

Delivering a single open data portal for NHS in Scotland



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Setting the scene

- ISD is an official statistics producer, part of NHSScotland
- Releasing 230+ publications every year
- Increasing demand for data:
 - In an accessible, non-proprietary, format
 - Structured and consistent
 - Machine-readable and processable
- Strategic direction of Scottish Government



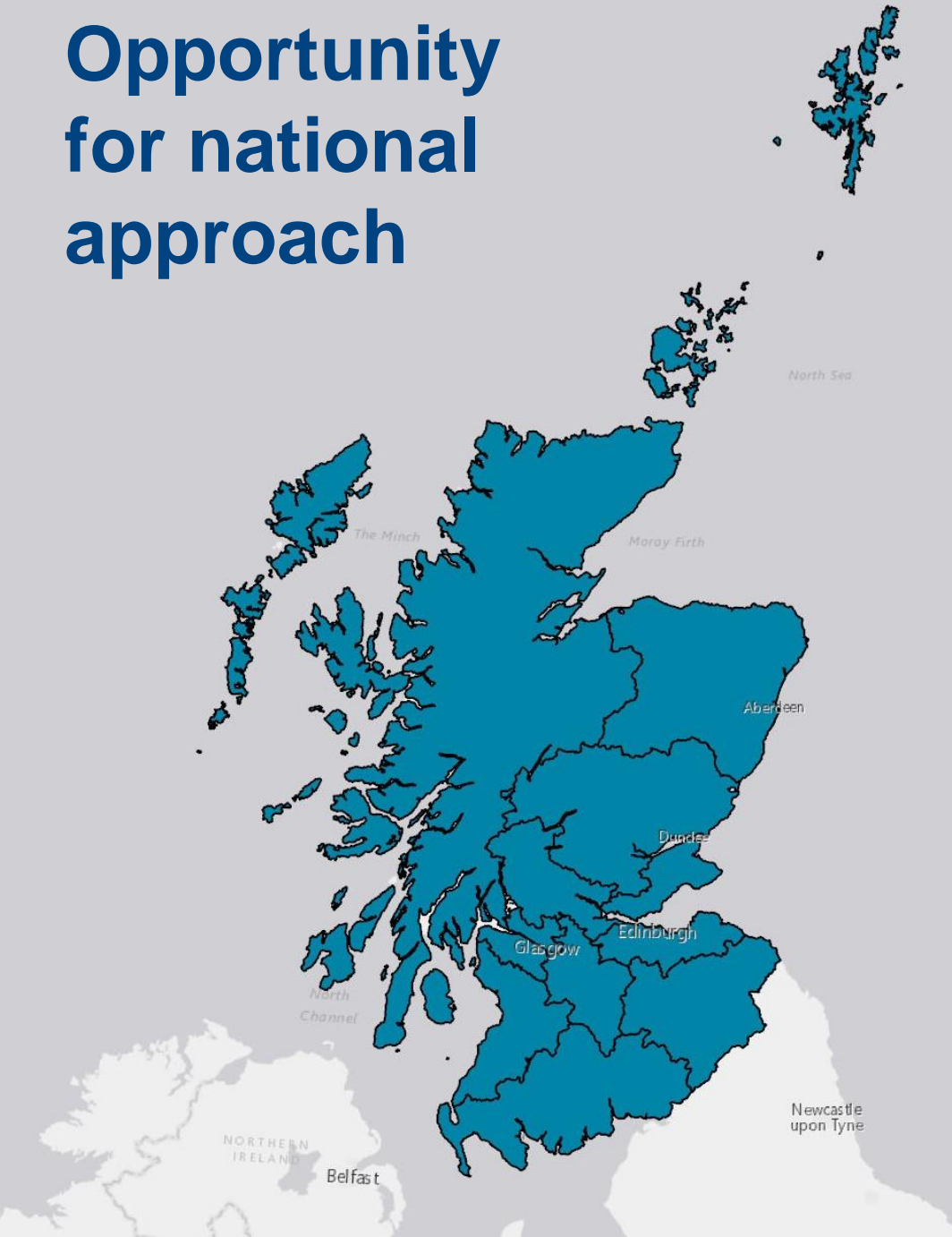
Opportunity for national approach

**“Once for NHS
Scotland”**

Single open data
portal

Sharing resources

Uniform technical
standards



What is open data?

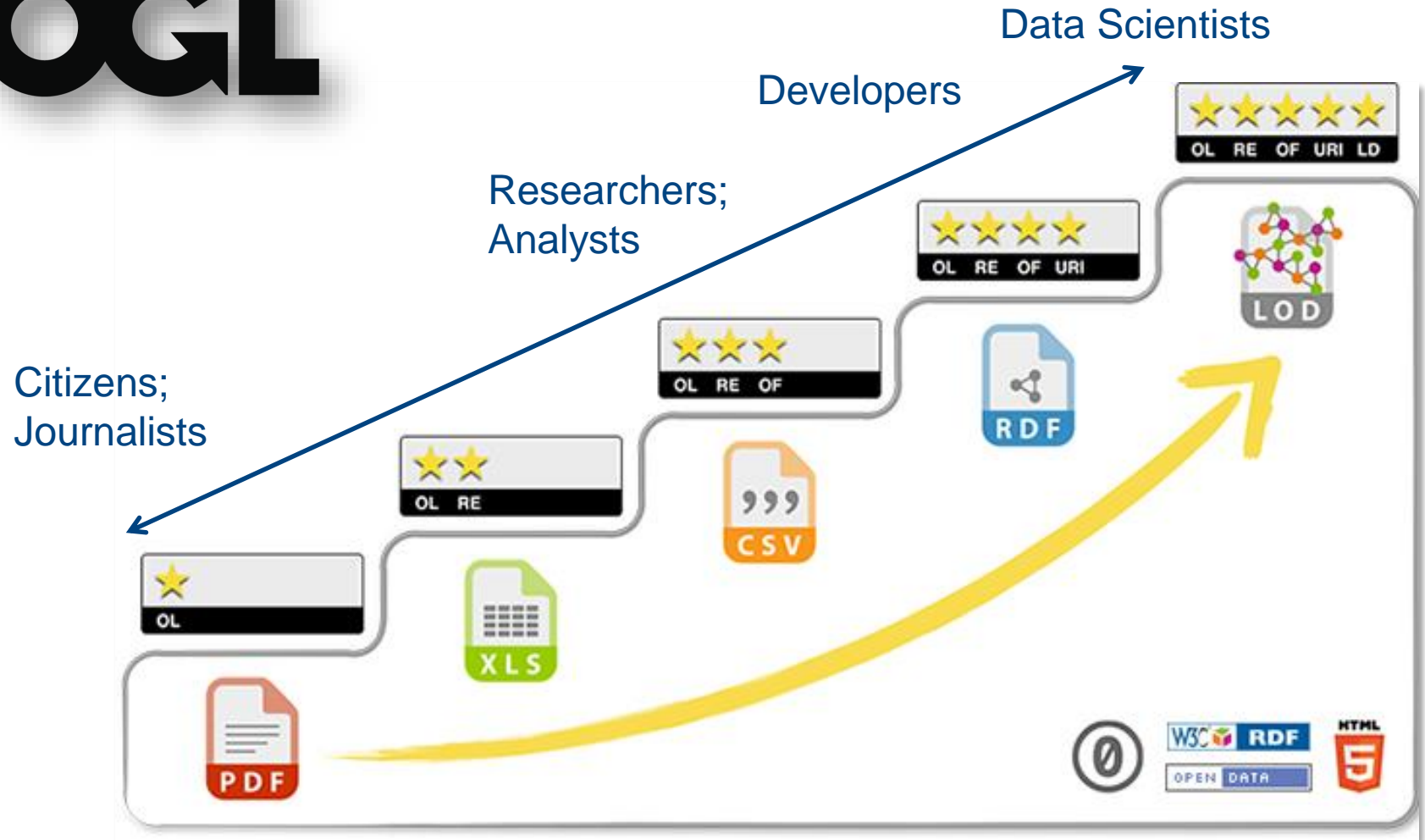
“Open data and content can be **freely used, modified, and shared** by **anyone** for any purpose”

ODGL

<http://opendefinition.org/>

Five star open data model

OGL



Open data journey

Scottish Government Open Data Strategy (February)

Re-use of Public Sector Information Regulations (June)



NSS Open Data Working Group

Options Paper - Agree platform

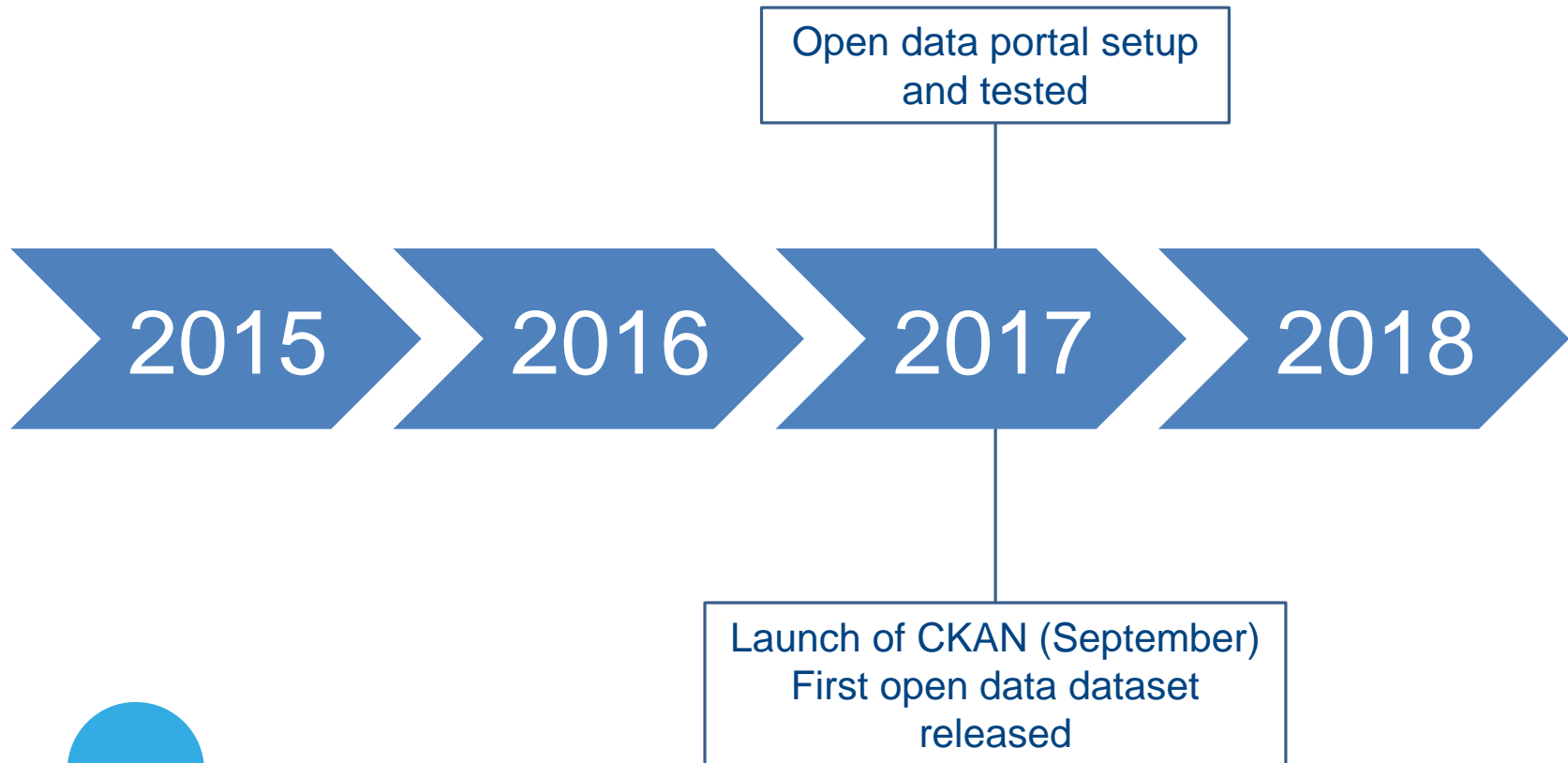
CKAN

Comprehensive Knowledge Archive Network

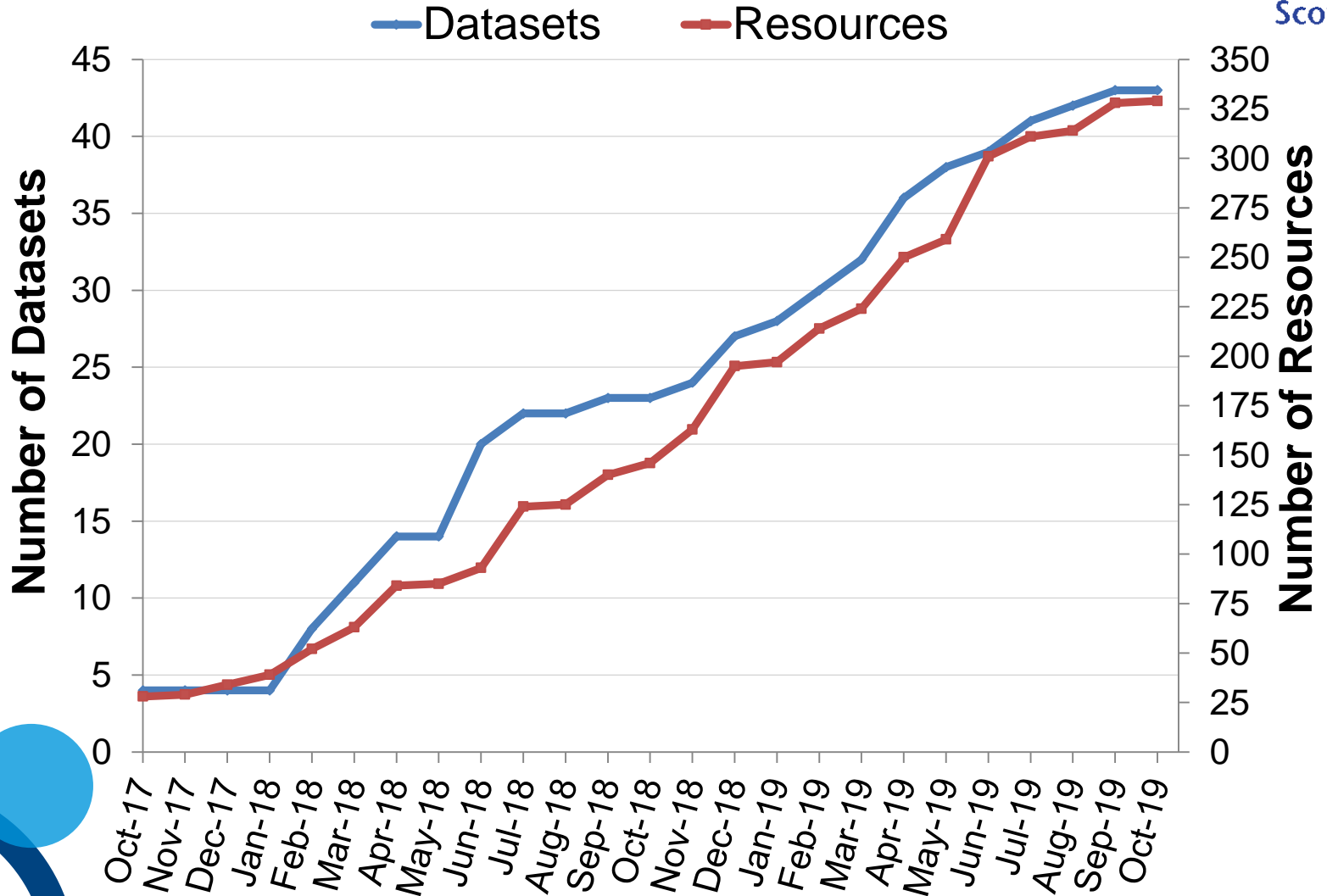
- Open source data portal for storing, managing and distributing open data
- Modular - Core package with over 200 extensions
- API
- Worldwide use - UK Open Data Portal, EU Open Data Portal and US Open Data



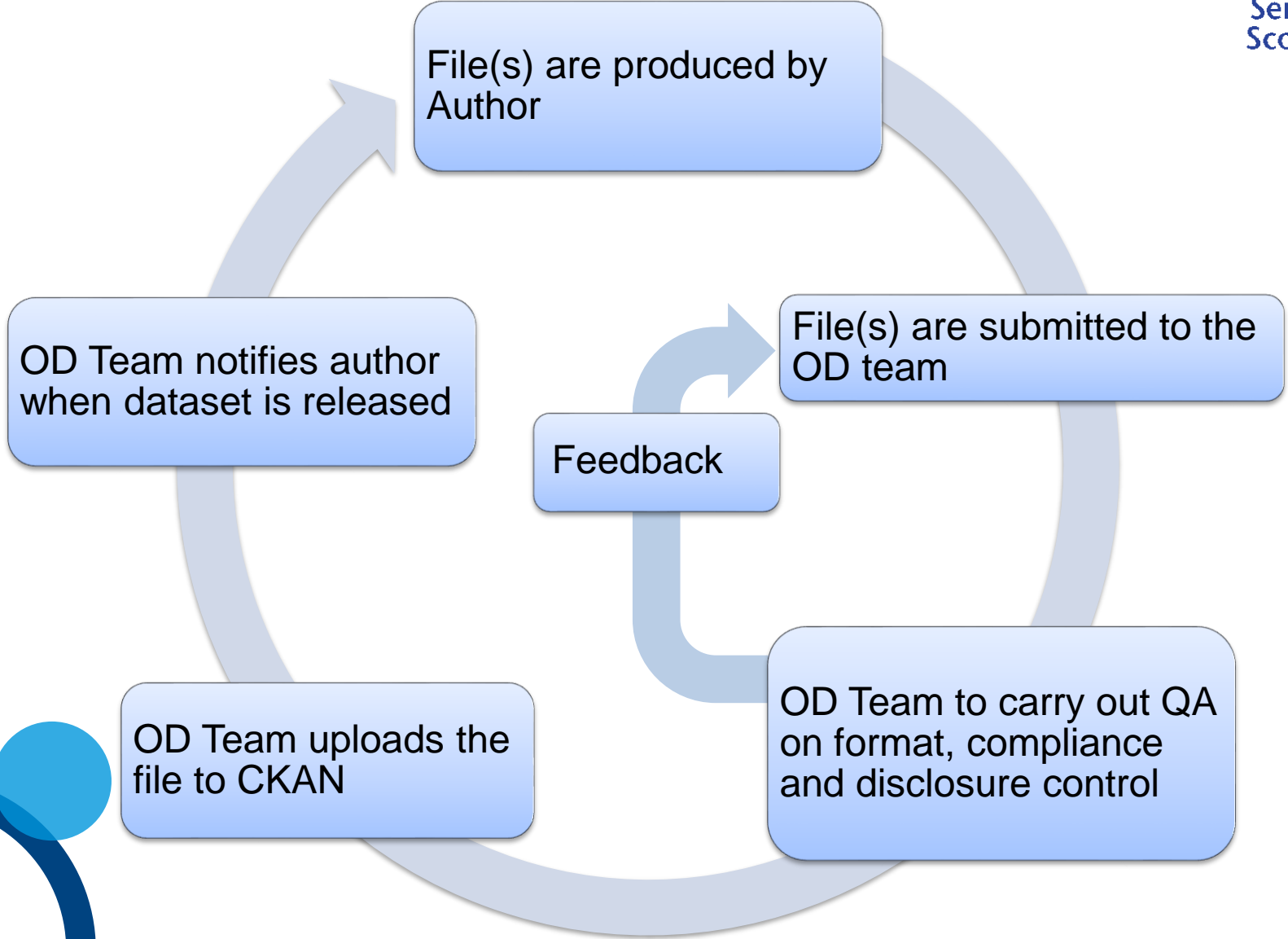
Open data journey



Where we are now



The Open Data Workflow



Positive impact of open data

- Increased transparency
- Single portal increases discoverability for users -> increased usage of data
- Reduction in routine requests
- Data can be more easily linked
- Increased automation through API calls – programmatic use of data



Lessons learned

- Need to recognise and challenge misunderstandings about open data
- Culture shift – from ‘ownership’ of data to open access - dealing with resistance to change
- Need to create and maintain open data standards
- Consistency and good metadata is essential for users



NHSScotland Open Data platform

Datasets Themes Groups About  

NHS Scotland Open Data

The NHSScotland open data platform gives access to statistics and reference data for information and re-use.

This platform is managed by NHS National Services Scotland for NHSScotland. Data is released under the Open Government Licence.

NHS Scotland Open Data statistics

39	7	19
datasets	themes	groups

Search data

E.g. environment

Popular tags health board council area health and social c...

cy • New data available: Care Home Census • New data available: Diagnostic Waiting Times • New data available: GP Pa

About NHS Scotland Open Data

CKAN API

CKAN Association



Powered by

 ckan

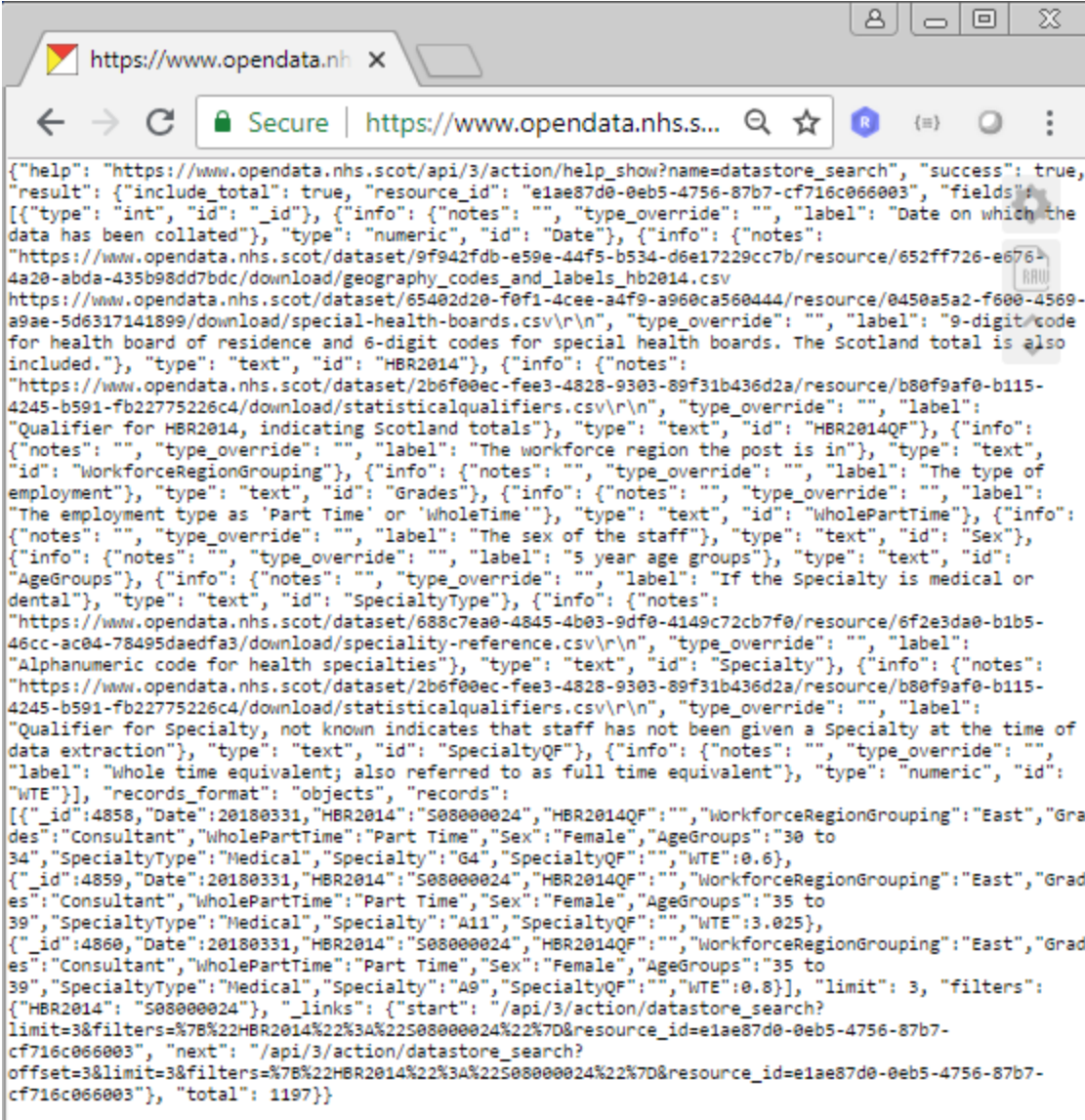
Language:

<https://www.opendata.nhs.scot/>

Benefits of APIs

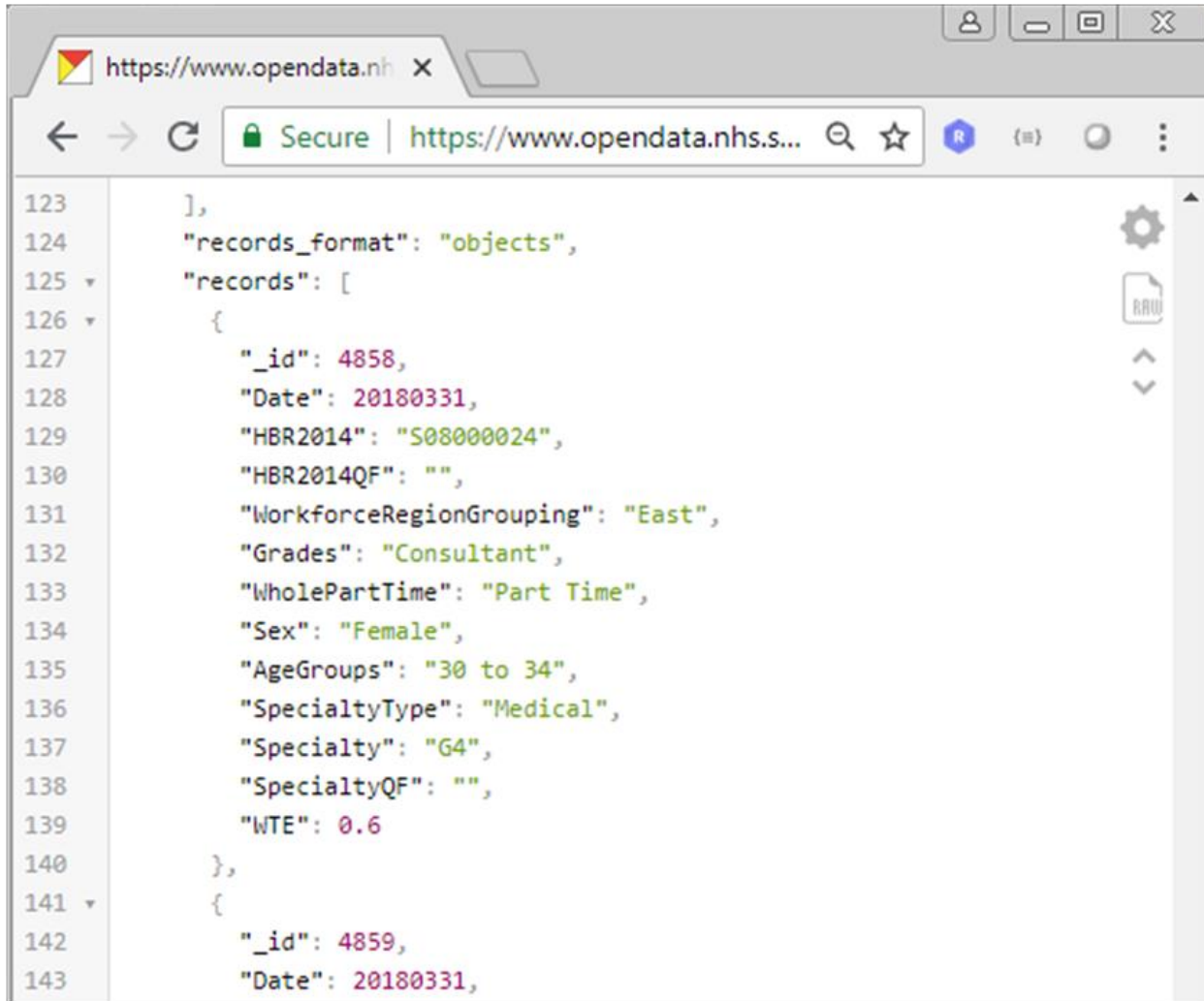
- Application Programming Interface
- Building blocks for applications
- Facilitating automatic retrieval of data
- Example:
 - [https://www.opendata.nhs.scot/api/3/action/datastore_search?&resource_id=e1ae87d0-0eb5-4756-87b7-cf716c066003&limit=3&filters={"HBR2014":"S08000024"}](https://www.opendata.nhs.scot/api/3/action/datastore_search?&resource_id=e1ae87d0-0eb5-4756-87b7-cf716c066003&limit=3&filters={)

API response – machine readable



```
{
  "help": "https://www.opendata.nhs.scot/api/3/action/help_show?name=dataset_search",
  "success": true,
  "result": {
    "include_total": true,
    "resource_id": "e1ae87d0-0eb5-4756-87b7-cf716c066003",
    "fields": [
      {
        "type": "int",
        "id": "_id",
        "info": {
          "notes": "",
          "type_override": "",
          "label": "Date on which the data has been collated"
        },
        "type": "numeric",
        "id": "Date",
        "info": {
          "notes": "https://www.opendata.nhs.scot/dataset/9f942fdb-e59e-44f5-b534-d6e17229cc7b/resource/652ff726-e676-4a20-abda-435b98dd7bdc/download/geography_codes_and_labels_hb2014.csv",
          "type_override": "",
          "label": "9-digit code for health board of residence and 6-digit codes for special health boards. The Scotland total is also included."
        },
        "type": "text",
        "id": "HBR2014",
        "info": {
          "notes": "https://www.opendata.nhs.scot/dataset/2b6f00ec-fee3-4828-9303-89f31b436d2a/resource/b80f9af0-b115-4245-b591-fb22775226c4/download/statisticalqualifiers.csv\r\n",
          "type_override": "",
          "label": "Qualifier for HBR2014, indicating Scotland totals",
          "type": "text",
          "id": "HBR2014QF",
          "info": {
            "notes": "",
            "type_override": "",
            "label": "The workforce region the post is in",
            "type": "text",
            "id": "WorkforceRegionGrouping",
            "info": {
              "notes": "",
              "type_override": "",
              "label": "The type of employment",
              "type": "text",
              "id": "Grades",
              "info": {
                "notes": "",
                "type_override": "",
                "label": "The employment type as 'Part Time' or 'WholeTime'",
                "type": "text",
                "id": "WholePartTime",
                "info": {
                  "notes": "",
                  "type_override": "",
                  "label": "The sex of the staff",
                  "type": "text",
                  "id": "Sex",
                  "info": {
                    "notes": "",
                    "type_override": "",
                    "label": "5 year age groups",
                    "type": "text",
                    "id": "AgeGroups",
                    "info": {
                      "notes": "",
                      "type_override": "",
                      "label": "If the Specialty is medical or dental",
                      "type": "text",
                      "id": "SpecialtyType",
                      "info": {
                        "notes": "https://www.opendata.nhs.scot/dataset/688c7ea0-4845-4b03-9df0-4149c72cb7f0/resource/6f2e3da0-b1b5-46cc-ac04-78495daedfa3/download/speciality-reference.csv\r\n",
                        "type_override": "",
                        "label": "Alphanumeric code for health specialties",
                        "type": "text",
                        "id": "Specialty",
                        "info": {
                          "notes": "https://www.opendata.nhs.scot/dataset/2b6f00ec-fee3-4828-9303-89f31b436d2a/resource/b80f9af0-b115-4245-b591-fb22775226c4/download/statisticalqualifiers.csv\r\n",
                          "type_override": "",
                          "label": "Qualifier for Specialty, not known indicates that staff has not been given a Specialty at the time of data extraction",
                          "type": "text",
                          "id": "SpecialtyQF",
                          "info": {
                            "notes": "",
                            "type_override": "",
                            "label": "Whole time equivalent; also referred to as full time equivalent",
                            "type": "numeric",
                            "id": "WTE"
                          }
                        }
                      }
                    }
                  }
                }
              }
            }
          }
        }
      }
    ]
  },
  "records_format": "objects",
  "records": [
    {
      "_id": 4858,
      "Date": "20180331",
      "HBR2014": "S08000024",
      "HBR2014QF": "",
      "WorkforceRegionGrouping": "East",
      "Grades": "Consultant",
      "WholePartTime": "Part Time",
      "Sex": "Female",
      "AgeGroups": "30 to 34",
      "SpecialtyType": "Medical",
      "Specialty": "G4",
      "SpecialtyQF": "",
      "WTE": 0.6,
      "_id": 4859,
      "Date": "20180331",
      "HBR2014": "S08000024",
      "HBR2014QF": "",
      "WorkforceRegionGrouping": "East",
      "Grades": "Consultant",
      "WholePartTime": "Part Time",
      "Sex": "Female",
      "AgeGroups": "35 to 39",
      "SpecialtyType": "Medical",
      "Specialty": "A11",
      "SpecialtyQF": "",
      "WTE": 3.025,
      "_id": 4860,
      "Date": "20180331",
      "HBR2014": "S08000024",
      "HBR2014QF": "",
      "WorkforceRegionGrouping": "East",
      "Grades": "Consultant",
      "WholePartTime": "Part Time",
      "Sex": "Female",
      "AgeGroups": "35 to 39",
      "SpecialtyType": "Medical",
      "Specialty": "A9",
      "SpecialtyQF": "",
      "WTE": 0.8
    }
  ],
  "limit": 3,
  "filters": {
    "HBR2014": "S08000024",
    "_links": {
      "start": "/api/3/action/dataset_search?limit=3&filters=%7B%22HBR2014%22%3A%22S08000024%22%7D&resource_id=e1ae87d0-0eb5-4756-87b7-cf716c066003",
      "next": "/api/3/action/dataset_search?offset=3&limit=3&filters=%7B%22HBR2014%22%3A%22S08000024%22%7D&resource_id=e1ae87d0-0eb5-4756-87b7-cf716c066003"
    },
    "total": 1197
  }
}
```

API response – human readable



The screenshot shows a web browser window with the URL `https://www.opendata.nhs.s...`. The page content is a JSON response displayed in a human-readable format. The JSON structure is as follows:

```
123 ],
124   "records_format": "objects",
125   "records": [
126     {
127       "_id": 4858,
128       "Date": 20180331,
129       "HBR2014": "S08000024",
130       "HBR2014QF": "",
131       "WorkforceRegionGrouping": "East",
132       "Grades": "Consultant",
133       "WholePartTime": "Part Time",
134       "Sex": "Female",
135       "AgeGroups": "30 to 34",
136       "SpecialtyType": "Medical",
137       "Specialty": "G4",
138       "SpecialtyQF": "",
139       "WTE": 0.6
140     },
141     {
142       "_id": 4859,
143       "Date": 20180331,
```


Using the API in R

- Libraries:
 - httr & jsonlite
- Functions:
 - GET(url) – sends a query and saves the response
 - rawToChar – translates the binary code
 - fromJSON – parses the JSON file
- Practical Examples on GitHub:
 - <https://github.com/Health-SocialCare-Scotland/Open-Data>

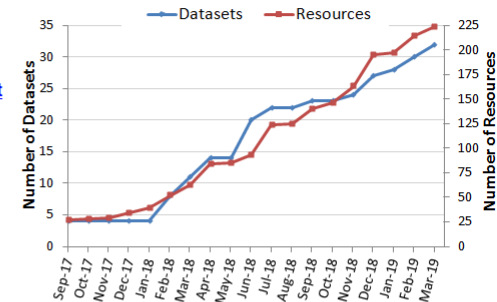
Current and further developments

- Further automation through open data
- Open Data Pipeline
 - External & Internal
- Activity report
 - ~1,525 users per month
 - Over 2,833 page views per month
 - Average session ~3min 30sec
 - 67% of traffic is direct or from searches
 - 29% of users referred from the ISD website

NHSScotland Open Data platform Activity Report – March 2019

What's new this month

- 2 new dataset added - [General Practitioner Contact Details](#) and [GP Practice Populations](#)
- 10 new resources added
- 8 resources updated
- 225 resources now live

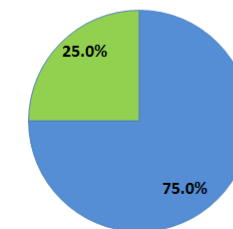


Activity

- 8,172 page views in 2,161 sessions
- The busiest day of the month – Thursday 28th of March with 115 users
- User averages 3:23 minutes on platform
- 67% of traffic is direct or through organic searches; 29% of users were Referred from the ISD website, 1% through social media
- Most viewed dataset were 'Prescriptions in the Community', 'Monthly Emergency Department Activity and Waiting Times'

Users this month

■ New Users ■ Returning Users



- 1,377 users – the third month with over 1,000 users in a row!
- 67% of users are in the UK, 20% from the US
- Most users are in Glasgow followed by Chicago (USA) and London
- We had users from 50 countries visit the portal
- Desktop computers were used in 90% of sessions, 7% on mobile devices and 3% on tablets
- **Use case:** A user created a tableau workbook using our open data (Monthly ED Activity and Waiting Times) and put this up on [tableau public](#)

Visit

<https://www.opendata.nhs.scot>

Contact

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