Insight

Date: May 2014

Open Data Ireland:

Roadmap

Authors: Deirdre Lee, Stefan Decker, Richard Cyganiak

Insight Centre for Data Analytics, NUI Galway

Contents

Glossary

AIRO	All-Ireland Research Observatory
API	Application Programming Interface
CC	Creative Commons
CKAN	Comprehensive Knowledge Archive Network
CSO	Central Statistics Office of Ireland
DCMI	Dublin Core Metadata Initiative
DPER	Department of Public Expenditure and Reform
DRI	Digital Repositories Ireland
EC	European Commission
EPA	Environmental Protection Agency, Ireland
FOI	Freedom of Information
GML	Geography Markup Language
HTML	Hypertext Markup Language
IETF	Internet Engineering Task Force
INSPIRE	Infrastructure for Spatial Information in the European Community
ISA	Interoperability Solutions for European Public Administrations
ISDE	Irish Spatial Data Exchange
ISDI	Irish Spatial Data Infrastructure
ISO	International Organization for Standardization
JSON	JavaScript Object Notation
LGMA	Local Government Management Agency
NTA	National Transport Authority
OASIS	Organization for the Advancement of Structured Information Standards
OGC	Open Geospatial Consortium
OGL	UK Open Government License
OKFN	Open Knowledge Foundation
OSi	Ordnance Survey Ireland
PSI	Public Sector Information
PSB	Public Sector Body
RDF	Resource Description Framework
RTE	Radio Teilifis Éireann
SDMS	Statistical Data and Metadata eXchange
SKOS	Simple Knowledge Organization System
SLA	Service Level Agreement
SPARQL	SPARQL Protocol and RDF Query Language
URI	Unique Reference Identifier
URL	Unique Reference Locator
W3C	World Wide Web Consortium
WMS	Web Map Service
XBRL	eXtensible Business Reporting Language
XML	Extensible Markup Language

1   Introduction

1.1   Goal Definition

A study from EMC[1] from 2014 predicts the doubling of the available data in the "Digital Universe" every two years between now and 2020. This rapid growth is a challenge for society – how to put the available data to use effectively? This is a challenge in many areas of society - in government and public administration, in industry, with cultural institutions, archives, and in research.

Open Data is an answer to this challenge. It is not only a movement and activity, but also motivating the development of a set of standards and best practices which enable the publishing and deployment of data - regardless if the data is publicly available or used in a more closed environment.

Open Data provides a unique opportunity to use public and private data, to create the standard infrastructure necessary which fuels economic, governmental and societal activity across many different domains and area. This is enabled by joint common standards to describe datasets and the ability to integrate information, e.g., by establishing common ways how to identify entities of interest so that data, information and knowledge from many different domains can be used for problem solving and guiding of activities.

Open Government Data supports a number of different objectives; it facilities transparency in Government, e.g., by showing showing how public money is being spent and contributing factors to decisions. But Open Government Data also facilitates business and planning activities, e.g., by enabling the identification of business opportunities in specific areas or helping to identifying - even within the Government, where underdeveloped areas need specific attention for example for building childcare, schools or hospitals. It also creates new and opportunities to exploit this data in unforeseen way, especially as more and more datasets become available that this data can be combined with.

1.2   Open Data Across Society

The goal of this roadmap and activity is specifically to address Open Government Data, but in order to realise all the possibilities and benefits that Open Data can provide a society needs to take many data sources and usages into account. Ideally the selected standards and best practices are usable and deployable across many domains for public and private data.

Data originating from public sources include a number of different areas, e.g., data from cultural heritage sources such as libraries, museums, and archives as well as data originating from research activities. These datasets are becoming more usable and deployable and have a greater effect is they are interoperable - if historic data originating from archives can be effectively aggregated with data originating from current research activities. The use of common standards and best practices across these areas facilitates this effective use.

Inside and outside of Ireland are a number of activities which provide synergies within these domains. As examples the Digital Repository of Ireland (DRI)[2] links together and preserve both

---

[1] http://www.emc.com/leadership/digital-universe/index.htm
[2] http://www.dri.ie/about

historical and contemporary social and cultural data held by Irish institutions. The Research Data Alliance (RDA)[3], is an international initial initiative to aiming to build the social and technical bridges that enable open sharing of data. Ideally all these initiatives share a common set of standards but also infrastructure that enable sharing and reusing data.

To maximise the benefit of Open Data for the society synergies and collaboration between the different areas need to be established - between society, government, research, libraries and archives, but ultimately also establishing interoperability with private and business data sources.

The goal of this roadmap is to provide a step into this direction.

---

[3] https://rd-alliance.org/

2 Objectives

2.1 Short-term Objectives (1 year)

S.1 Agree a National Open Data Strategy, including commitments, goals, principles, and guidelines, using the Best Practice Handbook and this Roadmap.

S.2 Align the National Open Data Strategy, with other national data strategies, such as the National Spatial Data Strategy, the Data Sharing and Governance Bill and those set out by the National Statistics Board.

S.3 Agree a National Open Data Roadmap, including detailed actions and time-frame, based on this document.

S.4 Agree an Open Data License to use for all Irish Open Data, as suggested in the Best Practice Handbook.

S.5 Publish data on a national portal so that all government data that has been released can be found easily in one place.

S.6 Release high-quality Open Data that is timely, comprehensive, and accurate. To the extent possible, data will be in their original, unmodified form and at the finest level of granularity available.

S.7 Release as much data as possible, and where it is not possible to offer free access at present, promote the benefits and encourage the allowance of free access to data.

S.8 Release at least 10% of Open Data as 5-star Linked Open Data.

S.9 Develop links with civil society organisations, the business community and citizens to allow the public to provide feedback on the most important data they would like released.

S.10 Encourage innovative uses of data through the organisation of challenges, prizes or mentoring for data users in our individual jurisdictions.

S.11 Increase the capacity of public bodies to publish Open Data.

S.12 Provide continuous evaluation of the progress and impact of the Open Data initiative.

2.2 Medium-term Objectives (2 years)

M.1 Define a recommended set of standards for the publication of Irish Open Data, to facilitate internal and external data interoperability

M.2 Work to increase Open Data literacy and encourage people, such as developers of applications and civil society organisations, to unlock the value of Open Data.

M.3 Make key datasets, namely National Statistics, National Maps, National Elections and National budgets available and discoverable, and accessible.

M.4 Put in place a preservation strategy for Open Data.

M.5 Release at least 20% of Open Data as 5-star Linked Open Data.

M.6 Develop a cross-sector data infrastructure ensuring data interoperability

2.3 Long-term Objectives (3 years)

L.1 Establish an expectation that all government data be published openly by default.

L.2 Release at least 40% of Open Data as 5-star Linked Open Data.

L.3 Facilitate an Open Government culture across the public sector.

L.4 Determine the to-date economic impact of Open Data in Ireland.

L.5 Improve overall transparency of the Irish public sector and increase the levels of trust.

L.6 Ensure the individual's right to privacy is protected.

3   Governance

As part of the Open Data Ireland Initiative, the Minister for Public Expenditure and Reform Mr Brendan Howlin TD, announced the commitment to:

- establish an **Open Data Board –** to design and oversee effective governance of Open Data in Ireland

- set up an **Open Data Steering and Implementation Group –** to drive progress in making public sector data much more widely available and accessible**;**

In addition to the Open Data Board and SIG, we recommend that a specific **Open Data Officer** role is created for a person/team within the Department of Public Expenditure and Reform, who will be the official contact point for the Open Data Ireland initiative and responsible for the maintenance of data.gov.ie.

As part of the Roadmap for Open Data Ireland, we make the following recommendations in terms of the Open Data Board and the Open Data Steering and Implementation Group (SIG).

3.1   Open Data Board

3.1.1   Appointment

The Open Data Board should be appointed by the Minister, in accordance with the guidelines set out at http://www.per.gov.ie/appointments-to-state-boards/ Inline with TASC's recommendations in its report 'Public Appointments : Options for Reform' [REF], the three guiding principles that should be used for the appointments are:

- Appointments based on merit;

- Respect for diversity;

- Transparency.

The 'Model A' appointment process from TASC's report may be suitable for the appointment of the Open Data Board.

> *Model A maintains the role of the minister in making appointments and relies on parliamentary committees or similar bodies for oversight. It also includes appointment protocols and codes of practice, the publication of selection criteria and potential conflicts of interest, and advertising available positions widely*

3.1.2   Role

The role of the Open Data Board includes governance, support, oversight, advice, and evangelism.

- **Governance**: Agree on the detailed roadmap for Open Data Ireland

- **Support**: Provide support for the Open Data Ireland initiative for the four areas below (more detail in Best Practice Handbook)

    o Leadership: Encourage strong political and managerial leadership on Open Data across the public sector.

    o Policy: Put in place a National Open Data Strategy, including commitments, goals, and principles

    o Financial: Establish and provide funding to ensure the sustainability and growth of Open Data Ireland.

    o Capacity-building: Establish capacity-building activities for public-sector bodies, user engagement and business engagement.

- **Oversight**: Agree on the evaluation framework for Open Data Ireland and provide continual assessment of the initiative based on this framework

- **Advisory**: Provide advice to the government on issues relating to Open Data.

- **Evangelism**: Disseminate the benefits and results of the Open Data Ireland Initiatives across their networks.

3.1.3 Terms

The Open Data Board will report to the Minister of Public Expenditure and Reform. It is recommended that the board should meet at least quarterly and be reappointed at least every two years.

3.1.4 Composition

It is recommended that the board comprises of at least 40% non public-sector members, with representatives from civil-society, research and industry communities. A recommended composition of the board is:

1. The Chief Information Officer (CIO)
2. Head of DPER's Government Reform Unit
3. The Ombudsman/Information Commissioner
4. Representative from the National Spatial Data Strategy
5. Representative from the National Statistics Board
6. Representative from Local Government
7. Representative from Research/Academia
8. Representative from Civil Society
9. Representative from Business Umbrella Group
10. Representative from Multinational
11. Representative from SME

3.1.5 Charter

The charter of the Open Data Board, defining its terms of reference, will be defined by the Department of Public Expenditure and Reform, to include an open, public consultation.

3.2 Open Data Steering and Implementation Group (SIG)

3.2.1 Appointment

The Open Data Steering and Implementation Group (SIG) should be appointed by the Minister of Public Expenditure and Reform, following an open nomination process, similar to the Open Data User Group in the UK. Nominations should be invited from public-bodies, civil-society, research and industry.

Similar to the Open Data Board, the three guiding principles that should be used for the appointments are:

- Appointments based on merit;
- Respect for diversity;
- Transparency.

3.2.2 Role

The role of SIG includes steering, implementation, awareness and capacity building, and evaluation:

- **Steering**: Ensure the implementation of the Open Data Ireland initiative follows the Roadmap set out by the Open Data Board, and is in accordance with the National Open Data Strategy.

- **Implementation**: Assign, drive and oversee the implementation of each of the actions defined in the Roadmap

- **Awareness and Capacity building**:

  - General: Organise Open Data awareness and capacity building activities for the general public

  - Industry: Organise Open Data awareness and capacity building activities specifically targeted at industry.

- **Evaluation**: Continually evaluate the progress and results of the Open Data Ireland initiative according to the evaluation framework set out by the Open Data Board

3.2.3 Terms

SIG will report to the Open Data Board. It is recommended that the board should meet at least every two months and hold a nomination process at least every year. Members should not remain in the group longer than three years.

3.2.4 Composition

SIG should have an independent (non public-sector) chair, who will be appointed by the Minister of Public Expenditure and Reform from the group of successful nominees.

It is recommended that the board comprises of at least 50% non public-sector members, with representatives from civil-society, research and industry communities. A recommended composition of the board is:

1. Representative from DPER

2. Representative from local government

3. An Open Data Expert

4. Representative from the geospatial sector

5. Representative from the statistics sector

6. Representative from the health sector

7. Representative from the transport sector

8. Representative from the environment sector

9. Representative from the research/academia

10. Representative from the archive/cultural heritage sector

11. Representative from civil society

12. Representative from civil society

13. Representative from industry (SME/start-up)

14. Representative from industry (SME/start-up)

15. Representative from industry (MNC)

16. Representative from industry (MNC)

3.2.5 Charter

The charter of SIG, defining its terms of reference, will be defined by the Department of Public Expenditure and Reform, to include an open, public consultation.

3.3 DPER Open Data Officer

The Open Data Officer is a person/team within the Department of Public Expenditure and Reform. The role of the Open Data Officer is to:

- be the official contact point for the Open Data Ireland initiative
- Maintain the running of the Open Data portal 'data.gov.ie'
- Manage funding schemes, including the processing of applications/grants
- Provide any necessary administrative assistance to the Open Data Ireland initiative

4 Actions

4.1 Carrying out a Data Audit

Recommendations:

a) Each public body should carry out a data audit of the data they currently manage.

b) Information on each dataset should be recorded according to the standard metadata format of the national Open Data portal.

c) Information for each dataset should include:
   - Potential for release as Open Data (governed by an 'Open by Default' principle)
   - Legal information
   - Organisational information
   - Technical information
   - Value assessment

d) Those datasets that are recognised as 'high-value' should be released proactively

e) The data audit results should be made available on the national Open Data portal, so that users can request the publication of the complete dataset (demand-driven publication).

Actions:

a) Each public body should carry out a data audit of the data they currently manage.

b) Those datasets that are recognised as 'high-value' should be released proactively

c) The data audit results should be made available on the national Open Data portal, so that users can request the publication of the complete dataset (demand-driven publication).

4.2 Dataset Selection

For recommendations on address and map data, see section 4.3.

a) For already published public data ensure the data is published as Open Data, i.e. machine-readable, with metadata, under an Open License.
b) Hold regular public consultations on what other datasets should be released as Open Data.
a) Facilitate new dataset requests via the Open Data portal
b) Facilitate feedback on individual datasets via the Open Data portal
c) As per the G8 Open Data Charter, prioritise the following key datasets for release as Open Data:
   - o **National Statistics**
     - ▪ CSO data at http://statcentral.ie/
   - o **National Maps (see section 4.3)**
   - o **National Elections**
     - ▪ DECLG (non machine-readable) data at http://www.environ.ie/en/LocalGovernment/Voting/NationalElections/
   - o **National Budgets**
     - ▪ DPER data at http://databank.per.gov.ie/
a) As per the G8 Open Data Charter, prioritise the following high-value datasets for release as Open Data:

G8 Open Data Charter Category	Common High-Value Datasets
Companies	• Company register • Insolvency and bankruptcy records
Crime and Justice	• Crime statistics • Justice statistics • Justice spending
Earth Observation	• Meteorological • Fishing/Hunting levels • Agriculture
Education	• School attendee • Post-education • School locations
Energy and Environment	• Pollution • Water quality • Air quality • Natural resources • Waste • Energy consumption
Finance and contracts	• Government budgets • Government spending • Tenders/procurement
Geospatial	• National maps • Thematic geo-information • Environmental geo-information • Local/administrative boundaries • Topographical geo-information • Postcodes and addresses

Global Development	• Development aid • International assistance
Government Accountability and Democracy	• Government structures and contacts • Government salaries and pay-scales • Legislation • Hospitality/gift • Election results
Health	• Health performance Drug/prescription • Restaurant hygiene
Science and Research	• Research
Social Mobility and Welfare	• Housing • Employment/unemployment • Social security/welfare
Statistics	• National statistics • Census
Transport and Infrastructure	• Public transport schedules • Public transport stops • Road network • Road traffic accidents

Actions:

a) For already published public data ensure the data is published as Open Data, i.e. machine-readable, with metadata, under an Open License.
b) Hold regular public consultations on what other datasets should be released as Open Data.
c) Facilitate new dataset requests via the Open Data portal
d) Facilitate feedback on individual datasets via the Open Data portal
e) As per the G8 Open Data Charter, prioritise the aforementioned key datasets for release as Open Data.
f) As per the G8 Open Data Charter, prioritise the aforementioned high-value datasets for release as Open Data.

4.3 Address and Map Data

Recommendations:

a) Explicitly outline an Open Spatial Data Strategy as part of the National Spatial Data Strategy.

b) The Open Spatial Data Strategy should include:

- a phased release plan of OSi data as Open Data similar to what is done by Ordnance Survey in the UK. The low-hanging fruit are the datasets currently distributed by the CSO, namely Electoral Divisions and Small Areas, which should be made available as Open Data. We also recommend to publish the Prime2 model and GUID structure as Open Data. We recommend the OSi moves towards Open Data practices.

- a phased release plan of GeoDirectory address data as Open Data, similar to in Denmark.

- the publication of postcodes as Open Data.
    - i. If postcodes are not to be released as Open Data, we recommend the investigation into other means to provide free public access to the information, for example, a lookup service should be publicly and freely available that matches postcode and statistical boundaries.

c) Provide full access to map, address and postcode data in the National Mapping Agreement, for improved data sharing between public bodies.

d) Include a representative of the National Spatial Data Strategy on the Open Data Governance Board to ensure both strategies are aligned.

e) Carry out a full investigation into the potential and economic benefits of publishing all Irish address and map data as Open Data, including alternative sustainability models for OSi and GeoDirectory.

Actions:

a) Explicitly outline an Open Spatial Data Strategy as part of the National Spatial Data Strategy.

b) Release the Electoral Divisions, Small Areas, Prime2 model and GUID structure as Open Data

c) Carry out a full investigation into the potential and economic benefits of publishing all Irish address and map data as Open Data, including alternative sustainability models for OSi and GeoDirectory.

4.4 Data Privacy

Recommendations:

a) Do not publish personal data as Open Data

b) Abide by Data Protection law

c) Do not use data privacy as an excuse not to publish Open Data if there are no data privacy concerns.

d) For the publication of aggregated, statistical data, use standardised statistical methods

e) If required, seek guidance on statistical methods from:
- in-house statistician
- Central Statistics Office

f) If you have any concerns in relation to data privacy, contact the Data Protection Commissioner.

Actions:

a) Invite the Data Protection Commissioner to attend SIG meetings on a six-monthly basis.

4.5   Licensing

Recommendations:
a) Associate all Open Data with an Open License
b) The Open License:
   o Should allow derivatives
   o Should allow commercial use
   o May require attribution
   o May require share-alike
c) Identify a standard Open License that should be associated with all Irish Open Data. The options are to:
   i. adopt an existing Open License (such as CC 4.0),
   ii. review the existing Irish PSI license, or
   iii. create a new Open License
   We recommend the adoption of CC 4.0, withstanding a legal examination to be overseen by SIG to ensure its compatibility in an Irish system.
d) Associate all metadata with the standard Irish Open License

Actions:
a) Carry out a legal investigation into what Open License to use for Open Data in Ireland
b) Recommend a standard Open License that should be associated with all Irish Open Data

4.6   Data Formats

Recommendations:
a) All datasets published on the Open Data IRL Portal should be available as at least 3-star data.
b) Datasets should be published in multiple formats, if available.
c) Convert legacy data into non-proprietary and machine-readable formats with at least 3-star rating, starting with the high-value datasets.
d) The publication of at least 3-star data should be built into data publication processes of all public bodies.
e) Establish Ireland as a leader in the publication of 5-star Linked Open Data
f) Create a dedicated 5-star data section of the Open Data IRL Portal
   o After one year, at least 15% of datasets should be published as 5-star Linked Open Data.
   o After two years, at least 30% of datasets should be published as 5-star Linked Open Data.
   o After five years, the Open Data IRL portal should be a fully compliant 5-star Linked Open Data platform.

Actions:
a) Convert high-value legacy data into non-proprietary and machine-readable formats with at least 3-star rating
b) Embed the publication of 3-star data publication into existing data processes of public bodies.
c) After one year, publish at least 15% of datasets as 5-star Linked Open Data.
d) After two years, publish at least 30% of datasets as 5-star Linked Open Data.
e) After five years, publish 100% datasets as 5-star Linked Open Data.

4.7 Metadata

Recommendations:
a) Any data release should be accompanied by high-quality metadata.
b) Metadata should be provided according to a metadata standard.
c) The DCAT standard should be used, enhanced with domain-specific standards such as ISO 19115 and the ISDI Profile where appropriate.
d) Metadata should be made available with an Open License.
e) Public sector bodies should also make available metadata for data that they hold but cannot presently release as Open Data.
f) All metadata should be provided to a central location that enables search and discovery, such as the data.gov.ie portal.

Actions:
a) Recommend a common metadata standard that should be associated with all Irish Open Data

4.8 Data Standards

Recommendations:
a) Use international standards defined by reputable standards organisations, such as ISO, the European Commission, W3C, IETF, OGC and OASIS.
b) Use and define national standards where international standards are unavailable or unsuitable
c) For specific topics such as geospatial, statistics, or health, promote national standards defined by the responsible organisation (OSI, CSO, HIQA, etc.)
d) Define a list of recommended data standards for use by Irish public bodies, similar to http://vocab.data.gov/. The list should be available on the Open Data IRL portal.

Actions:
a) Define a list of recommended data standards for use by Irish public bodies, similar to http://vocab.data.gov/. The list should be available on the Open Data IRL portal.

4.9 Unique Identifiers

Recommendations:
a) Develop and adopt a national URI strategy
b) Identify the reference data registers that are most widely used across the public sector, and prioritise the definition of URIs for their contents
c) Document URI sets defined by public sector bodies on the data.gov.ie portal

Actions:
a) Develop and adopt a national URI strategy
b) Identify the reference data registers that are most widely used across the public sector, and prioritise the definition of URIs for their contents
c) Document URI sets defined by public sector bodies on the data.gov.ie portal

4.10 Data Access

Recommendations:

a) Provide all Open Data as bulk data.
b) Put a process in place to ensure the bulk data is kept up-to-date.
c) Publish real-time data as feeds
d) If there is a demand from users for an API, consider providing an API
   - Use existing API standards whenever possible, e.g. the OGC web services or SPARQL
   - Before creating a new API, collaborate with potential users on its structure
e) Provide complete documentation for each API

Actions:

a) Put a process in place to ensure the bulk data is kept up-to-date.

4.11 Data Discovery

Recommendations:

a) The Irish Open Data Platform should be built on CKAN, because it is:
   - Open Source
   - Free to download and use
   - Mature
   - Has an active community continually improving it
   - Possible to extend
   - Technical expertise on use of CKAN already exists across Irish Open Data community
b) Public bodies have taken administrative ownership of their own datasets

Actions:

a) Implement the beta version of data.gov.ie to include:
   - Section that facilitates new dataset requests and official responses to and statistics about dataset requests.
   - Section that facilitates feedback on individual datasets
   - Linked Data section, with SPARQL endpoint
   - Data usage/impact section
   - Social media
   - Methods for synchronising/federating with other, e.g. departmental, data catalogues
   - Ability to host datasets directly on the portal, with preview for the most common data formats
b) Implement the first complete release of data.gov.ie, which will be fully Open Data compliant, meaning it will only contain data that is available in machine-readable format, with standardised metadata, under an Open License.

4.12 Supporting Public Bodies

For Central Government:

Recommendations:
a) Leadership
   - Continue strong political leadership of Open Data Initiative from the Government, and in particular Department of Public Expenditure and Reform
   - Appoint an Open Data Officer (person/team) within the Department of Public Expenditure and Reform, who will be responsible for overseeing Open Data Ireland.
   - Encourage Open Data Leadership with all management teams throughout the public sector
b) Policy
   - Define a national Open Data Strategy, including commitments, goals, and principles. This should be published as the Irish G8 Open Data Action Plan.
   - Consider incorporating Open Data skills into Performance Management and Development System (PMDS)
c) Financial
   - Commit financial support for:
     - the release of high-value datasets from public bodies
     - the release of demand-driven datasets from public bodies
     - capacity-building of public bodies
     - the ongoing upkeep and maintenance of the Open Data portal
     - user engagement activities
     - SMEs/start-ups to use, or support the use of, Open Data, e.g. seed-funding, innovation vouchers
   - The success of the Irish Open Data initiative depends on the commitment of adequate resources. We recommend the adaptation of the UK Open Data resource commitment, as outlined in the Best Practices Handbook.
d) Capacity-building
   - Provide training for public bodies, to include general Open Data knowledge, data management, technical and operational

Actions:
a) Appoint an Open Data Board, Open Data Steering and Implementation Group and an Open Data Officer in DPER
b) Define a National Open Data Strategy, including commitments, goals, and principles,
c) Commit financial support for:
   - the release of high-value datasets from public bodies
   - the release of demand-driven datasets from public bodies
   - capacity-building of public bodies
   - the ongoing upkeep and maintenance of the Open Data portal
   - user engagement activities
   - SMEs/start-ups to use, or support the use of, Open Data, e.g. seed-funding, innovation vouchers
d) Provide training for public bodies, to include general Open Data knowledge, data management, technical and operational

For Each Public Body

Recommendations:
a) Follow best-practices for publishing Open Data, as set out in this report
b) Designate a person/team who is responsible for Open Data
c) Create an Open Data strategy for your public body, including high-value datasets, goals and a timeframe.
d) When publishing a high-value dataset as Open Data, assess complete data lifecycle (e.g. collection, recording, storage, publication, archiving) in terms of potential data sharing, not only data usage for a particular purpose. Can elements of the data lifecycle process be improved upon or automated? For example, is metadata defined? Is the data modelled using standard vocabularies? Are privacy issues clearly addressed?
e) Investigate and redesign current work practices and processes to facilitate sharing of data.
f) Participate in Open Data training sessions.
g) Ensure the public body is represented on Open Data governance boards.
h) Communicate suggestions or challenges to Open Data governance boards.

Actions:
a) Designate a person/team who is responsible for Open Data
b) Create an Open Data strategy for your public body, including high-value datasets, goals and a timeframe.
c) Investigate and redesign current work practices and processes to facilitate sharing of data.
d) Publish data

4.13 Engaging Data Users

Recommendations
a) In order to be successful Open Data has to be user-centric.
b) Engage widely with the Open Data community
   o Organise hackathons, competitions and tutorials to encourage the use of Open Data
   o Facilitate new dataset requests via the Open Data portal
   o Facilitate feedback on individual datasets via the Open Data portal
   o Disseminate Open Data news, events, and new datasets via social media
   o Be open, visible and responsive to communication on Open Data topics
c) Encourage the use of Open Data beyond the existing community, for example, via existing tech and domain-specific groups and organisations.
d) Assign a dedicated budget for user engagement

Actions:
1. Engage widely with the Open Data community

4.14 Encouraging Commercial Use of Data

Recommendations:
   a) Publish Open Data with commercial reuse in mind
   b) Create targeted business user engagement activities
   c) Collaborate with potential commercial users of Open Data when considering which standards, formats, APIs, etc. to use.
   d) Provide funding for SMEs/start-ups to use, or support the use of, Open Data, e.g. seed-funding, innovation vouchers
   e) If there exists fees for data usage (non Open Data), e.g. for address and map data, set price points for SMEs/start-ups and trial usage periods.

Actions:
   a) Create targeted business user engagement activities
   b) Provide funding for SMEs/start-ups to use, or support the use of, Open Data, e.g. seed-funding, innovation vouchers

4.15 Evaluating Impact

Recommendations:
   a) Define an evaluation framework that assesses the readiness, implementation and impact of the Open Data initiative.
   b) Evaluate the Open Data initiative at both the macro and micro level
   c) Study case-studies of Open Data in use to get a clear understanding of the impact of Open Data in particular sectors and under a certain set of conditions.
   d) Utilise international evaluations, such as the OGP Independent Reporting Mechanism, Open Data Barometer, and the OKFN Open Data Index, to understand and improve the national Open Data initiative.
   e) Collaborate with academia to study the impact of Open Data.
   f) The progress/findings of the evaluation framework should be published by the Steering and Implementation Group annually.
   g) An independent review of the national Open Data Initiative should be carried out biannually.

Actions:
   a) Define an evaluation framework that assesses the readiness, implementation and impact of the Open Data initiative.
   b) Publish the progress/findings of the evaluation framework annually.
   c) Carry out an independent review of the national Open Data Initiative biannually

5 Roadmap

The Open Data Ireland Roadmap covers the three-year period from Jul-Sep 2014 (Q3 2014) to Apr-Jun 2017 (Q2 2017)

ID	Action	Start	End	Responsible	Objective
Governance					
1.1	Appoint Open Data Board	Q3 2014	Q3 2014	DPER	S1, L3, M6
1.2	Appoint Steering and Implementation Group (SIG)	Q3 2014	Q3 2014	DPER	S1, L3
1.3	Appoint Open Data Officer	Q3 2014	Q3 2014	DPER	S1, L3
1.4	Review and confirm the National Open Data Roadmap	Q3 2014	Q3 2014	DPER	S3
Carrying out a Data Audit					
2.1	Each public body should carry out a data audit of the data they currently manage.	Q3 2014	Q4 2014	All Public Bodies	S6, S7
2.2	Those datasets that are recognised as 'high-value' should be released proactively	Q3 2014	Q2 2015	Public Bodies, SIG	S5, S6
2.3	The data audit results should be made available on the national Open Data portal, so that users can request the publication of the complete dataset (demand-driven publication).	Q3 2014	Q2 2015	SIG	S5, S9
Dataset Selection					
3.1	For already published public data ensure the data is published as Open Data, i.e. machine-readable, with metadata, under an Open License.	Q3 2014	Q2 2015	SIG	S5, S6
3.2	Hold regular public consultations on what other datasets should be released as Open Data.	Q3 2014	Ongoing	SIG	S9
3.3	Facilitate new dataset requests via the Open Data portal	Q3 2014	Ongoing	SIG	S9
3.4	Facilitate feedback on individual datasets via the Open Data portal	Q3 2014	Ongoing	SIG	S9
3.5	As per the G8 Open Data Charter, prioritise the aforementioned key datasets for release as Open Data.	Q3 2014	Q2 2015	SIG	S5, S6, M3
3.6	As per the G8 Open Data Charter, prioritise the aforementioned high-value datasets for release as Open Data.	Q3 2014	Q4 2015	SIG	S5, S6, M3

ID	Action	Start	End	Responsible	Objective
Address and Map Data					
4.1	Explicitly outline an Open Spatial Data Strategy as part of the National Spatial Data Strategy.	Q3 2014	Q4 2014	ODB (in collaboration with National Spatial Data Strategy Group)	S2, M6
4.2	Release the Electoral Divisions, Small Areas, Prime2 model and GUID structure as Open Data	Q3 2014	Q4 2014	OSi	S2, M3
4.3	Carry out a full investigation into the potential and economic benefits of publishing all Irish address and map data as Open Data, including alternative sustainability models for OSi and GeoDirectory.	Q3 2014	Q1 2015	SIG	M3
Data Privacy					
5.1	Invite the Data Protection Commissioner to attend SIG meetings on a six-monthly basis	Q3 2014	Ongoing	SIG	L6
Licensing					
6.1	Carry out a legal investigation into what Open License to use for Open Data in Ireland	Q3 2014	Q4 2014	SIG	S4
6.2	Recommend a standard Open License that should be associated with all Irish Open Data	Q3 2014	Q4 2014	SIG	S4
Data Formats					
7.1	Convert high-value legacy data into non-proprietary and machine-readable formats with at least 3-star rating	Q3 2014	Q4 2014	SIG	S6
7.2	Embed the publication of 3-star data publication into existing data processes of public bodies.	Q3 2014	Q4 2015	Public Bodies, SIG	S6, L1
7.3	After one year, publish at least 15% of datasets as 5-star Linked Open Data.	Q3 2014	Q2 2015	SIG	S8
7.4	After two years, publish at least 30% of datasets as 5-star Linked Open Data.	Q2 2015	Q2 2016	SIG	M5
7.5	After five years, publish 100% datasets as 5-star Linked Open Data.	Q2 2016	Q2 2017	SIG	L2

ID	Action	Start	End	Responsible	Objective
Metadata					
8.1	Recommend a common metadata standard that should be associated with all Irish Open Data	Q3 2014	Q4 2014	SIG	S6, M1
Data Standards					
9.1	Define a list of recommended data standards for use by Irish public bodies, similar to http://vocab.data.gov/. The list should be available on the Open Data IRL portal.	Q3 2014	Q2 2015	SIG	M1
Unique Identifiers					
10.1	Develop and adopt a national URI strategy	Q3 2014	Q4 2014	SIG	S6, M1, M6
10.2	Identify the reference data registers that are most widely used across the public sector, and prioritise the definition of URIs for their contents	Q3 2014	Q2 2015	SIG	S6, M1
10.3	Document URI sets defined by public sector bodies on the data.gov.ie portal	Q3 2014	Q2 2015	SIG	S6, M1
Data Access					
11.1	Put a process in place to ensure the bulk data is kept up-to-date.	Q3 2014	Q4 2014	Public Bodies, SIG	S6, M1
Data Discovery					
12.1	Implement the beta version of data.gov.ie to include: ○ Section that facilitates new dataset requests and official responses to and statistics about dataset requests. ○ Section that facilitates feedback on individual datasets ○ Linked Data section, with SPARQL endpoint ○ Data usage/impact section ○ Social media ○ Methods for synchronising/federating with other, e.g. departmental, data catalogues ○ Ability to host datasets directly on the portal, with preview for the most common data formats	Q3 2014	Q3 2014	SIG	S5

ID	Action	Start	End	Responsible	Objective
12.2	Implement the first complete release of data.gov.ie, which will be fully Open Data compliant, meaning it will only contain data that is available in machine-readable format, with standardised metadata, under an Open License.	Q3 2014	Q1 2015	SIG	S5
Supporting Public Bodies					
13.1	Define a National Open Data Strategy, including commitments, goals, and principles	Q3 2014	Q4 2014	ODB	S1, M4, L1, M6
13.2	Commit financial support for: o the release of high-value datasets from public bodies o the release of demand-driven datasets from public bodies o capacity-building of public bodies o the ongoing upkeep and maintenance of the Open Data portal o user engagement activities o SMEs/start-ups to use, or support the use of, Open Data, e.g. seed-funding, innovation vouchers	Q3 2014	Q4 2014	ODB	S9, S10, S11
13.3	Provide training for public bodies, to include general Open Data knowledge, data management, technical and operational	Q3 2014	Q1 2015	SIG	S11
13.4	Designate a person/team within each public body who is responsible for Open Data	Q3 2014	Q4 2014	All Public Bodies	S11
13.5	Create an Open Data strategy for your public body, including high-value datasets, goals and a timeframe.	Q3 2014	Q1 2015	All Public Bodies	S6/S7
13.6	Investigate and redesign current work practices and processes to facilitate sharing of data.				
13.7	Publish data	Q3 2014	Q1 2015	All Public Bodies	S6/S7
Engaging Data Users					
14.1	Engage widely with the Open Data community	Q3 2014	Ongoing	SIG	S9, M2, L5
Encouraging Commercial Use of Data					
15.1	Create targeted business user engagement activities	Q3 2014	Ongoing	SIG	S10, M2
15.2	Provide funding for SMEs/start-ups to use, or support the use of, Open Data, e.g. seed-funding, innovation vouchers	Q3 2014	Q1 2015	ODB	S10

ID	Action	Start	End	Responsible	Objective
	Evaluating Impact				
16.1	Define an evaluation framework that assesses the readiness, implementation and impact of the Open Data initiative.	Q3 2014	Q4 2014	SIG	S12
16.2	Publish the progress/findings of the evaluation framework annually.	Q3 2014	Ongoing	SIG, ODB	S12
16.3	Carry out an independent review of the national Open Data Initiative biannually	Q2 2016	Q2 2016	Commissioned by ODB	L4