The Data Management Strategy &
Open Data Barcelona

- ✓ Use data to offer better services and optimize internal processes
- ✓ Internal changes of the city council of Barcelona towards the Data Driven
- ✓ Ethical and responsible data management

Prague, May 30th 2019

Introduction

➤ Technology is not unbiased and neither is the current economic system surrounding the exploitation of data, which highly emphasizes inequality.

➤ Big operators have monopoly over data (generated by citizens) as well as its large-scale exploitation.

➤ Both the sheer size of the resources required and the cost of obtaining and processing data discourages new players (third sector, SMEs). Therefore, we need a new economic model, one that is both diversified and collaborative.

New Data Management Strategy of Barcelona

➢ Cities face a huge opportunity.

➢ Barcelona City Council is a great technological player. Today we collect 90% more data than 3 years ago.

➢ The City Council can lead a change of management and be more efficient, transparent and closer to its resources.

➢ Today, Barcelona is a pioneering city in the area of data management, but we want to make a qualitative and quantitative leap towards:

- We want to make Barcelona a more efficient, dynamic, intelligent, and confident ecosystem for its citizens, entrepreneurs and Municipal Government

- We want to place BCN as a model of democratic data management, with citizens as major players, ensuring their rights and digital sovereignty.

Data as public urban infrastructure
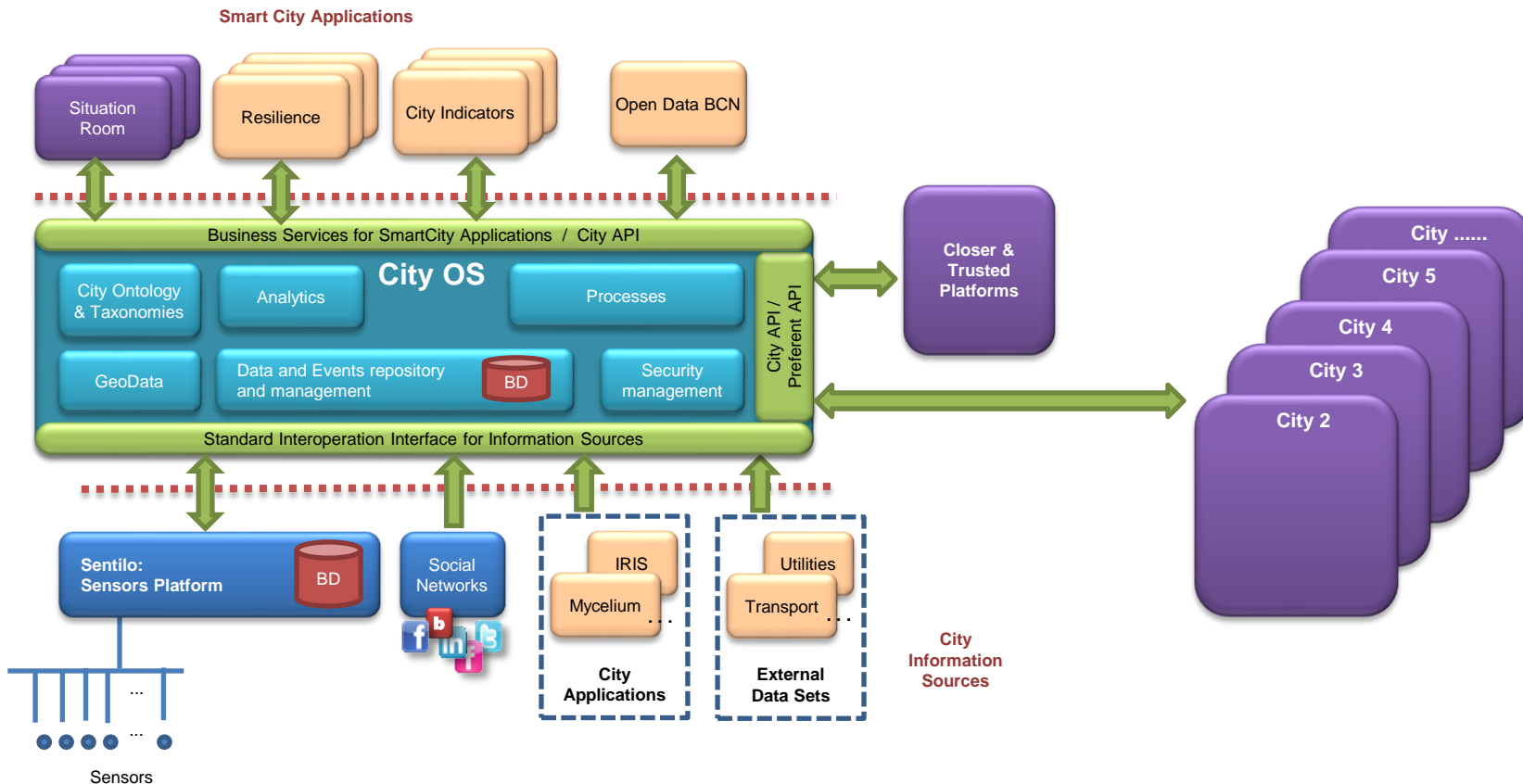
Shared resources focusing on the common good

Context - Government Measures

"**Barcelona Digital City Plan**"
  October 2016

Measure of government for open digitalization: free software and agile development services
October 2017

 Measure of government of management of data ethical and responsible:
Barcelona Data Commons
February 2018

Core Values

Core values	Goal	Strategic factors	Strategic Axes
Data sovereignty	Promote a more efficient data management model	New data governance	Data sovereignty: implementation of new governance on data
Ethical use of data	Improve the governance of data	City data infrastructure	Responsible and ethical data management
	Establish a shared vision and strategy in all data projects	Internal innovation based on data: analytics and projects	Data infrastructure of the City: The CityOs
	Align the technological tools to user needs	Barcelona Data Exchange: setting external value of data	Internal innovation based on Data: analysis and projects "data driven"
	Incorporate and develop Data Analytics (Data Science) in the organization		Data sharing: putting in external value of the Data

City Data Infrastructure: The Data Lake-City OS

Ajuntament de Barcelona

Big-Data Strategy
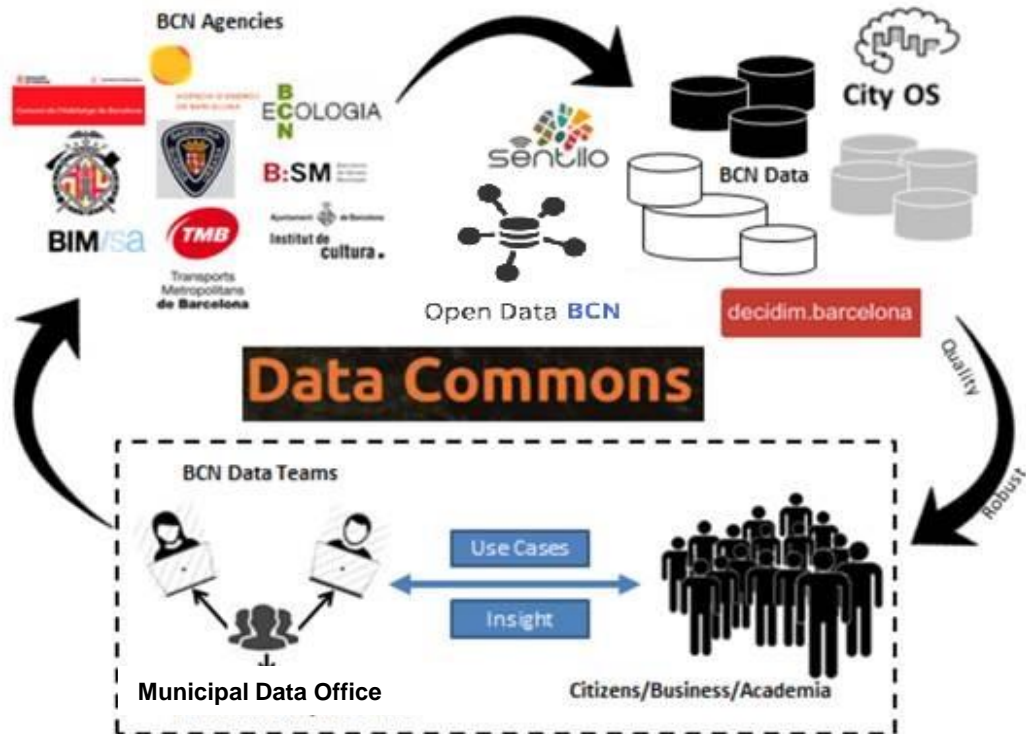
Municipal Data Office

BARCELONA IS THE FIRST SPANISH CITY WITH A MUNICIPAL DATA OFFICE TO SOLVE URBAN CHALLENGES AND IMPROVE PUBLIC SERVICES

- The mission and objectives of the new Municipal Data Office (OMD), led by its Director "Chief Data Officer" (CDO), provide it with the necessary resources (human, technical and financial) to add value to the data from the City and from citizens.

- Barcelona continues the example led by major American cities such as Chicago, New York City and Boston, all with Chief Data Officers, and more recently other cities in Europe such as Paris or London, by designing a new strategy and vision placing value data as a part of the city's infrastructure.

Municipal Data Office
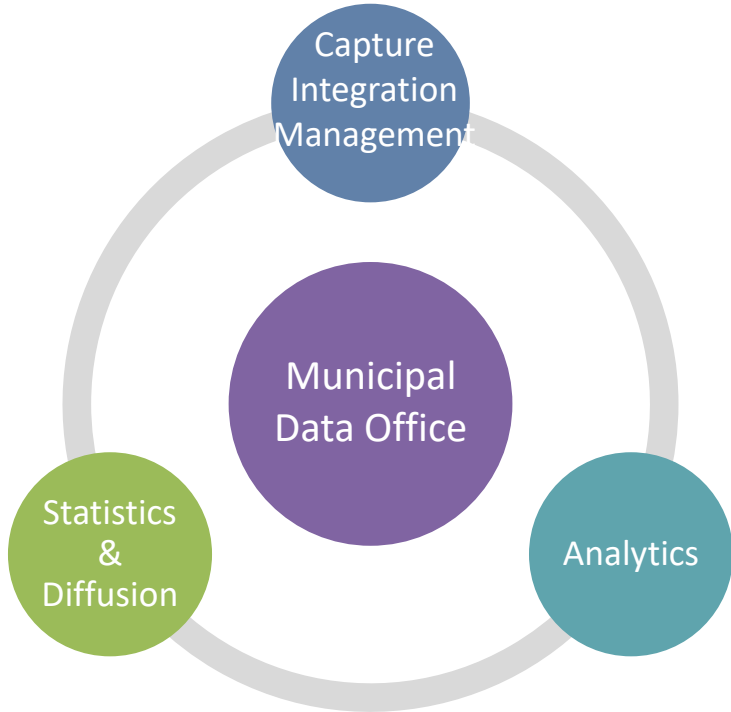
- ➢ The Municipal Data Office integrates different areas and departments with responsibility for corporate data.

- ➢ It is responsible for the management, quality, governance and operation of data related to the City Council of Barcelona and all associated bodies (public or private) that provide public services.

- ➢ It is staffed by some 40 people, a large multidisciplinary team with a set of tasks that allow processing of information in knowledge.

Evolution: from past to future

Municipal Statistics	Technical Programming Office	Public Opinion	Base Information	Open Data BCN	Municipal Data Office CDO
1901	**1957**	**1987**	**1990**	**2010**	**2018**

2018

1T-CTI	GM

Municipal Data Office CDO

Data Integration Department	Analysis and Opinion Studies Department (GTP)	Statistics and Data Diffusion Department
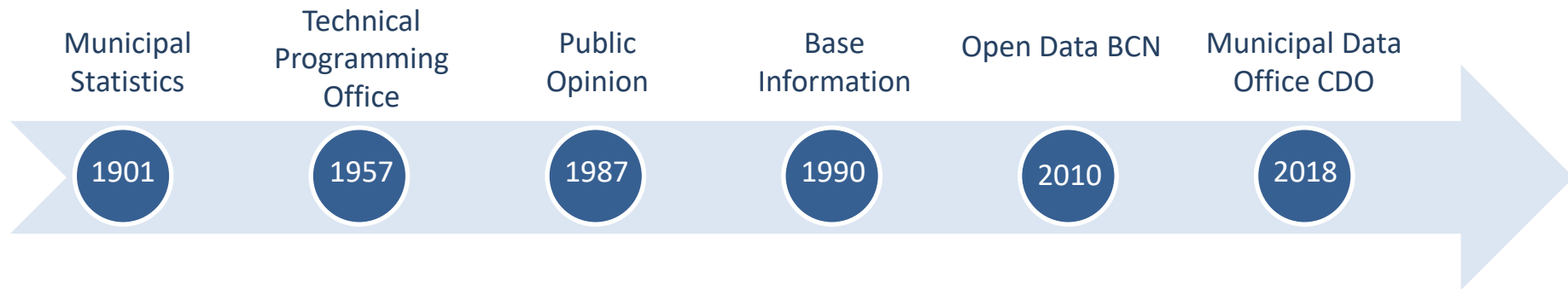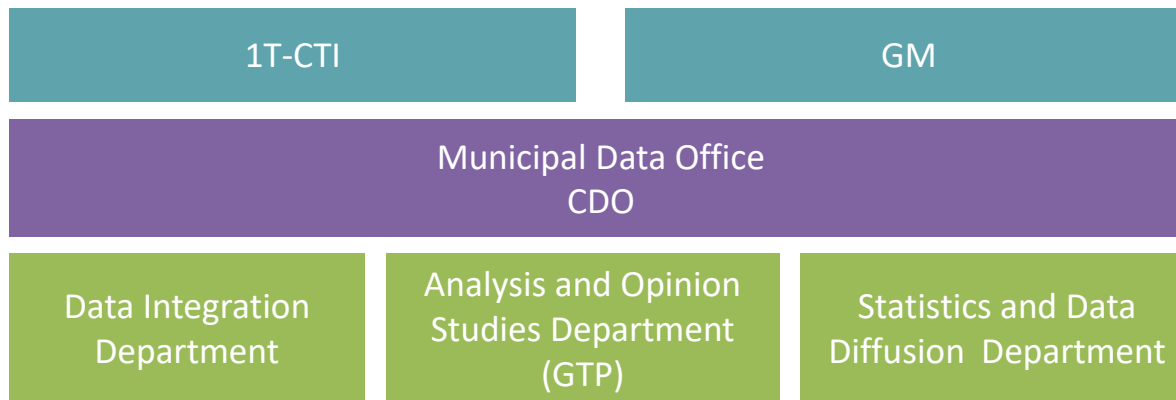
Some Examples – Barcelona City Council Website

Integration and fusion

BCN Statistics	Open Data BCN	BcnRoc
Barcelona Economy	Opinion and Survey Studies	Geoportal BCN
CartoBCN	Observatories	...
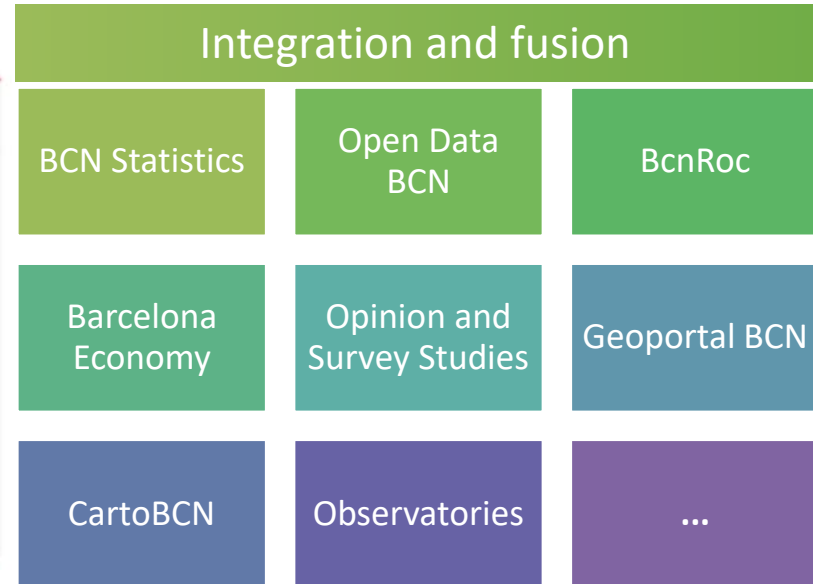
Open Data BCN

Barcelona Digital City Plan (2016-2020)

City's roadmap towards technological sovereignty
3 main axis:
- City and Government
- Business and social entities
- Citizenship

Municipal Data Office

Goal: to improve and coordinate the ethical and responsible management of data
3 lines of work:
- Data collection and storage
- Analytics, machine learning and predictions
- Data sharing and communication

Open Data BCN

Service of the City of Barcelona that releases municipal management data in open and standard formats, through a website providing and facilitating user access and usability.
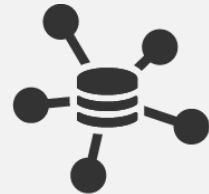
Open Data **BCN**

Who uses our data?

All sorts of citizens, but mainly…

- Developers
- Economists
- Data journalists
- Data analysts
- Entrepreneurs
- Students
- Teachers
- Researchers
- Designers & Creative people
- Entities and Organizations
- Internal users & other administrations
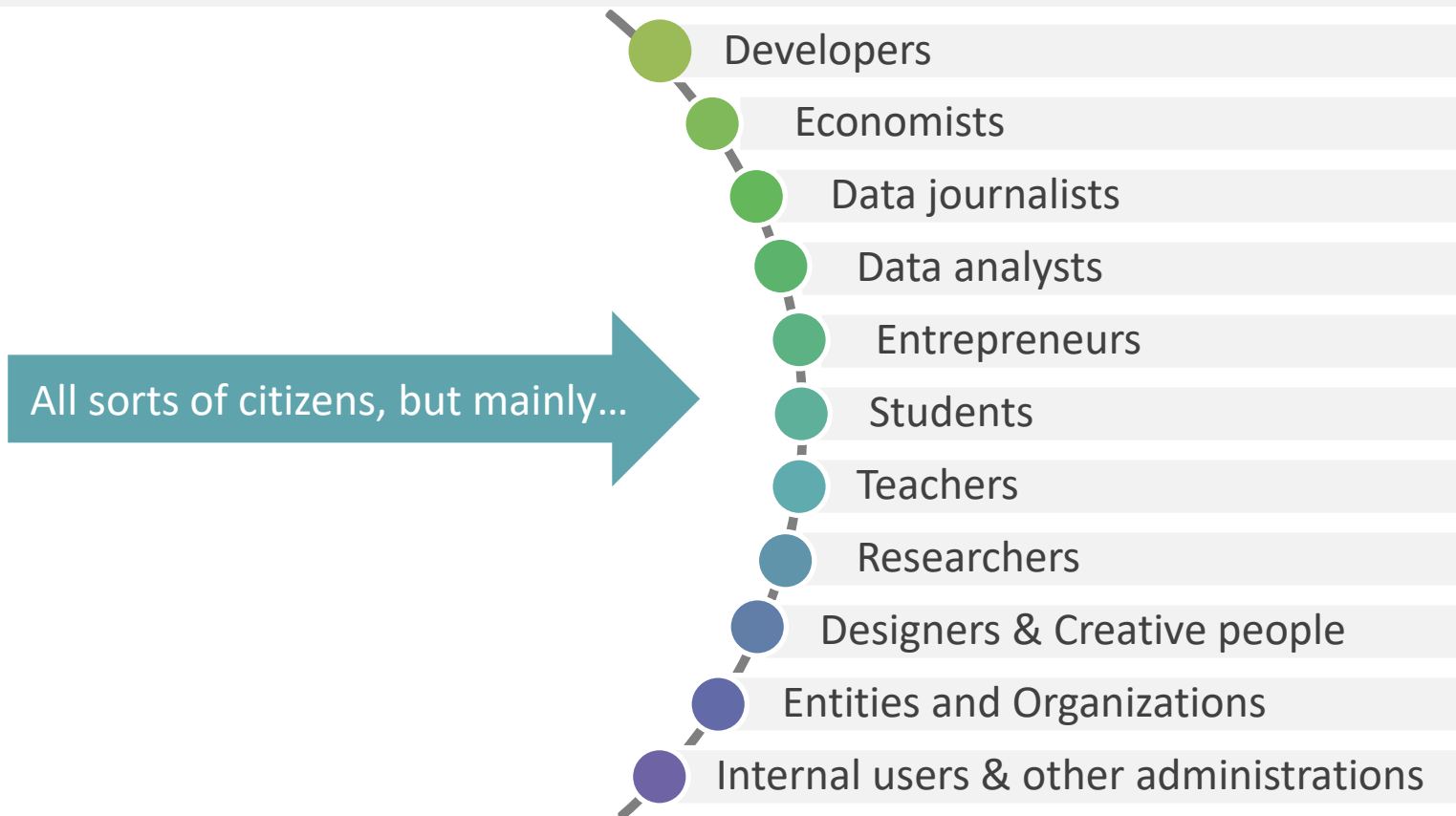
Open Data BCN: 2016-2020 Roadmap - Benefits

Open Data BCN was launched in March 2011

Roadmap

1- 2011-2015
2- 2016-2020

Drafted jointly by Barcelona City Council and IESE (International business school)

Benefits

2011-2015 Roadmap focus

Improving citizen services

Generation of business activities

2016-2020 Roadmap focus

Transparency

Improving internal efficiency

Generating activities with social impact

2016-2020 Roadmap

Open Data	Transparency	City Council	City

2016 - 2017

I. Shock-plan for transparency and data opening

II. Project's Governance

III. Improve provider's capabilities

VI. Encourage an internal Communication Plan for the project

IV. Endow the OpenData team with resources

V. Define and align the strategic databases for the project

VII. OpenData strategic Plan 2016-2020

2017 - 2020

X. Establish Open Data City Council protocols

VIII. Promote an external Open data communication plan

IX. Open Data network experts

XII. OpenData City Council

XI. Open Data ROI and SROI

Open Data BCN: Portal Home

User double vision: Basic & Expert

Open Data BCN: Portal Features

New Portal

Launched
February 2017

Technical

CKAN + Drupal
(Open Source)

Open Data BCN: GitHub

Open Data BCN: Catalogue

May 2019

425 datasets

- 1192 including historical series
- 2067 including 27 different formats

>= 180 datasets published since the launch of the new portal

Open Data BCN Portal – Topic/Subtopic

Datasets by topic-subtopic					
Topic / Subtopic	**Nº Datasets**	**%**	**Topic / Subtopic**	**Nº Datasets**	**%**
Administration	**77**	**18,1%**	**Territory**	**113**	**26,6%**
Engagement	7	1,6%	Housing	57	13,4%
Human Resources	6	1,4%	Town Planning and Infrastructures	56	13,2%
Legislation and Justice	7	1,6%	**City and Services**	**113**	**26,6%**
Public Sector	57	13,4%	Culture and Leisure	31	7,3%
Economy and Business	**15**	**3,5%**	Environment	19	4,5%
Employment	5	1,2%	Security	6	1,4%
Science and Technology	2	0,5%	Sport	2	0,5%
Trade	8	1,9%	Tourism	3	0,7%
Population	**107**	**25,2%**	Transport	51	12,0%
Demography	84	19,8%	Participation	1	0,2%
Education	1	0,2%			
Society and Welfare	22	5,2%			
		Total	**425**		

Open Data BCN: Portal – Data Quality Level – Tim Berners Lee

Over 98.82% datasets >= 3★★★
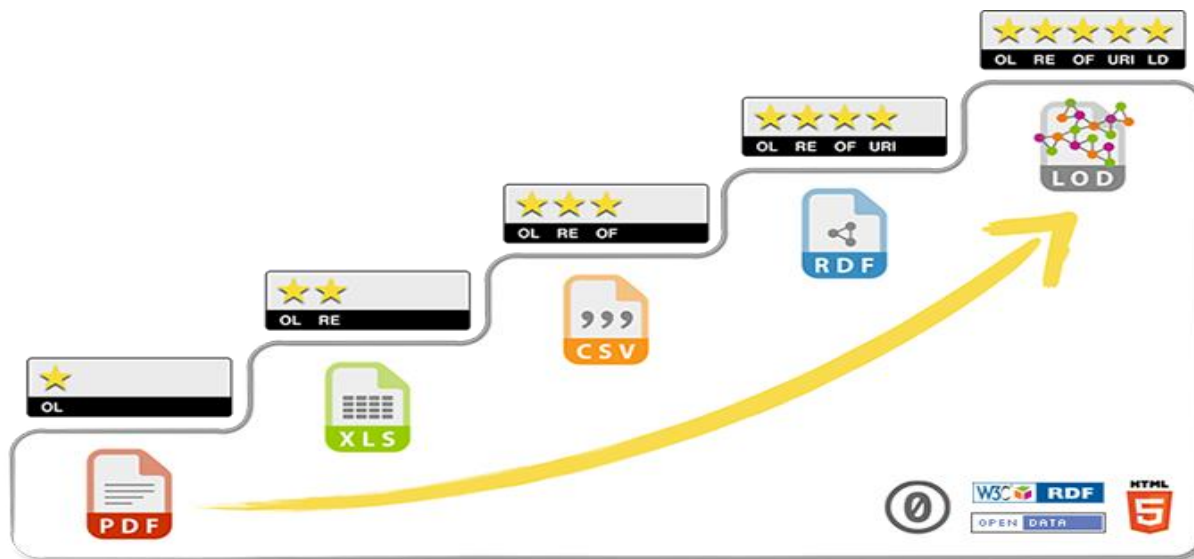
Open Data BCN: Portal - Catalogue

- ➢ Topic subtopic
- ➢ Formats
- ➢ Tags
- ➢ Licenses
- ➢ Update frecuency
- ➢ Geolocation
- ➢ Historical information
- ➢ CKAN API available

Open Data BCN: Portal - Previsualization

Portal - Protocol

Identification Prioritization

Identification: DataSets to open

Prioritization: Determine order of incorporation or by **Programmed Publication (pending)**

Resource conceptualization

Identification of the data source

Field that will constitute the resource

Application of the requirements of the "**Guia publicació de datasets a Open Data BCN**'

Formats: Open data quality level

Update frequency

Resource generation

File generation

Process of publication generation (automatic, direct URL, guide…)

Website diffusion Maintenance Publicity

Website Publication
First time signing up in the Backoffice
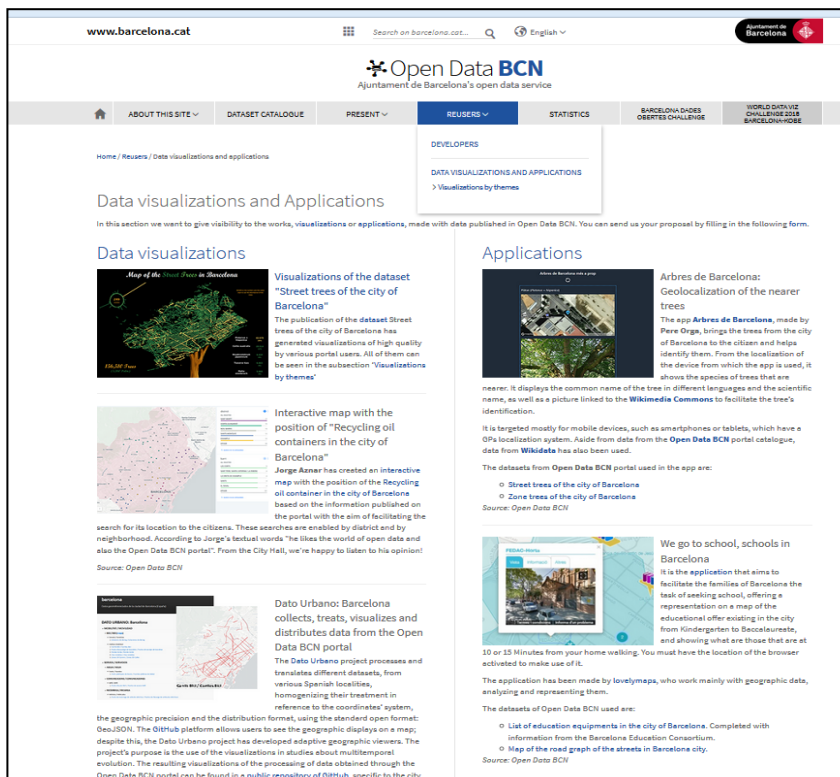
Publication in the Portal

BackOffice Maintenance

Publicity

OMD
City Hall Diffusion
Municipal Departments
Citizens
Enterprises and Interest group

Open Data BCN: Portal - Reusers

Portal – Reusers – Developers-Api's

The APIs are interfaces that specify how the different components of computer programs should interact.

➢ We can distinguish three types of APIs available in the Open Data BCN portal
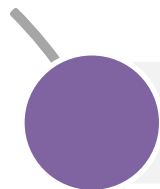
Catalogue Management

This API is used to consult and manage the catalogue information, such as datasets, resources, labels, etc...

Query APIs on CSV resources

Allows you to check and filter the information contained within a specific CSV

APIs owned by the City Council

These are APIs enabled by information sources and tailor-made

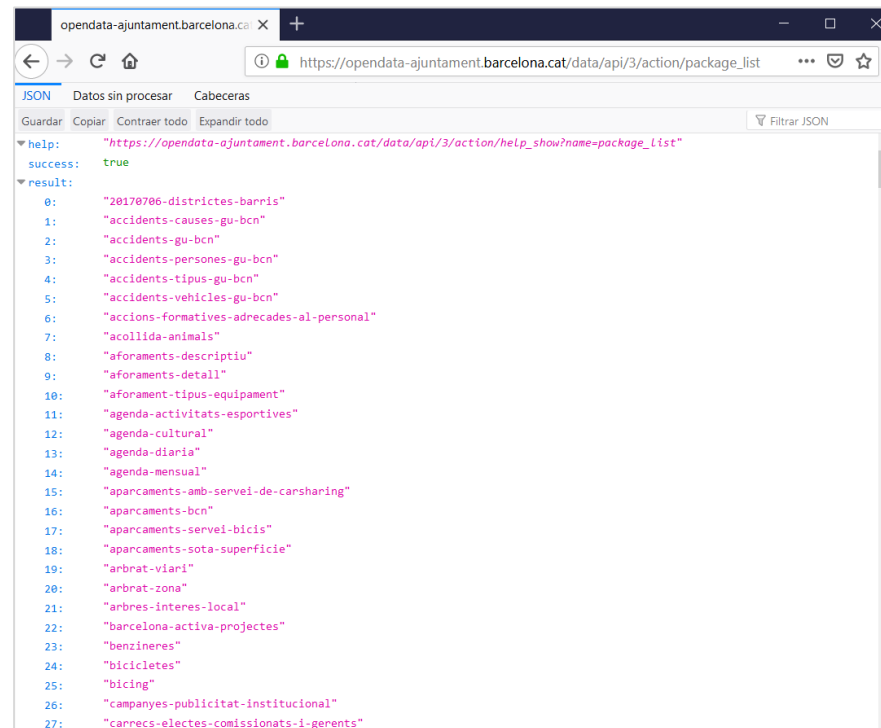# Portal – Reusers – Developers – API's – Catalogue Management

This API may have an interest for citizens to know what information is available on the Open Data BCN portal and the datasets that are being added.

> **This is the API offered by the CKAN technology to manage the catalogue of datasets.**

❑ They are public methods.

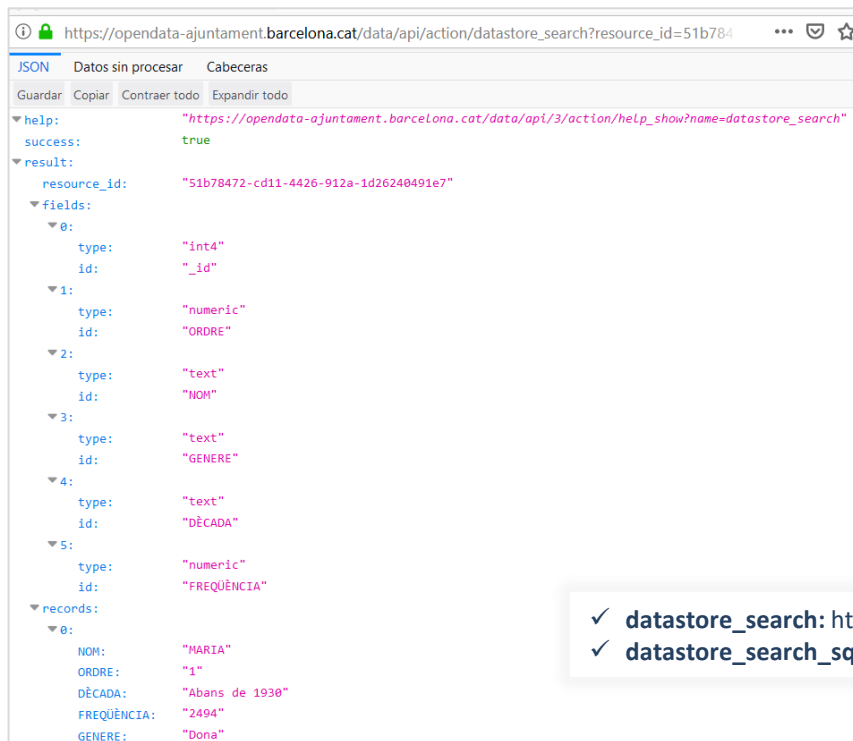❑ This API is available through the URL, by adding the name of the method that we would like to access.

https://opendata-ajuntament.barcelona.cat/data/api/action/

❑ Examples of these methods are the following:

- ✓ **current_package_list_with_resources:** returns the list of current datasets and their resources
- ✓ **package_search:** performs a search within the dataset catalogue
- ✓ **resource_show:** returns the metadata of a resource

Portal – Reusers – Developers – API's – Query APIs on CSV resources

These interfaces allow you to act on a specific CSV resource. The resource must be uploaded to the Open Data BCN portal with a suitable format and coding. The API of the datastore allows us to make queries directly on these tables.

The CKAN API available filter allows selecting datasets with this interface enabled.

❑ Currently there are about 1,000 resources in the Open Data BCN catalogue that can be consulted with this API.

❑ There are only two common endpoints for that allow you to search within the resource based on the search criteria or by making a SQL query:

✓ **datastore_search:** https://opendata-ajuntament.barcelona.cat/data/api/action/datastore_search
✓ **datastore_search_sql:** https://opendata-ajuntament.barcelona.cat/data/api/action/datastore_search_sql

Portal – Reusers – Developers – API's – Owned by the City Council

These APIs are linked form the Open Data BCN portal but they are not maintained or validated from the same team that manages the portal. In the portal they are treated as one more resource, as if it were a link to a CSV or RDF file.

Informació de la promoció interna de l'Ajuntament de Barcelona

INFORMACIÓ DE PROVISIÓ I PROMOCIÓ DE L'AJUNTAMENT DE BARCELONA

URL de la crida (en funció del idioma i del tipus de convocatòria)

```
GET https://apidata.barcelona.cat/opendata/provisio-promocio/concurs/ca
```

```
GET https://apidata.barcelona.cat/opendata/provisio-promocio/concurs/es
```

```
GET https://apidata.barcelona.cat/opendata/provisio-promocio/lliure-designacio/ca
```

```
GET https://apidata.barcelona.cat/opendata/provisio-promocio/lliure-designacio/es
```

```
GET https://apidata.barcelona.cat/opendata/provisio-promocio/mobilitat-horitzontal/ca
```

```
GET https://apidata.barcelona.cat/opendata/provisio-promocio/mobilitat-horitzontal/es
```

```
GET https://apidata.barcelona.cat/opendata/provisio-promocio/promocio-interna-especial/ca
```

```
GET https://apidata.barcelona.cat/opendata/provisio-promocio/promocio-interna-especial/es
```

Per a poder fer la crida, cal que sigui HTTPS

> The own APIS are those provided by the teams that manage the sources of information.

❑ Currently, the following API resources are offered in the Open Data BCN catalogue:

- ✓ Public offering of the Barcelona City Council
- ✓ Provision and promotion of the City of Barcelona staff
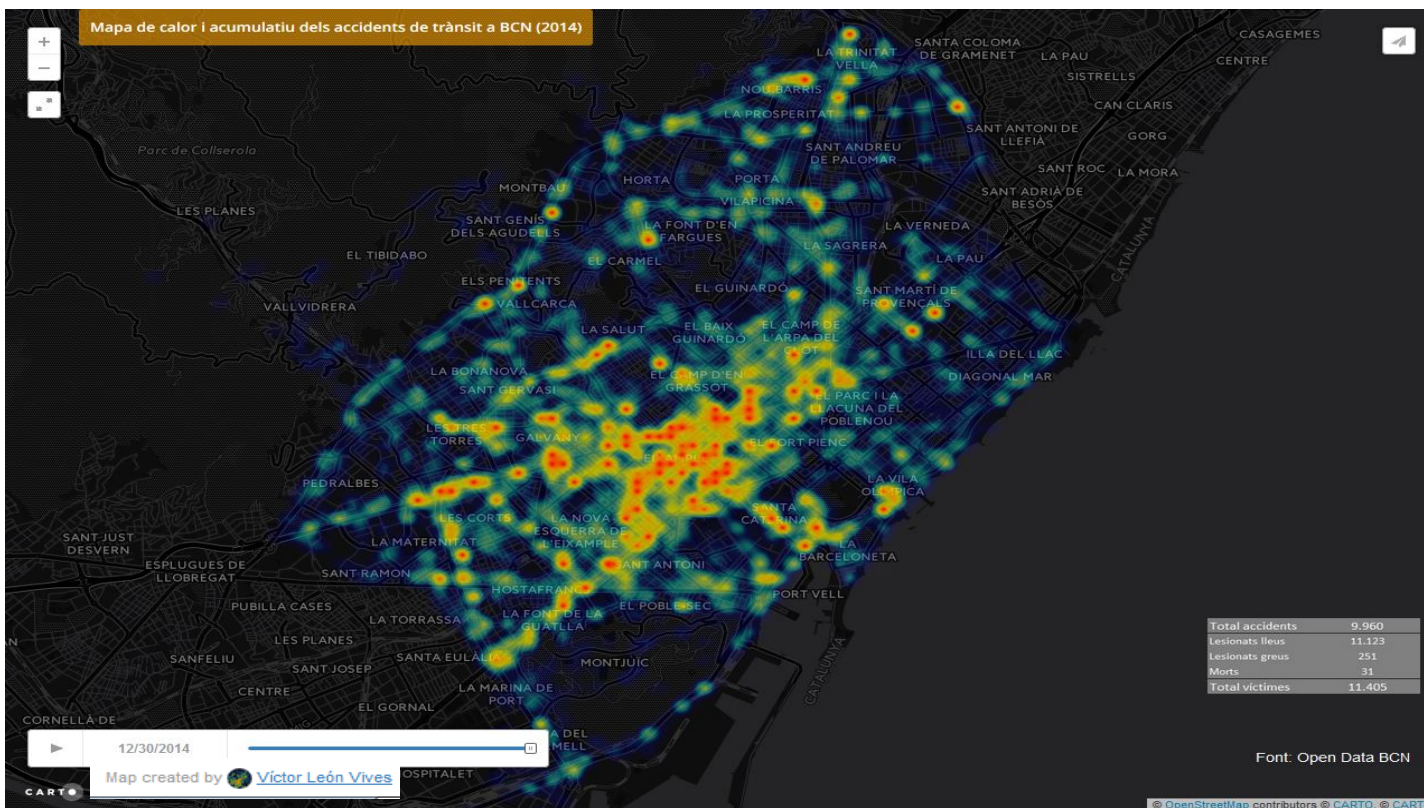- ✓ 34 Geoservices WMS and WMTS of the City Council Spatial Data Infrastructure

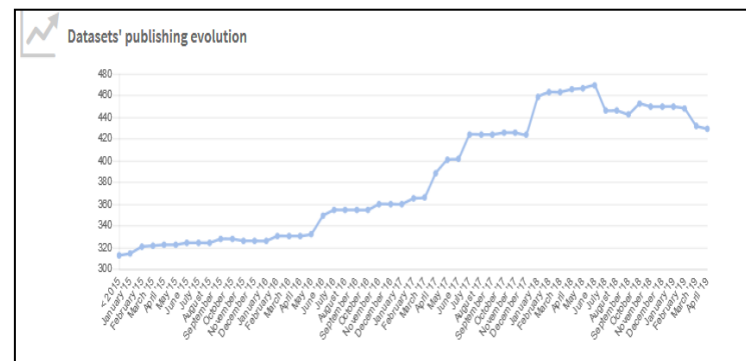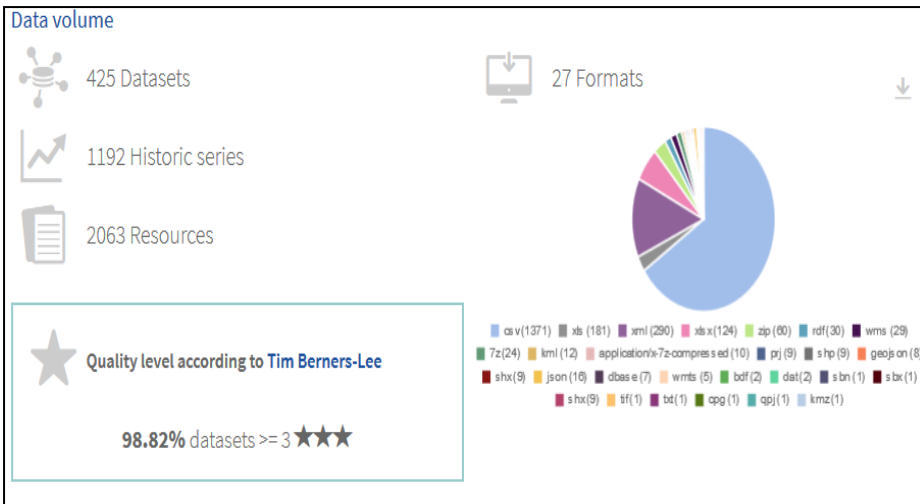# Portal - Users – Data Visualizations and Applications – Street Trees

Portal - Users – Data Visualizations and Applications – Oil recycling containers
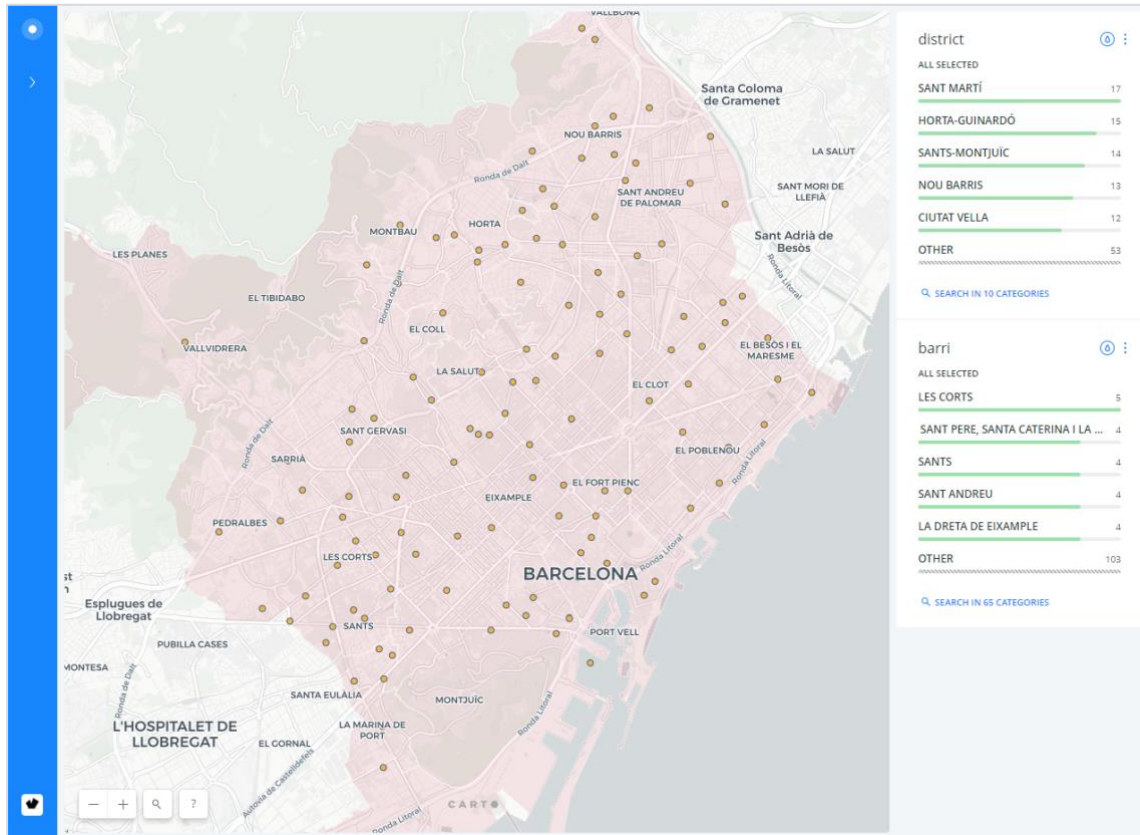
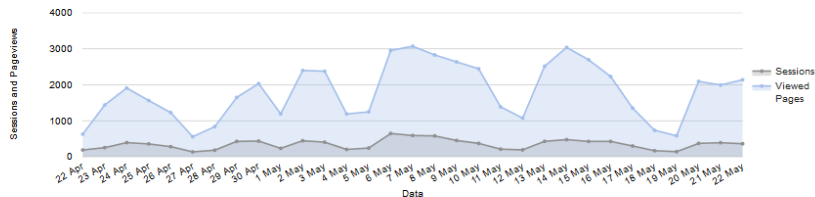# Portal - Users – Data Visualizations and Applications – Traffic Accidents

Open Data BCN: Portal - Statistics

Portal – Monthly Statistics
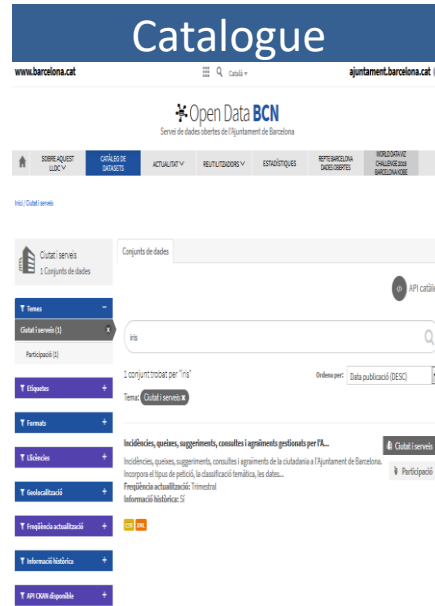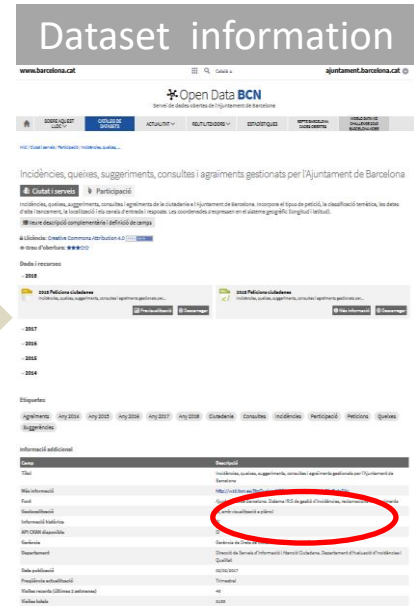
Figures since February 2017

Sessions	>= 213.100
Number of pages	>= 1.190.000
Tweets	>= 500 from @BCN_DIGITAL (Not own twitter) #opendatabcn
User requests	>=170
User's registered	More than 260 users
Linkedin	More than 750 users

Portal – Circular Reference

Data Source

Catalogue

Dataset information

Link to source

Communication

Communication
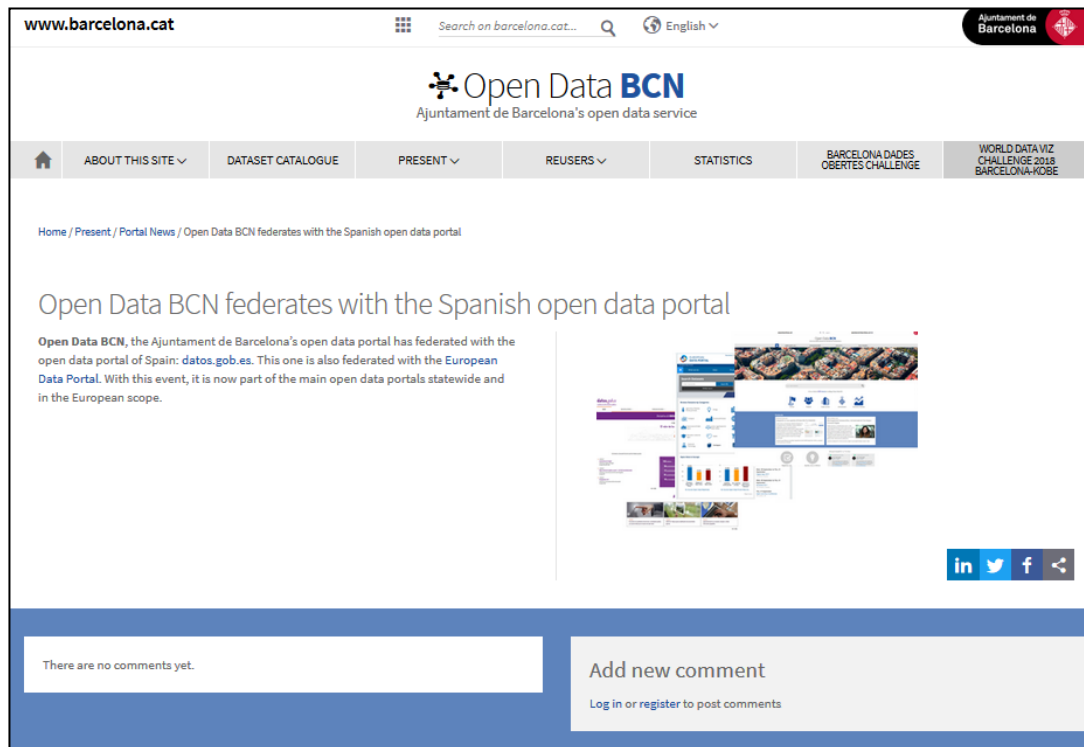
External	Internal

External

➢ Presentations for delegations: Japan, Seoul, Peru, China, United States..

➢ University/ Research Centers : UPF, UPC,UOC, BSC,…

➢ Analytics Departments : SEAT,..

➢ European projects: EUROCITIES, H2020, …

➢ Other Open Data Events: Congress, Conferences, Hackathons, Open Data Day, Data Viz…

Internal

➢ Training sessions on how to implement the project. More than 120 civil servants directly related to data.

➢ Training sessions for different departments

➢ Open Data BCN in the "Ongoing training of Barcelona City Council"

Federation
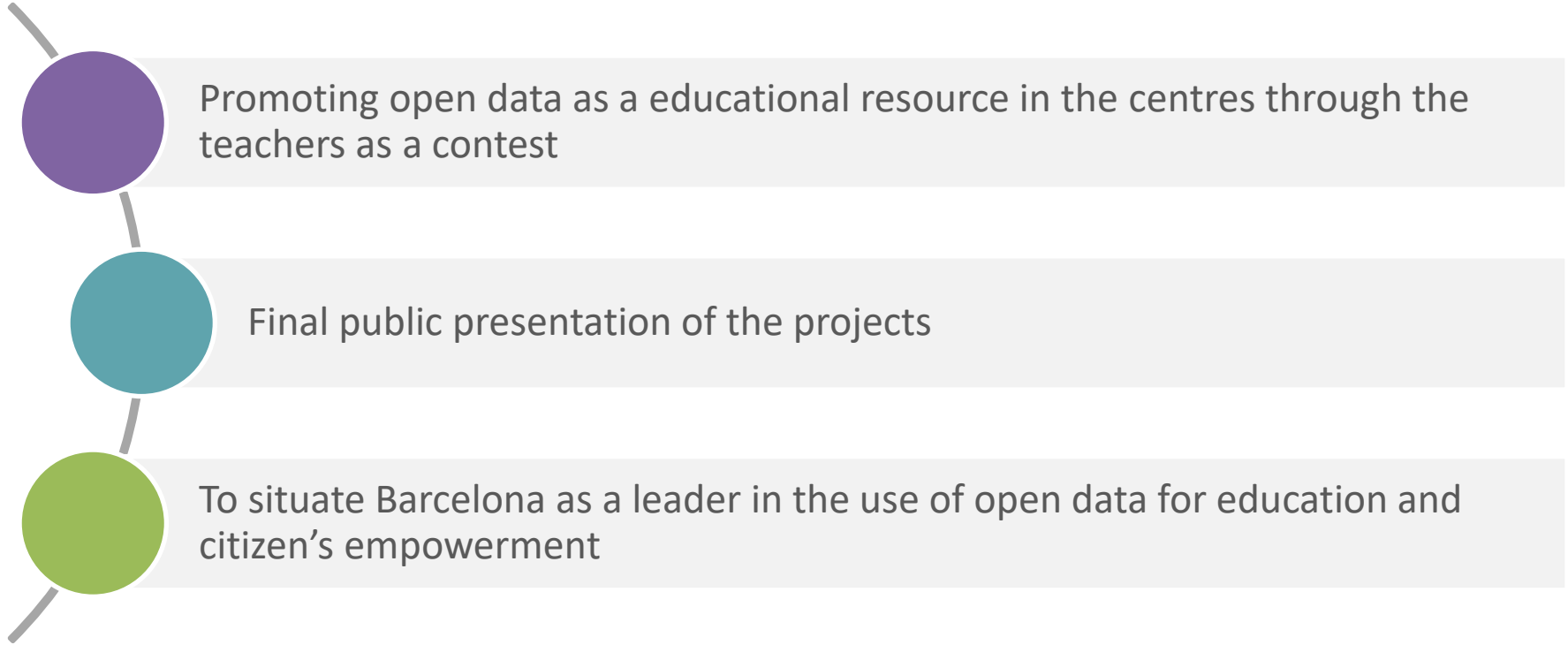
Barcelona Dades Obertes Challenge - Second Edition

Barcelona Open Data Challenge

The future reusers are NOW in school

Open Data BCN: Barcelona Dades Obertes Challenge

Promoting open data as a educational resource in the centres through the teachers as a contest

Final public presentation of the projects

To situate Barcelona as a leader in the use of open data for education and citizen's empowerment

Open Data BCN: Barcelona Dades Obertes Challenge– Training Scheme
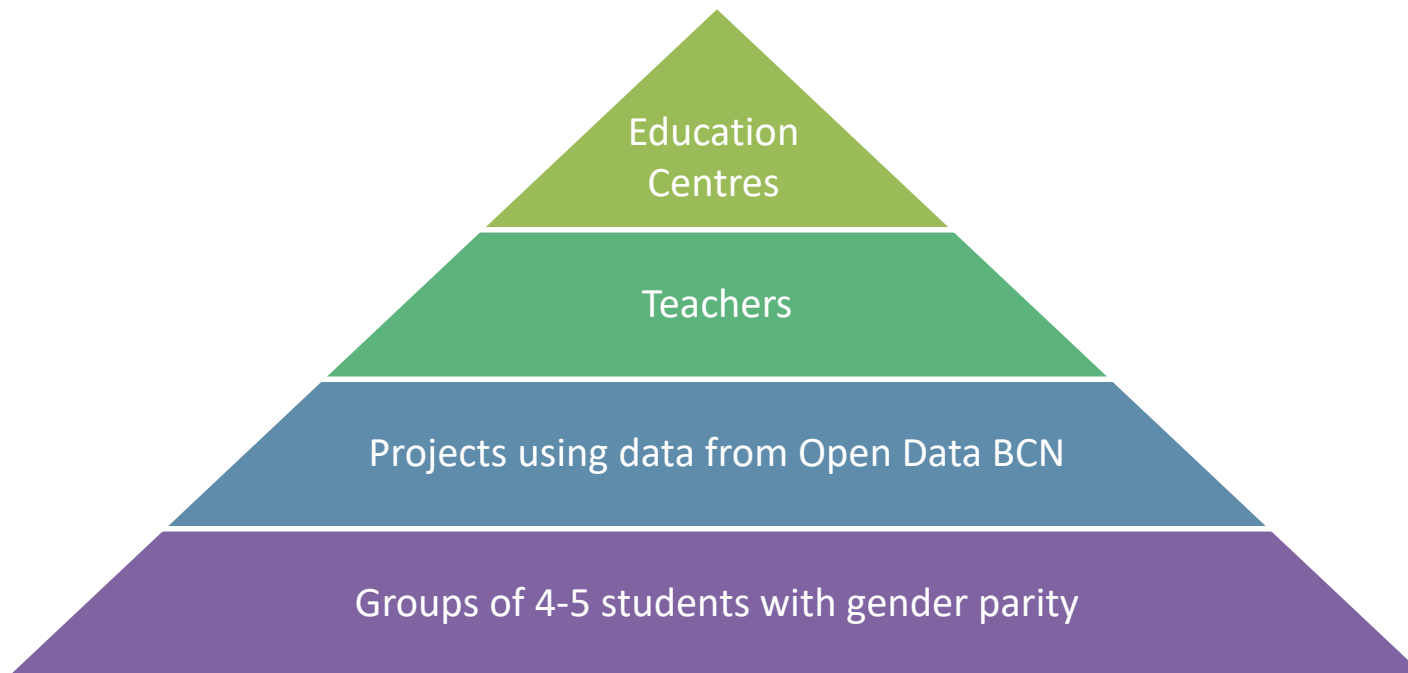
Open Data BCN: Barcelona Dades Obertes Challenge- Benefits

An initiative with a big social impact

Barcelona Dades Obertes Challenge – Teacher Training

Workshops

Initial Presentation
Open Data concepts and Open Data BCN Portal

Second session
Statistics and data analysis

Third session
Infographics.
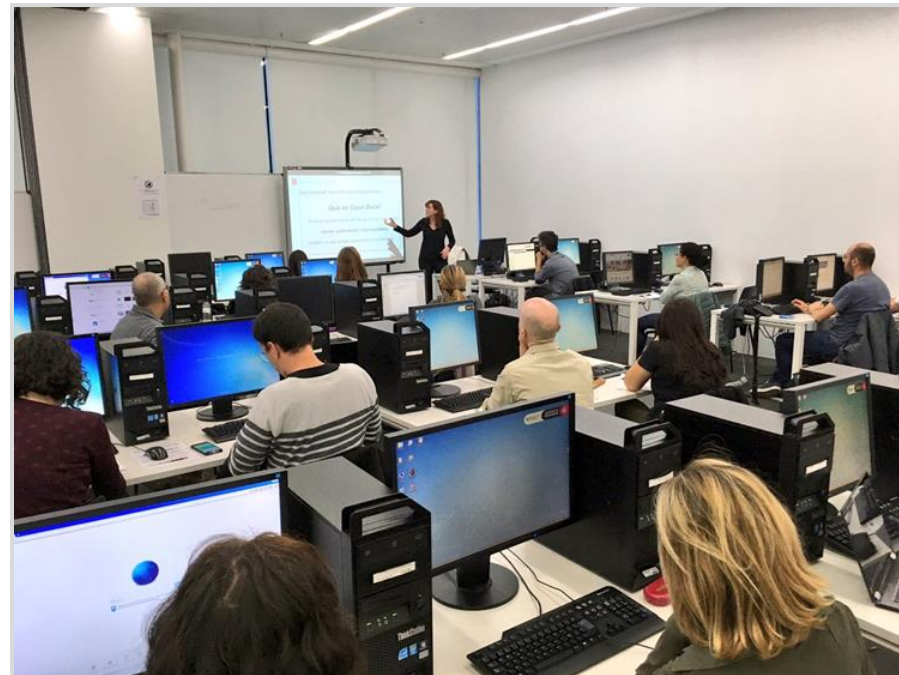
Barcelona Dades Obertes Challenge - Second Edition – Finalists Educational Centres

Second Edition

First Edition

Barcelona Dades Obertes Challenge – Second – 3 Winning Projects
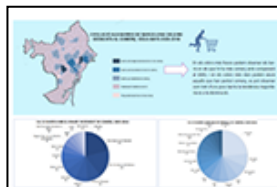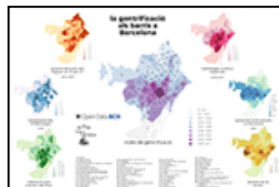
Final Event, 8 May 2019

Barcelona Dades Obertes Challenge – Second Edition – Final Projects
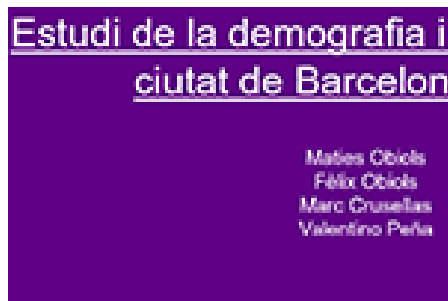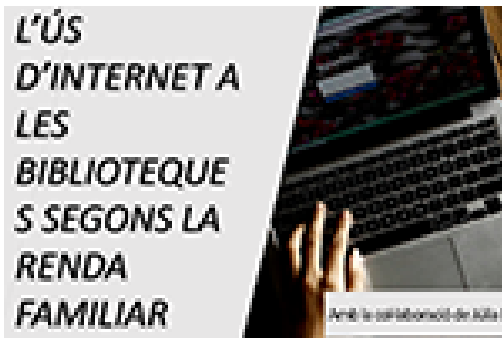
Barcelona Dades Obertes Challenge - Second Edition. Supports

- ➤ **Martin Álvarez Espinar. W3C**

- ➤ **Antje Kirchner. RTI_International**

- ➤ **Esther Huyer. European Data Portal**

- ➤ **Taisuke Matsuzaki. Kobe City Council**

Ajuntament de Barcelona

Barcelona Dades Obertes Challenge - Second Edition - Diffusion

PARTICIPATION

- June 2018: Festa de la Ciència (Science Festival) (ICUB)
- October 2018: The first international conference on Big Data Meets Survey Science (BigSurv18), UPF-NYU
- November 2018: Smart City World Congress 2018

PRESENTATIONS

- 3 March 2018: OPEN DATA DAY
- 21 March 2018: GOVERN DIGITAL LOCAL 2018 CONGRESS
- November 2018: Congrés Ciutats Educadores. Cascais (Portugal)
- European Data Portal. School session.
- Open data initiative by the Spanish Government: datos.gob.es

Barcelona Dades Obertes Challenge - Second Edition. Diffusion

World Data Viz Challenge 2018 Barcelona-Kobe

Barcelona Digital City Plan: Links of interest

Barcelona Digital City Plan

https://ajuntament.barcelona.cat/digital/en

Open Data BCN

https://opendata-ajuntament.barcelona.cat/en/

Barcelona Dades Obertes Challenge

https://opendata-ajuntament.barcelona.cat/en/repte-barcelona-dades-obertes

World Data Viz Challenge 2018 Barcelona-Kobe

https://opendata-ajuntament.barcelona.cat/en/data-viz-kobe-home

Thank you!