For that reason, an instruction related to searching and adding data was prepared and sent out to a selected group of IBS teachers and presented to the people involved with the OpeningUp project within Hanze University in Groningen.

In total 15 people were asked, 9 answered.

The test comprised 6 questions, to be answered with yes, no or neutral, and one open question about any remarks.



As a whole people are positive about the added value on showing, sharing and searching international contacts. Less positive was the searching in terms of ease and usefulness. Most of these remarks related to the fact there is still very little data in the database, but there are also relevant points for improving the usability. Interesting suggestions were made to integrate more with existing social media platforms and add more searchable items. This will be investigated if it is feasible.

LEGAL BARRIERS – PRIVACY, OWNERSHIP

In Sweden, the Personal Data Act (1998:204) came into force and replaced the out-dated Swedish Data Act from 1973. The Personal Data Act is based on Directive 95/46/EC, which aims to prevent the violation of personal integrity in the processing of personal data.

In Sweden, the principle of public access to information means the public and mass media – newspapers, radio and television – are entitled to receive information about state and municipal activities.

The principle of public access to information is expressed in various ways:

- everyone is entitled to read the documents of public authorities: access to official documents;
- officials and others who work for the state or municipalities are entitled to say what they

know to outsiders: freedom of expression for officials and others;

- officials and others in the service of the state or municipalities are normally entitled to disclose information to newspapers, radio and television for publication or to personally publish information: right to communicate and publish information;
- the public and the mass media are entitled to attend trials: access to court hearings;
- the public and the mass media may attend when the chamber of the Riksdag (the Swedish Parliament), the municipal assembly, county council assembly and other such bodies meet: access to meetings of decision-making assemblies.

In the UK, the Data Protection Act controls how personal information is used by organisations, businesses or the government. Everyone responsible



for using data has to follow strict rules to ensure the information is:

- used fairly and lawfully
- used for limited, specifically stated purposes
- accurate
- kept for no longer than is absolutely necessary
- kept safe and secure

There is stronger legal protection for more sensitive information, such as:

- ethnic background
- political opinions
- religious beliefs
- health
- sexual health
- criminal records

Even with non-personal data, or data for which there is no legal privacy reason why the data cannot be made available, there is often confusion about who can re-use the data and what restrictions there may be on the re-use.

When an organisation publishes data, it (the organisation) remains the data owner. The data owner has a 'database right' over anything they publish, as long as the data is original in its content or presentation and the organisation has made substantial investment in obtaining, verifying or presenting the contents.

If anyone else wants to make use of that data, they need to have permission from the data owner to do so. Permission is given in the form of a licence which firstly gives permission to use the data, but which may also place restrictions on what you can do with it.

This can get confusing where the publisher of a dataset has initially obtained that data from a third party which is likely to be under another licence. The licence from the third party may also have its own conditions attached.

A standard licence will tell you whether you can:

- republish the content or data on your own website
- derive new content or data from it
- make money by selling products that use it
- republish it while charging a fee for access

It is easy to see why the whole process of licensing data and understanding what that licence allows you to do could act as a barrier to anyone wishing to take advantage of published data.

In order to avoid these issues, there is the alternative option of data being published with an open licence. An open licence is one that places very few restrictions on what you can do with the content or data that is being licensed. The only things an open licence can optionally require are that:

- You give attribution to the source or owner of the data
- Anything you publish derived from the data is published under the same licence

However, the use of an open licence does not necessitate these conditions.

An open licence makes the re-use of data free of restrictions and is much more likely to encourage third parties to develop content and tools which show the data in innovative ways.

A project in the Netherlands run by RDW – a non-departmental public service provider that performs its tasks on behalf of the Ministry of Infrastructure and the Environment - looked at perceptions of the use of private data on vehicle licensing and enforcement.

RDW started in 2012 with an open data trial, by making a part of the vehicle data from the number plate register accessible (via the online marketplace Microsoft Azure) for reuse, to allow the market to develop innovative products and services with reliable data. An example of such a product is the use of RDW open data by a security company. With cameras at a gas station, all car license plates are scanned and compared with the RDW register, in order to recognise fake license plates.



Figure 6- RDW app with information about vehicles (stats, trends, licence numbers, hit lists)

(From: Boelens, D. *Open Data opdielen: een onderzoek naar de behoefte van particulieren & Linked Open Data*. Hanze University of Applied Sciences Groningen, 2013.)

In 2013 a study of the use of RDW open data was done as part of a Bachelor thesis. A survey, held in online car related forums showed that the respondents were mostly interested in the datasets about "periodic inspection", "licensing of vehicles" and "parking information". Little interest was shown in (geo)data to locate vehicles. A large majority objected to locating vehicles on the basis of zip codes because of privacy issues and the risk of theft.

Interviews with researchers showed that the privacy issues of open (geo)data are not at all solved. They revealed that the combination of non-sensitive data with sensitive data needs to be seen as a real risk. Aggregating and anonymising geodata is no guarantee that the data cannot be traced back to a person.

It is important to analyse, before data is released, whether a person can be identified by combining data from other sources. Because the internet doesn't forget easily, it is also possible geodata at a specific level of aggregation (for example county level) is safe now, but might be a privacy risk if combined with another data set at another time.

To avoid possible damage to reputation or legal liability, RDW is advised to co-operate with organisations that can identify any situations where data may become sensitive data.

Nevertheless, the consulted experts advise RDW to open new datasets, because this can have a positive impact on the image of the RDW and demonstrate the innovative character of the organisation.



THE PUBLIC DOES NOT KNOW WHAT IS LOCAL

Representatives of the City of Kristiansand in Norway had several meetings with representatives of SMEs, as well as citizens. There is basic uncertainty regarding which public service authority is responsible for delivering many public services.

In Norway/Scandinavia, there is a three tier provision of services, divided between the central government, regional government and local government. Since Scandinavian public services may be covering a wider scope of services than in other parts of Europe, that may be an issue of limited interest, but when it comes to open data, it is important to know from where data can be requested.

The representatives and politicians of central government have free access to media and the internet to a much wider extent than local and regional administration, something that may lead to misunderstandings or conflicts. The centrally provided services have, normally, one central access-point and when they open up their data, they are provided with funds and capacity to provide the solutions.

When regional or local administrations want to open up their service data, this is a lot more complicated. Most public services are provided locally.

Most of these services have tailored ICT-applications made to provide information for the administration, without any thought for format, standards, semantics, or whatever may be of interest. At present, there is no national standard format, database-definition or common semantics.

There has been some attempt to provide central storage for all public bodies, but without proper funding, marketing and consistency, the municipalities seem to be left to themselves.

When SMEs ask for data, they often request a mixture of centrally provided data, regional data and local data. For them it is public data, for the administrations it is a totally different matter. Without some public body taking the task of providing services for the SMEs, there will be low interest and low distribution rate.

As one company put it: "We are small companies, and each company cannot take the time to understand and get the complete picture of the public data available without some governmental initiative to collect and classify."

