

17 Mayo 2018



# VI Encuentro Nacional e Internacional de Observatorios Turísticos

*Turismo y transformación digital, el uso de datos para la toma de decisiones*

## Tendencias en el uso de los datos estadísticos en el Turismo

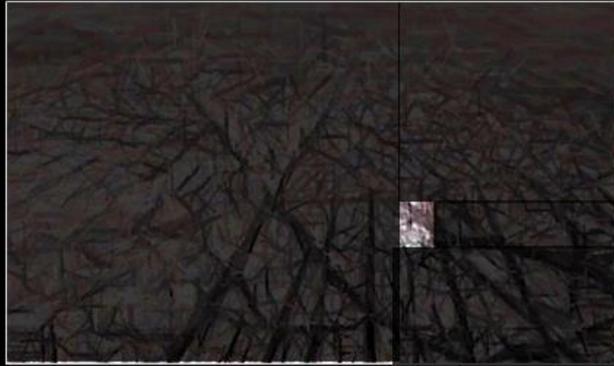
Dr. Dirk Glaesser  
Director  
Sustainable Development of Tourism  
World Tourism Organization (UNWTO)

# Nuevas posibilidades....



## 1. Entender quién está aquí

# Una visión mejorada de la realidad

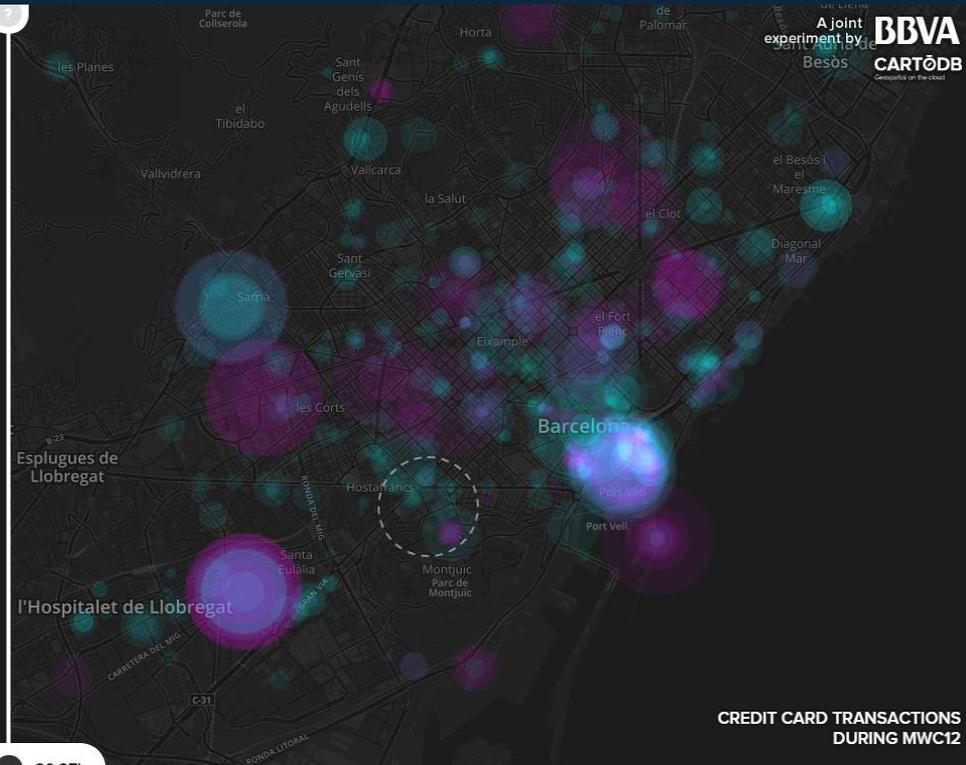
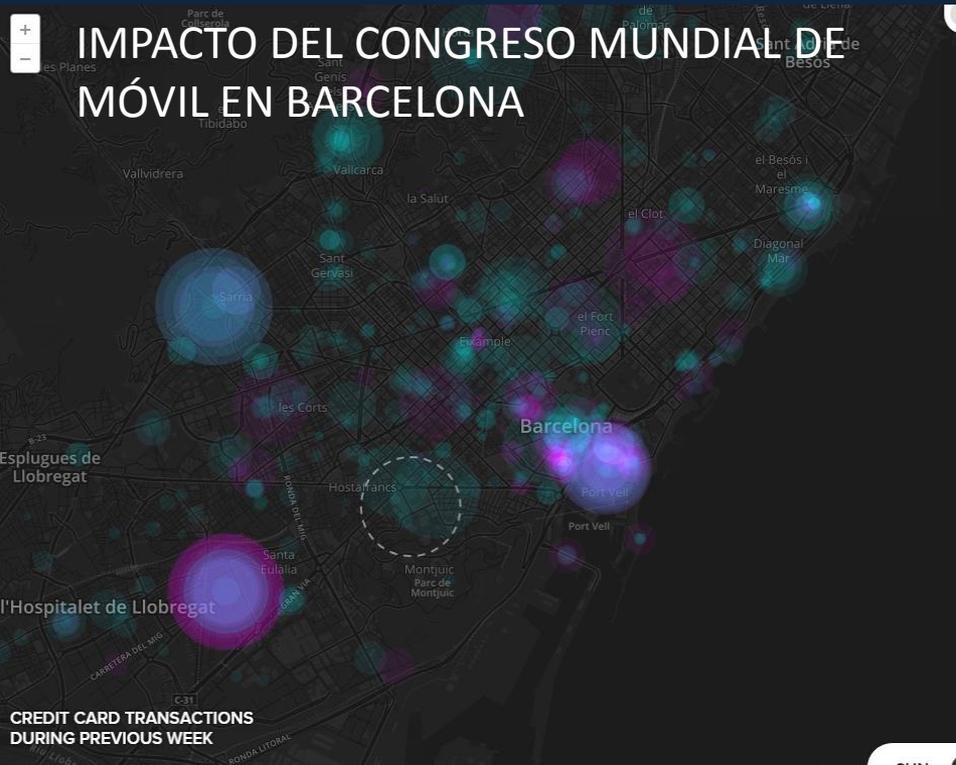


↑sample size | real facts | high resolution (S, t) | ↓cost | faster availability & update



# IMPACTO DEL CONGRESO MUNDIAL DE MÓVIL EN BARCELONA

A joint experiment by **BBVA** **CARTÓDB**  
Geospatial on the cloud

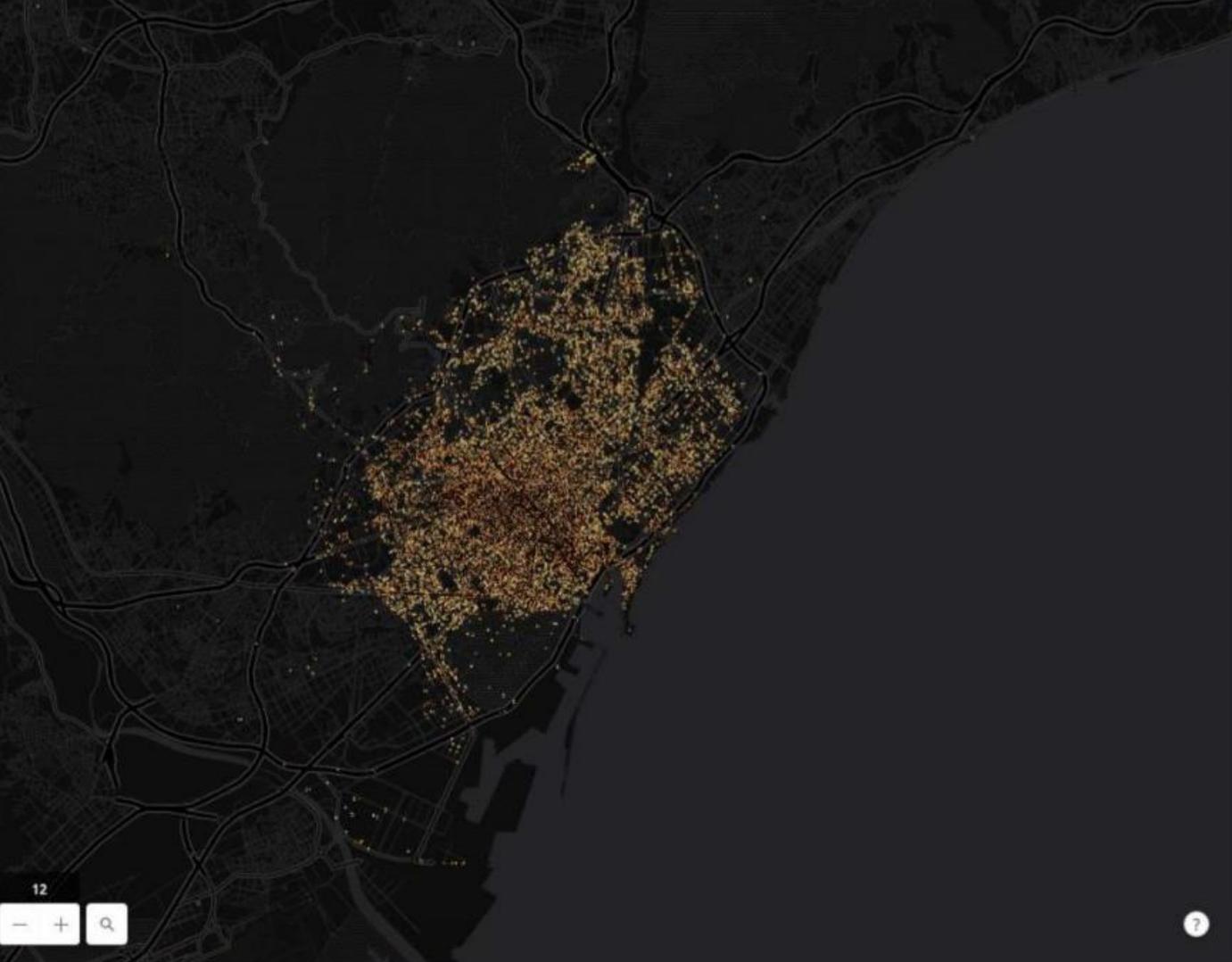


SUN 20:27h

# TRANSACTIONS BY VISITORS  
# TRANSACTIONS BY LOCALS



MORE MAPS



CARD TRANSACTIONS SOCIAL SENTIMENT

Static  Dynamic

Walking distance from...

Total amount

64,973,670.41 €

Average Transaction

55.84 €

Tourist Country of Origin

ALL SELECTED

 SPAIN	50M+
 UNITED STATES	1.3M+
 FRANCE	1.2M+
 UNITED KINGDOM	900k+
OTHER	8.2M+

SEARCH IN 145 CATEGORIES





### Casa Batlló

TOTAL  
759000 €

AVERAGE TICKET:  
17.00 €

DOMESTIC  
3.89 %

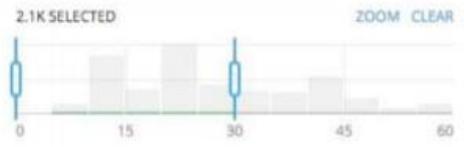
FOREIGN TOURISM:

Italy	22.55 %
France	18.25 %
China	17.37 %
Europe (other)	8.66 %
United States	7.53 %

55 min

Static  Dynamic

### Casa Batlló



Total amount  
**455,155.09 €**

Average Transaction  
**189.89 €**

### Tourist Country of Origin

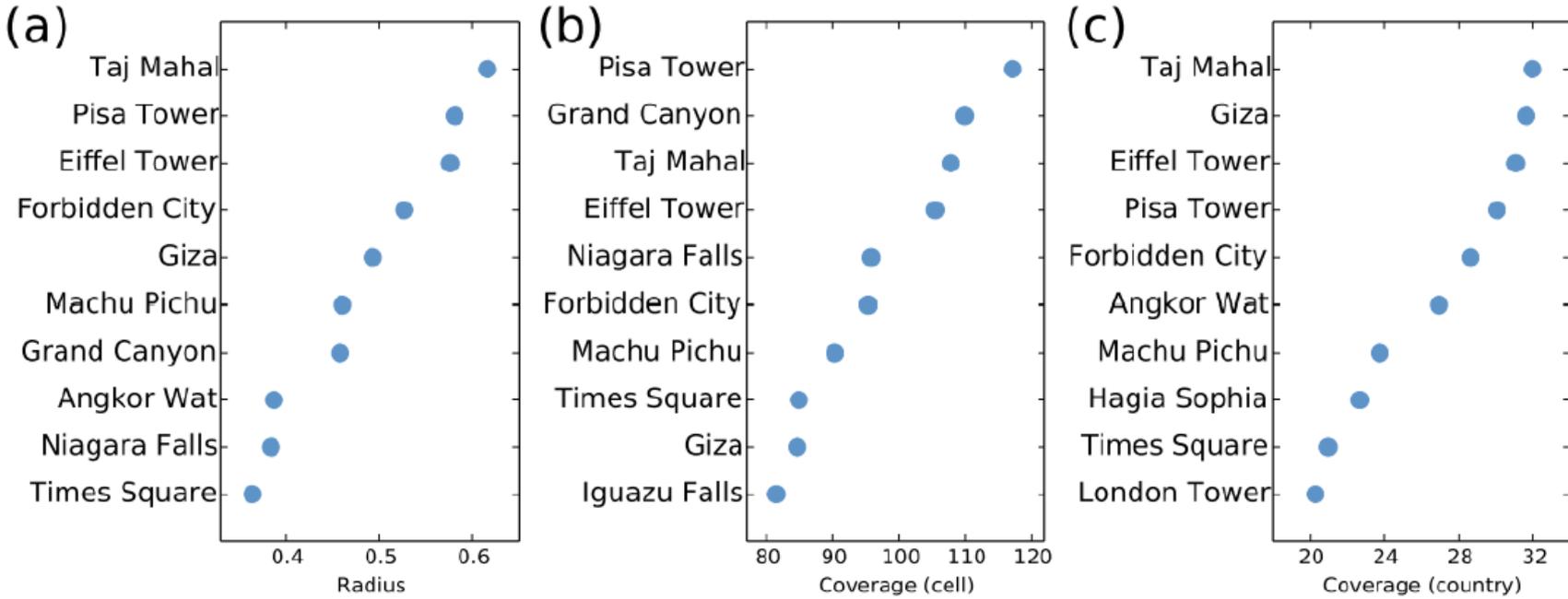
1 SELECTED LOCK ALL

SPAIN	18M €
FRANCE	630k €
UNITED STATES	560k €
RUSSIAN FEDERATION	460k €
OTHER	5.0M €

# Densidad de tweets geo localizados

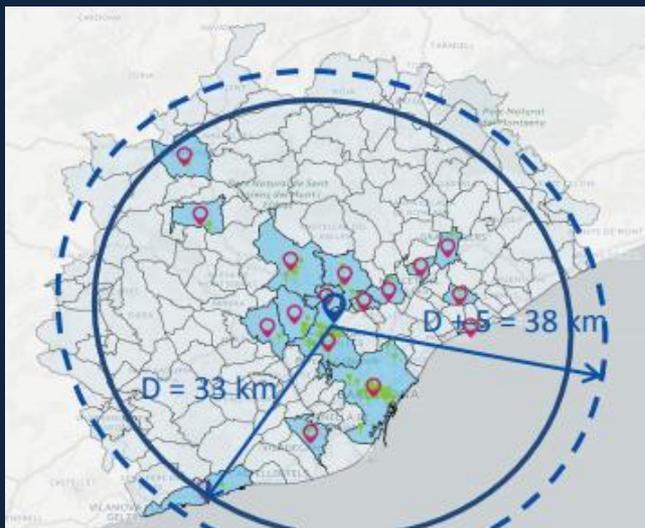


# Definiendo un ranking de los más atractivos lugares en el mundo



COMPLEMENTAR FUENTES TRADICIONALES DE  
DATOS CON NUEVOS

+ Nuevas metodologías



## DETECCIÓN ENTORNO HABITUAL

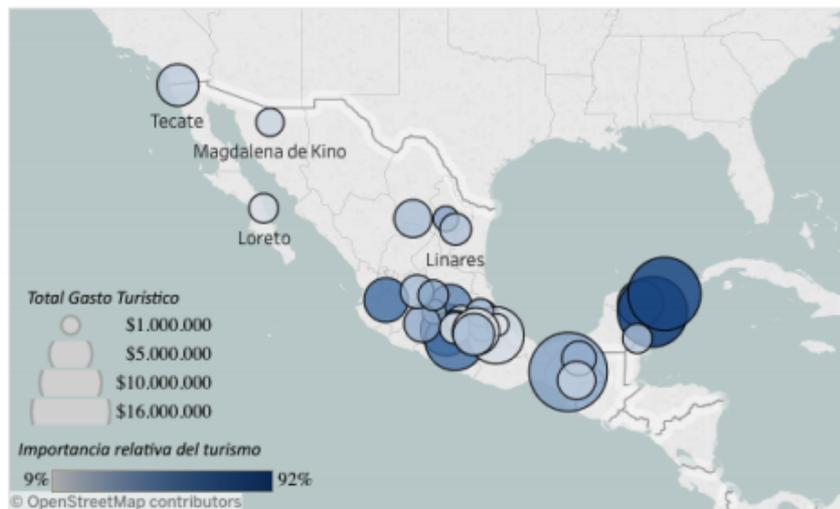
1. Identificar las localidades donde cada titular de la tarjeta ha llevado a cabo "transacciones de la vida diaria"
2. Crear clúster
3. Definir qué clúster(s) son **parte del entorno habitual** de los titulares de tarjetas utilizando sus características (# de transacciones, marca de tiempo, categoría de comerciante ...)

# Pueblos Mágicos

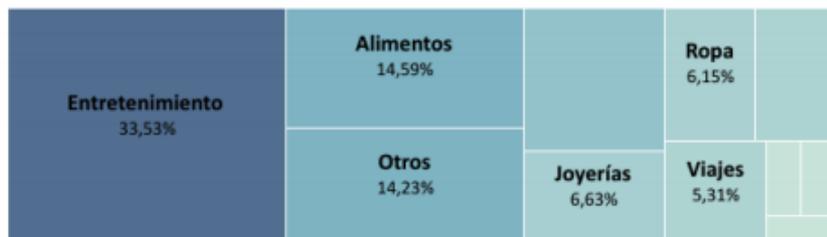
gob mx

Secretaría de Turismo

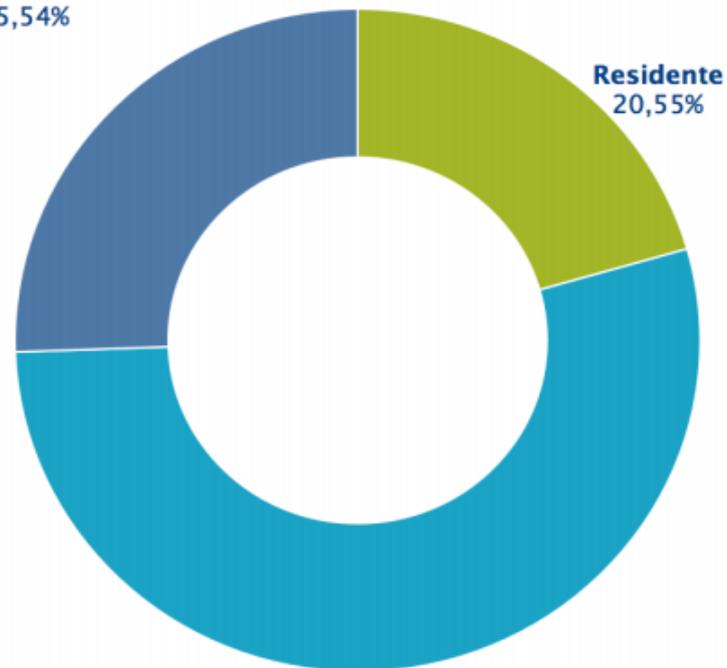
Importancia relativa del turismo: nacional y extranjero



Turismo extranjero — Categoría de gasto



Turista Nacional  
25,54%



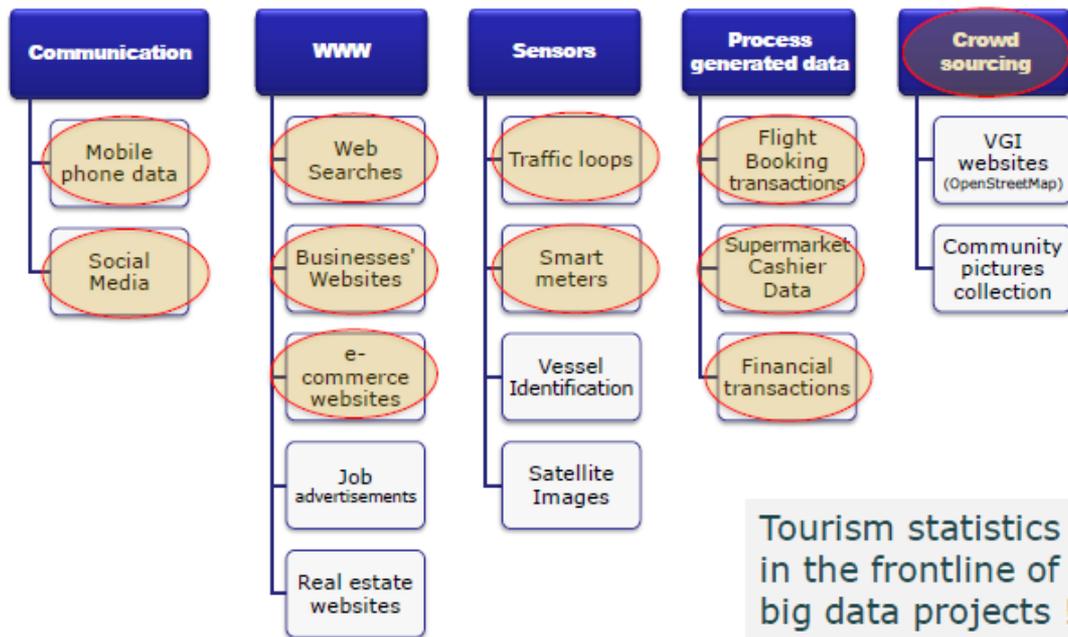
Turista Extranjero  
53,91%

# Nuevas posibilidades....



1. Entender quién está aquí
2. Entender lo que tenemos

## Big data – main sources



# RETOS...

1. MySpace II Facebook II SMS II WhatsApp II Facebook Messenger...

**QUE VENDRA DESPUES?**

2. De 'control total' a ser un 'usuario'...

**CONTROL DE CALIDAD?**

3. Volumen, velocidad, volatilidad...

**LOS ÁRBOLES NO NOS DEJAN VER EL BOSQUE?**

4. Conceptos y definiciones...

**CÓMO EXTENDER, AJUSTAR, COMPLETAR?**

5. Percepción en la opinión pública

**ORGANIZACIONES MODERNA/EFICIENTE O GRAN HERMANO?**

Gran impacto en la **continuidad** de los datos ... vs. **estabilidad** / continuidad como una de las proposiciones únicas de venta de las estadísticas oficiales

Grandes datos a menudo en poder de empresas privadas y necesidad de asociaciones y **modelos de negocio**: desarrollo / piloto fase vs. colaboración a largo plazo

Hay que mantener la visión general y sintetizar en un **sistema de producción manejable**, coherente y sostenible

Las fuentes de datos no fueron diseñadas para hacer estadísticas y Big Data puede cubrir solo una parte de las necesidades del usuario (y **no completamente reemplazar los métodos existentes**, al menos no a corto/mediano plazo)

Existe la necesidad de **avanzar discusiones** de manera abierto, proactivo y responsable. *Fuente: EUROSTAT*



## *Example: mobile phone data for Belgium*

### **Partnership between mobile network operator and statistical offices**

- Eurostat, Statistics Belgium, Proximus
- Explore partnerships & business models; cooperate on concrete pilot projects

### **Work-in-progress, some preliminary results**

- Focus on **outbound trips** made by residents of Belgium
- **Comparison** of estimates based on official statistics and estimates based on mobile phone data (April – September 2015/2016)
- Somehow promising (the data makes sense) but lots of open issues

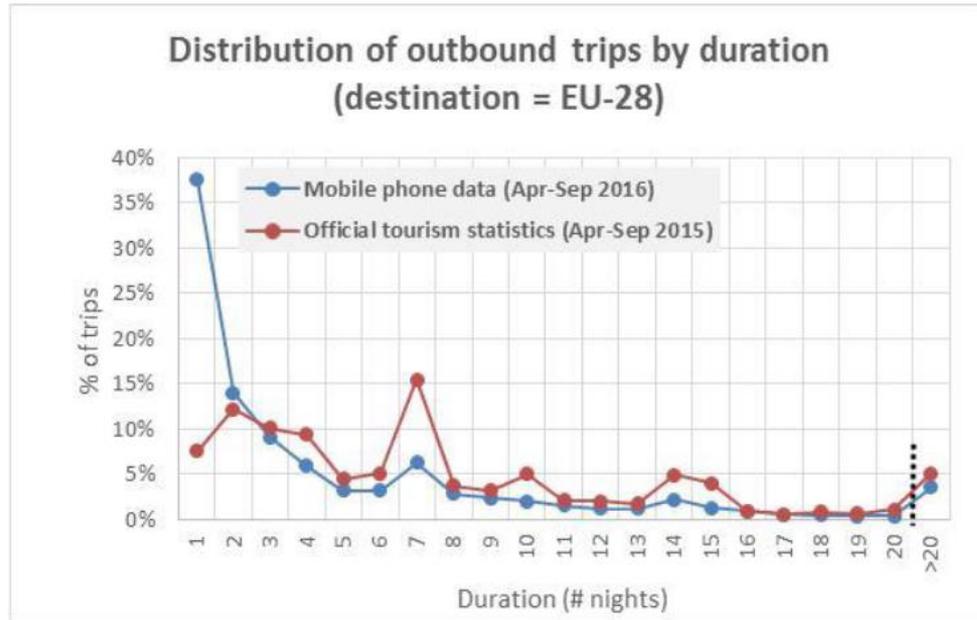
eurostat 

proximus

 economie  
Ministerie van Economie, Wetenschap en Innovatie

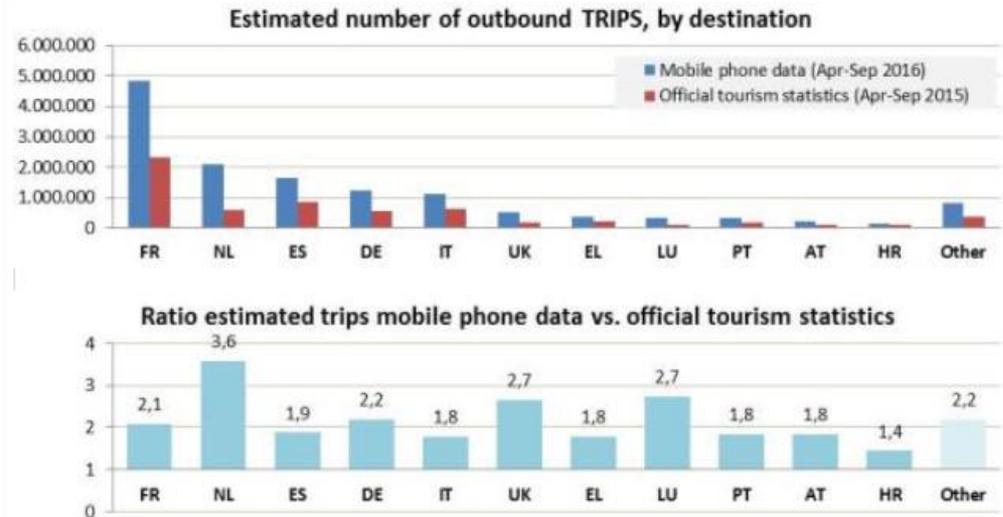
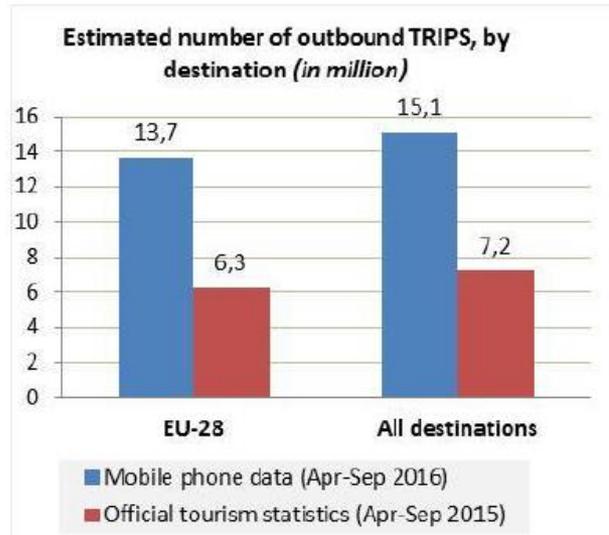
## Una comparación de viajes desde Bélgica al exterior (por duración)

**Comparison of the distribution of outbound trips from Belgium to other EU countries, by duration of the trips**



# Una comparación de volumen de viajes y noches

## Comparison of estimated number of outbound trips, by destination



- Observations: Big differences between the sources, but of a systematic nature
- Understanding (and solving...) the deviations: differences in scope, parameter setting, selectivity bias, recall bias and non-response in surveys

# PARA AVANZAR...

## NIVEL 1

explorar la viabilidad de grandes fuentes de datos como información auxiliar para controles de calidad, calibración, etc.

## NIVEL 2

utilizar Big Data para **llenar los vacíos** de datos actuales y producir **estimaciones experimentales**

## NIVEL 3

usar Big Data para **reemplazar parcialmente** 'tradicional' **fuentes / encuestas**

## NIVEL 4

revisar de forma orientada al usuario el sistema de estadísticas de turismo, teniendo en cuenta las oportunidades ofrecido por la integración de Big Data

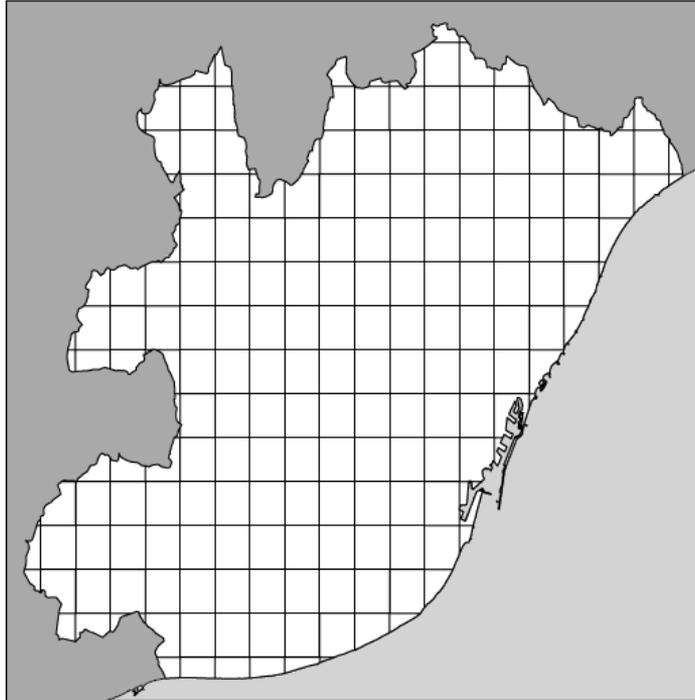
# Nuevas posibilidades....



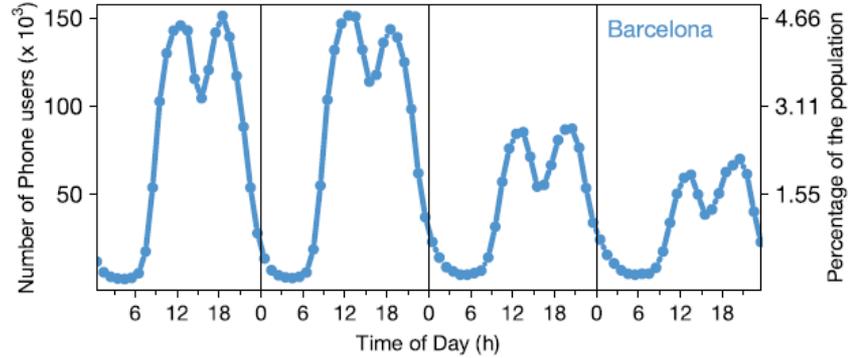
1. Entender quién está aquí
2. Entender lo que tenemos
3. Extender lo que tenemos

# Teléfono móvil

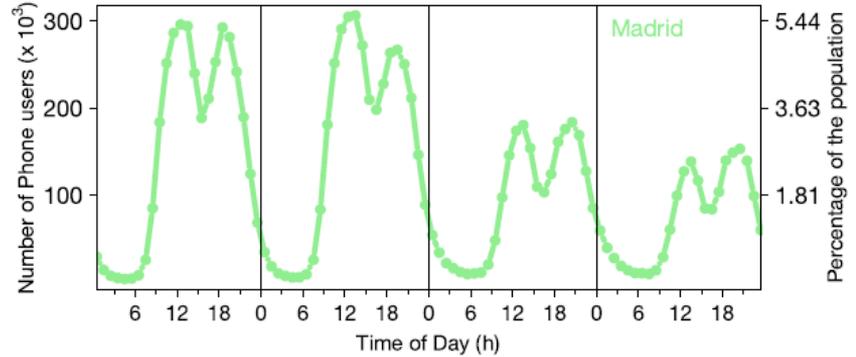
(a)



(b)

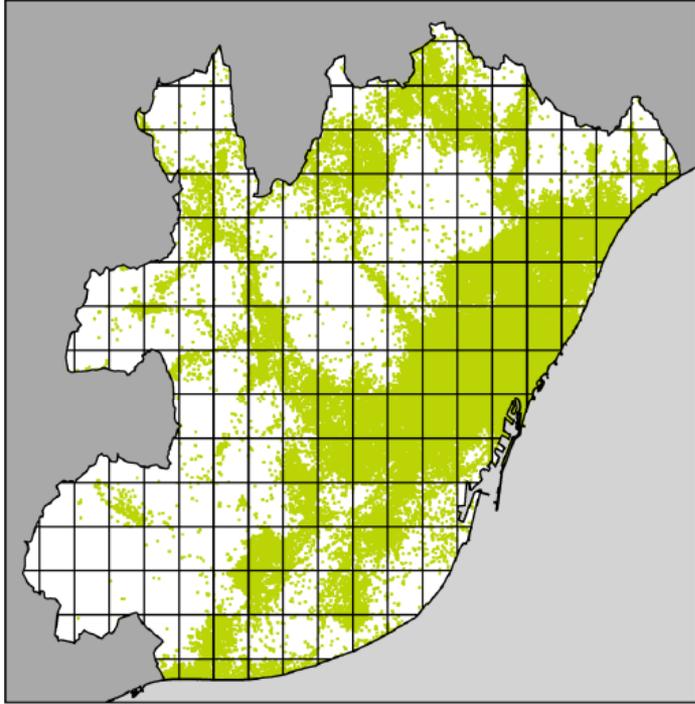


(c)

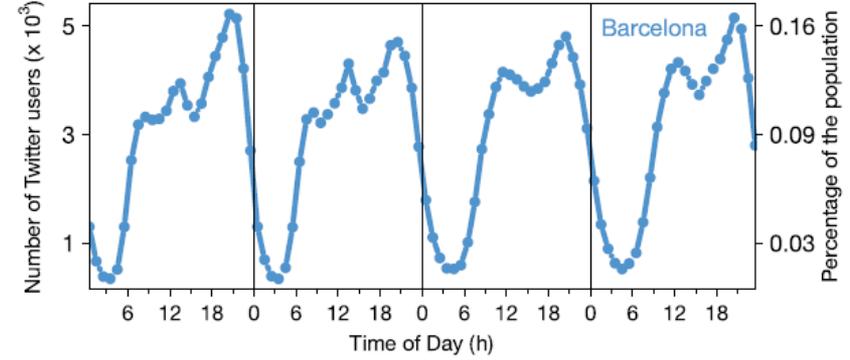


# TWITTER

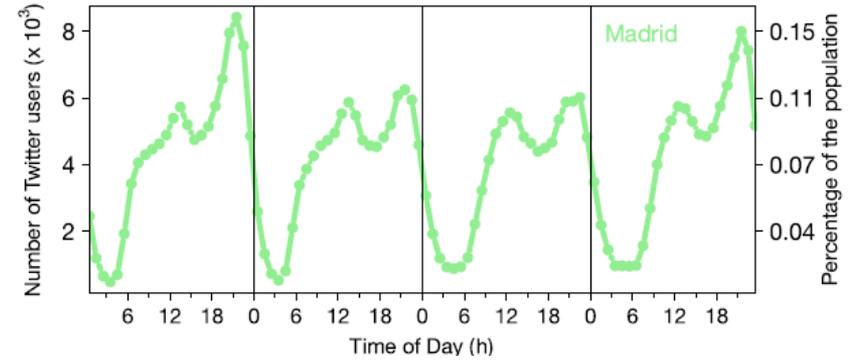
(a)



(b)



(c)



# Encuesta

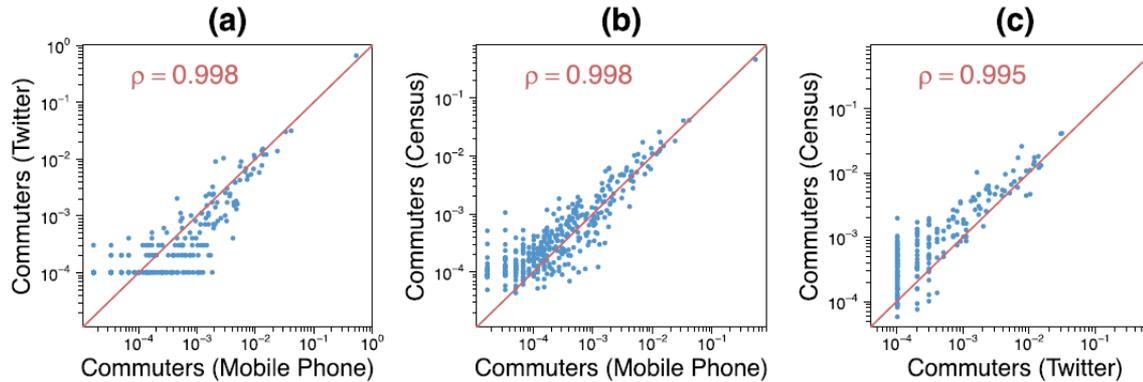
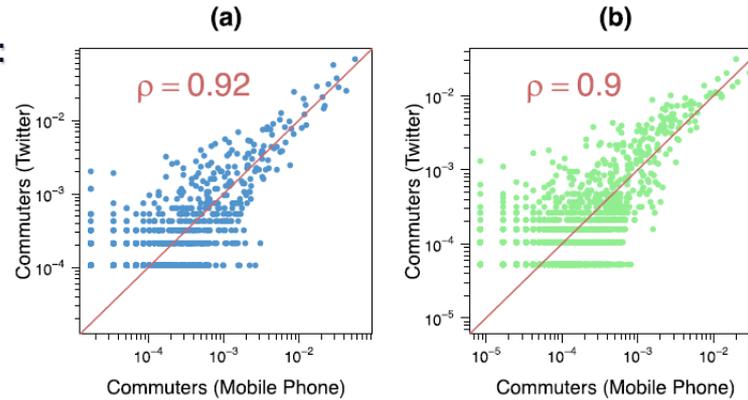
## Survey EMEF

### Questionari EMEF 2017

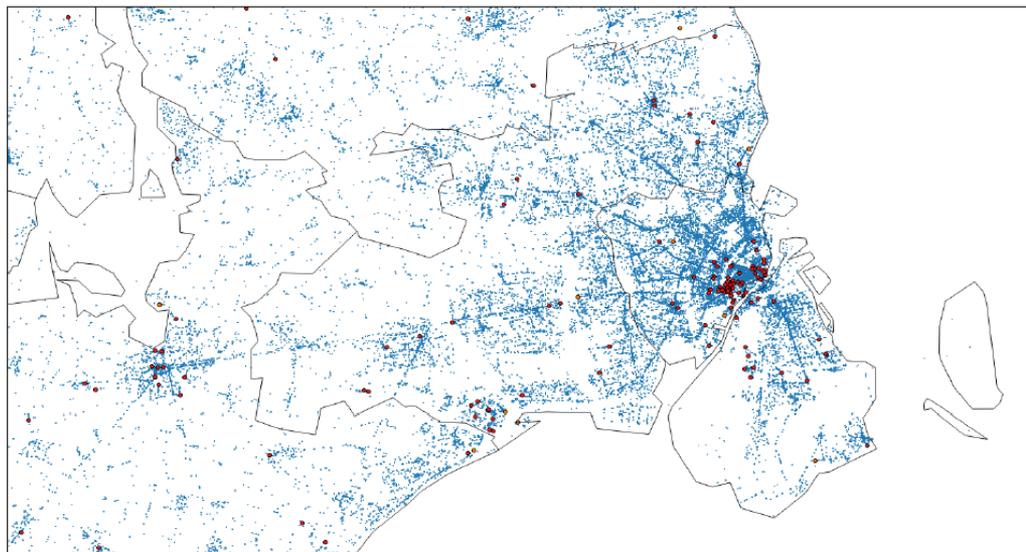
<b>0. CONFIRMAR DADES DE L'INDIVIDU</b> Confirmar que es parla amb la persona seleccionada de la mostra. Confirmar el municipi on es truca. Confirmar que el domicili és la residència habitual.	
<b>SITUACIÓ LABORAL</b>	
<b>P1a. QUINA ÉS LA SEVA SITUACIÓ LABORAL?</b>	
1. treballa (actiu ocupat/ocupada)	5. tasques de la llar (si edat < 65 anys)
2. està a l'atur (actiu en atur)	6. estudiant
3. jubilat/da / pensionista	7. altres especificar _____
4. pre-jubilat/da	
<i>FILTRE → Tothom excepte treballadors (P1a=1) i jubilats / pensionista /persones de 75 anys i més (P1a=3) P1a=3 i edat&lt;75 o Pa1=2/4/5/6/7</i>	
<b>P1b. LA SETMANA PASSADA VA TREBALLAR A CANVI D'UN SOU ENCARA QUE NOMÉS FOS UNA HORA?</b>	
1. Sí (passeu a P2a i recodificar com actiu ocupat a P1a)	2. No
<i>FILTRE → Jubilats / pensionista /persones de 65 a 74 anys (P1=3), pre-jubilats (P1=4), tasques de la llar (P1=5), estudiants (P1=6) i altres (P1=7) P1a=3 i edat&lt;75 o P1a=4/5/6/7</i>	
<b>P1c. LA SETMANA PASSADA ESTAVA SENSE FEINA I DURANT EL DARRER MES HA ESTAT FENT RECERCA ACTIVA D'UNA FEINA?</b>	
1. Sí (recodificar com actiu en atur a P1a)	2. No
<b>MOBILITAT</b>	
<b>P2a. AHIR (o el darrer dia laborable) VA SORTIR VOSTÈ DE CASA?</b>	
1. Sí	2. No → <b>P2b. Per quin motiu no va sortir vostè de casa?</b>
	1. Malaltia, discapacitat
	2. Va treballar/estudiar al domicili
	3. Estava de vacances
	4. Edat (jubilat...)
	5. No vol contestar
	6. No calla/no va voler sortir
	99. Altres. Especificar _____
	} → P7

# Correlaciones

OD matrices:



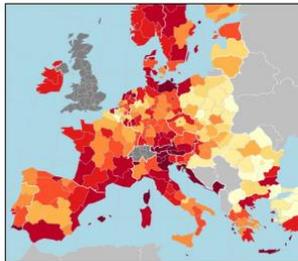
## Tomtom POIs – touristic accomodations



Eurostat

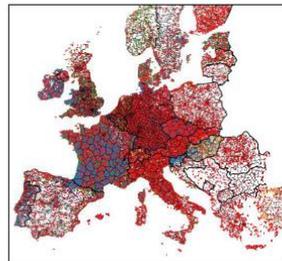
## Dasymetric mapping

Stat. data - NUTS 2

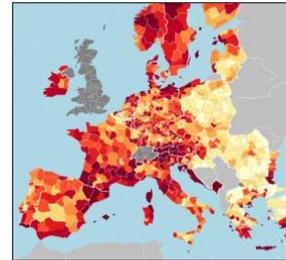


+

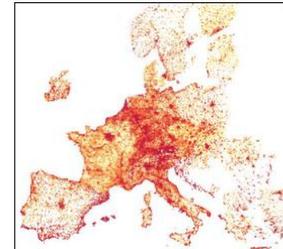
Geographical data



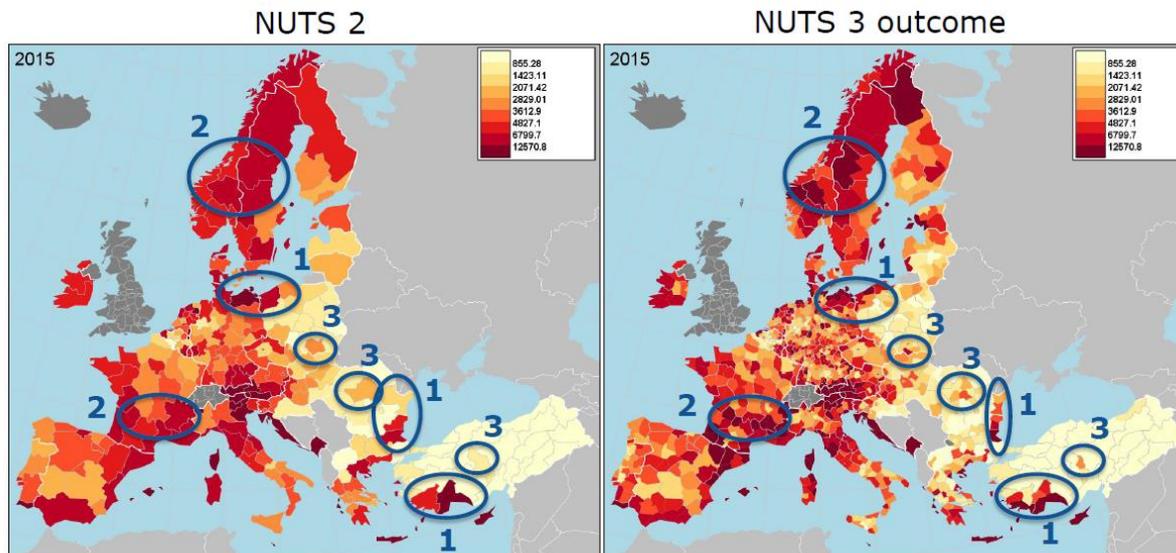
Stat. data - NUTS 3



Stat. data - 10km grid



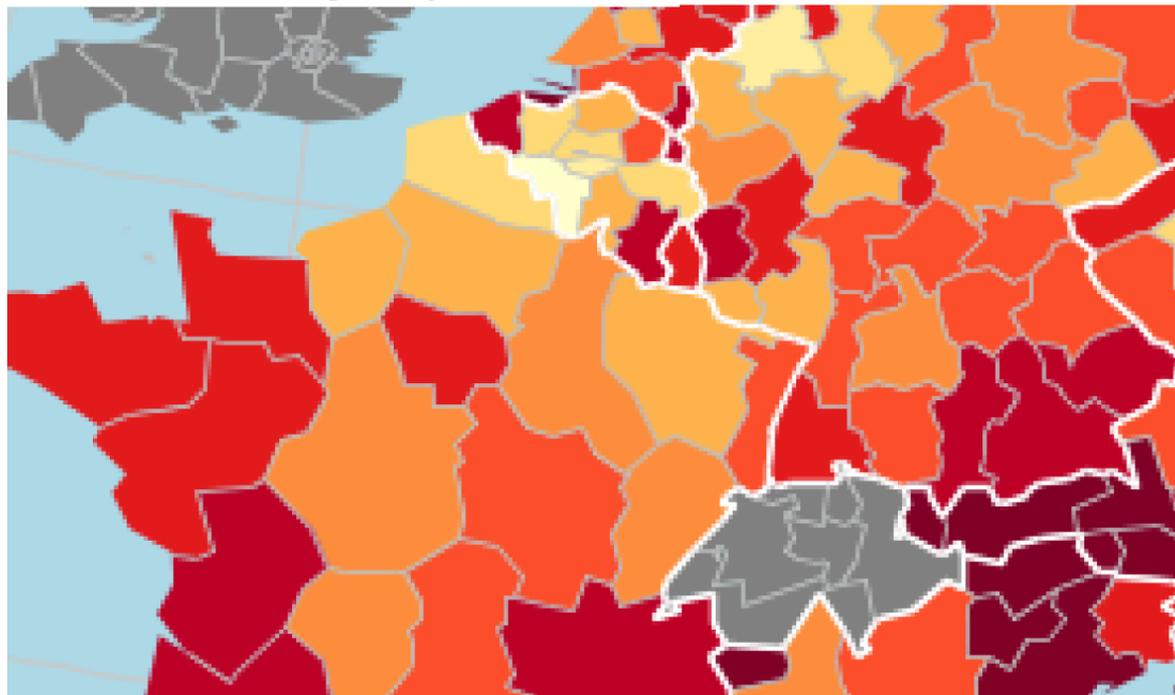
## A new map of European tourism?



Eurostat



## 2015 – NUTS 2 - nights spent at hotels



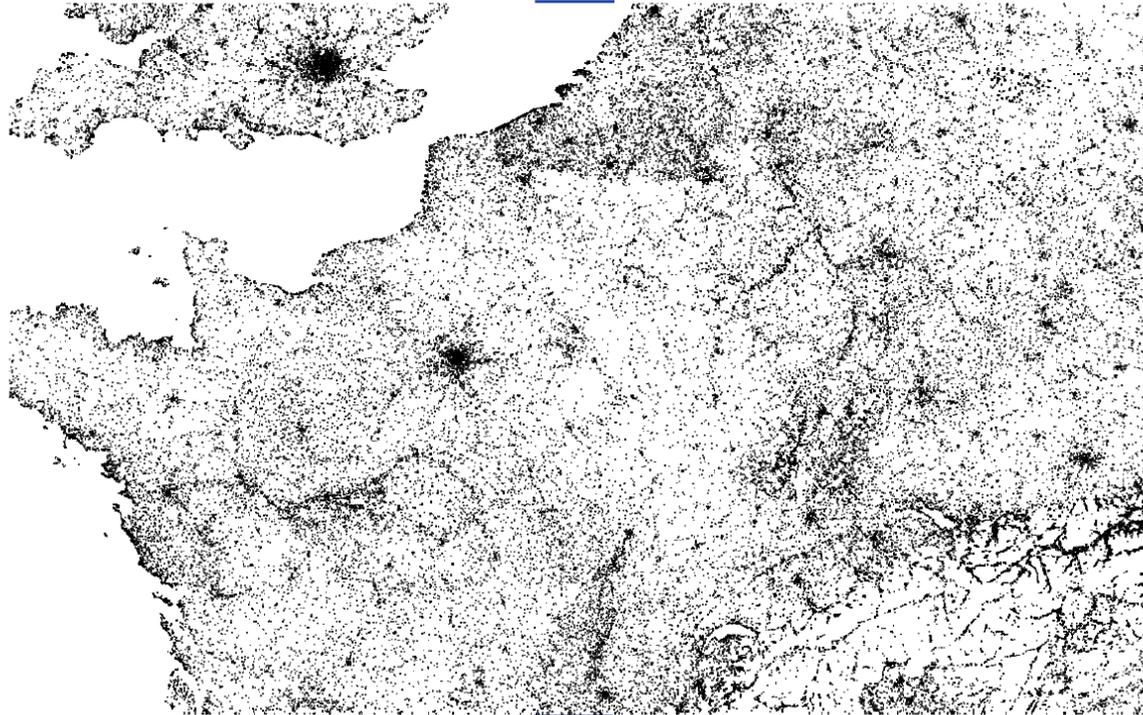
Eurostat





European  
Commission

## Tomtom - hotels



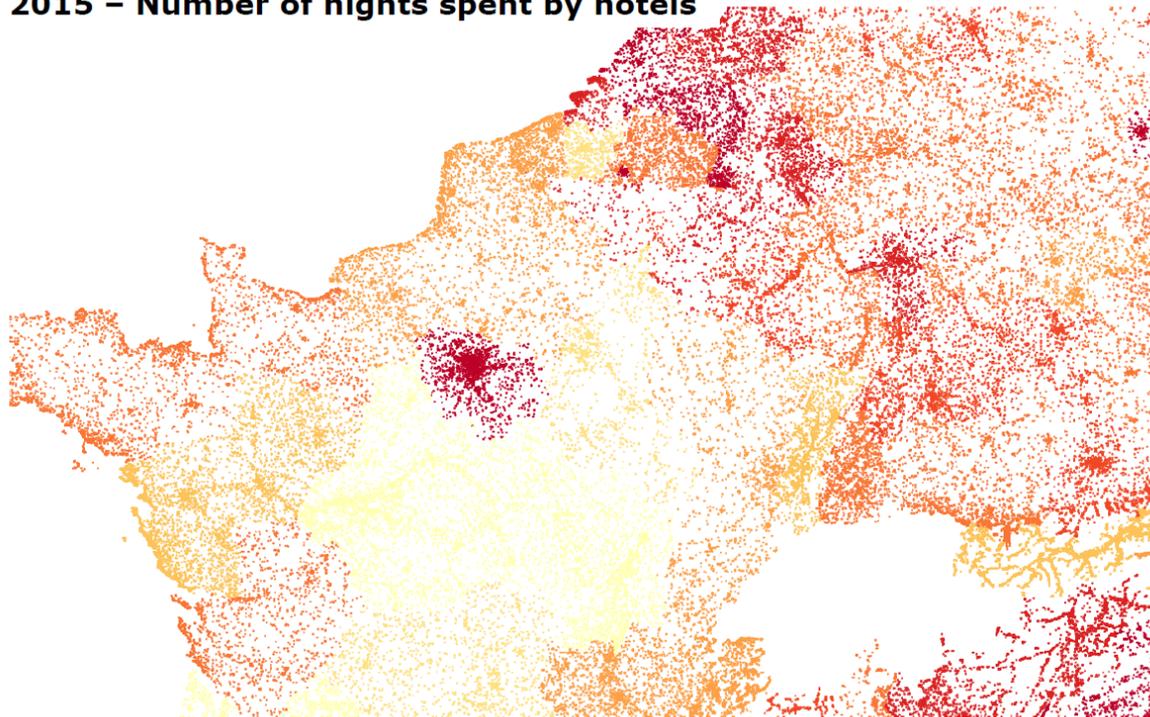
Eurostat



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## 2015 – Number of nights spent by hotels



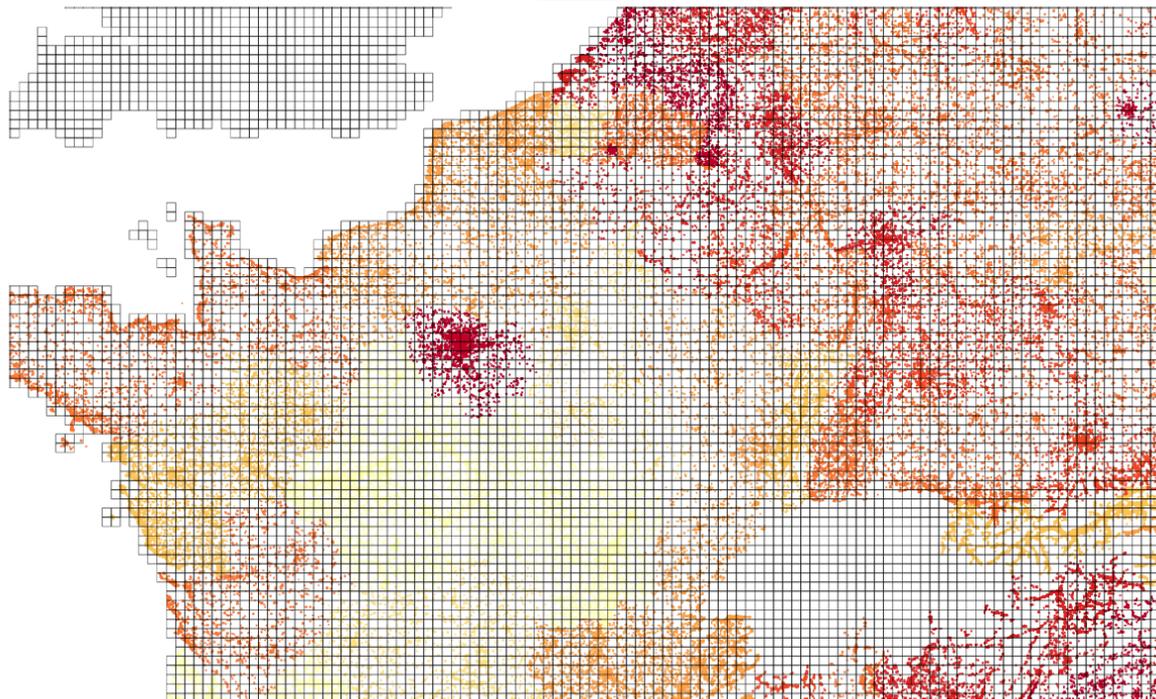
Eurostat



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**Grid resolution: 10km**



Eurostat

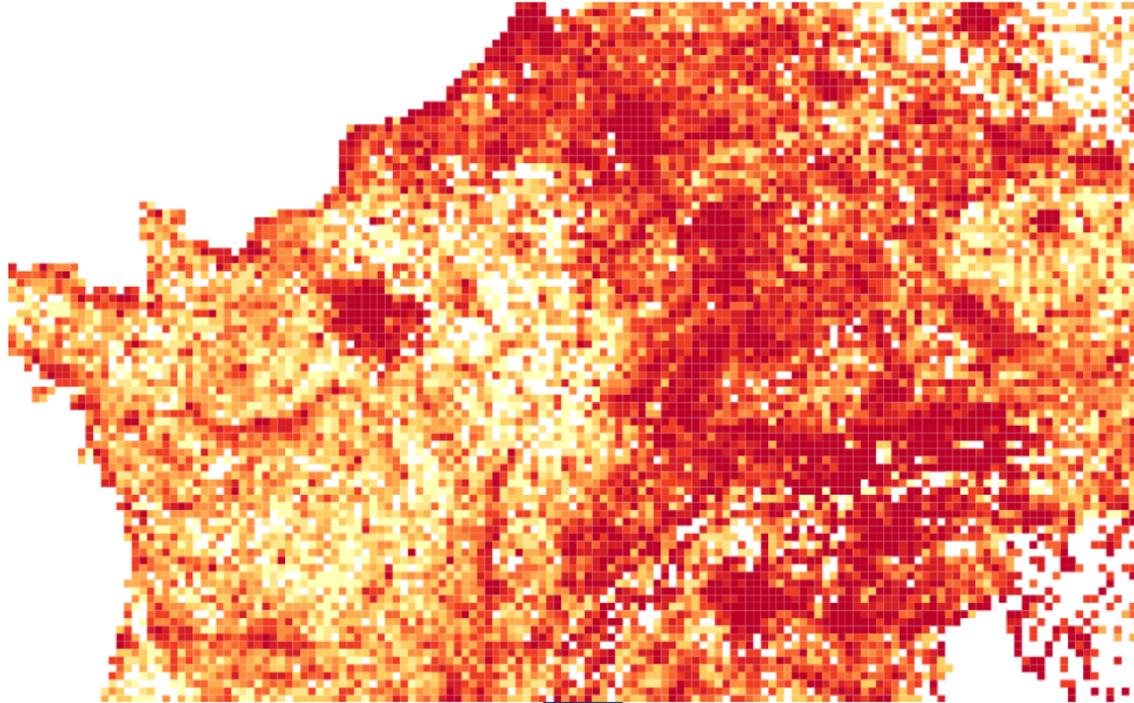


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Fuente: Eurostat



## 2015 – Number of nights spent by 10km cell



Eurostat



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## A new map of European tourism?



**2015 – Number of nights spent at hotels**



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# Nuevas posibilidades....



1. Entender quién está aquí
2. Entender lo que tenemos
3. Extender lo que tenemos
4. Utilizarlo para un contexto más global



# SDG Index and Dashboard Report 2017

*Sachs, J. Schmidt-Traub, G. Kroll, C. Durand-Delacre, D. and Teksoz, K.*



World Tourism Organization | a specialized Agency of the United Nations

<http://www.sdindex.org/assets/files/2017/2017-SDG-Index-and-Dashboards-Report--full.pdf>

Table 1.9 | The ten countries with the highest import of biodiversity loss embodied in trade

	Country	Imported biodiversity impacts (species lost/million people)
1	Luxembourg	2.0
2	Singapore	1.6
3	Djibouti	1.4
4	Kuwait	1.3
5	United Arab Emirates	1.2
6	Belgium	1.1
7	Netherlands	0.9
8	New Zealand	0.8
9	Malaysia	0.7
10	Oman	0.7

Source: Authors' calculations based on Chaudhary and Kastner (2016)

Table 1.10 | The ten countries with the highest net per capita imports of reactive nitrogen embodied in trade

	Country	Net imported emissions of reactive nitrogen (kg/capita)
1	Luxembourg	965.4
2	Singapore	748.2
3	Kuwait	569.2
4	Switzerland	432.4
5	Israel	381.9
6	United Arab Emirates	328.6
7	Norway	311.8
8	Japan	259.9
9	Malta	255.2
10	Mauritius	226.0

Source: Authors' calculations based on Oita et al. (2016)



# Reducción de desigualdades espaciales en grandes ciudades



World Tourism Organization | a specialized Agency of the United Nations

Louail et al. *Applied Network Science* (2017) 2:11  
DOI 10.1007/s41109-017-0026-3

Applied Network Science

RESEARCH

Open Access



## Crowdsourcing the Robin Hood effect in cities

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available at the end of the article

### Abstract

Socioeconomic inequalities in cities are embedded in space and result in neighborhood effects, whose harmful consequences have proved very hard to counterbalance efficiently by planning policies alone. Considering redistribution of money flows as a first step toward improved spatial equity, we study a bottom-up approach that would rely on a slight evolution of shopping mobility practices. Building on a database of anonymized card transactions in Madrid and Barcelona, we quantify the mobility effort required to reach a reference situation where commercial income is evenly shared among neighborhoods. The redirections of shopping trips preserve key properties of human mobility, including travel distances. Surprisingly, for both cities only a small fraction (~ 5%) of trips need to be modified to reach equality situations, improving even other sustainability indicators. The method could be implemented in mobile applications that would assist individuals in reshaping their shopping practices, to promote the spatial redistribution of opportunities in the city.

**Keywords:** Human mobility, Shopping mobility, Wealth inequality, Spatial networks, Graph rewiring

### Introduction

The growth of economic inequality has raised concern and attention in recent years (Piketty 2014; Stiglitz 2015). In cities these inequalities are embedded in space, as a result of entangled processes which include location choices of households and businesses, daily mobility, segregation and closure attitudes, central planning, or global economic restructuring. Over the course of several decades their joint actions have given rise to segregated cities, characterized by uneven distributions of capital among their neighborhoods. While the intensity of socioeconomic inequalities vary from one city to another, the general observation that “some neighborhoods are poorer than others” has been made for cities with different age, in every continent, and for different periods in urban history (Pinol 2003; Goldsmith et al. 2010; Cassiers and Kesteloot 2012; UN-HABITAT 2014). An abundant literature has long depicted the *neighborhood effect* (Friedrichs et al. 2003) – the neighbourhood impacts the life trajectories of the residents, even when controlling for their individual characteristics –, and highlighted its societal costs and enduring consequences (Blau and Blau 1982; Brooks-Gunn et al. 1997; Vallée et al. 2010; Womack 1972; Chetty and Hendren 2015).

Over the last decade, increasing volumes of digital geographic footprints have been produced by individuals using mobile ICT devices, and these footprints have



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Fuente: Louail, T. et al. (2017)



# Los destinos están en primera fila del cambio...

LES PLANES

EL TIBIDABO

Puerto de Vallvidrera

VALLVIDRERA

17 Mayo 2018



**GRACIAS!**

Dr. Dirk Glaesser  
Director  
Sustainable Development of Tourism  
World Tourism Organization (UNWTO)  
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