

# Open Data: Turning Data into Information, and Information into Insights that Allow for Evidence-Based Policy

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## Abstract

This paper summarises the results of research into the legislative, policy, regulatory and operational enablers utilised in selected advanced jurisdictions (UK, US, France, Canada, New Zealand, the Netherlands and Denmark) as identified in the Open Data and Open Government Indexes which promote Open Data, a culture of data sharing and that can help inform future strategic developments in other jurisdictions. Open data presents the opportunity for industry, researchers and government to use previously privately held datasets to run analytics, turn data to information and information into insights that allow for evidence base policy. This paper analyses best practices from leading jurisdictions including analysis on legislation, responsibility and coordination, policies, regulatory settings, and operating environments as well as discusses exemplary open data projects, outcomes and applications.

**Key words:** open data, open government indexes, evidence-based policy

## Introduction

The open government data movement is underpinned by the desire to make governments transparent, accountable and more efficient. The data driven economy relies on open data being machine readable and linked to allow advanced analytics and innovative applications.

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Open government data is exciting for many reasons. First, it allows for transparency and accountability in ways that extend beyond mere Freedom of Information requests for data. Because open government data is premised on creative commons licenses it allows anyone anywhere the ability to view information, to run analytics, to share information, and to produce innovative products based on the underlying data. The opening of datasets in machine readable linked data is of particular importance to university and private industry researchers as it opens hundreds of thousands of previously private datasets to be used for new research. Moreover, the more advanced jurisdictions have provided portals, tools, information, explaining how to best use the data. You don't need to be a data scientist or highly trained statistician to run analytics on these datasets. Results are often turned into visualisations that are easier to comprehend than mere datasets. The goal then is to turn data into information and information into insights that allow for evidence base policies.

This paper summarises the results of research into the legislative, policy, regulatory and operational enablers utilised in selected advanced jurisdictions (UK, USA, France, Canada, New Zealand, Denmark, and the Netherlands) as identified in the Open Data Barometer and similar indexes. Australia is not considered in this article as at the time of review of the literature and data, it was not considered a global leader in the field. It is hoped that this paper will promote Open Data, and offer a view on how to encourage a culture of data sharing that can help inform future strategic developments in other jurisdictions. An ancillary goal is to encourage governments to continue to not only open government datasets but to do so in ways best compatible for researchers and industry to fully capitalise on the data to develop new products and innovative services as well as to heighten evidence base policy.

Communications were made with government agencies, open data departments and organisations in these jurisdictions in the period of December 2016 to the end of February 2017 to seek direct input as to how the frameworks have operated in practice. We contacted

many entities in the United Kingdom<sup>1</sup>, United States<sup>2</sup>, France<sup>3</sup>, Canada<sup>4</sup>, and New Zealand<sup>5</sup>. Organisations did not wish to be identified with their specific comments. As such, insights gained from these communications is embedded within the analysis but is otherwise unattributed.<sup>6</sup>

## Background

Open data and open government data are important not only for general evidence-based policy but also for specific fields such as law and criminology. Often corrections and prison data are released to the public in summarised formats. Increasingly, agencies are releasing data in both summarised and raw/unaggregated data formats. The unaggregated data formats allow for increased and more sophisticated analytical use. In the context of data related to law and justice, justice data often includes corrections data, courts and sentencing data, law enforcement data, data specific to indigenous people, and victimization data. Within these types of data, there may be hundreds of different datasets which can be combined for analysis. For example, the US Bureau of Justice released which is known as ‘Law Enforcement Agency identifiers Crosswalk.’ The Crosswalk data:

provide[s] geographic and other identification information for each record included in either the Federal Bureau of Investigation's Uniform Crime Reports (UCR) files or BJS's Directory of Law Enforcement Agencies. The variables contained make it possible for researchers to take police agency-level data, combine them with Bureau of the Census and BJS data, and perform place-level, jurisdiction-level, and government-level analyses.<sup>7</sup>

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<sup>1</sup> United Kingdom: Leeds Council, Data Mill North, Scottish Cities Alliance, the City of London, the Open Data Institute, Socrata, the Office of the Prime Minister's Cabinet, and the Department for Environment, Food and Rural Affairs.

<sup>2</sup> United States: The Obama Administration, the city of San Francisco, GovDelivery and the Policy Lab.

<sup>3</sup> France: ETALAB, OPENDATA France, Data Gouvernance France, the French Information Industry of Online Information, General Secretary for Modernisation of Public Action, Marie de Paris, and Atelier Parisien d'Urbanisme.

<sup>4</sup> Canada: Treasury Board Canada, Treasury Board of Ontario, and the city of Toronto.

<sup>5</sup> New Zealand: The Department of Land Information New Zealand (LINZ), Department of Internal Affairs, Office of the Government Chief Information Officer, State Services Commission, the Ombudsman Office, New Zealand Data Futures and universities.

<sup>6</sup> Communications data on file with author.

<sup>7</sup> See Government of the United States of America, Bureau of Justice Statistics <<https://www.bjs.gov/rawdata.cfm#law>>

In a recent study in factors of judicial decision making, researchers examined open data from over a thousand cases by eight judges, combined with sentencing data, and other seemingly extraneous information.<sup>8</sup> For example, the study found that prisoners were more likely to be granted early parole or a more lenient sentence at the start of the day or immediately after a break in court proceedings such as lunch or coffee. The researchers studied other factors such as severity of the prisoner's crime, prison time, sex and ethnicity which was found to not affect the rulings in the same way as more innocuous factors. The study can now be modified to use data analytic tools to study hundreds of thousands of cases in varying jurisdictions to see if these factors hold true in other jurisdictions, and whether such factors equally influence civil proceedings.

Another example of evidence-based law looks at the European Union's decision to mandate that clinical study reports for medical products are openly available for researchers.<sup>9</sup> Normally, only abbreviated medical journal articles are published; the EU now publishes the full studies. While not a perfect solution to the problem with pharmaceutical commercial sponsorship of medical research, there is more transparency. Open access to such studies can lead to information for product liability, and potentially open up avenues for public redress where medical products have led to undesirable outcomes. These are merely two examples of hundreds of new ways that law can benefit from opened government data. For other countries, open government data means free and unfettered access to legal databases that include court decisions and legislation such as what is found on Austlii and Canlii. Other jurisdictions (many in Europe and the United States) still do not have free and open access to legal documents.

What is open data exactly? There are standardised definitions which are listed below.

Open data<sup>10</sup> is data that can be used, shared and built-on by anyone, anywhere, for any purpose.

Open Government Data<sup>11</sup> is:

- Data produced or commissioned by government or government controlled entities

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<sup>8</sup> Shai Danziger

<sup>9</sup> Peter Doshi and Tom Jefferson, 'Clinical study reports of randomised controlled trials: an exploratory review of previously confidential industry report' (2013) 3(2) *BMJOpen* 1.

<sup>10</sup> Open Knowledge International, *The Open Definition* <<http://opendefinition.org>>.

<sup>11</sup> Open Knowledge International, *Open Government Data* <<https://opengovernmentdata.org>>.

- Data which is open as defined in the Open Definition<sup>12</sup> – that is, it can be freely used, modified, and shared by anyone for any purpose (subject to requirements that preserve provenance and openness) (Open Government Data at <https://opengovernmentdata.org>)

These definitions are important in that often there are misconceptions about information sharing and open data. For example, if an agency does not allow the data to be used in a commercial application, or if an agency is charging for the data, this is not open data. Some data for reasons of privacy, security, and commercial sensitivity has restrictions on if and how it is shared. However integral to this article is a recognition that not all data constitutes open data from creation and to progress the open data agenda enablers that facilitate the transformation of data to open data are required. This approach is recognised in the enablers identified in all leading jurisdictions.

Government may share data in three ways: 1. Internally within an Agency, (one department or a cluster of departments with similar sharing restrictions) 2. Agency to Agency (between government departments or authorised third party), or 3. Agency to public (between government agencies to the public). Under the definition of open data, data is only truly open when it is available to be accessed, used and shared in all of the above ways. An additional aspect that is increasing in importance is the use of external non-government organisations to provide services on behalf of government. In these cases there may also need to be appropriate legislative and policy frameworks supporting the flow of information from those providers to agencies.

### **Selected Indexes and Countries**

There are many projects and indexes looking at open data but not all are directly relevant to this article.<sup>13</sup> This article considers six different measures but relies primarily on the work of three different measurements of the extent to which jurisdictions have implemented Open Data. These are: *Open Data Barometer (2015)*, *Global Open Data Index (2015)*, and *OECD*

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<sup>12</sup> Open Knowledge International, *Projects: The Open Definition* <<https://okfn.org/projects/open-definition/>>.

<sup>13</sup> *Open Data 500 Global Network* and the *Govlab Index on Open Data* study and compare companies' use of Open Data and track open data companies with the goal to "improve people's lives by changing how we govern, using technology-enabled solutions and a collaborative, networked approach". The *World Justice Project Open Government Index* measures government openness based on publicized laws and government data, right to information, civic participation and complaint mechanisms. The scores and ranking draw on 78 variables derived from over 100,000 surveys and expert questionnaires for each country.

*OURdata Index on Open Data (2014), and the Global Right to Information Rating (2015).*

The study further considered whether countries were members of the *International Open Data Charter, the World Justice Open Government Index and the G8 Open data Charter (2013)*. By examining the leading jurisdictions for these rankings, countries were selected to examine with additional weighting given to the Open Data Barometer as it is the only indicator that assesses impact. Those countries were: The UK, France, the US, Canada, New Zealand, the Netherland and Denmark.

**Open Data Barometer (ODB)**<sup>14</sup> is an expert assessment system that is scored by peer-reviewed local expert survey, a government self-assessment via a simplified survey and secondary data selected to complement the surveys to assess ‘Readiness’ portion of the assessment (data from the World Economic Forum, World Bank, United National e-Government Survey and Freedom House). Open Data initiatives are assessed by:

- *Readiness*: How prepared are governments for open data initiatives? What policies are in place?
- *Implementation*: Are governments putting their commitments into practice?
- *Impact*: Is Open Data being used in ways that bring practical benefit?

ODB is assessed across fifteen types of datasets: map data, land ownership, national statistics, detailed budget, government spend, company register, legislation, public transport timetables, international trade, health sector performance, primary or secondary education performance, crime statistics, national environment statistics, and national election results. ODB is the only study that assesses impact.

**Global Open Data Index (GODI)**<sup>15</sup> is a crowd-sourced indicator of the openness of government datasets where information is gathered through the Open Data Census. The index is produced by the Open Knowledge Foundation and relies on contributions from civil society members and open data practitioners globally (through non-probability sampling technique – ‘snowball sample’). Any member of the public may contribute to the index which is later peer-reviewed and checked by a team of expert country editors, and lastly there is a public review.

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<sup>14</sup> Open Data Barometer (ODB), *The Open Data Barometer* <[http://opendatabarometer.org/?\\_year=2016&indicator=ODB](http://opendatabarometer.org/?_year=2016&indicator=ODB)>.

<sup>15</sup> Open Knowledge International, *Global Open Data Index (GODI)* <<https://index.okfn.org>>.

The Index relies on the assessments of ten types of datasets: government budget, company registers, election results, emissions of (air) pollutants, legislation, national map, postcodes, government spending, national statistics, and transport tables.

**OECD OURdata Index on Open Data (OECD OGD)**<sup>16</sup> is an indicator produced by the OECD that uses both an ex post and ex ante analytical framework for OGD initiatives around a related set of data in order to map initiatives across OECD countries. The common set of metrics can then be applied to assess the impact and value created from Open Data. Open Data is analysed in three critical areas – openness, usefulness and re-usability.

The index includes analysis of nine types of datasets: business information, registers, patent and trademark information, public tender databases, geographic information, legal information, meteorological information, social data and transport information.

**International Open Data Charter**<sup>17</sup> was established in 2015 and builds on the G8 Open Data Charter, signed by G8 leaders in July 2013. The Charter is a collaboration between governments and data experts, and is underpinned by six principles to improve the access, release and use of data:

- Open by default
- Timely and comprehensive
- Accessible and usable
- Comparable and interoperable
- For improved governance and citizen engagement
- For inclusive development and innovation

**World Justice Open Government Index (WJ Open Government Index)**<sup>18</sup> is an indicator of government openness based on four dimensions: publicized laws and government data, the right to information, civil participation and complaint mechanisms. The scores and rankings come from household surveys (over 100,000) as well as in-country expert questionnaires.

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<sup>16</sup> Organisation for Economic Co-operation and Development (OECD), *Open Government Data: OECD OURdata Index on Open Government Data* <<https://www.oecd.org/gov/digital-government/open-government-data.htm>>.

<sup>17</sup> International Open Data Charter, *History* <<http://opendatacharter.net/history/>>.

<sup>18</sup> World Justice Project, *World Justice Project Open Government Index 2015 Report* (Report, 2015), 4 <[https://worldjusticeproject.org/sites/default/files/ogi\\_2015.pdf](https://worldjusticeproject.org/sites/default/files/ogi_2015.pdf)>.

The index provides the “perspectives of ordinary people as they interact with their governments.”

**The Global Right to Information Ratings (GIIR)**<sup>19</sup> is a programme which comparatively assesses the strength of legal frameworks for the right to information from around the world which is based on 61 indicators. The rating measures the legal framework based on clusters of indicators: Right of Access, Scop, Requesting Procedures, Exceptions and Refusals, Appeals, Sanctions and Protections, and Promotional Measures. A pilot application was conducted to test the framework, as well as looking at international standards and comparing them to countries right of information laws. Many of the local experts have a background in journalism and/or privacy. The ratings measure the legal frameworks; they do not measure their implementation, how they function in practice, or their impact.

**G8 Open Data Charter**<sup>20</sup> was signed by the G8 leaders on 18 June 2013. The Open Data Charter sets out 5 strategic principles that all G8 members will act on. These include an expectation that all government data will be published openly by default, alongside principles to increase the quality, quantity and re-use of the data that is released. G8 members have also identified 14 high-value areas – from education to transport, and from health to crime and justice – from which they will release data.

The findings and rankings from these studies are provided below in Table A.

**Table A: Global Ranking Comparisons of Leading Jurisdictions**

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<sup>19</sup> Global Right to Information Rating (GIIR), <<http://www.rti-rating.org>>.

<sup>20</sup> International Open Data Charter, *G8 Open Data Charter* (18 June 2013) <<http://opendatacharter.net/resource/g8-open-data-charter/>>.



Country	Open Data Barometer 2015	Global Open Data Index 2015	OECD OURdata Index 2014	International Open Data Charter (Oct. 2016)	WJ Open Government Index 2015	Global Right to Information Rate 2015	G8 Open Data Charter 2013
United Kingdom	1	2	3	Yes	8	34	Yes
United States	2	8	9	No	11	57	Yes
France	2	10	2	Yes	17	95	Yes
Canada	4	17	5	No (City of Edmonton - Yes)	7	49	Yes
Denmark	5	3	19	No	4	93	
New Zealand	6	NA	15	No	2	41	
Netherlands	6	8	25	No	5	63	

France is noticeable in its rank change from 2013 to 2015 in the ODB (up 8 ranks) and is the only other country surveyed to also adopt the International Open Data Charter; they have adopted the G8 Open Data Charter as well.

Canada has adopted the G8 Open Data Charter and the City of Edmonton, Alberta, has adopted the International Open Data Charter.

This table highlights the leadership of the United Kingdom. It is the only country to score in the top 5 across these first three Open Data measurements. They were also one of the original adopters of the International Open Data Charter 2015<sup>21</sup> and the G8 Open Data

<sup>21</sup> Open Data Charter, *International Open Data Charter* (2015) <[http://opendatacharter.net/wp-content/uploads/2015/10/opendatacharter-charter\\_F.pdf](http://opendatacharter.net/wp-content/uploads/2015/10/opendatacharter-charter_F.pdf)>.

Charter 2013.<sup>22</sup> The United Kingdom is also the only country to Score 100 in Readiness, Implementation and Impact (ODB). As a result, this article focuses more heavily on the UK than other jurisdictions.

Each jurisdiction's open data policies are organised by legislation, responsibility and coordination, policies, regulatory settings, operating environment and a selection of examples of open data projects, outcomes and applications.

## ***United Kingdom***

### **Legislation**

The *Data Protection Act 1998* (DPA), *Freedom of Information Act 2000* (FOI Act), *The Protection of Freedoms Act 2012*, the *Public Records Act 1958* (PRA), and *Re-use of Public Sector Information Regulations 2014* provide the legal framework for information activity.

The DPA<sup>23</sup> provides a data protection regime that governs the collection, use and disclosure of personal data. The DPA covers 'personal data' (PD) via data protection principles, and deprecates retention of PD for longer than absolutely necessary, or release of PD unless collected under narrow circumstances, requiring redaction of records or removal or editing of information to reliably prevent identification of individuals where the source derives from personal data. Sensitive personal information has higher protection, and transfer outside the EEA is not permissible without adequate protection. The ICO can under the DPA prosecute offences, conduct audits, make orders and report to Parliament. The main intent is to protect individuals against misuse or abuse of information about them through encouraging best data management practices.

The FOI Act<sup>24</sup> provides four main objectives: openness and transparency; accountability; better decision making; and public involvement in decision making. The FOI Act and its s45 Codes of Practice cover 'disclosure of information held by public authorities or by persons providing services for them', creating a potential for citizen enforcement of the right to

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<sup>22</sup> Government of the United Kingdom Cabinet Office, *G8 Open Data Charter UK Action Plan 2013* (November 2013) <[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/254518/G8\\_National\\_Action\\_Plan.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/254518/G8_National_Action_Plan.pdf)>.

<sup>23</sup> *Data Protection Act 1998* (UK) c 29 ('DPA') <<http://www.legislation.gov.uk/ukpga/1998/29/contents>>.

<sup>24</sup> *Freedom of Information Act 2000* (UK) c 36 ('FOI Act') <<http://www.legislation.gov.uk/ukpga/2000/36/contents>>.

access certain information. The *Protection of Freedoms Act 2012*<sup>25</sup> amended the FOIA to create a ‘right to data’ comprising new duties for certain public authorities to provide datasets of factual management information in a re-usable form and with a licence permitting re-use, in response to requests, and to continue to publish them. Re-usable means machine readable based on open standards.

The PRA<sup>26</sup> operates in conjunction with the FOI Act to make arrangements for the selection and transfer of public records to the National Archive. The FOI Act determines when public records are released for public access.

The Re-use Regulations<sup>27</sup> creates a specific OD driver requiring information be made available for reuse in machine readable format using open data standards and by default, the Open Government License

### **Responsibility and Cooperation**

In the UK the ultimate responsibility for achieving open government (and within that open data) rests with the centralised authority of UK Cabinet Office, the work of which is largely coordinated through the Chief Data Officer<sup>28</sup> who has the role of championing open data, driving the use of data for government decision making and by setting standards and principles for open data including the enforcement of set standards.

Open data initiatives are supported by a culture of openness at all levels of government (top, middle and bottom) through centralised, regionalised and localised efforts.

The accountability and transparency mandates in the Prime Ministerial Letters of 2010-2012 required OD take up by both centralised Departments and local government. There is also now vigorous regional activity with council clustering including Leeds and the North (Eg. Data Mill North), Bristol, London, and in 7 Scottish cities (Eg. Scottish Cities Alliance). The

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<sup>25</sup> (UK) c 9 <<http://www.legislation.gov.uk/ukpga/2012/9/contents/enacted>>.

<sup>26</sup> *Public Records Act 1958* (UK) 6 & 7 Eliz 2, c 51 <<http://www.legislation.gov.uk/ukpga/Eliz2/6-7/51>>.

<sup>27</sup> *Re-use of Public Sector Information Regulations 2015* (UK) SI 2014/1362 <<http://www.legislation.gov.uk/uksi/2015/1415/contents/made>>.

<sup>28</sup> DigitalGov, *UK appoints first Government Chief Data Officer* (26 March 2015) <<https://digitalgov.com.au/uk-appoints-first-government-chief-data-officer/>>.

role of harnessing and championing data at the localised level is folded into the role of Chief Information Officer or Chief Officer ICT<sup>29</sup> (Eg. Leeds)

There are dedicated open data chief officers at the national, regional and local levels. The Information Commissioner Office<sup>30</sup> is responsible for the oversight and integrity of open data through the establishment of the Open Government License, best practices, complaint handling, and determinative powers together with national and international leadership, co-operation and advocacy.

## Policy

Prime Minister David Cameron issued Ministerial Letters (2010-2012)<sup>31</sup> to every government department calling for greater transparency through specific commitments to making both information and datasets on government spending, procurements, crime data and more – all openly available to the public.

Government commitments or obligations at a national level include those under the Open Government National Action Plans,<sup>32</sup> represent a policy foundation for Open Data putting release of public sector data into an accountability and transparency context. The 2012 Cabinet Office White Paper *Open Data: unleashing the potential*<sup>33</sup> set out how the Coalition government aimed to ‘put data and transparency at the heart of government’.

The *Public Data Principles* remain another key policy document (Public Sector Transparency Board: *Public Data Principles*).<sup>34</sup> There are 14 Principles which guide open data. These are important as other jurisdictions have Charters or similar documents that do not go as far as the UK. The selected principles are ones not readily found in other jurisdictions, but which contribute to the UK’s success in open data in readiness, implementation and impact:

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<sup>29</sup> Wikipedia, *Chief Information Office* (15 August 2017)

<[https://en.wikipedia.org/wiki/Chief\\_information\\_officer](https://en.wikipedia.org/wiki/Chief_information_officer)>.

<sup>30</sup> Information Commissioner’s Office, <<https://ico.org.uk>>.

<sup>31</sup> Government of the United Kingdom Prime Minister’s Office, *Letter to Government departments on opening data* (31 May 2010) National Archives <<http://webarchive.nationalarchives.gov.uk/20130104174825/http://www.number10.gov.uk/news/letter-to-government-departments-on-opening-up-data/>>.

<sup>32</sup> Government of the United Kingdom, Government Digital Services, *UK Open Government National Action Plan 2016-18* (12 May 2016) <<https://www.gov.uk/government/publications/uk-open-government-national-action-plan-2016-18/uk-open-government-national-action-plan-2016-18>>.

<sup>33</sup> Government of the United Kingdom, Government Digital Services, *Open Data: Unleashing the Potential* (28 June 2012) <<https://www.gov.uk/government/publications/open-data-white-paper-unleashing-the-potential>>.

<sup>34</sup> Government of the United Kingdom, *Public Sector Transparency Board: Public Data Principles* (June 2012) <[https://data.gov.uk/sites/default/files/Public%20Data%20Principles\\_For%20Data.Gov%20\(1\)\\_10.pdf](https://data.gov.uk/sites/default/files/Public%20Data%20Principles_For%20Data.Gov%20(1)_10.pdf)>.

- Public data policy and practice will be clearly drive by the public and businesses that want and use the data, including what data is released when and in what form.
- Public data will be published using open standards, and following relevant recommendations of the World Wide Web Consortium (W3C)
- Release data quickly, and then work to make sure that it is available in open standard formats, including linked data forms

Commitments at Cabinet level were in response to the Prime Ministerial Letters of 2010-2012 which mandated Department Ministers to release a list of specified data sets for the purpose of accountability, and transparency of public spending and related decisions. At the subnational and council level, the Local Government Transparency Code 2015<sup>35</sup> mandates local authorities make plans and publish a number of open datasets, including data on spending (£500 and above) and contracts, senior salaries, grants to voluntary, community and social enterprise sector, public land and property assets, and other information, and report to the Department for Communities and Local Government (DCLG) on progress on the plans.

A main policy objective was to require adoption of ‘open by default’ for these data sets. The coverage is mainly ‘government to public’, in keeping with the accountability motive, with ‘machine to machine’ APIs increasingly expected. There appears to be little emphasis on ‘Agency to Agency’ release in UK Open Data literature. This may be due fewer restrictions on information sharing between agencies and programs to encourage information sharing.<sup>36</sup> For example, many UK agencies participate in multi-agency working and information sharing (MASH). The same over-arching legislative and policy frameworks such as FOI, and Data Protection apply to national, regional and local agencies creating less information sharing limits between agencies, and between national and sub-national agencies. In the UK, data is open in its truest sense: for internal agency use, agency to agency, and agency to public.

## **Regulatory Settings**

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<sup>35</sup> Government of the United Kingdom, Government Digital Services, *Local Government Transparency Code 2015* (27 February 2015) <<https://www.gov.uk/government/publications/local-government-transparency-code-2015>>.

<sup>36</sup> Centre of Excellence for Information Sharing, *Uncovering Barriers to Information Sharing (2014-2015)* <[http://informationsharing.org.uk/wp-content/uploads/2015/04/Centre-Progress-Report\\_April-2015.pdf](http://informationsharing.org.uk/wp-content/uploads/2015/04/Centre-Progress-Report_April-2015.pdf)>.

Responsibility for monitoring, enforcement and assessment varies according to the agency and level. 2012's Open Data White Paper committed Cabinet Office to quarterly Written Ministerial Statements<sup>37</sup> on progress against the Public Data Principles as set out by the Public Sector Transparency Board. Departments publish Open Data Strategies setting out their programmes of work towards embedding Public Data Principles as business as usual, and commitments on publication of a number of datasets. Progress made in these strategies as well as the departmental commitments set out in the Prime Minister's letters of May 2010 and July 2011 on transparency and open data were also reported on as part of the evidence of progress.

FOI Act and its s45 Codes of Practice<sup>38</sup> create a practical framework for right of access to information. A refusal or delay to provide information to the citizen triggers significant effort at the data host, and ICO adjudication. There is an incentive to avoid such case-by-case FOI effort by publishing the whole data set pre-emptively, if the capability exists and the data is suitable. Communications with open data experts in England confirms that this Open Data release path can reduce case-by-case FOI burdens, motivating an Open Data culture.

### **Operating Environment**

Open data was initially driven by civil society's requests for specified datasets and by Ministerial Letters<sup>39</sup> (2010-2012) from David Cameron to every government departments calling for greater transparency through a specific commitments to making both information and datasets on government spending, procurements, crime data and more, openly available to the public.

Business and entrepreneurial activity is however not directly linked to Open Data release for accountability and transparency; there is generally more scope for widely valued and commercial uses of Open Data where the data sets covers issues of more general and routine

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<sup>37</sup> Government of the United Kingdom, Government Digital Services, *Report on Departmental Open Data Commitments and adherence to Public Data Principles for the period between July and September 2012* (12 December 2015)

<[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/83733/Transparency\\_and\\_Open\\_Data\\_\\_WMS\\_REPORT\\_July-Sept-2012.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/83733/Transparency_and_Open_Data__WMS_REPORT_July-Sept-2012.pdf)>.

<sup>38</sup> Information Commissioner's Office, *Section 45 - Code of Practice – request handling: Freedom of Information Act* <<https://ico.org.uk/media/1624144/section-45-code-of-practice-request-handling-foia.pdf>>.

<sup>39</sup> Government of the United Kingdom, *Letter to Government departments on opening data* (31 May 2010) National Archives

<<http://webarchive.nationalarchives.gov.uk/20130104174825/http://www.number10.gov.uk/news/letter-to-government-departments-on-opening-up-data/>>.

interest, like garbage collection nights (Data Mill North)<sup>40</sup>, travel times (TfL)<sup>41</sup> and food and agricultural markets (DEFRA).<sup>42</sup> The Open Data model has moved beyond internal accountability, compliance and releases to a more supported and collaborative OD culture.

In 2014 the UK authorised 1.5 million pounds to fund open data related projects. Since then there has generally been limited injections of extra funds to publish data sets as Open Data, with exceptions where central agencies have wanted to ensure a certain data set was available urgently. This 'Business as usual' model raises questions where there are continuing costs of conversion of legacy data sets and no resources for redevelopment of software to an 'Open by Default' model, especially where there are limited local practical benefits for the unfunded efforts to release sets or redevelop systems.

According to our engagement with agencies measurement has been done by quantity of datasets released with anecdotal evidence of cost reduction. There was a general sense that agencies did not have sufficient funds to do impact measurements.

There appear to be few if any binding quality requirements (apart from reliable exclusion of personal data, security sensitive information and some commercially confidential material). Raw 'data exhaust' datasets with known flaws are sometimes permissible to release. Quality issues were reported to be increasingly dealt with by expecting high quality data set metadata descriptions, so machine and human know what to expect.

Testing and Evaluation of Open Data sets must all be done under the standard project procedure before release. The publisher must assess compliance with the *Data Protection Act*, and take whatever action is necessary. This appears to include identifying those data sets that are not suitable for Open Data release for privacy or related reasons, and those where anonymisation/de-identification may fully address the DPA issues.

There many useful documents on Anonymisation and De-identification. These include the Information Commissioner Office's 'Anonymisation: Managing Data Protection Risk 2012,'

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<sup>40</sup> Data Mill North, <<https://datamillnorth.org>>.

<sup>41</sup> Transport for London, *Open Data Users* <<https://tfl.gov.uk/info-for/open-data-users/>>.

<sup>42</sup> Government of the United Kingdom, Government Digital Services, *Department for Environment Food & Rural Affairs (DEFRA)* <<https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs>>.

and more recently the UKAN collaboration production of Anonymisation Decision-Making Framework 2016.<sup>43</sup>

The Open Data Champions in the organisation are responsible for testing and evaluation. The data owners may not be in a position themselves to make these assessments or do this evaluation.

Data Scientists and other key technical people are in short supply, especially in the regions, and there are as yet few tertiary courses for the multiple skill sets required. The rare experts that are employed often occupy multiple roles in public and private sectors, promoting policy, standards and resources in the public sphere and implementing project solutions in consultancy roles. However, training is offered to data custodians within the centralised Departments more generally; this focussed on privacy, anonymization of personal information, and differences between FOI and Open Data.

Hubs of clusters of expertise appear to be important to UK's success, including around Leeds and the North, Bristol, London, and the Scottish 7 cities. Leeds for instance started the Leeds Data Mill, but rebranded this as Data Mill North when it became recognised as a functional hub of Open Data publication capacity and expertise for the region. Networks of Open Data champions and civil servant organisations also play a role in culture and knowledge sharing.

The UK provides a centralised open portal, Data.gov.uk<sup>44</sup> platform. Licensing in UK tilts strongly to use of the Open Government Licence (OGL),<sup>45</sup> especially centrally. Traditional 'Crown copyright' and Creative Commons CC-BY type licences were not considered appropriate for public sector Open Data release; OGL draws from these but is tailored to such releases. It also simplifies analysis of licencing implications, because it is the common default (Canada has modelled its license on the OGL).

Detailed and standardised metadata (Dublin Core Metadata Standard/ISP Standard 15836-2009<sup>46</sup> or W3C<sup>47</sup>) was seen to have potential to help identify and deal with issues about data

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<sup>43</sup> UKAN Members (includes members from Open Data Institute, Information Commissioner's Office, University of Oxford, London School of Economics, National Archives and others). Mark Elliot, Elaine Mackey, Keiron O'Hara and Caroline Tudor, *The Anonymisation Decision-Making Framework* (July 2016) <<http://ukanon.net/wp-content/uploads/2015/05/The-Anonymisation-Decision-making-Framework.pdf>>.

<sup>44</sup> Government of the United Kingdom, <<https://data.gov.uk>>.

<sup>45</sup> Government of the United Kingdom, *Open Government Licence for Public Sector Information*, National Archives <<https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>>.

<sup>46</sup> Dublin Core Metadata Element Set, <<http://dublincore.org/documents/dces/>>.

<sup>47</sup> W3C Metadata Standard, <<http://www.w3.org/TR/2015/WD-dwbp-20150224/#metadata>>.



quality and characteristics, by putting both human and machine ‘on notice’ about its specific quality and other characteristics including the limitations of the dataset.

### **Examples of Open Data Projects, Outcomes and Applications**

#### **OPENDefra<sup>48</sup>**

The Secretary of State for the Department for Environment, Food & Rural Affairs (Defra) set a challenge for the department to transition to a more open, collaborative and data-driven organisation resulting in OPENDefra. OPENDefra was a collaboration of internal and external participants (Eg. Open Data Institute) were able to realise the release of over 11,000 datasets in 18 month (8000 specific datasets were mandated to be opened by the Cabinet Office). In this way, the Cabinet mandated a quantitative dataset quotas to be opened in a specified time. The big catalyst to opening the data came from the realisation that the data had potential uses and engaged users outside of the Department.

The release of high quality data, for example the Light Detection and Ranging (LIDAR)<sup>49</sup> data yielded interesting results. LIDAR is the Environment Agency’s 3D height data used by the agency for flood modelling. The dataset was mandated to be opened. When the dataset was opened and released it found its way into a variety of applications and experiments including resources for school, the game Minecraft, modelling of snowfall for scientists working on climate change, in urban planning and civil engineering to help plan and manage infrastructure by transport, energy and utility companies. Previously this data was a revenue generator causing some concerns over revenue reduction if the data were to be opened. However, while revenue disappeared they saved money by opening the data. Prior to open data, many of the flood predictions were done by companies using less reliable datasets. These models and applications in turn had to be carefully reviewed due to data quality issues. Use of the high quality LIDAR data has alleviated testing and evaluation costs.

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<sup>48</sup> Alexander Coley, ‘#OpenDefra’ on Government of the United Kingdom, Government Digital Services, *Defra Digital* (25 June 2015) <<https://defradigital.blog.gov.uk/2015/06/25/opendefra/>>.

<sup>49</sup> Government of the United Kingdom, Environment Agency, <<http://environment.data.gov.uk/ds/survey/index.jsp#/survey>>.

OPENDefra also resulted in an appraised approach to privacy. The National Family Food Survey<sup>50</sup> conducted a privacy impact assessment<sup>51</sup> which was later been used as an example of a model approach. It was later published and there remains a version open to public comment to provide feedback for current and future use. This PIA is considered to be a model for future opening of datasets containing confidential personal information.

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### **Regional and Local Skills and Training Hub: Data Mill North**

Data Mill North publishers were created by Leeds City Council, and recently spun off and rebranded independently. Along with the Leeds Council and Innovation Lab, they are seen across the UK as the most innovative and progressive hubs of innovation. Now a regional publication hub and centre of expertise for the North England region. It needed a critical mass of staff, who are hard to support both in budget and retention, but which is impossible at the individual council level. It works over a large region in the North of England, joins various councils together, common resources, cross fertilisation, critical mass of different initiatives being worked up, coming on line, and going operational.

### **Freedom of Information Requests: Leeds Council**

The Leeds Council had the benefit of reducing costs associated with Freedom of Information Requests (FOR). Leeds received 10 FOIs per month for business rates data, taking 30 hours per month, nearly a whole week for FOI on this data type alone. By publishing it online first, over time the recipients got used to it and making less FOI requests. Where an FOI request was made the Council could simply direct them to where the information / data was openly available online. This service now also publishes additional data, guided by actual demand at the larger scale of online usage. This is all done with fewer resources than before. In the absence of other funding, this sort of outcome is very helpful. It relied on strictly enforceable

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<sup>50</sup> Government of the United Kingdom, DEFRA, *Family Food Survey* (16 February 2016) <<https://data.gov.uk/dataset/family-food-survey>>.

<sup>51</sup> Government of the United Kingdom, DEFRA, *Privacy Impact Assessment: releasing Family Food Survey data (1974 - 2000) as open data* (18 February 2016) <[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/501147/OPENPrivacyImpactAssessmentFamilyFoodSurveydata-18feb16.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/501147/OPENPrivacyImpactAssessmentFamilyFoodSurveydata-18feb16.pdf)>.

FOI rights - they could not be avoided by delay or refusal, so Open Data was a viable alternative.

### *United States*

#### **Legislation**

The Federal legislative framework evolves around the *Digital Accountability and Transparency Act 2014* (DATA Act) and the *Making Open and Machine-Readable the New Default for Government Information, Executive Order 13642*, the *Open Government Act 2007* and the *Freedom of Information Act*.

The DATA Act<sup>52</sup> requires annual federal spending to be reported as open data in machine-readable format. The Act was first passed in 2014 and is being implemented incrementally with the final implementation date of May 2017.

The Executive Order<sup>53</sup> mandates open by default for new and modernised government information. It is important to note that the title of the EO includes the term “machine-readable”. This resonates with the US viewpoint that opening data is only the first step. Advancing a data-driven government and economy requires open data, machine-readable format, with the legislative framework and sufficient resources to utilise big data analytics.

Related acts include Freedom of Information Act<sup>54</sup> which instructs agencies to “adopt a presumption in favour of disclosure” and “take affirmative steps to make information public.” The Open Government Act 2007<sup>55</sup> that amended sections of the *Freedom of Information Act*.

In California Open Data is required under s. 6253.10 which inserted “open data” in to the California Public Records Act 1968.<sup>56</sup> The Act requires any agency that voluntarily posts any public record described as “open data” to make that record available in an open format

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<sup>52</sup> *Digital Accountability and Transparency Act of 2013*, HR 2061, 113<sup>th</sup> Congress (2013-2014) <<https://www.congress.gov/bill/113th-congress/house-bill/2061>>.

<sup>53</sup> Administration of Barack H. Obama, *Executive Order 13642, Making Open and Machine Readable the New Default for Government Information* (9 May 2013) <<https://obamawhitehouse.archives.gov/the-press-office/2013/05/09/executive-order-making-open-and-machine-readable-new-default-government->>.

<sup>54</sup> *Freedom of Information Act*, 5 USC § 552 (1967) <<https://www.justice.gov/oip/freedom-information-act-5-usc-552>>.

<sup>55</sup> *OPEN Government Act of 2007*, S 2488, 110<sup>th</sup> Congress (2007-2008) <<https://www.congress.gov/bill/110th-congress/senate-bill/2488>>.

<sup>56</sup> California Attorney General’s Office, Summary California Public Records Act Government Code Section 6250 Et Seq (August 2004) <[http://ag.ca.gov/publications/summary\\_public\\_records\\_act.pdf](http://ag.ca.gov/publications/summary_public_records_act.pdf)>.

(i.e., retrievable, downloadable, indexable, searchable, platform independent, machine readable, free of charge, and retaining its compiled data structure and definition).

The city of San Francisco has created its own open data legislation including the San Francisco Sunshine Ordinance 1999<sup>57</sup> and the Open Data Directive 2009.<sup>58</sup>

### **Responsibility and Cooperation**

President Obama issued the Open Data Executive Order in May 2013 along with The Open Data Policy<sup>59</sup> released through the Office of Management and Budget<sup>60</sup> and the Office of Science and Technology Policy.<sup>61</sup> The real push for open data and machine-readable data came from civil society as was also the case in the UK and France.

The US established a governance framework with a list of roles and responsibilities. Like the UK and France, there is a Chief Information Officer<sup>62</sup> (similar to the Chief Data Officer) who is responsible for policy and oversight.

The Office of Science and Technology Policy has a Chief Data Scientist.<sup>63</sup> The OSTP is responsible for championing open data across designated fields of energy, education, finance, public safety and global development. There is concern under the Trump Administration that there will be budget cuts to OSTP as well as a potential change in policy potential in open government data as a whole, and certainly of opening certain datasets. Energy and environmental datasets appear to be at the most risk.

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<sup>57</sup> 67 Cal Code <<http://administrative.sanfrancisco.org/67/>>.

<sup>58</sup> City and County of San Francisco, *Mayor Newsom Announces New Open Data Policy for San Francisco* (23 October 2009) San Francisco Government <[http://www5.sfgov.org/sf\\_news/2009/10/mayor-newsom-announces-new-open-data-policy-for-san-francisco.html](http://www5.sfgov.org/sf_news/2009/10/mayor-newsom-announces-new-open-data-policy-for-san-francisco.html)>.

<sup>59</sup> Joshua Tauberer, 'U.S. Federal Open Data Policy' in Joshua Tauberer, *Open Government Data: The Book* (2<sup>nd</sup> ed, 2014) <<https://opengovdata.io/2014/us-federal-open-data-policy/>>.

<sup>60</sup> Government of the United States of America, The White House, *Office of Management and Budget*, <<https://www.whitehouse.gov/omb>>.

<sup>61</sup> Government of the United States of America, The White House, *Office of Science and Technology Policy* <<https://www.whitehouse.gov/ostp>>.

<sup>62</sup> Wikipedia, *Federal Chief Information Officer of the United States* (27 July 2017) <[https://en.wikipedia.org/wiki/Federal\\_Chief\\_Information\\_Officer\\_of\\_the\\_United\\_States](https://en.wikipedia.org/wiki/Federal_Chief_Information_Officer_of_the_United_States)>.

<sup>63</sup> Megan Smith, 'The White House Names Dr. DJ Patil as the First U.S. Chief Data Scientist' The White House of President Barack Obama (18 February 2015) <<https://obamawhitehouse.archives.gov/blog/2015/02/18/white-house-names-dr-dj-patil-first-us-chief-data-scientist>>.

The Office of Government Information Services (OGIS)<sup>64</sup> provides mediation service for disputes between FOIA requesters and government agencies. They also review and provide input into policies and procedures as they relate to agencies under the FOIA.

The United States is unique in that it promotes open data for democratic transparency and accountability reasons (found in all jurisdictions) as well as for economic reasons. Open Data is considered a key future economic driver. Open machine-readable data is considered an essential element for businesses, governments and researchers to make new products, services, create jobs, and establish new businesses. Open data enhances innovation policy.

Many US States and cities, such as the State of California and the city of San Francisco, also have Chief Data Officers or the equivalent that are supported by legislation, policy and a sufficient budget to drive data initiatives.

### **Policy**

Sent on his first day in office, President Barack Obama sent a Memorandum<sup>65</sup> for the Head of Executive Departments and Agencies on Transparency and Open Government. The Memo commits to establishing “an unprecedented level of openness in Government,” and argues that government should be transparent, participatory, and collaborative. Along with these three principles, this memo directs the Chief Technology Officer, Director of the Office of Management and Budget (OMB), and Administrator of General Services to develop recommendations for “an Open Government Directive,” and it instructs executive departments and agencies in the federal government to act accordingly.

The *Open Government Directive* 2009 was issued by the Obama Administration and directs executive departments and agencies to take specific actions and to implement the principles of transparency, participation and collaboration which including publishing government information online in open formats.

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<sup>64</sup> United States National Archives and Records Administration, *The Office of Government Information Services*, National Archives <<https://www.archives.gov/ogis>>.

<sup>65</sup> Administration of Barack H. Obama, *Memorandum on Transparency and Open Government: Memorandum for the Heads of Executive Departments and Agencies*, DCPD200900010 (21 January 2009) <<https://www.archives.gov/files/cui/documents/2009-WH-memo-on-transparency-and-open-government.pdf>>.

The Open Government Partnership: National Action Plan for the United States of America<sup>66</sup> was first published in 2011 and provides a national action plan coupled with self-assessments and status reports. It lists new initiatives that include a platform for the public to directly petition the White House (<https://petitions.whitehouse.gov/>),<sup>67</sup> reform of FOIA, streamlining declassification, and disclosing regulatory compliance information. The Action Plans “to manage public resources more effectively,” initiatives are planned to increasing transparency around extractive industries, federal spending, and foreign assistance. And, “to improve public services,” initiatives build on Data.gov and other websites for communication and collaboration.

Subsequent plans and reports have been published under the Open Government Partnership, particularly the 2013 Self-Assessment Report.<sup>68</sup> These plans include support for subnational and global development in this space (similar to Canada’s Action Plan).

The Digital Government Strategy<sup>69</sup> compliments open government initiatives by setting goals and timelines to modernise the delivery of digital services. It focuses on information or data (accessible through web APIs), shared platforms (including open content management systems and enterprise wide asset management & procurement), internal and external customer service (e.g., improving .gov domain and mobile access), and security (including personal privacy and mobile security requirements).

It is unknown what direction Open Data will take with the Trump Administration. As of February, 2017 there have been a number of key datasets removed from the main Federal portal data.gov. The removals have been tracked by the Sunlight Foundation.<sup>70</sup> Replicas of the datasets were made and are stored by the Internet Archive, numerous libraries and universities and organisations outside of the United States. The datasets are still openly

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<sup>66</sup> Administration of Barack H. Obama, *The Open Government Partnership National Action Plan for The United States of America* (20 September 2011)

[https://obamawhitehouse.archives.gov/sites/default/files/us\\_national\\_action\\_plan\\_final\\_2.pdf](https://obamawhitehouse.archives.gov/sites/default/files/us_national_action_plan_final_2.pdf).

<sup>67</sup> Government of the United States of America, *Petitions*, The White House <<https://petitions.whitehouse.gov/>>.

<sup>68</sup> *The Open Government Partnership Government Self-Assessment Report for The United States of America* (29 March 2013) Open Government Partnership

[http://www.opengovpartnership.org/sites/default/files/ogp\\_selfassessment\\_march2013\\_0.pdf](http://www.opengovpartnership.org/sites/default/files/ogp_selfassessment_march2013_0.pdf).

<sup>69</sup> The Office of Website Management, Bureau of Public Affairs, *Digital Government Strategy*, United States Department of State <<https://www.state.gov/digitalstrategy/>>.

<sup>70</sup> Sunlight Foundation, *Tracking U.S. government data removed from the Internet during the Trump administration* <<https://sunlightfoundation.com/tracking-u-s-government-data-removed-from-the-internet-during-the-trump-administration/>>.

available, but not through the official data.gov portal. There have been no legislative amendments, regulations or government policies announced in relation to open data as of yet.

The city of San Francisco is exemplary in its adoption of law, policy and support for open data. The Open Data Policy 2010 (Administrative Code Chapter 22D, Open Data Policy)<sup>71</sup> codifies in law the policy requirements from the mayor's previous Open Data Directive. It requires departments to "make reasonable efforts" to make datasets available through the city's portal and regularly review their progress in doing so. The city's Committee on Information Technology (COIT) is to establish rules and standards for public disclosure (within 60 days), and "balance the benefits of open data... with the need to protect from disclosure information that is proprietary, confidential, or protected by law or contract." The city operates the DataSF portal.

### **Regulatory Settings**

Like the UK and France, the role of the Deputy Chief Technology Officer for Data Policy, and the Chief Scientists in the OSTP are considered pivotal. The role of CDOs in nations share many common goals: help shape policies and practices, enable a culture, and assist in developing guidelines, standards and licenses. In the US, however, the role of CDO equivalent is also to "maximise the nation's return on its investment in data" and to "help recruit and retain the best minds in data science to join in serving the public."

Both California and the city of San Francisco have dedicated Chief Data Officers. For San Francisco the duties of the position are listed to include drafting rules and standards; prioritizing data for publication; coordination and maintenance of DataSF; and assistance to city departments, among related functions.

### **Operating Environment**

While open data polices may produce long-term savings, implementation at the federal level is not cheap. In 2016, more than \$80 million was requested for DATA Act implementation; \$10 million was requested for pilot programs in the Department of Health and Human Services alone. Accurately or not, open data laws and policies are often seen by government agencies in terms of compliance and the additional costs of implementation.

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<sup>71</sup> <<http://administrative.sanfranciscocode.org/22D/>>.

Implementation of open government data moved slowly at first in San Francisco, then improved significantly with legislated funded roles for this task.

Communications with open data organisations indicate that measurement is done through milestone achievements, and by both quantity and quality of apps/projects that have used the open data.

Agencies must incorporate privacy analyses into each stage of the information's life cycle. In particular, agencies must review the information collected or created for valid restrictions to release to determine whether it can be made publicly available

As agencies consider whether or not information may be disclosed, they must also account for the "mosaic effect" of data aggregation. Agencies should note that the mosaic effect demands a risk-based analysis, often utilizing statistical methods whose parameters can change over time, depending on the nature of the information, the availability of other information, and the technology in place that could facilitate the process of identification. Because of the complexity of this analysis and the scope of data involved, agencies may choose to take advantage of entities in the Executive Branch that may have relevant expertise, including the staff of Data.gov.

While specific training programs were not mentioned by agencies, most noted that training of existing staff and hiring people with the requisite skill set were important enablers in creating an open data culture.

The United States central portal uses machine-learning to automatically consolidate datasets published on local and regional data portals and offering them on the national portal.

Data.gov and DataSF provide information on how to navigate the data but not provide the tools themselves. The information outlines how to search data, apply filters and recommended software languages and data formats are explained.

### **Examples of Open Data Projects, Outcomes and Applications**

#### **DataSF (San Fransisco)**

The US emphasises that data alone is not useful. Success depends on engagement. Many US efforts have included pilot studies and experimentation as well as published milestones,



progress reports and dashboards. The DataSF<sup>72</sup> portal tracks the status of the dataset inventory, data plans and published datasets.

### **DATA USA**

The most salient feature of open data is to publish the data as machine readable so that it may be linked to open data. The best example of this is DATA USA<sup>73</sup>. Because the Federal Data.gov portal along with many State and local portals are machine-readable, issued in standard formats, and have clear licensing terms, the US private sector has greatly leveraged the open datasets. This is perhaps best illustrated through the recently launched DATA USA (April 4, 2016).

DATA USA is a free and open platform created collaboratively by MIT Media Lab, Deloitte and Datawheel (a Media Lab spinoff). The platform aggregates public data relevant to key issues providing what many consider to be the most comprehensive and easy-to use open-source visualisation tool for public data. As one leading expert put it, “It’s essentially a one-stop shop for information that is easy to search, understand, embed, and build into new code.”

The author looked and experimented with many portals and applications, and did not find anything comparable to this system.

### **Code for America**

Code for America is an excellent example for building capacity for regionalised and localised open government data. Code for America<sup>74</sup> The Code for America is a foundation backed by the private and public sectors who “build open source technology and organise a network of people dedicated to making government services simple, effective, and easy to use.”

The Foundation selects 30 fellows each year to work with the Data Office in San Francisco to assist 10 American cities with open government data projects. Because these projects are open source, they are also made public so that anyone can contribute to the open source project, not just the 30 fellows steering the project. The project has inspired other global initiatives including Code for Africa. The Foundation has published an open data

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<sup>72</sup> DataSF, <<https://datasf.org>>.

<sup>73</sup> DATA USA, <<https://datausa.io>>.

<sup>74</sup> Code for America, <<https://www.codeforamerica.org>>.

“playbook”<sup>75</sup> based on its rich experience of working with sub-national authorities in the United States.

## **France**

### **Legislation**

As is the case with the UK and US, France has legislation mandating the release of open data (subject to limited exceptions).

The French legal framework consists of two main laws: LOI n° 2015-1779 du 28 décembre 2015 relative à la gratuité et aux modalités de la réutilisation des informations du secteur public’ (*Law on the free use and the modalities of the re-use of public sector information*),<sup>76</sup> and Loi pour une République numérique 2016’ (*Law on the Digital Republic*).<sup>77</sup>

The *Law on the Digital Republic 2016* together with *The Law on the Free use and the Modalities of the Re-use of Public Sector Information* mandates open by default; secure access to data for public researchers and statisticians; free access to data; machine-readable; free exchange of data between State administrations (prior some State administrations would have to pay a fee to access and use other State’s datasets); standard API; and that specific datasets by open which are the INSEE data, Public Administration data, energy related data, and legal jurisprudence data.

### **Responsibility and Cooperation**

Open Government Data coordination function are centralised in France. Etalab<sup>78</sup> was established in 2011 where responsibility rests with the General Secretariat (for the Modernisation of Public Action) under the Prime Minister’s Office. ETALAB coordinates the activities of public digital services, and its public institutions in order to facilitate the

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<sup>75</sup> Code for America: Brigade Network, ‘Brigade Organizer's Playbook’, <<http://brigade.codeforamerica.org/brigade/organize/playbook/>>.

<sup>76</sup> (France)

<<https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031701525&categorieLien=id>>.

<sup>77</sup> (France)

<<https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000033202746&categorieLien=id>>.

<sup>78</sup> Government of France, *Etalab* <<https://www.data.gouv.fr/en/organizations/etalab/>>.

widest possible re-use of its public information. France has a State Chief Data Officer<sup>79</sup> (2013) as does the greater city of Paris<sup>80</sup> (2016).

## Policy

The Atelier Parisien d'Urbanisme (APUR)<sup>81</sup> made an internal decision to open datasets before the enactment of national law that made open data by default for France's public administrations. As in the case of the United Kingdom, United States and Canada, there were publically made available Ministerial Letters (Vade-mecum)<sup>82</sup> mandating the sharing and opening of data (2013). The legislative framework came after APUR's move to open data, and the issuance of Ministerial Letters mandating open data.

France operates the open centralised portal, [data.gouv.fr](http://data.gouv.fr).<sup>83</sup> Data is released under the License Ouverte,<sup>84</sup> which is adapted from the Creative Commons License and is compatible with the UK's Open Government License and other Creative Commons licenses. Opening licensing law were the results of a French law mandating that public information be free and re-usable (Order No., 200-5-650). Currently this license has the unique restriction that data users may not deteriorate the content of the information or change meaning of words. France has announced that they will soon release 2 types of licenses for public agencies accompanied with detailed explanations of the licenses.

France released its National Action Plan: For a Transparent and Collaborative Government (2015-2017)<sup>85</sup> along with the Open Government Partnership: Mid-Term Self-Assessment

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<sup>79</sup> Le blog d'Etalab (Etalab Blog), 'Open government data: France creates the role of State Chief Data Officer' on Government of France, Le blog d'Etalab (Etalab Blog) (21 May 2014) <<https://www.etalab.gouv.fr/en/open-government-data-france-creates-the-role-of-state-chief-data-officer>>.

<sup>80</sup> French Data, *La ville de Paris se dote d'un Chief Data Officer* (23 June 2015) <<http://frenchdata.fr/la-ville-de-paris-se-dote-dun-chief-data-officer/>>.

<sup>81</sup> Atelier Parisien d'Urbanisme (APUR), <<http://www.apur.org/en>>.

<sup>82</sup> Government of France, Secretary General for Government Modernisation, Etalab, *Vade-mecum: sur l'ouverture et le partage des données publiques* (September 2013) <<http://www.modernisation.gouv.fr/sites/default/files/fichiers-attaches/vademecum-ouverture.pdf>>.

<sup>83</sup> Government of France, Etalab, <<https://www.data.gouv.fr/fr/>>.

<sup>84</sup> Government of France, Etalab, *Licence Ouverte* (Open License) (October 2011) <[https://www.etalab.gouv.fr/wp-content/uploads/2014/05/Licence\\_Ouverte.pdf](https://www.etalab.gouv.fr/wp-content/uploads/2014/05/Licence_Ouverte.pdf)>.

<sup>85</sup> Open Government Partnership, *For a Transparent and Collaborative Government: France National Action Plan* (2015-2017) <[http://www.opengovpartnership.org/sites/default/files/2015%2007%2009\\_Plan%20gouvernement%20ouvert%20EN%20Version%20Finale\\_0.pdf](http://www.opengovpartnership.org/sites/default/files/2015%2007%2009_Plan%20gouvernement%20ouvert%20EN%20Version%20Finale_0.pdf)>.

Report on First National Action Plan (2015-2017).<sup>86</sup> Policies also included the Open Data Guide for Municipalities.<sup>87</sup>

### **Regulatory Settings**

France is the first jurisdiction to have a State Chief Data Officer. France created a role of State Chief Data Officer whose mission is to organise a better circulation of data within public administration. The CDO is tasked with acquisition of essential data, contribute to and improve the quality of data, dissemination of tools, methods, guidelines to both comply with objectives of French law as well as to foster an open data culture. The CDO completes annual report on data governance.

### **Operating Environment**

In France, the supporting guides along with the work of OpenData France, which is an association aiming at supporting municipalities involved in open data initiatives, have facilitated the enactment of an open data culture within agencies. OpenData France provides with a comprehensive set of supporting elements (advice, negotiation, development, tools for representation etc.). Data quality assurance is managed through disclosure of the possible inaccuracies and limitations of the dataset.

Etalab manages the portal [www.data.gouv.fr](http://www.data.gouv.fr)<sup>88</sup> designed to collect and make available freely all public data.

The French use the Licence Ouverte<sup>89</sup> based on the Creative Commons licence. They are, however, currently developed two new types of licences for public sector agencies. In France there is a prioritisation of high-value datasets released with efforts made to consult with civil society and organisations. There is also the ability of a dataset and/or application to become certified. The certification is meant to instil confidence in users in the integrity and quality of the underlying dataset.

### **Examples of Open Data Projects, Outcomes and Applications**

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<sup>86</sup> Open Government Partnership, *Mid-Term Self Assessment Report on First National Action Plan (2015-2017)* <[https://suivi-gouvernement-ouvert.etalab.gouv.fr/fr/suivi-plan-ogp-2015-2017\\_fr.pdf](https://suivi-gouvernement-ouvert.etalab.gouv.fr/fr/suivi-plan-ogp-2015-2017_fr.pdf)>.

<sup>87</sup> Open Data France, *Guide Opendata pour les Communes* (Open Data for the Commons) <<http://www.opendatafrance.net/guide-opendata-pour-les-communes/>>.

<sup>88</sup> Government of France, Etalab, <<http://www.data.gouv.fr/fr/>>.

<sup>89</sup> Wikipedia, *Open data* <[https://fr.wikipedia.org/wiki/Open\\_data](https://fr.wikipedia.org/wiki/Open_data)>.

### Opening Sensitive Datasets Through Sound De-identification and Anonymisation

France has historically had very strong privacy laws. In a field as sensitive as healthcare, the French decided to open healthcare. France introduced very recent legislation LOI n° 2016-41 du 26 janvier 2016 de modernisation de notre système de santé (*Laws on the Modernisation of Medical System 2016*)<sup>90</sup> mandating that aggregated healthcare data be opened for researchers, and for analysis to improve the administration of the French medicare system. They are confident in their de-identification techniques, standards, support and training.

The government determined that healthcare data should be:

- 1) Opened up regardless of the potential use or re-use that could be made of it;
- 2) Opened regardless of the potential use or re-use that could be made of it;
- 3) Opened as granular as possible, while ensuring anonymity and complying with laws such as on a commercial confidentiality;
- 4) Made public whenever future surveys and research is funded by public means.

### *Canada*

#### **Legislation**

The Access to Information Act 1983,<sup>91</sup> the Federal Accountability Act 2006,<sup>92</sup> Privacy Act 1985,<sup>93</sup> and the Charter of Rights and Freedoms 1982<sup>94</sup> form the relevant legislative framework. As with the other leading jurisdictions, there is a combination of personal data protection coupled with FOI laws and accountability/transparency laws which contribute to the general open government and open data agendas.

Privacy frameworks are found at the national, provincial and municipal levels. Privacy law is not as strong (has not been updated to account for changes in technology) at the national level as applied to government entities when compared to the strong privacy and data protection

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<sup>90</sup> (France)

<<https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031912641&categorieLien=id>>.

<sup>91</sup> RSC 1985, c A-1 <<http://laws-lois.justice.gc.ca/eng/acts/A-1/>>.

<sup>92</sup> SC 2006, c 9 <<http://laws-lois.justice.gc.ca/eng/acts/F-5.5/>>.

<sup>93</sup> RSC 1985, c P-21 <<http://laws-lois.justice.gc.ca/eng/acts/p-21/>>.

<sup>94</sup> *Canada Act 1982* (UK) c 11, sch B pt I ('*Canadian Charter of Rights and Freedoms*') <<http://laws-lois.justice.gc.ca/eng/const/page-15.html>>.

principles that apply to the provinces, and the federal framework that applies to the private sector. For example, the province of Ontario has a Municipal Freedom of Information and Protection of Privacy Act 2004<sup>95</sup> that is binding on all municipalities. The *Charter of Rights and Freedoms*, however, does speak to trust in the judiciary, accountability of politicians, right to a private life and a federal system of government which allows ideas to be tested at the provincial and territorial level, and then brought up to the federal level. In Canada, however, the real push for open government and open data is found in policy at the national, provincial and municipal levels.

### **Responsibility and Cooperation**

The Chief Information Officer<sup>96</sup> of the Treasury Board of Canada<sup>97</sup> is responsible for delivering open government and open data in Canada together with the Departmental Information Managers from the various Federal government departments.

In the province of Ontario, this role is assumed by the Treasury Board Secretariat where there is a Deputy Minister for Open Government.<sup>98</sup>

The Smart City of Toronto (in the province of Ontario) has its own policies, guidelines, portal and licenses.

### **Policy**

Upon taking office, Prime Minister Trudeau issued an open letter<sup>99</sup> to Canadians expressing his commitment to an open and transparent government, one that is open by default. He also sent Ministerial Mandates<sup>100</sup> to each of his Cabinet members also containing language of openness, transparency and open by default.

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<sup>95</sup> RSO 1990, M 56 <<https://www.ontario.ca/laws/statute/90m56>>.

<sup>96</sup> Shane Schick, 'Meet the Government of Canada's new CIO: John Messina replaces Corinne Charette', *IT World Canada* (online), 17 August 2015 <<http://www.itworldcanada.com/article/meet-the-government-of-canadas-new-cio-john-messina-replaces-corinne-charette/376549>>.

<sup>97</sup> Government of Canada, *Treasury Board of Canada Secretariat Organization* <<https://www.canada.ca/en/treasury-board-secretariat/corporate/organization.html>>.

<sup>98</sup> Government of Ontario, *Ontario's Open Data Directive* <<https://www.ontario.ca/page/ontarios-open-data-directive>>.

<sup>99</sup> Government of Canada, Justin Trudeau, Prime Minister of Canada, *Prime Minister Justin Trudeau's open letter to Canadians* (4 November 2015) <<http://pm.gc.ca/eng/news/2015/11/04/prime-minister-justin-trudeau-open-letter-canadians>>.

<sup>100</sup> Government of Canada, Justin Trudeau, Prime Minister of Canada, *Ministerial Mandate Letters* (13 November 2015) available at <<http://pm.gc.ca/eng/mandate-letters>>.

In a similar move, Ontario Premier Kathleen Wynne wrote to each Cabinet Minister in the open Mandate Letters 2016<sup>101</sup> outlining the key priorities for each ministry with some emphasis on the ‘digital transformation of government’. Open datasets are considered part of a larger picture of open government and specifically to better data collection, information sharing, evidence-based decision making and modernising public service delivery.

The Directive on Open Government (2014)<sup>102</sup> is a non-binding document applicable to government departments. Although departments are not legally mandated to open government and open data, they act as a form of soft law that strongly influences action.

Canada released its Third Biennial Plan to the Open Government Partnership (2016-18)<sup>103</sup> establishes 22 commitments based on four priority areas: 1. Open by Default, 2. Fiscal Transparency, 3. Innovation, Prosperity and Sustainable Development and 4. Engaging Canadians and the World. Each of the commitments sets milestones, information on how this is to be achieved and identified the lead department.

Datasets are released through the [Open.canada.ca](http://open.canada.ca)<sup>104</sup> portal which operates in English and French. There are comprehensive guides, support, and instructions on APIs for computer programming languages and data formats. Canada adopted the UK’s Open Government License.

The province of Ontario has its own Open Data Directive<sup>105</sup> that mandates that data should be open by default, high-value data should be prioritised for release, and that a data inventory be published online including a list of datasets which cannot be made accessible to the public along with a detailed explanation as to why this is the case. The Directive provides adopts the Open Government License and an Open Format Standard, and contains six Open Data Quality Principles which are a similar but less forceful version of the UK’s Data Principles. For example, in Ontario departments are encouraged to release data in a timely, coherent and interpretable manner but these remains concepts and are not as prescriptive such as the UK’s

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<sup>101</sup> Government of Canada, *Mandate Letters 2016* <<https://www.ontario.ca/page/mandate-letters-2016>>.

<sup>102</sup> Government of Canada, *Directive on Open Government* (9 October 2014) <<https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=28108>>.

<sup>103</sup> Government of Canada, *Third Biennial Plan to the Open Government Partnership (2016-18)* (3 March 2017) <<http://open.canada.ca/en/content/third-biennial-plan-open-government-partnership>>.

<sup>104</sup> Government of Canada, *Open Government* <<http://open.canada.ca/en>>.

<sup>105</sup> Government of Canada, *Ontario’s Open Data Directive* (30 April 2016) <<https://www.ontario.ca/page/ontarios-open-data-directive>>.

and France's requirements for "machine readable" or "release data quickly, and then adapt to open format", and release in an international standardised format (W3C).

Ontario datasets are released through the Ontario Data Catalogue.<sup>106</sup> The datasets are inventoried including those that are currently restricted.

Toronto's OD policy is additionally aligned with Ontario's requirements of Access by Design, and Privacy by Design. Executives are encouraged to release data and must release data where a formal Freedom of Information request has already been made or is in the process of being disclosed, as well as there the data/information has already been made available to the public.

### **Regulatory Settings**

At the Federal level, the Treasury Board is responsible for monitoring and reporting on compliance with the *Directive on Open Government*.

Provincially, the role of monitor and report compliance lies with the Treasury Board Secretariat. The bulk of this role's responsibilities are assumed by the Assistant Deputy to Minister for Open Government who is part of the Treasury Board Secretariat.

In Toronto, the Executives (Eg. City manager, City Clerk, and General Managers) are accountable for ensuring compliance with open data and open government policies. When an Executive determines that they are unable to comply with their role, they are meant to bring their non-compliance issues to the Open Government Committee for review and assistance.

### **Operating Environment**

The 2016 national budget includes doubling the Treasury Board Secretariat's budget for open government activities to deliver an ambitious open government strategy and to accelerate the provision of digital content, and to accelerate and make easier Canadians access to government data (\$24.4 million over five years).

The implementation roadmap for Canada's Open Government 2016-2018 Action Plan<sup>107</sup> calls for the development of approaches for measuring open government performance by integrate performance indicators for openness and transparency into a Performance Management

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<sup>106</sup> Government of Canada, *Data Catalogue* <<https://www.ontario.ca/search/data-catalogue>>.

<sup>107</sup> Government of Canada, *Draft New Plan on Open Government 2016-2018* (2 December 2016) <<http://open.canada.ca/en/consultations/canadas-new-plan-open-government-2016-2018>>.



Framework for Open Government. There is no indication that measurements of implementation or impact are currently done.

Open data is subject to both freedom of information and protection of privacy. Open datasets must be released with proper privacy mechanisms in place. The Information and Privacy Commissioners at the national and provincial levels provide guidelines around access to privacy, privacy by design including data anonymisation

Canada has adopted the UK's Open Government Licence model.

### **Examples of Open Data Projects, Outcomes and Applications**

#### **Ministerial Letters or Equivalent at Federal, Provincial and Municipality Levels**

Open Government and Open Data leadership in Canada has been at the national and sub-national levels. Ministerial letters<sup>108</sup> and equivalent mandates were issued by the Prime Minister, Premier of Ontario, and Mayor of the city of Toronto. All levels of government encourage information sharing and open data by default.

#### **Province of Ontario**

The province of Ontario and city of Toronto embrace three data principles: Access by Design, Privacy by Design and Open by Default. These are considered complimentary principles, not competing principles. Ontario has an open government project tracker that allows the public to see the stage a project is at including planning, complete and implementing. Completed projects at this stage are largely policies and mandate letters, with crowdsourcing, data inventory and open government consultation underway. The category is complete as restricted and closed datasets are also listed.

#### **Denmark**

#### **Legislation**

The EU Public Sector Information Directive establishes a minimum set of rules governing the re-use and the practical means of facilitating re-use of existing documents held by public sector bodies of the Member States. The PSI Directive is implemented in Denmark through

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<sup>108</sup> Government of Canada, Justin Trudeau, Prime Minister of Canada, *Ministerial Mandate Letters* (13 November 2015) available at <<http://pm.gc.ca/eng/mandate-letters>>.

Act no. 596 of 24 June 2005 as amended by Act No. 551 of 17 June 2008, and Act no. 553 of 2 June 2014. The Act neither mandates open data nor re-use; it merely suggests that public sector bodies may make documents available for re-use and provides principles governing such disclosure. It is also possible to apply for access to data by approaching the public sector body that administers the data collections (Section 4, subsections 3–6). Applications must normally be processed within 7 working days, and the applicant must be informed about possible significant cost involved with processing the application. Application must, if possible, be processed electronically (Section 5). If the application cannot be accommodated, the public sector body must inform the applicant about the owner of the data or from where license has been obtained.

*Danish Act on Processing of Personal Data 2000* is administered by the Danish Data Protection Agency. The Act establishes relevant data protection rules, including the principle of proportionality, data minimisation and purpose limitation.

### **Responsibility and Cooperation**

The Danish government is divided into three tiers: the state ('staten'), five regions ('regioner'), and 98 municipalities ('kommuner'). The responsibilities for open data lie with each of the organisations. Open data is centralised, regionalised and localised as members from each of these cooperate as partners in the Open Data DK.

### **Policy**

The Danish Government, Local Government Denmark (association of Danish municipalities) and Danish Regions (association of Danish regions) have in May 2016 entered into an agreement on a *Digital Strategy for 2016–2020 ('A Stronger and More Secure Digital Denmark')*. The purpose of Open Data DK and the Strategy is to create transparent governance and support data-driven growth and productivity through by means of open and freely available data -platform with a view to publish their datasets.

Denmark has a tradition for national registries The Danish Agency for Digitisation under the Ministry of Finance is responsible for the Basic Data Programme ('Grunddata'), under which local and central government are working to open registries.

There is no compulsory or recommended license or standard. There is no obligation to release the datasets free of charge.

### **Regulatory Settings**

The Danish Business Authority is part of the Ministry of Industry, Business and Financial Affairs and the Agency for Digitisation is part of the Ministry of Finance. The Danish Agency for Digitisation which is also under the Ministry of Finance is responsible for the Basic Data Programme which have been mandated to open specific high value registries rolling out 2016 to 2018. These are the Civil Registration System, maps and other geographical data, the Central Business Register, and the Building and Dwelling Register. At a future date the expansion will include data on incomes, road infrastructure and financial statements of business.

### **Operating Environment**

Open data for central, regional and local data is made available for the portal, Open Data DK ([www.opendata.dk](http://www.opendata.dk))<sup>109</sup> and is built on the Open-Source software CKAN from the Open Knowledge Foundation.

Denmark has created a model where the centralised portal or data hub are financed through costs saved as a result of reduced costs for data hosting (previously not centralised) and data purchase (now free).

### **Example of Open Data Projects, Outcomes and Applications**

A study undertaken by the Danish Government assessed direct financial benefits from opening utilities, address data, the Land Registry and the Central Business Registry and found that it cost two million EUR to open the data, but that the direct financial benefits from 2005-2009 were 62 million EUR.<sup>110</sup>

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<sup>109</sup> Open Data Denmark, <<http://www.opendata.dk>>.

<sup>110</sup> Juliet McMurren, Stefaan Verhulst, and Andrew Young, *Denmark's Open Address Data Set: Consolidating and Freeing up Address Data* (January 2016) available at <<http://odimpact.org/static/files/case-study>>.

## *New Zealand*

### **Legislation**

Open Data is not required by law or by default in New Zealand. There is however a statutory basis in the Official Information Act 1982<sup>111</sup> for requesting access to declared categories of information creates a principle of availability where, the Ombudsman may review complaints, and appeal enforcement. The view of the agencies consulted is that the legislation does not create a right to information or a legislative mandate to release data by default. It does, however, create a sympathetic environment to open data and data by default.

The Public Records Act 2005<sup>112</sup> and others require creation and retention of certain information, and the Privacy Act 1993<sup>113</sup> requires exclusion or protection of personal information.

### **Responsibility and Cooperation**

The Open Government Data Chief Executives Governance Group reports the aggregate plans annually to the Ministerial Committee on Government ICT. Cabinet also invited the Minister of Local Government to write to local authorities and Local Government New Zealand informing the local government sector of the these decisions and encouraging councils, where they consider it appropriate, to take a similar approach. The framework home page includes Reports on the adoption of the framework each year from 2012-2015.

The CEO of Land Information NZ (LINZ) became the Government Chief Information Officer, with LINZ hosting the key Open Data program.

There are advocates for open data policies and legislation outside government, although the network is less well developed and extensive. Civil society and non-government organisations like the Open Data Catalogue<sup>114</sup> the Open Data NZ Meetup<sup>115</sup> and Open Government Ninjas<sup>116</sup> promote open data at the national and local levels, and there is some participation in government supported entities like the New Zealand Data Futures Forum, now the Data Futures Partnership.

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<sup>111</sup> (NZ) <<http://www.legislation.govt.nz/act/public/1982/0156/latest/DLM64785.html>>.

<sup>112</sup> (NZ) <<http://www.legislation.govt.nz/act/public/2005/0040/latest/DLM345529.html>>.

<sup>113</sup> (NZ) <<http://www.legislation.govt.nz/act/public/1993/0028/latest/whole.html>>.

<sup>114</sup> Open Data Catalogue, <<http://cat.open.org.nz/>>.

<sup>115</sup> Open Data NZ Meetup, <<https://www.meetup.com/Open-Data-NZ/>>.

<sup>116</sup> Open Government Ninjas, <<http://groups.open.org.nz/groups/ninja-talk/>>.

The Department of Internal Affairs (DIA) also plays a key role by hosting the platform [data.govt.nz](http://data.govt.nz). The State Services Commission (SSC), as the central agency overseeing the government sector, offers guidance on how to disclose data. The Ombudsman, amongst many other things, hears complaints by individual requesters against declined requests for release of information.

## Policy

In the absence of specific Open Data legislation, a series of related policy documents from 2011 form the framework of the current support for Open Data in New Zealand. These are The New Zealand Government Declaration of Open and Transparent Government, and The New Zealand Data and Information Management Principles.

In 2011 Cabinet issued a Declaration<sup>117</sup> that directs all public service and non-public service departments including NZ Police, NZ Defence Force, Parliamentary Counsel Office, and NZ Security Intelligence Service “to commit to releasing high value public data actively for re-use, in accordance with the Declaration and Principles, and in accordance with the NZGOAL Review and Release process.” Cabinet also encouraged other State Services Agencies and invited State Sector Agencies to do the same. Cabinet also directed Chief Executives to submit their plans to actively release public data to portfolio Ministers for approval.

High value datasets are to data be publicly released according to the New Zealand Data and Information Management Principles,<sup>118</sup> which include principles such as Trusted and Authoritative, and Well Managed.

The Chief Ombudsman’s major report in December 2015, ‘Not a game of hide and seek’,<sup>119</sup> made recommendations on OIA practices to support open data including support openness

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<sup>117</sup> New Zealand Government, Government Chief Information Officer, *Declaration of Open and Transparent Government* <<https://www.ict.govt.nz/guidance-and-resources/open-government/declaration-open-and-transparent-government/>>.

<sup>118</sup> New Zealand Government, Government Chief Information Officer, *New Zealand Data and Information Management Principles* <<https://www.ict.govt.nz/guidance-and-resources/open-government/new-zealand-data-and-information-management-principles/>>.

<sup>119</sup> New Zealand Government, Office of the Ombudsman, *Not a Game of Hide and Seek: Report on an Investigation into The Practices Adopted by Central Government Agencies for The Purpose of Compliance With The Official Information Act 1982* (Office of the Ombudsman Tari o te Kaitiaki Mana Tangata, 8 December 2015)

<[http://www.ombudsman.parliament.nz/system/paperclip/document\\_files/document\\_files/1573/original/not\\_a\\_game\\_of\\_hide\\_and\\_seek\\_-\\_review\\_of\\_government\\_oia\\_practices.pdf](http://www.ombudsman.parliament.nz/system/paperclip/document_files/document_files/1573/original/not_a_game_of_hide_and_seek_-_review_of_government_oia_practices.pdf)>.

and accessibility (Recommendation 7), formats should enable easy reuse (Recommendation 21), proactive release of data (Recommendation 22), and managing risks that may arise from release (Recommendation 22).

New Zealand is additionally using a crowdsource method of developing policy around personal information and data used known as the Social License.<sup>120</sup> The Social License is a partnership between New Zealanders and the government where people can contribute their thoughts on the contents of data guidelines.

### **Regulatory Settings**

The CEO of Land Information NZ (LINZ)<sup>121</sup> played a key role, becoming the Government Chief Information Officer, with LINZ hosting the key Open Data program.

### **Operating Environment**

There was significant central budget funding for the NZ Open Government Data and Information Programme. For instance \$300,000 extra provided for the two financial years to mid-2016, mostly for lead agency Land Information New Zealand (LINZ). It also went towards maintaining NZGOAL, and providing support to Creative Commons Aotearoa New Zealand.<sup>122</sup>

NZGOAL<sup>123</sup> specifies a review and release process which involves six Stages prior to Release: evaluation of copyright-related rights [101–109], evaluation of restrictions [112–118], selection of re-use rights [119–124], application of Creative Commons licence, or ‘no-known-rights’ statement [125–141], a moral rights check [142–144], and selection of formats, preferring non-proprietary ones [145–148].

NZGOAL requires ‘Anonymisation’ of personal information as well as an interrogation of the anonymization processes<sup>124</sup> to ensure that they are rigorous.

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<sup>120</sup> New Zealand Data Futures Partnership, *What is Social Licence* <<http://datafutures.co.nz/our-work-2/talking-to-new-zealanders/social-licence/>>.

<sup>121</sup> New Zealand Government, Land Information New Zealand, <<http://www.linz.govt.nz>>.

<sup>122</sup> Creative Commons Aotearoa New Zealand, <<http://creativecommons.org.nz>>.

<sup>123</sup> New Zealand Government, Government Chief Information Officer, *New Zealand Government Open Access and Licensing Framework* (December 2014) <<https://www.ict.govt.nz/guidance-and-resources/open-government/new-zealand-government-open-access-and-licensing-nzgoal-framework/>>.

<sup>124</sup> New Zealand Government, Government Chief Information Officer, *New Zealand Government Open Access and Licensing Framework Version 2* (December 2014) <<https://www.ict.govt.nz/assets/Uploads/NZGOAL-Version-2.pdf>>.

Assistance on Anonymisation of datasets is the responsibility of the Office of the Privacy Commission.

This NZGOAL (*New Zealand Government Open Access and Licensing Framework*) ('the Framework') supports government agencies wanting to enable appropriate re-use of the agency's material by licensing their copyright works or releasing non-copyright material for re-use. It includes a Software Extension based on the GPL and the MIT licence. New Zealand has not followed the UK path of a special Open Government Licence, instead choosing to adopt the most widely used Open Content licence, Creative Commons (CC-BY-4)

There isn't a single catalogue or repository for open data in NZ. There are, however, many different platforms including: places to start looking': GovHack,<sup>125</sup> data.govt.nz,<sup>126</sup> and the Open Data Catalogue.<sup>127</sup>

### **Example of Open Data Project, Outcome and Application**

The Social Licence is a unique experiment that provides meaningful, inclusive and ongoing engagement on open data. New Zealand provided a 'Our Data, Our Way' survey site. This tool seeks anonymous web user responses about benefit and trust levels for three brief scenarios. Each scenario has three increasingly privacy-intrusive proposed uses to which the user responds. The survey seeks feedback about trust factors and benefits of open data. This is a potentially meaningful, inclusive and ongoing engagement about open data.

### ***The Netherlands***

#### **Legislation**

What is particularly unique about the Netherlands is that access to government information is considered to be a fundamental democratic right, which is explicitly protected under Article 110 of the Constitution of the Kingdom of the Netherlands. By law, the government is required to share public information with the public upon citizens making a request. While the government may publish information on its own accord, the Dutch Government publishes considerably less data than the United States and the United Kingdom.

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<sup>125</sup> GovHack New Zealand, *2016 Data* <<http://govhack.org.nz/resources/2016-data/>>.

<sup>126</sup> New Zealand Government, <<https://data.govt.nz/>>.

<sup>127</sup> Open Data Catalogue, <<http://cat.open.org.nz/>>.

Under the *Government Information (Public Access) 1991*<sup>128</sup>, any member of the public is entitled to request information relating to an administrative matter. If the information is located with a public body or private company that provides services to a public entity, the authorities must respond within two weeks of the request. There are of course exemptions that allow the Dutch Government to withhold information it relates to international relations of the state, the "economic or financial interest of the state", investigation of criminal offenses, inspections by public authorities, or personal privacy. These exemptions must be balanced against the importance of disclosure. Requesters who have been denied access can appeal to an administrative court that will then make the final decision.

### **Responsibility and Cooperation**

Public access to government information has been a general legal principle in the Netherlands since 1980s. As mentioned above, it is the responsibility of the Dutch Government to make facilitate access to information. It has actively encouraged open data through policy and collaboration.

Within the Government, several ministries have taken the responsibility of providing open data, including the Ministry of Infrastructure and the Environment, the Minister for Foreign Trade and Development Cooperation has released data on international development, and the Ministry of Finance.

### **Policy**

To promote open data, the Dutch Government has introduced several action plans. The most recent is the Open Government in the Netherlands Action Plan 2016-2017<sup>129</sup>. The aim of the Action Plan is to encourage "openness" and "transparency" within the public sector. There are a number of initiatives set out in the Action Plan, including the National Open Data Agenda<sup>130</sup>, which outlines the frameworks governing how data is to be made accessible & the quality requirements it must meet.

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<sup>128</sup> Government Information (Public Access) Act 1991,  
<http://www.legislationline.org/documents/action/popup/id/6395>

<sup>129</sup> Open Government in the Netherlands Action Plan 2016 – 2017  
<[http://www.opengovpartnership.org/sites/default/files/LR\\_91332\\_Actieplan\\_ENG\\_v2.pdf](http://www.opengovpartnership.org/sites/default/files/LR_91332_Actieplan_ENG_v2.pdf)>

<sup>130</sup> National Open Data Agenda  
<<https://www.rijksoverheid.nl/documenten/kamerstukken/2015/11/30/kamerbrief-over-nationale-open-data-agenda-2016-noda>>



## Regulatory Settings

There is no one regulatory body responsible for monitoring open data initiatives in the Netherlands. It varies, depending on the project and are often in collaboration with several agencies. For example, the Ministry of the Interior and Kingdom relations, in association with all other ministries, is responsible for the *National Open Data Agenda*. The Open State Foundation, in association with other organisations, started Open Spending<sup>131</sup> to implement a system in which all provincial authorities, local authorities and water management authorities use a common publication standard about their financial spending. Of all the open data published by the Dutch Government, the Ministry of Infrastructure and the Environment seems to have been most active in making data open.

## Operating Environment

In the Netherlands, open data that can be accessed and re-used by everyone is data that:

From a Dutch perspective, open data is data that:<sup>132</sup>

- Are paid for from the public purse and generated during or for the provision of a public service;
- Are available to the public;
- Are free of copyright and other third party rights;
- Are machine-readable and preferably comply with open standards (not PDF but XML, CSV etc.); and
- Can be used without restriction in the form of cost, compulsory registration, etc.

The Netherlands has established the National Data Portal<sup>133</sup>, which provides an overview of the available data provided by Dutch government organisations. It is the main outlet on

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<sup>131</sup> Open Spending <<https://www.openspending.nl>>

<sup>132</sup> Court of Audit, Trend Report Open Data 2014

<[http://www.courtsofaudit.nl/english/Publications/Audits/Introductions/2014/03/Open\\_Data\\_Trend\\_Report](http://www.courtsofaudit.nl/english/Publications/Audits/Introductions/2014/03/Open_Data_Trend_Report)>, and ICT-Enabled Open Government – “Your Data Stories”, Legal Framework in The Netherlands <[http://yourdatastories.eu/wp-content/uploads/2016/02/D2.9\\_Legal\\_requirements\\_and\\_ethical\\_issues.pdf](http://yourdatastories.eu/wp-content/uploads/2016/02/D2.9_Legal_requirements_and_ethical_issues.pdf)> (page 28).

<sup>133</sup> National Data Portal <<https://www.data.overheid.nl>>

Dutch statistics. Ministries also publish data on several different websites, sometimes out of necessity. This has led to fragmented provision of open data.

While the Netherlands scores relatively well international benchmarks (it is currently number six on the Open Data Barometer Ranking), there is need for improvement in promoting open data. In October 2015, the Dutch Minister of the Interior, Ronald Plasterk in a letter<sup>134</sup> to the Dutch Parliament made several commitments to open data. It is also evident that the Dutch Government is working towards promoting open data, holding the “view that relationships between the citizen and public sector authorities at all levels can and should be made (even) more open”.<sup>135</sup>

## **Example of Open Data Projects, Outcomes and Applications**

### **Wikimuseums and Open Cultuur Data**

Open Culture Data is a network of cultural and heritage professionals, developers, designers, copyright specialists and open data experts, working on cultural heritage and encouraging the development of valuable cultural applications.

Wikimuseums had its initial workshop in Naples where members of Open Culture Data in conjunction with the city of Napoli showcased example of opening up of cultural and heritage data, as well as a marathon. The marathon used cultural and historical apps (Openstreetmap) that guided the user through important museums and areas of cultural importance. The objective was to bring the QRcode connected to Wikipedia closer to some of the places that had been looked at the previous day of the workshop. The Wikipedia entries for various cultural and historical points of interest in Napoli were amended and improved each day of the workshop.

## **Concluding Remarks**

This paper analysed legislation, policy, regulatory settings, operational settings, roles and responsibilities for leading jurisdictions as identified in the Open Data Barometer. These

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<sup>134</sup> <<https://www.rijksoverheid.nl/documenten/kamerstukken/2015/11/30/kamerbrief-over-nationale-open-data-agenda-2016-noda>>

<sup>135</sup> *Open Government in the Netherlands: Action Plan 2016-2017*, page 3.

countries are: the United Kingdom, the United States, France, Canada, Denmark, the Netherlands, and New Zealand.

Observations suggest that lead jurisdictions see open government data not only about providing a transparent and accountable government, but also as a key economic driver in a data innovation society. Open data requires a cohesive, mandated responsibility to enable its execution which is ideally both centralised and localised as well as through citizen engagement and an appropriate legal framework.

As revealed in the communications with overseas entities, Open Data often has the greatest immediate impact for citizens at the sub-national levels. This is because applications and software developed as a result of Open Data at the sub-national levels often solve common problems which citizens can easily identify with. Common applications include those related to public transport, waste disposal, and zoning requirements. Future studies should seek to evaluate Open Data at sub-national levels, as well as evaluate how national Open Data frameworks are integrated with sub-national Open Data frameworks.

As seen across all jurisdictions, Open Data is still a developing concept with initial legislative, policy and regulatory work developed in leading jurisdictions, and implementation of policies and projects well under way. Leading jurisdictions and in particular the UK have experienced and addressed many of the barriers to Open Data operating within less developed nations. However, the UK's legislative, regulatory and operational enablers have developed to address many of the initial barriers with new enablers including the recent passing of the *Digital Economy Act 2017*.

In practice the research has highlighted how diverse, inter-connected and context-specific each jurisdiction's approach has been. In particular, it is clear that precisely because of the breadth of action some leading countries have taken it is difficult to isolate the particular contribution of any one element. However the existing legislative and policy settings have informed advances in open data in the jurisdictions examined, as have other operational tools and cultures of collaboration.

Considerable progress has been recorded and benefits delivered including those identified in the case studies highlighted throughout this article. There has, however, been very little work

done on measuring impact in any jurisdiction particularly from the dual limbs of social and economic savings together with the impact on participative democracy and citizen centric policy development and service delivery. Measuring impact of Open Data will be a critical component moving forward. Whether there is continued long-term investment in Open Data is dependent on its impact. Impact should be measured both in the short and long terms. Cost effectiveness, for example, may be slightly improved in the short term but over the long-term applications could have led to significant efficiencies for a department, and for an entire industry.

Additionally, there may not be the immediate desired impact from opening data as many innovators and researchers may not have had extensive previous experience for analysing data, and other researchers may not have experience using algorithms to run data analytics with machine-readable data. It may take time for some researchers and industry to gain the skills required to fully capitalise on open data. There has, however, never been a more exciting time for researchers with hundreds of thousand of previously privately held datasets opened up for research and observation. Likewise, the algorithmic tools required to run analytics are becoming more easy to use; one does not need a degree in statistics, data mining or computer science to perform these functions. With big data and open data, faster, more informed higher quality decisions can be made. Businesses have been empowered with tools and capabilities to better harness data to spot gaps in the market allowing for disruption of businesses. This same disruption is possible with government use of data, as well as researcher's use of data.