

NOVA

IMS

Information
Management
School

URBAN ANALYTICS

UNLEASHING THE POWER OF BIG DATA

MIGUEL DE CASTRO NETO







“Dados Abertos,”

Dados a que qualquer pessoa ou entidade pode **aceder, utilizar e partilhar.**



The amazing Do Nothing Machine

Benefícios dos Dados Abertos

Transparência

Envolvimento


Melhoria dos serviços e ganhos de eficiência

Desenvolvimento Económico

ENERGIA

Microprodução

Dados desde 2010



53 609 kWh


dados de 2015 Subida 5.78% tendo em conta os dados do ano anterior

[ver mais +](#)

EMPREGO

Beneficiários RSI

Permilagem em idade activa



23 permilagem

dados de 2013. Subida 4.35% tendo em conta os dados do ano anterior

[ver mais +](#)

AMBIENTE

Fotocópias



69 071 fotocópias


dados 1º trimestre de 2015. Descida de 7.37% tendo em conta os dados do trimestre anterior

[ver mais +](#)

EDUCAÇÃO

Alunos por ano letivo

Até ao Ensino Secundário



5 987 aluno


dados de 2013/2014 Descida 2.97% tendo em conta os dados do ano anterior

[ver mais +](#)

SEGURANÇA

Proteção Civil

Número de reclamações



15 reclamações

dados 4º trimestre de 2014. Descida de 60% tendo em conta os dados do trimestre anterior

[ver mais +](#)

TURISMO

Trilhos pedestres

Percursos Pedestres - Kms de trilhos implementados



78.30 km

dados de 2014. Sem alterações significativas relativamente aos dados do ano anterior

[ver mais +](#)

ÁGUA

Consumos de Água

Projeto Piloto - Águeda



28 664 m3

dados mês de dezembro de 2014. Descida de 32.11% tendo em conta os dados do mês anterior

[ver mais +](#)

CÂMARA

Piscinas Municipais

Número de utilizadores



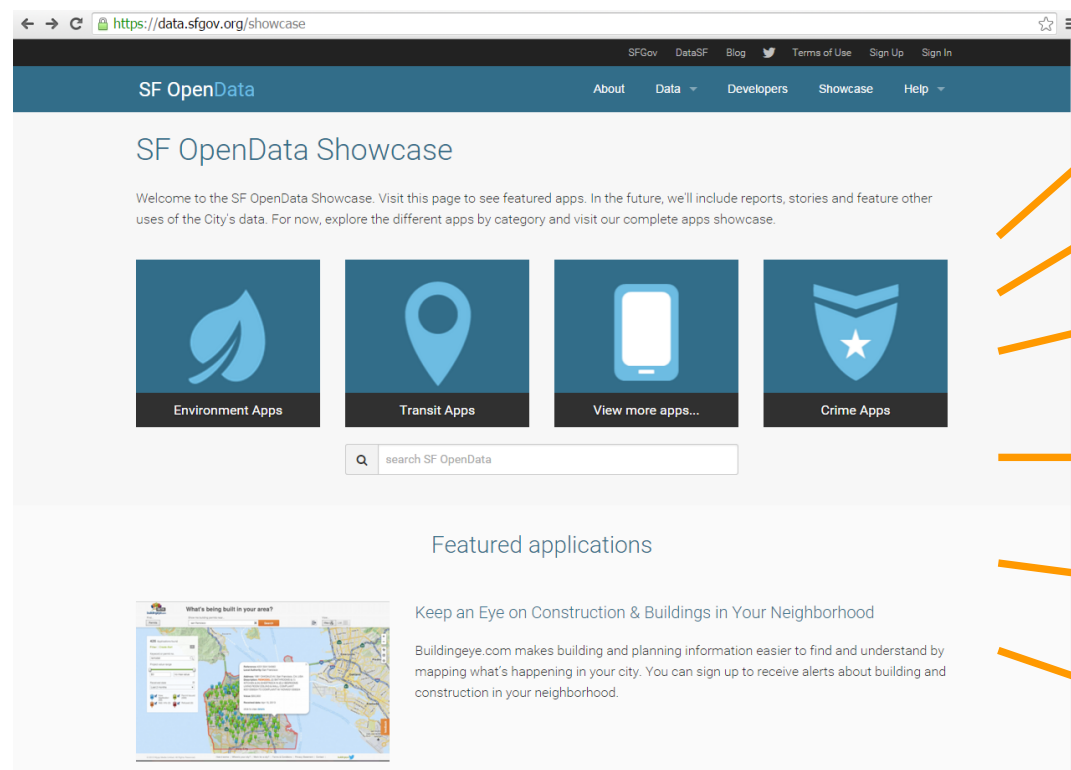
3 696 utilizador

dados mês de dezembro de 2014 Descida 41.5% tendo em conta os dados do mês anterior

[ver mais +](#)

The City and County of San Francisco's Open Data Program

Alguns exemplos de resultados da abertura dos dados...



Aplicação para smartphones que permite ver todos os **edifícios em construção** na cidade e respetivo estado de evolução

Aplicação que emite alertas de falta de **qualidade ambiental** nos pontos da cidade por onde nos deslocamos (georreferenciada e em tempo real)

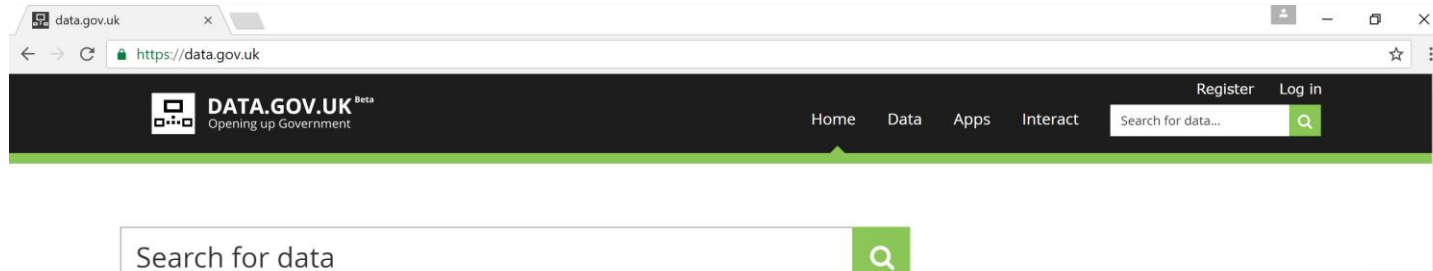
Aplicações ambientais que permitem conhecer melhor as **árvores os parques da cidade**, com georreferenciação

Aplicação que permite a **competição entre bairros** em termos de qualidade ambiental, saúde, segurança, etc.

Diversas aplicações com informação de **transportes** em tempo real (transporte público, estacionamento, etc.)

Aplicação de **Crime Mapping** – localização georreferenciada dos crimes que ocorrem na cidade, permitindo saber as zonas mais perigosas

data.gov.uk



Find data published by government departments and agencies, public bodies and local authorities. You can use this data to learn more about how government works, carry out research or build applications and services.

Browse data by theme

Business and economy

Small businesses, industry, imports, exports and trade

Crime and justice

Courts, police, prisons, offenders, borders and immigration

Defence

Armed forces, health and safety, search and rescue

Education

Students, training, qualifications and the National Curriculum

Environment

Weather, flooding, rivers, air quality, geology and agriculture

Government

Staff numbers and pay, local councillors and department business plans

Government spending

Includes all payments by government departments over £25,000

Health

Includes smoking, drugs, alcohol, medicine performance and hospitals

Mapping

Addresses, boundaries, land ownership, aerial photographs, seabed and land terrain

Society

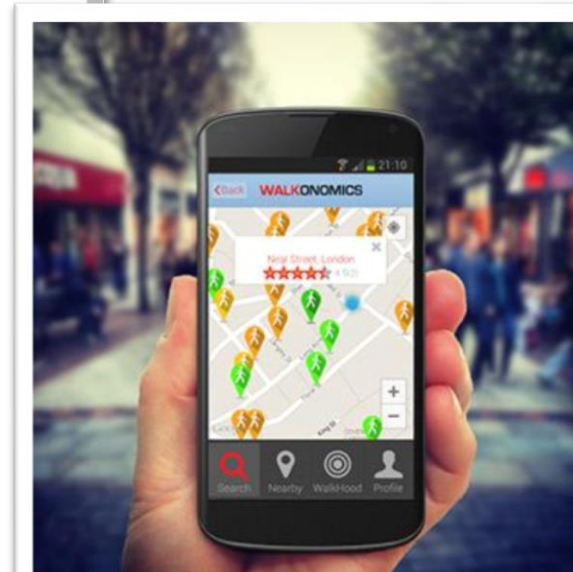
Employment, benefits, household finances, poverty and population

Towns and cities

Includes housing, urban planning, leisure, waste and energy consumption

Transport

Airports, roads, freight, electric vehicles, parking, buses and footpaths



Walkonomics
How walkable is your street?

58:1

Retorno do investimento dos Transport of London pela libertação dos dados dos transportes

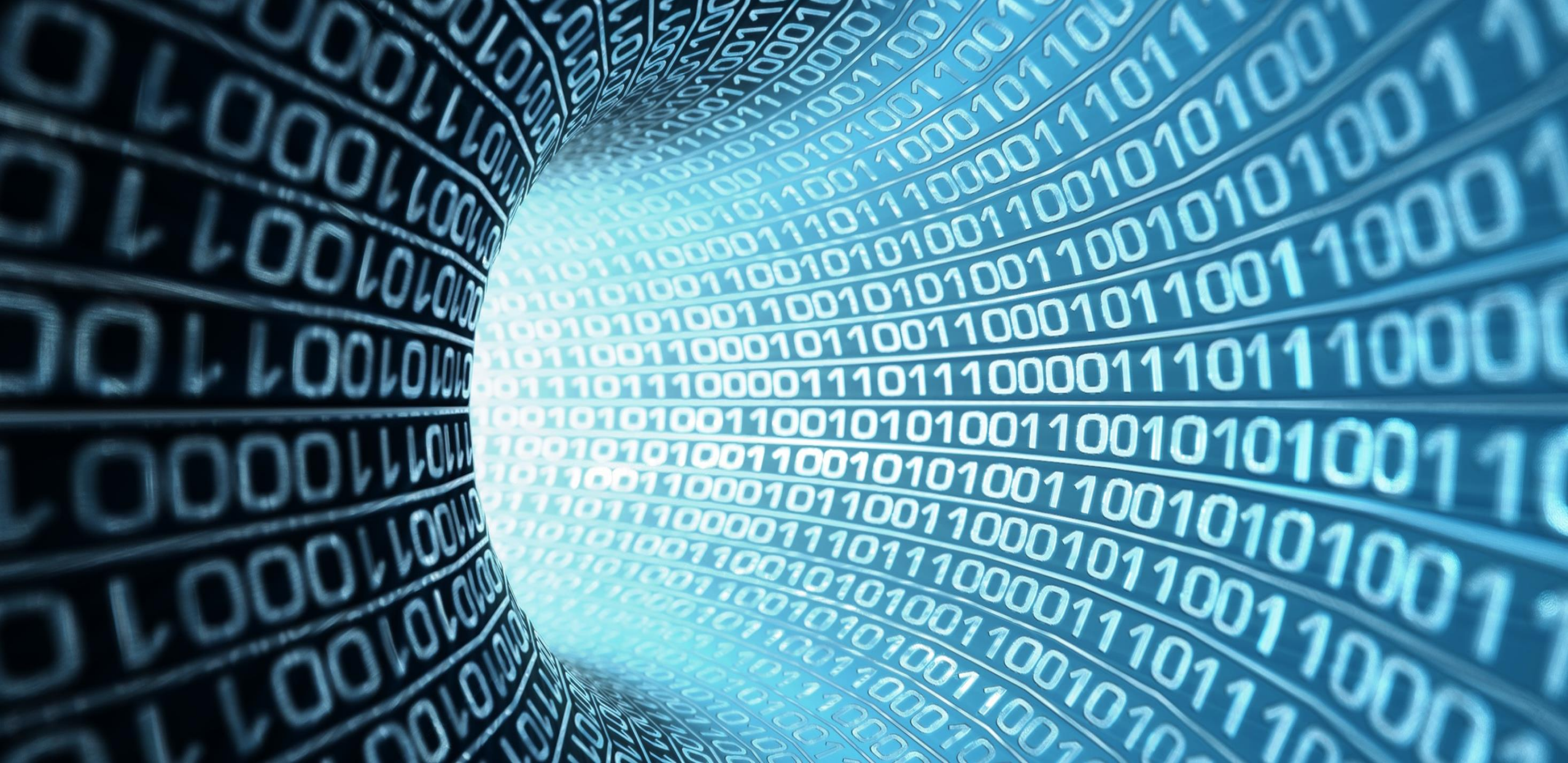
70:1

Retorno do investimento na Dinamarca pela decisão de publicar dados abertos dos endereços

Dados Abertos

Companhias Open Data-driven do Reino Unido com uma receita anual global superior a **£92bn** empregam mais de **500,000** pessoas.

Pelo menos **84%** dos proprietários de smartphones Americanos no EU utiliza uma aplicação powered by open data diariamente.



Que dados vamos libertar ?

Demografia Educação Desporto
Ambiente Arte e Cultura
Emprego e Economia

Novo Regulamento Geral de Protecção de Dados

**REGULAMENTO (UE) 2016/679 DO PARLAMENTO EUROPEU E DO CONSELHO
de 27 de abril de 2016**

Segurança e Protecção Civil
Juventude Energia **Saúde**
Turismo



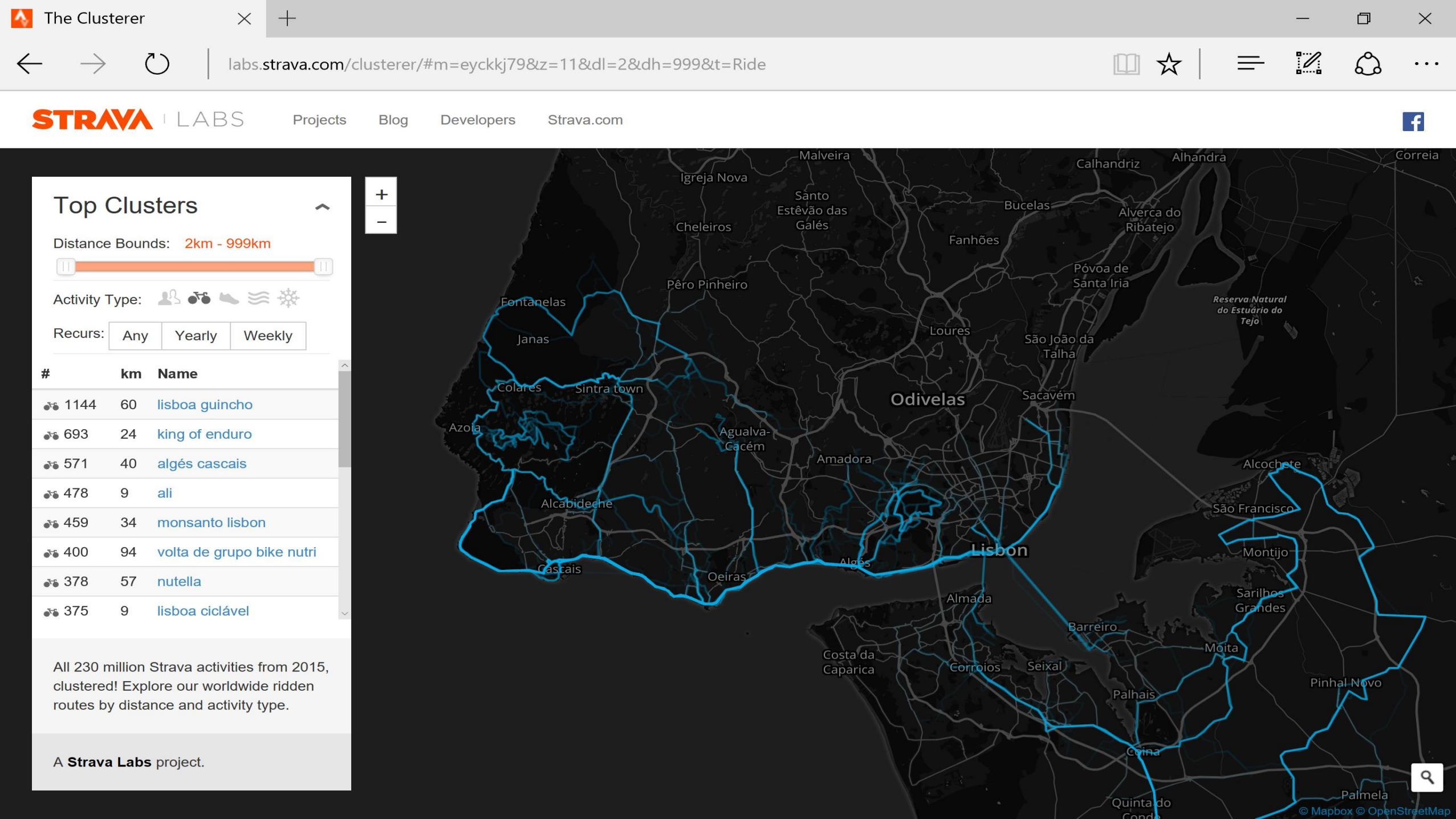
URBAN RADIOLOGY

Google Maps



Waze





Top Clusters

Distance Bounds: 2km - 999km



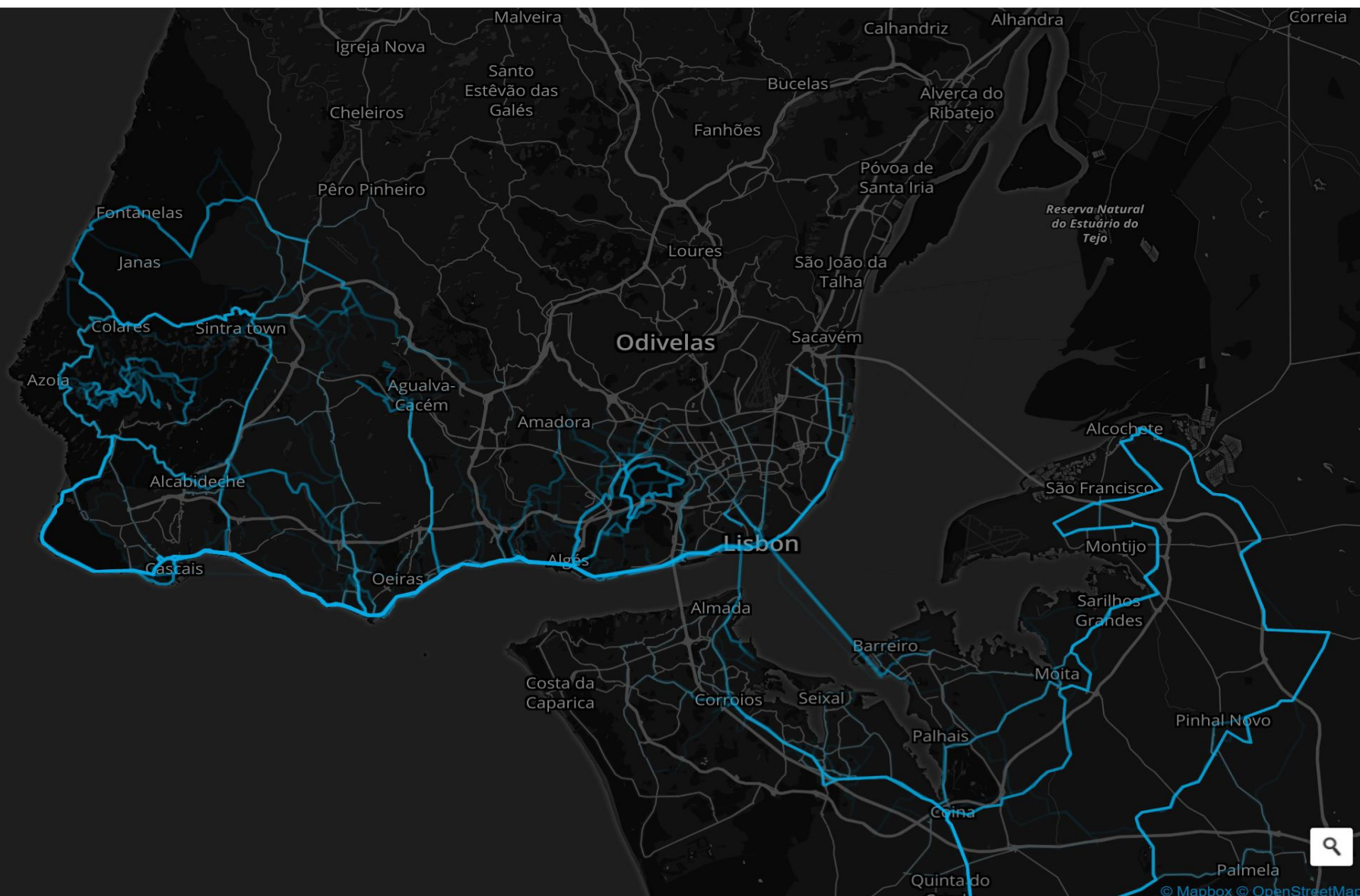
Activity Type:

Recurs: Any Yearly Weekly

#	km	Name
1144	60	lisboa guincho
693	24	king of enduro
571	40	algés cascais
478	9	ali
459	34	monsanto lisbon
400	94	volta de grupo bike nutri
378	57	nutella
375	9	lisboa ciclável

All 230 million Strava activities from 2015, clustered! Explore our worldwide ridden routes by distance and activity type.

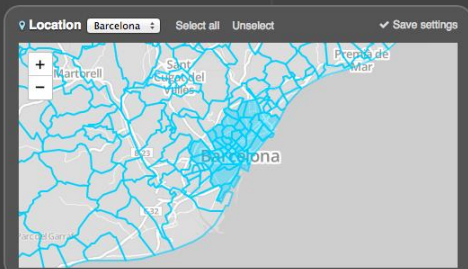
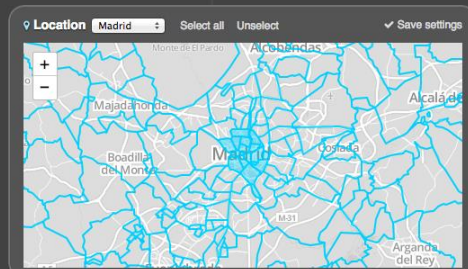
A Strava Labs project.



Roaming Mobile Phones Metadata

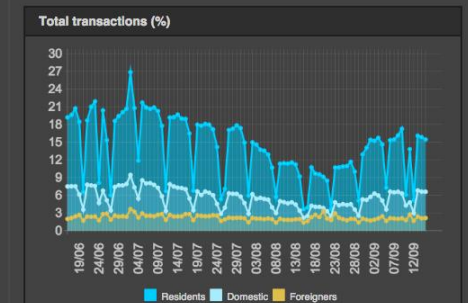


ATM Movements (BBV / MIT)

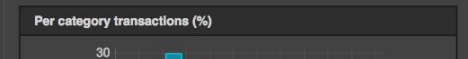
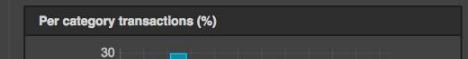
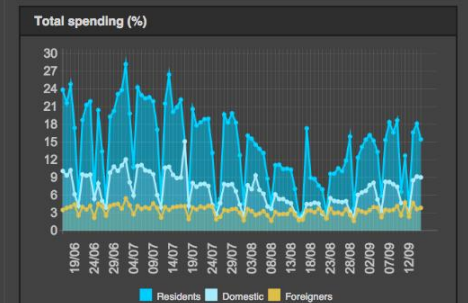
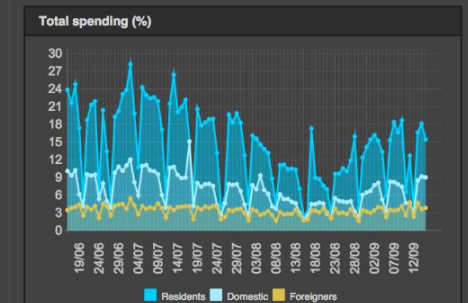
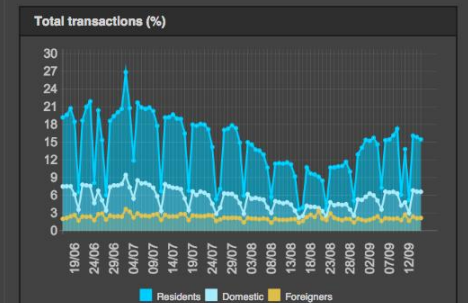


Common filters: residents domestic foreigners 15-06-2011 - 15-09-2011 12 business categories

Collection 1 Delete x Clone



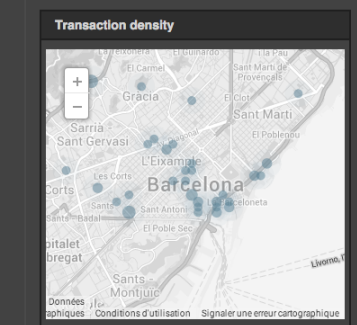
Collection 2 Delete x Clone



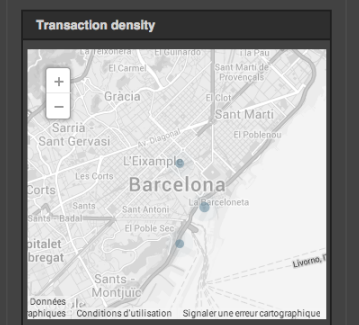
Business categories 1 selected Settings

Common filters: barcelona - 483 zip codes foreigners 15-06-2011 - 15-09-2011

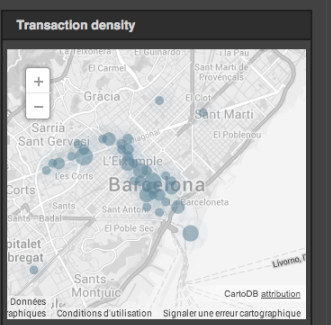
Collection 1 Delete x



Collection 2 Delete x



Collection 3 Delete x



Dataset statistics

Total transactions	8.615
Average transactions per day	93
Total spending	€579.073
Average spending per day	€6.294
Average spending per transaction	€67,2

Dataset statistics

Total transactions	2.242
Average transactions per day	24
Total spending	€521.158
Average spending per day	€5.664
Average spending per transaction	€232,5

Dataset statistics

Total transactions	42.361
Average transactions per day	460
Total spending	€5.277.244
Average spending per day	€57.361
Average spending per transaction	€124,6

Foreign visitors origin

Top 5 countries	Percentage of total spending
1 - France	21,83 %
2 - United States	13,03 %
3 - United Kingdom	8,86 %
4 - Italy	7,83 %
5 - Russian Federation	5,23 %

5 countries out of 134 (43,42% of total spendings)

Foreign visitors origin

Top 5 countries	Percentage of total spending
1 - France	15,16 %
2 - Russian Federation	10,64 %
3 - United Kingdom	8,79 %
4 - Italy	8,85 %
5 - United States	7,06 %

5 countries out of 109 (49,7% of total spendings)

Foreign visitors origin

Top 5 countries	Percentage of total spending
1 - France	16,11 %
2 - Russian Federation	15,97 %
3 - Netherlands	4,86 %
4 - United States	4,74 %
5 - Brazil	4,16 %

5 countries out of 147 (54,16% of total spendings)

Business density

Top 3 categories	Total businesses	Businesses per sq km
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Business density

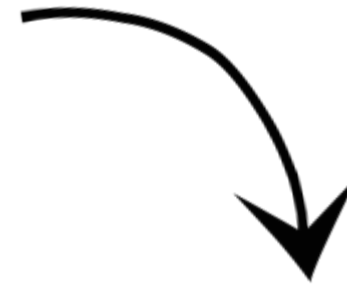
Top 3 categories	Total businesses	Businesses per sq km
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Business density

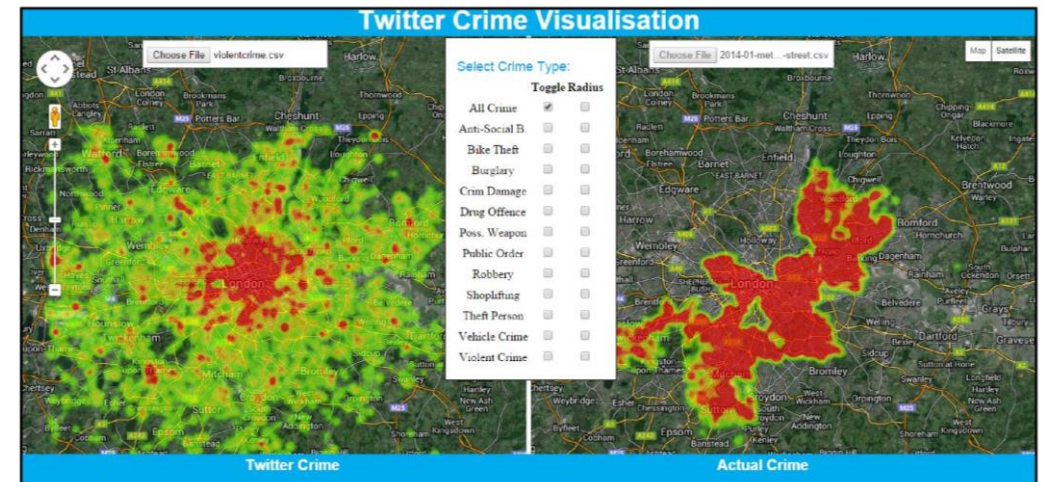
Top 3 categories	Total businesses	Businesses per sq km
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INTELLIGENT OPERATIONS CENTER
RIO DE JANEIRO



Identifying Crime Hotspots
using Twitter



LOOK AROUND...





Open Data Barometer

55%

The majority of countries in the survey - 55% - now have an open data initiative in place

Only 10% of government data is published as open data.






10%

50%

Half of all open data sets are found in just the top 10 OECD countries. The gap between data haves and have-nots needs urgent attention



Impacts don't follow Readiness and Implementation

Position	Top 5	Score	Readiness	Implementation	Impacts
1	 UK	100	100	100	100
2	 USA	81.89	97	76	76
2	 France	81.65	97	76	74
4	 Canada	80.35	89	84	67
5	 Denmark	76.62	77	77	78

“Open Washing”

ODB Global Report 3rd Edition

OpenData Barometer - Executive summary and findings

“Open-washing” is jeopardising progress.

Many governments have advertised their open data policies as a way to burnish their democratic and transparent credentials. But open data, while extremely important, is just one component of a responsive and accountable government. Open data initiatives cannot be effective if not supported by a culture of openness where citizens are encouraged to ask questions and engage, and supported by a legal framework. Disturbingly, in this edition we saw a backslide on freedom of information, transparency, accountability, and privacy indicators in some countries. Until all these factors are in place, open data cannot be a true SDG accelerator.

Implementation and resourcing are the weakest links.

Progress on the Barometer’s implementation and related indicators has stalled or even gone into reverse in some cases. Open data can contribute to savings for marketing, public relations, and individual ministries to allocate the budget and staff resources to publish their data is often an uphill battle, and investment in building user capacity (both inside and outside of government) is scarce. Open data is not yet enshrined in law or policy, and the legal frameworks supporting most open data initiatives are weak. This is a symptom of the tendency of governments to view open data as a fad or experiment with little or no long-term strategy behind its implementation. This results in haphazard implementation, weak demand, and limited impact.

The gap between data haves and have-nots needs urgent attention.

Twenty-six of the top 30 countries in the ranking are high-income countries. Half of open datasets in our study are found in just the top 10 OECD countries, while almost none are in African countries. If the UN pointed out last year, such gaps could create a whole new inequality frontier, if allowed to persist. Open data champions in several developing countries have launched fledgling initiatives, but too often those good open data intentions are not backed up or resourced properly, resulting in weak momentum and limited success.

Position	Country	Score	Income	Index Rank	OECD	SDG
1	UK	100	High Income	Very High	●	●
2	USA	81.89	High Income	Very High	●	●
3	France	81.65	High Income	Very High	●	●
4	Canada	80.35	High Income	Very High	●	●
5	Denmark	79.22	High Income	Very High	●	●
6	New Zealand	76.25	High Income	Very High	●	●
7	Netherlands	75.13	High Income	Very High	●	●
8	Korea	71.19	High Income	Very High	●	●
9	Sweden	69.26	High Income	Very High	●	●
10	Australia	67.09	High Income	Very High	●	●

Table 1: Economic and development classification of the top ten countries in this year's Open Data Barometer.

Governments at the top of the Barometer are being challenged by a new generation of open data adopters.

Traditional open data stalwarts such as the USA and UK have seen their rate of progress on open data slow, signalling that new political will and momentum may be needed as more difficult elements of open data are tackled. Fortunately, a new generation of open data adopters, including France, Canada, Mexico, Uruguay, South Korea and the Philippines, are starting to challenge the ranking leaders and are adopting a leadership attitude in their respective regions. The International Open Data Charter could be an important vehicle to sustain and increase momentum in challenger countries, while also stimulating renewed energy in traditional open data leaders.

www.opendatabarometer.org

“Open-washing” is jeopardising progress.

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Open Data Maturity in Europe 2016

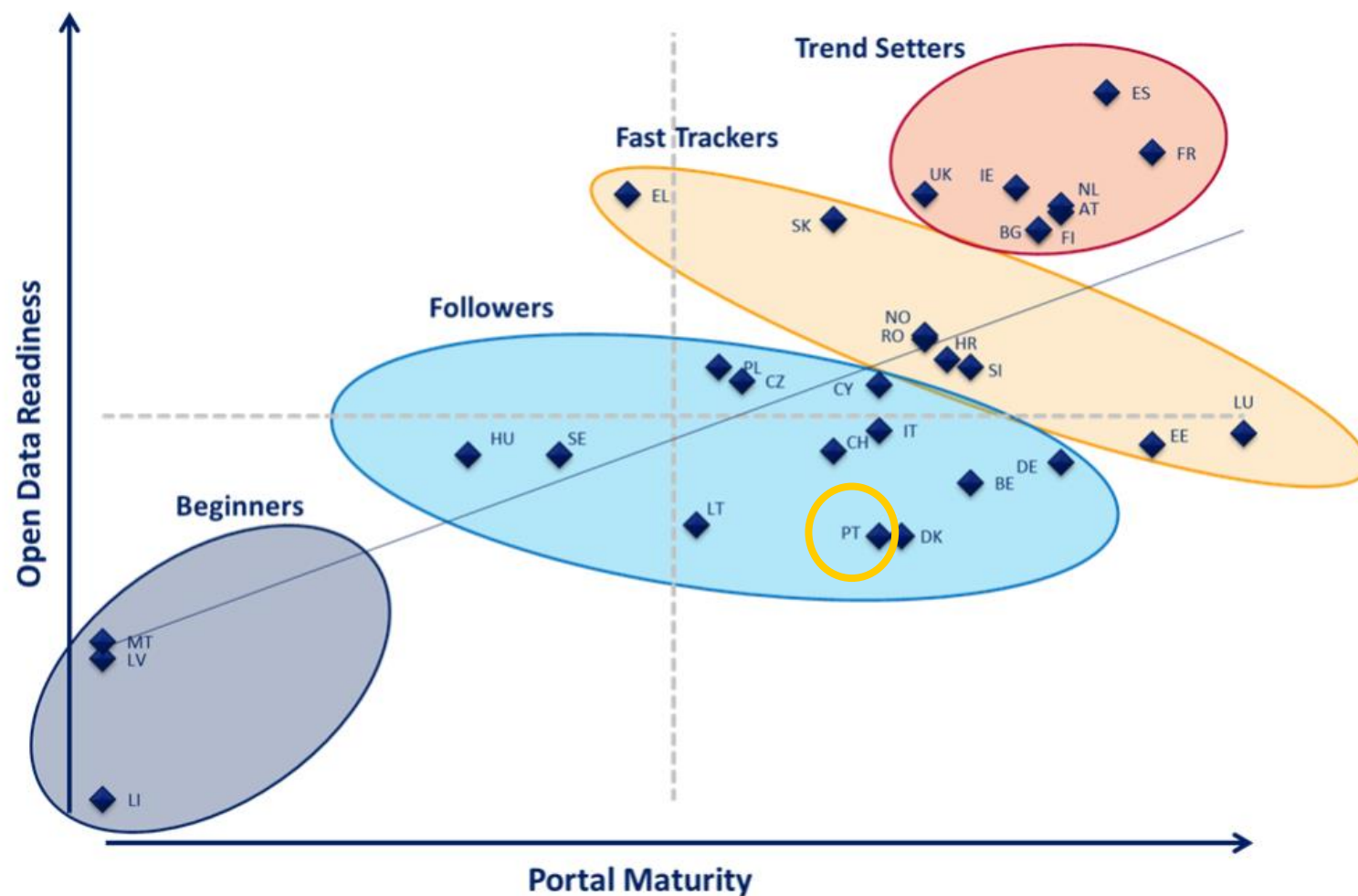
Open Data Maturity Assessment

► Open Data Readiness

1. Presence of Open Data Policy
2. Licensing Norms
3. Extent of coordination at national level
4. Use of Data
5. Impact of Open Data

► Portal maturity

1. Usability of the portal
2. Re-usability of data
3. Spread of data across domains



5%





95%

dadosabertos.cm-lisboa.pt

The screenshot shows the website interface for dadosabertos.cm-lisboa.pt. At the top, there is a navigation bar with the logo 'LISBOA ABERTA' and links for 'Conjuntos de Dados', 'Organizações', 'Grupos', and 'Sobre'. A search bar is present with the placeholder text 'P.ex. ambiente'. Below the search bar, there are 'Etiquetas Populares' for 'OpenData', 'POI', and 'Geodados'. The main content area features a welcome message in Portuguese and English, and a statistics section titled 'Estatísticas do Portal Dados Abertos' with the following data:

conjuntos de dados	organizações	grupos
349	11	18

At the bottom of the page, there are links for 'Sobre Portal Dados Abertos' and 'Fornecido por'.

Política de Dados Abertos

Modelo de Gestão

Plano de Ação





Inteligência Colectiva



URBAN ANALYTICS

UNLEASHING THE POWER OF BIG DATA



MÃOS À OBRA !!!

URBAN ANALYTICS

IN THE BIG DATA SOCIETY ?

DATA



SORTED



ARRANGED



PRESENTED VISUALLY



NOVA

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NOVA Cidade

powered by NOVA IMS

<http://novacidade.novaims.unl.pt/>



“**Cities** have the capability of providing something for **everybody**, only because, and only when, they are created by **everybody**.”

JANE JACOBS, *The Death and Life of Great American Cities*

MUITO OBRIGADO!

