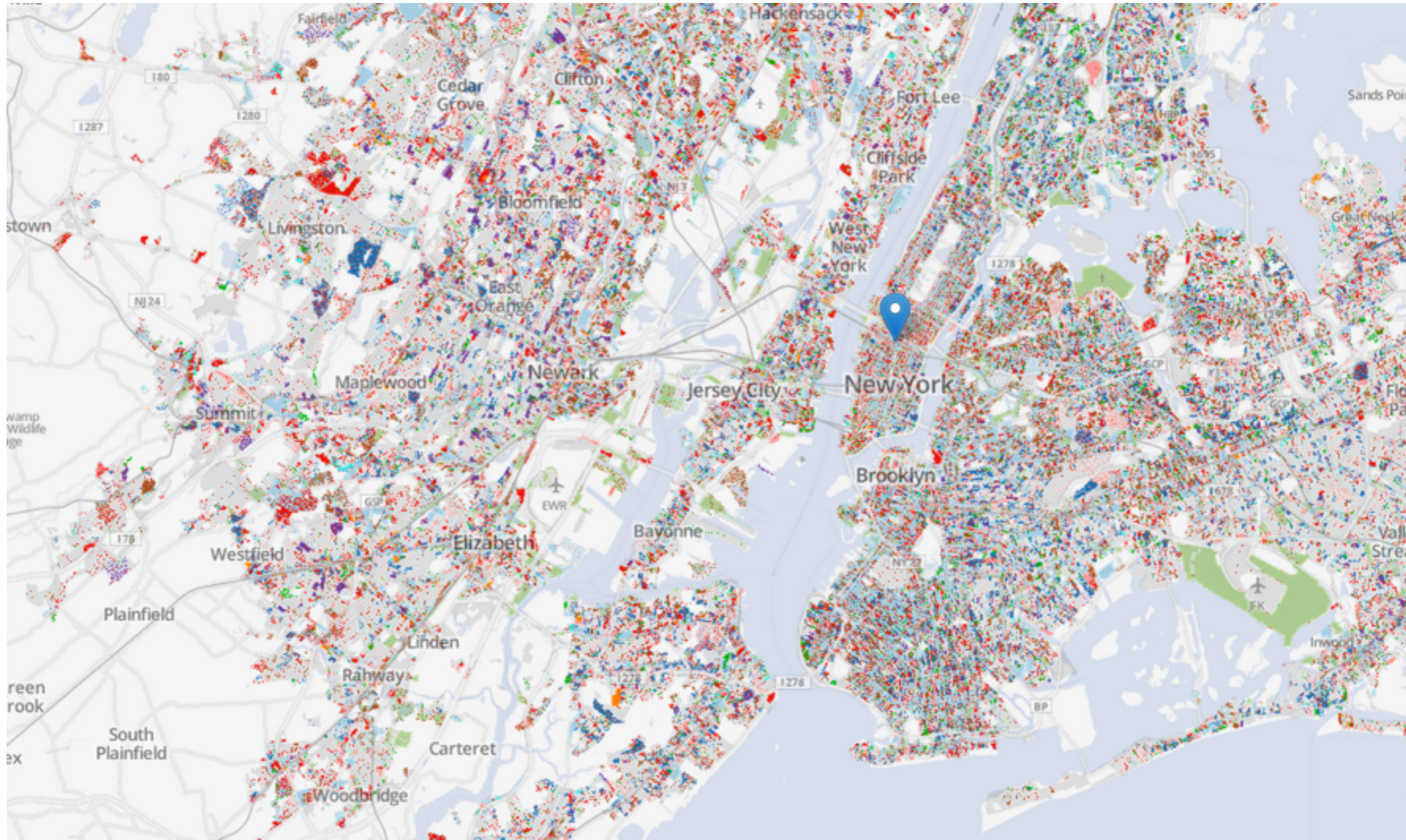


# Les virtualités du territoire

---

Regional Plan Association - Fragile Success - 2014



---

Boris Beaude - Chôros, École Polytechnique Fédérale de Lausanne  
Ecole d'été "Géomatique et Ville intelligente" - Université de Laval - 2 juillet 2014

# Les virtualités du territoire

A Smarter Planet > Explore by industry or topic > Cities > What is a Smarter City? >

## Smarter Cities



- What is a Smarter City?
- Planning and management
- Infrastructure
- People
- Solutions
- Library



**It's all about leadership**  
Michael Dixon on engaging communities for smarter cities.

[▶ Watch the video.](#) (00:03:49)



**Smarter, More Competitive Cities**  
Cultivating charisma, resiliency and vitality.

[➔ Register to download.](#)



**ESSC 2014, July 7-9, Rome**

[➔ Register now for the European Social Service Conference: Investing in People.](#)



### For smarter cities, technology answers



Smarter cities of all sizes are capitalizing on new technologies and insights to transform their systems, operations and service delivery.

### Join the conversation #SmarterPlanet



#### Planning and management

Long term insights based on comprehensive data analysis, followed up through efficient daily management, help

# Les virtualités du territoire



Industries & solutions Services Products Support & downloads My IBM

United States

Welcome [ IBM Sign in / Register ]

Search

A Smarter Planet



## Smarter Marketing

Marketing strategies to transform the role of the CMO

Overview

Conversations

Case studies

Solutions

Videos



### The new science of giving people what they want



Welcome to the era of the Chief Executive Customer (735KB)

With technology now infused into every aspect of commerce, the entire craft of marketing becomes more instrumented, interconnected and intelligent. This leads to profound changes in ways the discipline is understood, led and practiced.

The onus of this evolution has landed on the doorstep of the Chief Marketing Officer. And that means that the mind-set, as well as the skill set, of a CMO has to evolve right along with it.



The way you understand your customer is about to change.

Watch an expert's perspective (00:01:15) (00:01:15)

### Three mandates for the new CMO have taken shape



#### More on the art and science of marketing



Marketing science: from descriptive to prescriptive

Learn More

# Les virtualités du territoire

The screenshot shows the top portion of the IBM Big Data website. At the top right, there is a language selector for 'United States' and a user greeting 'Welcome [ IBM Sign in / Register ]'. Below this is a dark navigation bar with the IBM logo on the left and links for 'Industries & solutions', 'Services', 'Products', 'Support & downloads', and 'My IBM'. A search bar is located on the right side of this bar. The main content area features the text 'A Smarter Planet >' followed by the 'Big Data' logo and the tagline 'Data savvy. Insight driven.'. Below the logo is a horizontal menu with three buttons: 'What is big data?' (highlighted), 'Big data technology', and 'Big data conversations'. The background of the main area is decorated with abstract geometric shapes in blue, yellow, and orange.

## What is Big Data?



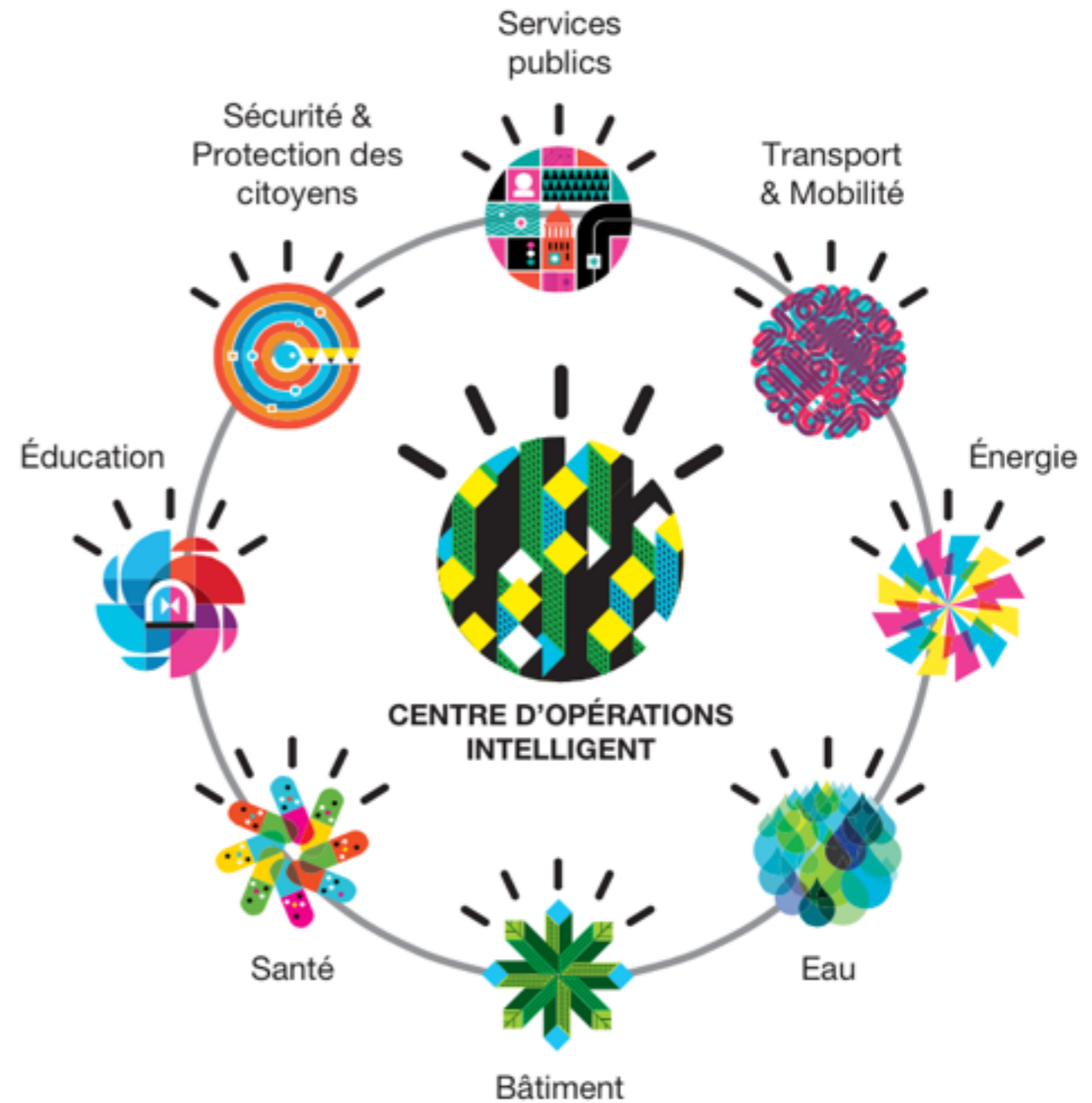
Big data is being generated by everything around us at all times. Every digital process and social media exchange produces it. Systems, sensors and mobile devices transmit it. Big data is arriving from multiple sources at an alarming velocity, volume and variety. To extract meaningful value from big data, you need optimal processing power, analytics capabilities and skills.

[Get started with big data and analytics](#)

## What is changing in the realm of big data?

Big data is changing the way people within organizations work together. It is creating a culture in which business and IT

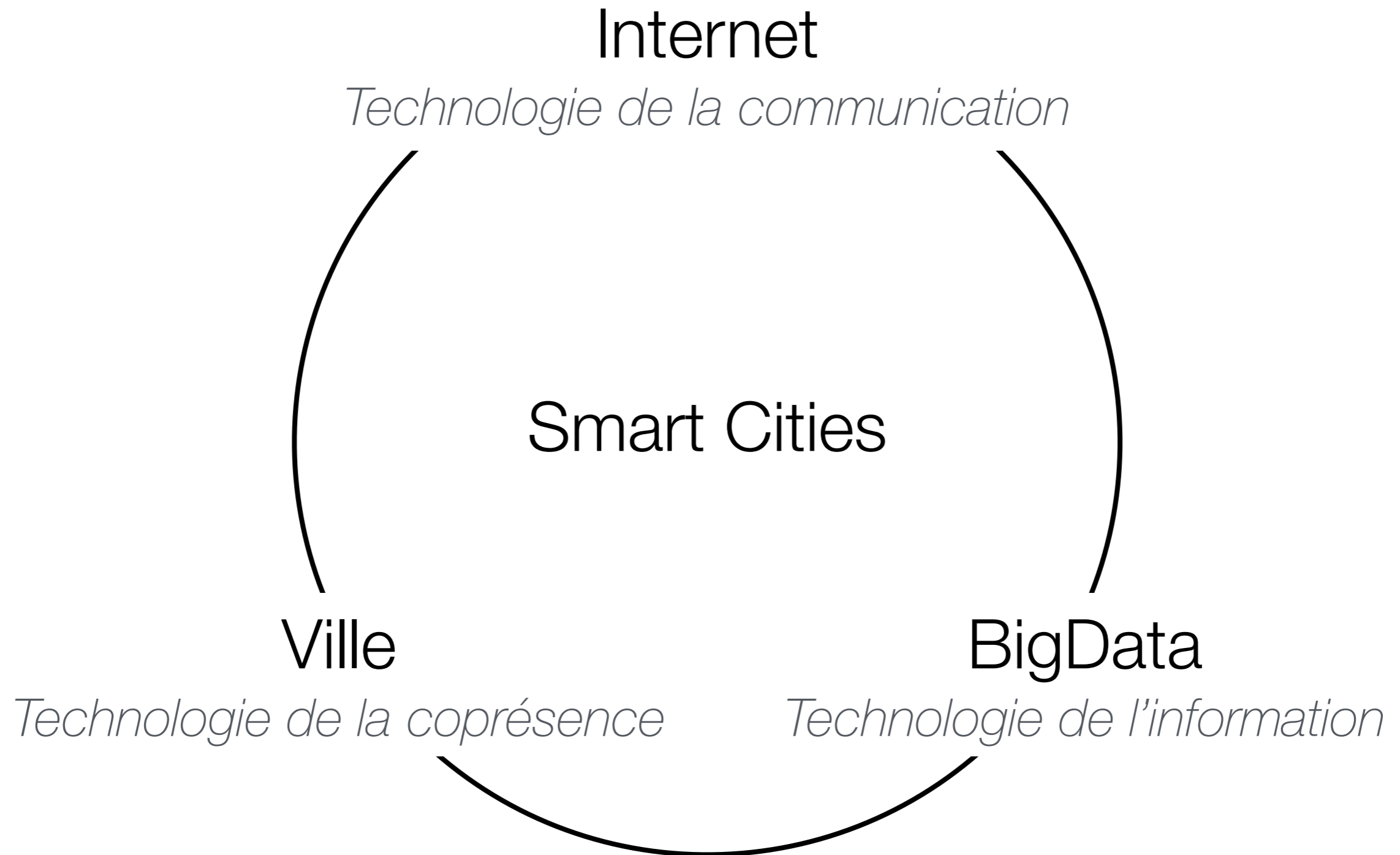
# Les virtualités du territoire



IBM, Smarter Cities, 2013

# Les virtualités du territoire

---



# Les virtualités du territoire

---

- Réel, matériel, virtuel, actuel
- Internet, ville, carte et virtualités
- Actualiser les virtualités
- > *La synchronisation*

## *La synchronisation*



# La synchronisation

---



*Lieux territoriaux*

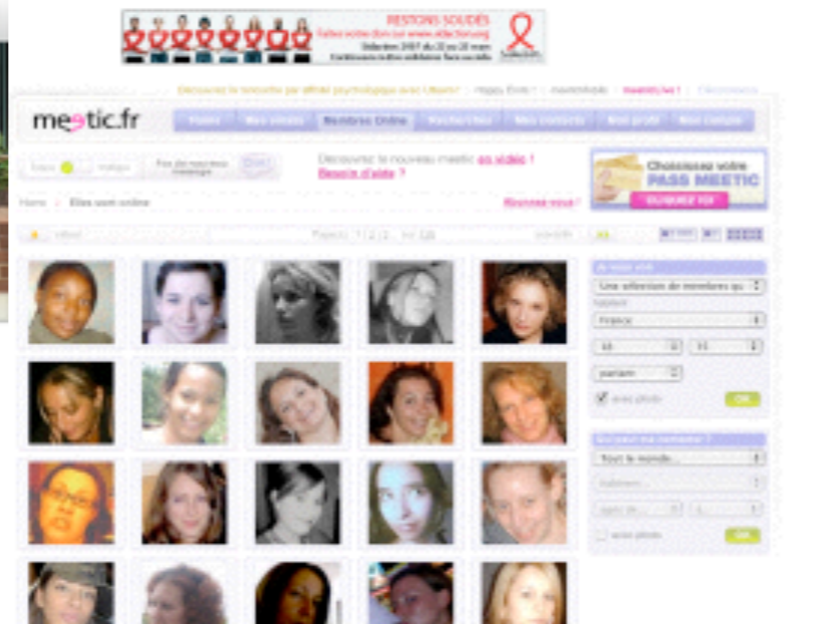
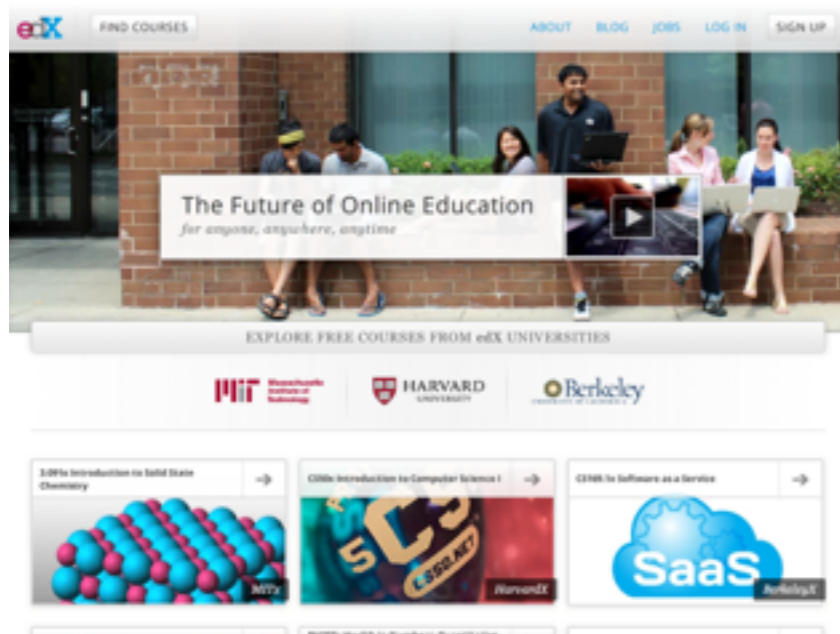
# La synchronisation

---



*La ville*

# La synchronisation



Lieux réticulaires

# La synchronisation

---



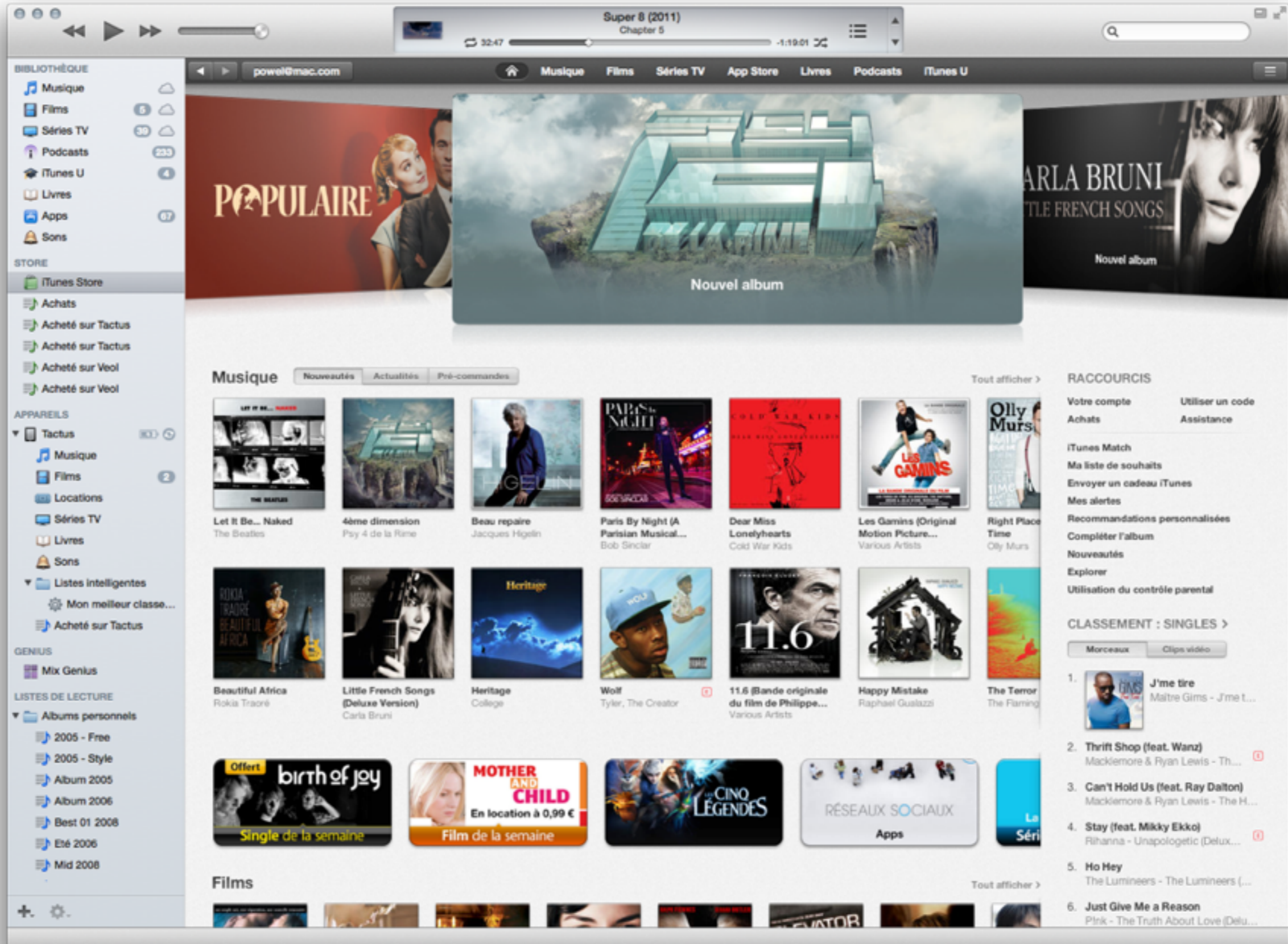
Google earth, *Musée du Prado*, Espagne, 2009  
*Le Jardin des délices*, Jérôme Bosch, 1504

# La synchronisation

---



# La synchronisation



# La synchronisation

The screenshot shows the Transmission torrent client interface. The main window displays the download progress for the file 'ubuntu-9.10-desktop-i386.iso'. The progress bar is at 23.21%, with 160.1 Mo downloaded out of 690.0 Mo. The download speed is 436.9 Ko/s and the upload speed is 0.0 Ko/s. The ratio is 1.03. Below the progress bar, it shows '1 transfert' and 'Pairs - Inspecteur de torrent'.

The 'Pairs - Inspecteur de torrent' window shows a list of peers for the file 'ubuntu-9.10-desktop-i386.iso' (690.0 Mo). The list includes columns for 'Adresse IP', 'Client', '%', 'UL', and 'DL'. The peers are listed as follows:

Adresse IP	Client	%	UL	DL
221.171.137...	Transmission 1.75	✓		1,4 K
221.124.63....	µTorrent 1.8.1	✓		1,4 K
218.168.24....	-SP3602b	✓		0,0 K
213.191.23.6	µTorrent 1.8.2	✓		17,0 K
213.130.23....	µTorrent 1.8.3	✓		5,7 K
212.117.172...	BitTornado 0.3.18	✓		2,8 K
208.58.199.56	Transmission 1.75	✓		4,2 K
206.55.130....	Transmission 1.76	✓		2,0 K
201.242.155...	µTorrent 1.8.4	✓		2,8 K
201.239.214...	µTorrent 1.8.4	✓		0,0 K
201.68.77.158	µTorrent 1.8.5	✓		3,1 K
201.42.21.3	µTorrent 1.8.4	✓		0,0 K
193.151.78.23	Vuze 4.2.0.4	✓		12,7 K
190.161.83....	µTorrent 1.8.4	✓		5,0 K
189.106.127...	FlashGet 1.80	✓		1,4 K
189.31.240.31	Transmission 1.75	✓		0,5 K
188.60.160.57	µTorrent 1.8.4	✓		15,7 K
188.24.33.226	µTorrent 1.8.4	✓		3,5 K
187.15.139.89	µTorrent 1.8.4	✓		0,7 K
187.5.253.208	Transmission 1.73	✓		0,0 K
173.71.213.52	µTorrent 1.8.2	✓		2,3 K
151.68.139....	µTorrent 1.8.4	✓		
147.253.70.78	Transmission 1.76	✓		0,0 K
147.229.13....	Transmission 1.75	✓		2,1 K
124.13.116....	µTorrent 1.8.4	✓		1,0 K
114.181.193...	µTorrent 1.8.2	✓		14,3 K
112.213.47...	Vuze 4.2.0.8	✓		0,0 K

# La synchronisation

**NETFLIX** Member Sign In

**Watch TV shows & movies anytime, anywhere.  
For one low monthly price.**

Sorry, Netflix is not available in your country yet.  
Enter your email & we'll let you know when Netflix is available.

Enter email address

**Secure Server.** We will not sell or rent your email address. See our [Privacy Policy](#).

- Watch on your **PS3, Wii, Xbox, PC, Mac, Mobile, Tablet** and more.
- TV shows & movies streamed instantly over the Internet
- No commitments, cancel online anytime

[About Us](#) | [Affiliates](#) | [Blog](#) | [Contact Us](#) | [Developers](#) | [Investor Relations](#) | [Jobs](#) | [Media Center](#) |

Use of the Netflix service and this Web site constitutes acceptance of our [Terms of Use](#) and [Privacy Policy](#).  
© 1997-2013 Netflix, Inc. All rights reserved. U.S. Patent Nos. 6,584,450; 7,024,381; 7,631,323; 7,403,910; and 7,617,127. (eu-west-1 ce0c5784 FR) [ ]



# La synchronisation

## A Peek Into Netflix Queues

Examine Netflix rental patterns, neighborhood by neighborhood, in a dozen cities. Some titles with distinct patterns are **Mad Men**, **Obsessed** and **Last Chance Harvey**. [Comments \(135\)](#)

100 titles that were frequently rented from Netflix in 2009

Navigation controls: Previous, Next, Most rented, Least rented

Change how movies are sorted

Sorting options: Most rented, Alphabetical, By metacore

## The Curious Case of Benjamin Button



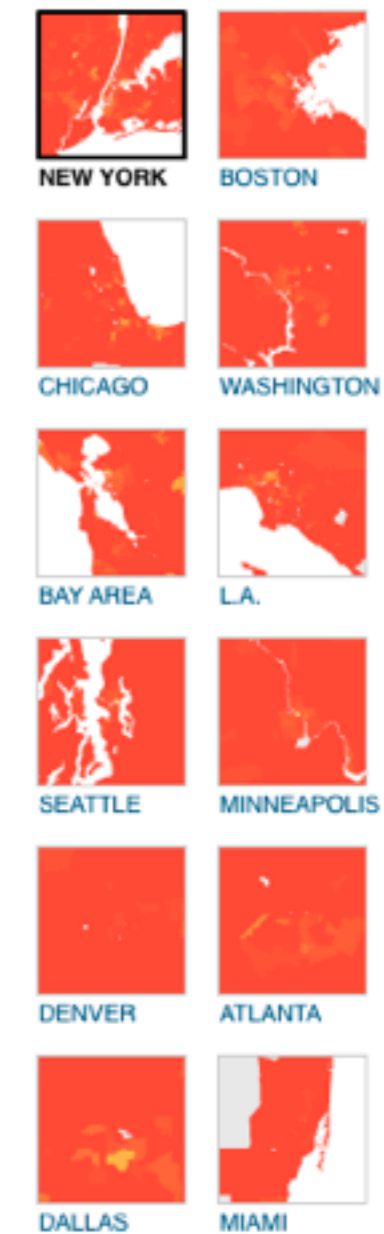
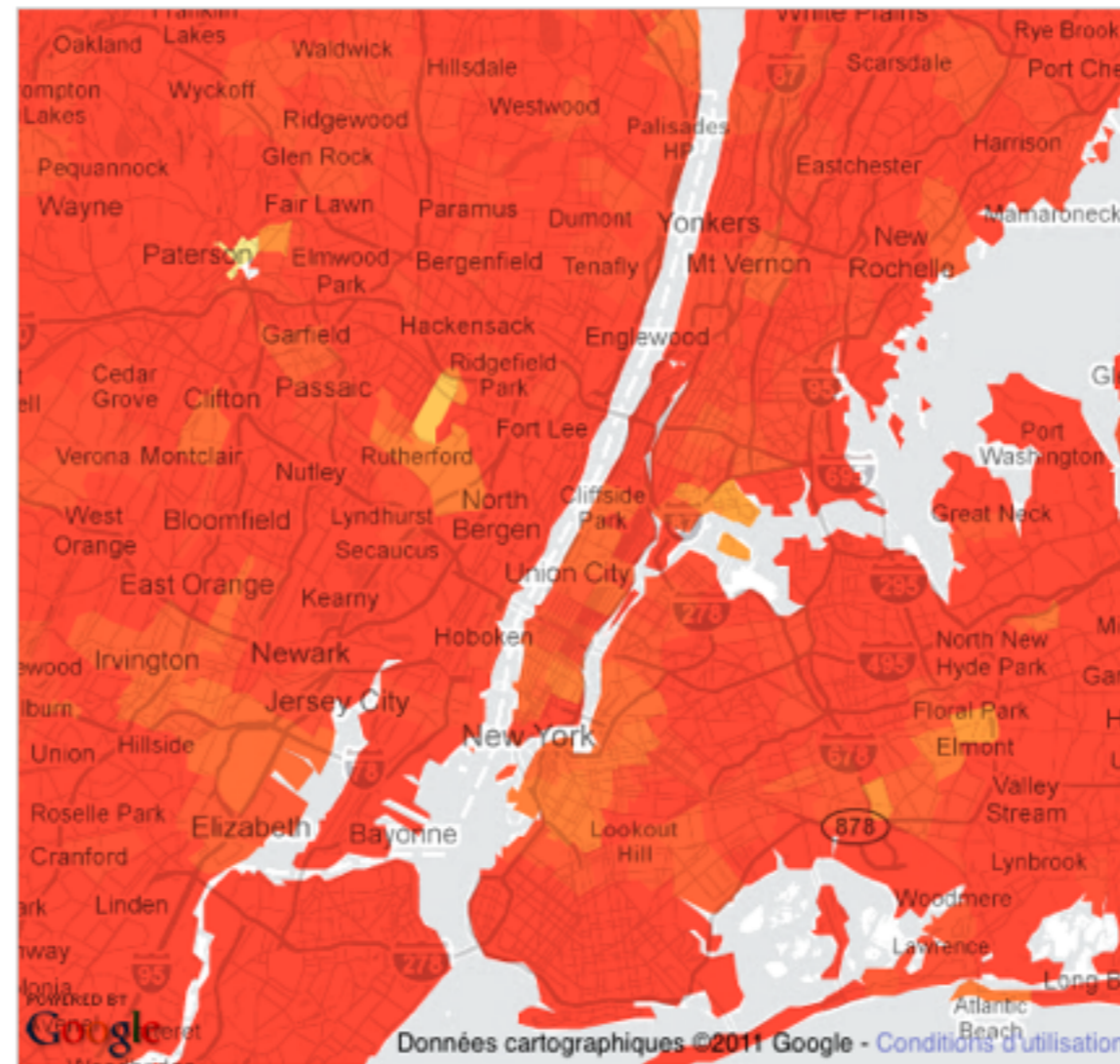
70

Metacritic score  
100=loved by critics, 0=hated

"The Curious Case of Benjamin Button," which occupies around 25 pages in the collected works of F. Scott Fitzgerald, is a slender piece of whimsy, a charming fantasy about a man who ages in reverse, descending through the years from newborn senescence to terminal infancy. As Fitzgerald unravels it, Benjamin's story serves as the pretext for some amusing, fairly superficial observations about child rearing, undergraduate behavior and courtship in the late 19th and early 20th centuries.

[Read Rest of NYT Review »](#)

The ZIP codes are shaded according to each movie's rank. **Ranked No. 1** **No. 50**



Sources: Netflix provided data on the top 50 rentals in 2009 in each ZIP code. Titles are listed in the approximate order of popularity across selected metropolitan areas. Metascores are from metacritic.com.

# La synchronisation

## A Peek Into Netflix Queues

Examine Netflix rental patterns, neighborhood by neighborhood, in a dozen cities. Some titles with distinct patterns are **Mad Men**, **Obsessed** and **Last Chance Harvey**. [Comments \(135\)](#)

100 titles that were frequently rented from Netflix in 2009

Navigation controls: Previous, Next, Most rented, Least rented

Change how movies are sorted

Sorting options: Most rented, Alphabetical, By metacore

## Vicky Cristina Barcelona



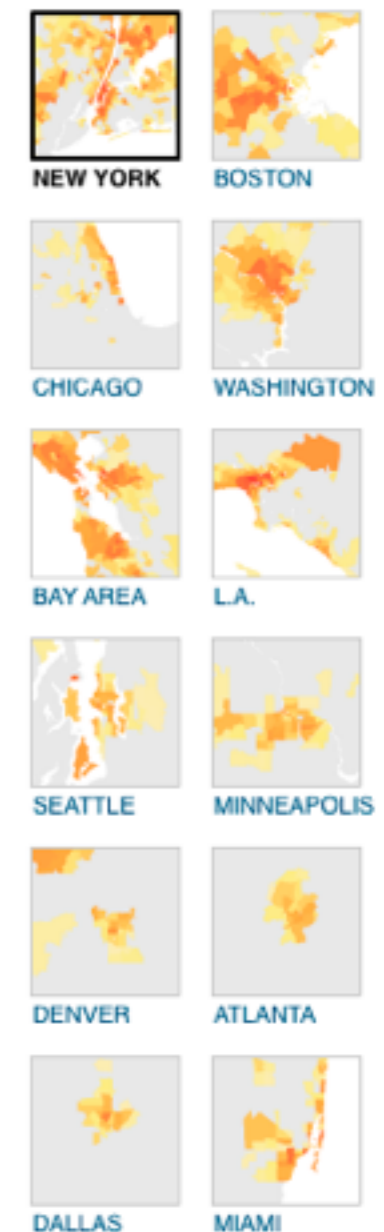
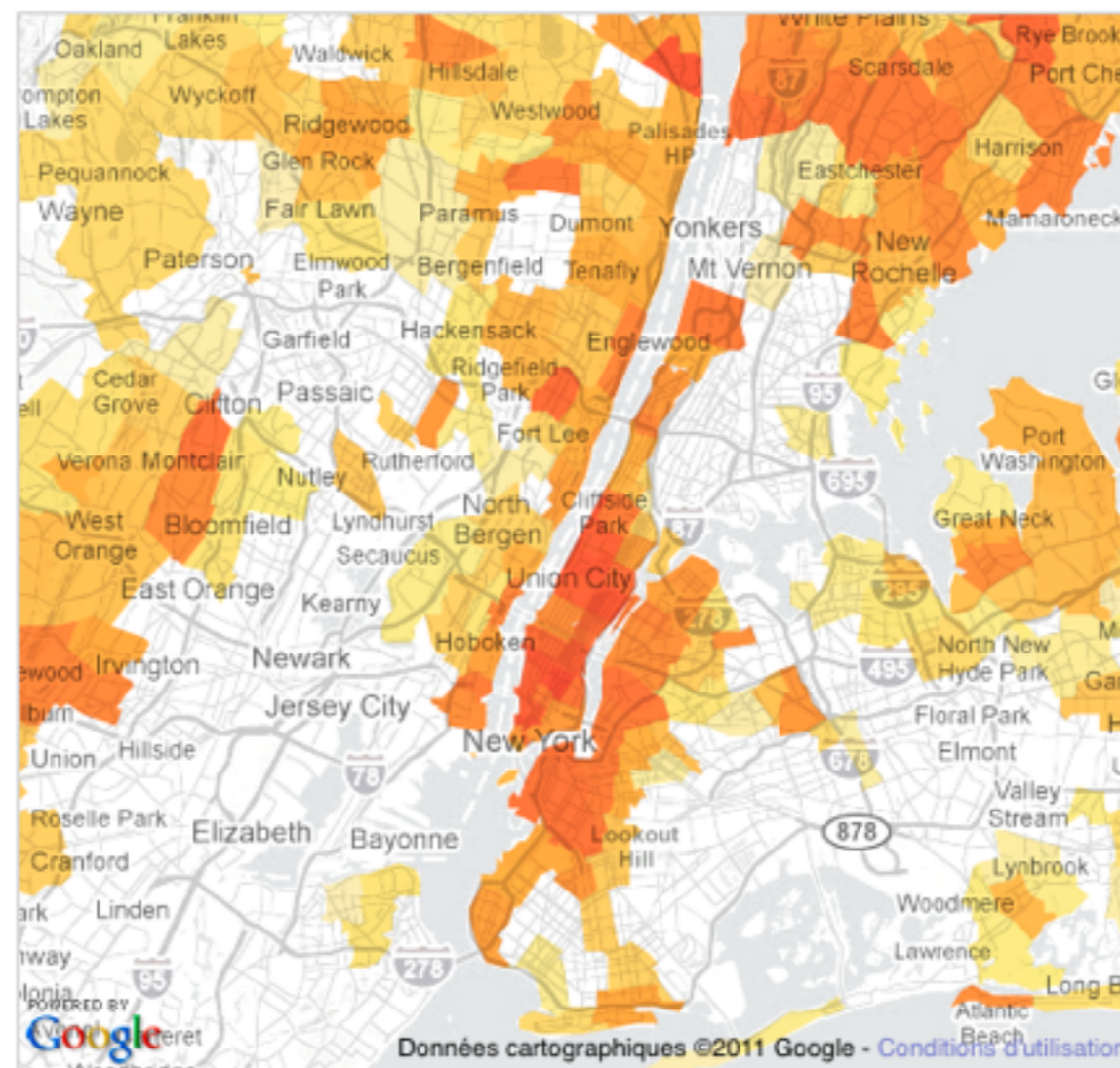
70

Metacritic score  
100=loved by critics, 0=hated

Bathed in light so lusciously golden and honeyed that you might be tempted to lick the screen, "Vicky Cristina Barcelona" is a rueful comedy about two young American women who, during a summertime European idyll, savor many of the Continental delicacies that such travelers often take pleasure in: art, music, culture, yes, but also strange bodies and unexpected dreams. These bodies and dreams open possibilities for the women, intimating freer, somehow different lives, despite the persistent tugging of a voice that hovers at the edge of this story trying to pull it and its characters down to earth, where desire can fade quickly.

[Read Rest of NYT Review »](#)

The ZIP codes are shaded according to each movie's rank. Ranked No. 1 No. 50



Sources: Netflix provided data on the top 50 rentals in 2009 in each ZIP code. Titles are listed in the approximate order of popularity across selected metropolitan areas. Metascores are from metacritic.com.

# La synchronisation

## A Peek Into Netflix Queues

Examine Netflix rental patterns, neighborhood by neighborhood, in a dozen cities. Some titles with distinct patterns are **Mad Men**, **Obsessed** and **Last Chance Harvey**. [Comments \(135\)](#)

100 titles that were frequently rented from Netflix in 2009

Navigation controls: Previous, Next, and a slider from Most rented to Least rented.

Change how movies are sorted

Sorting options: Most rented, Alphabetical, By metacore.

## Paul Blart: Mall Cop



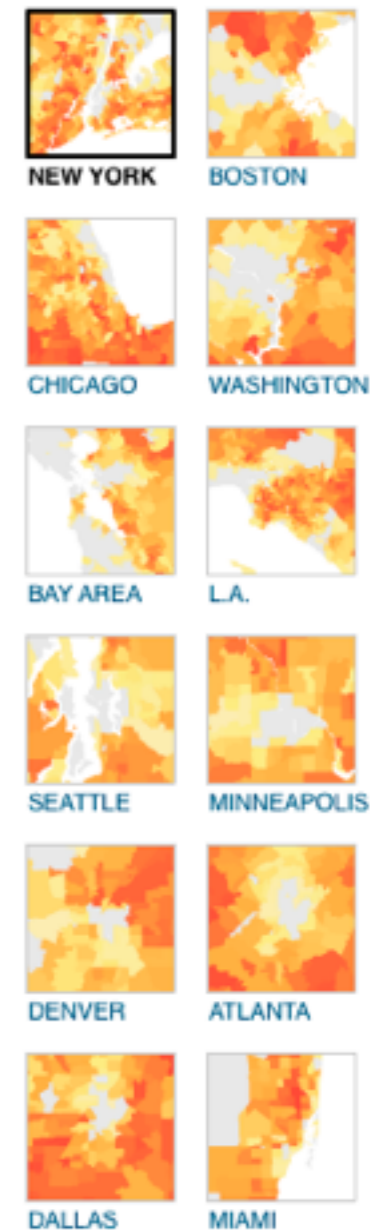
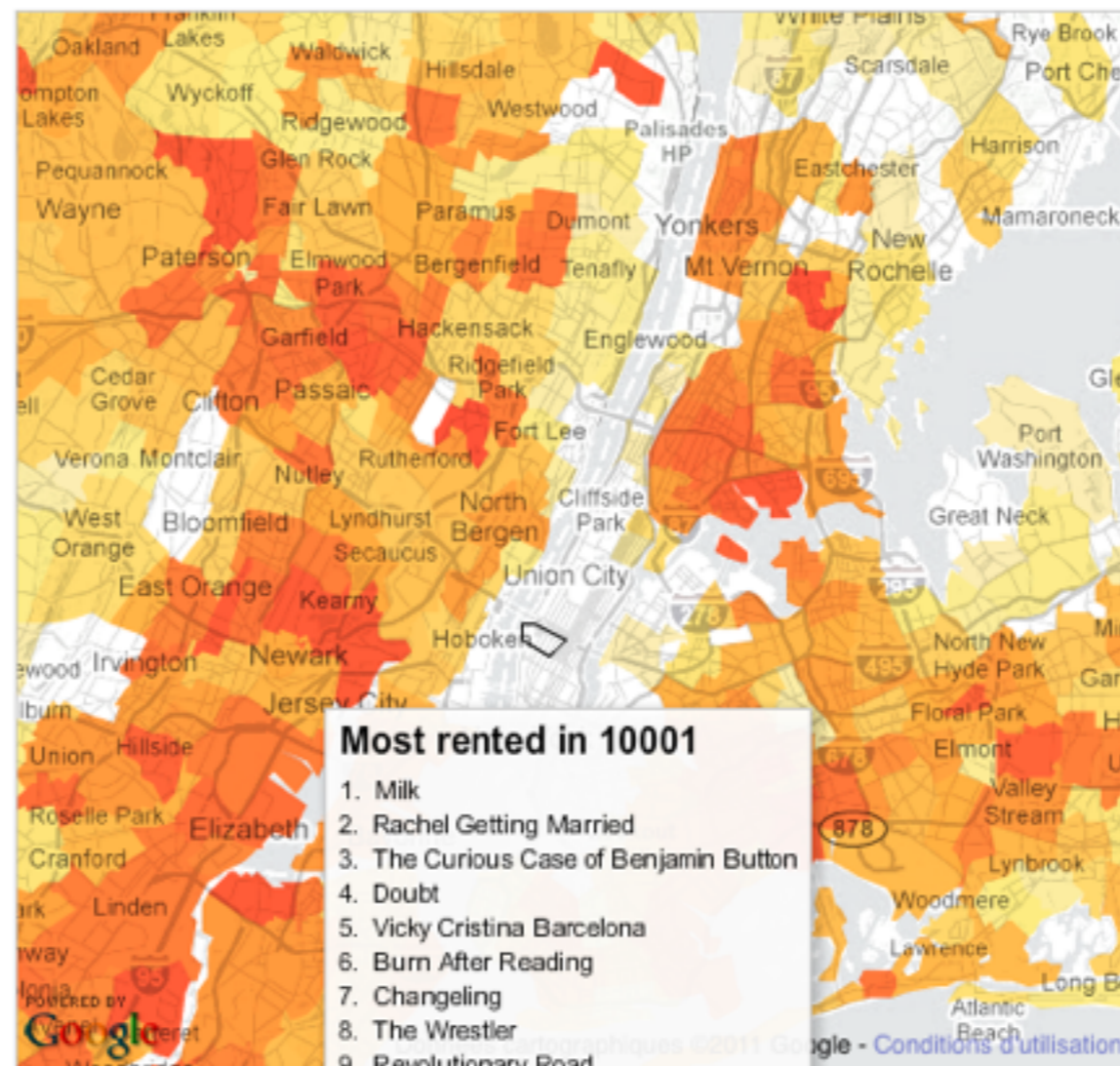
Fat people are funny. Fat people who fall over are funnier. Fat people who fall over and have humiliating working-class jobs? Stop, you're killing me!

[Read Rest of NYT Review »](#)

39

Metacritic score  
100=loved by critics, 0=hated

The ZIP codes are shaded according to each movie's rank. **Ranked No. 1** (red) to **No. 50** (yellow).



Sources: Netflix provided data for 2009 in each ZIP code. Titles are listed in the approximate order of their rank. Paul Blart: Mall Cop is not in the top 50 for this ZIP code. Metascores are from metacritic.com

# La synchronisation

## A Peek Into Netflix Queues

Examine Netflix rental patterns, neighborhood by neighborhood, in a dozen cities. Some titles with distinct patterns are **Mad Men**, **Obsessed** and **Last Chance Harvey**. [Comments \(135\)](#)

100 titles that were frequently rented from Netflix in 2009

Navigation controls: Previous, Next, and a slider from Most rented to Least rented.

Change how movies are sorted

Sorting options: Most rented (selected), Alphabetical, By metacore.

## Paul Blart: Mall Cop



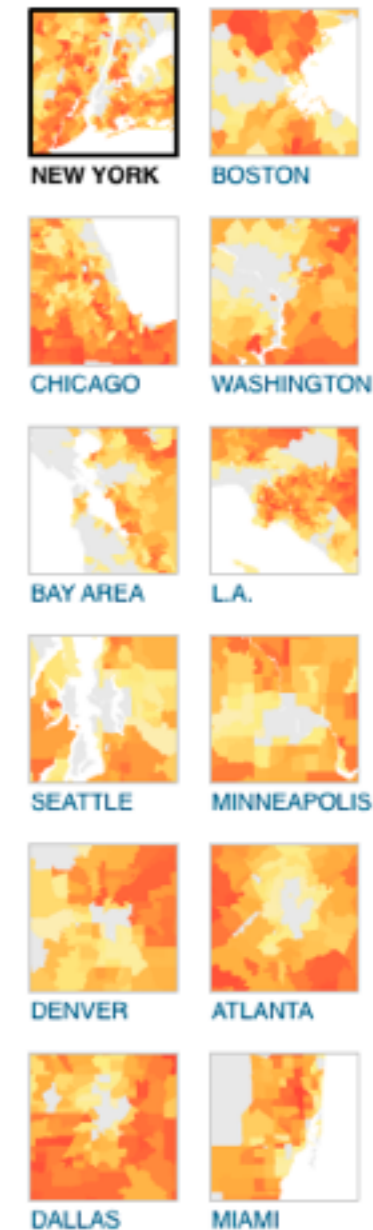
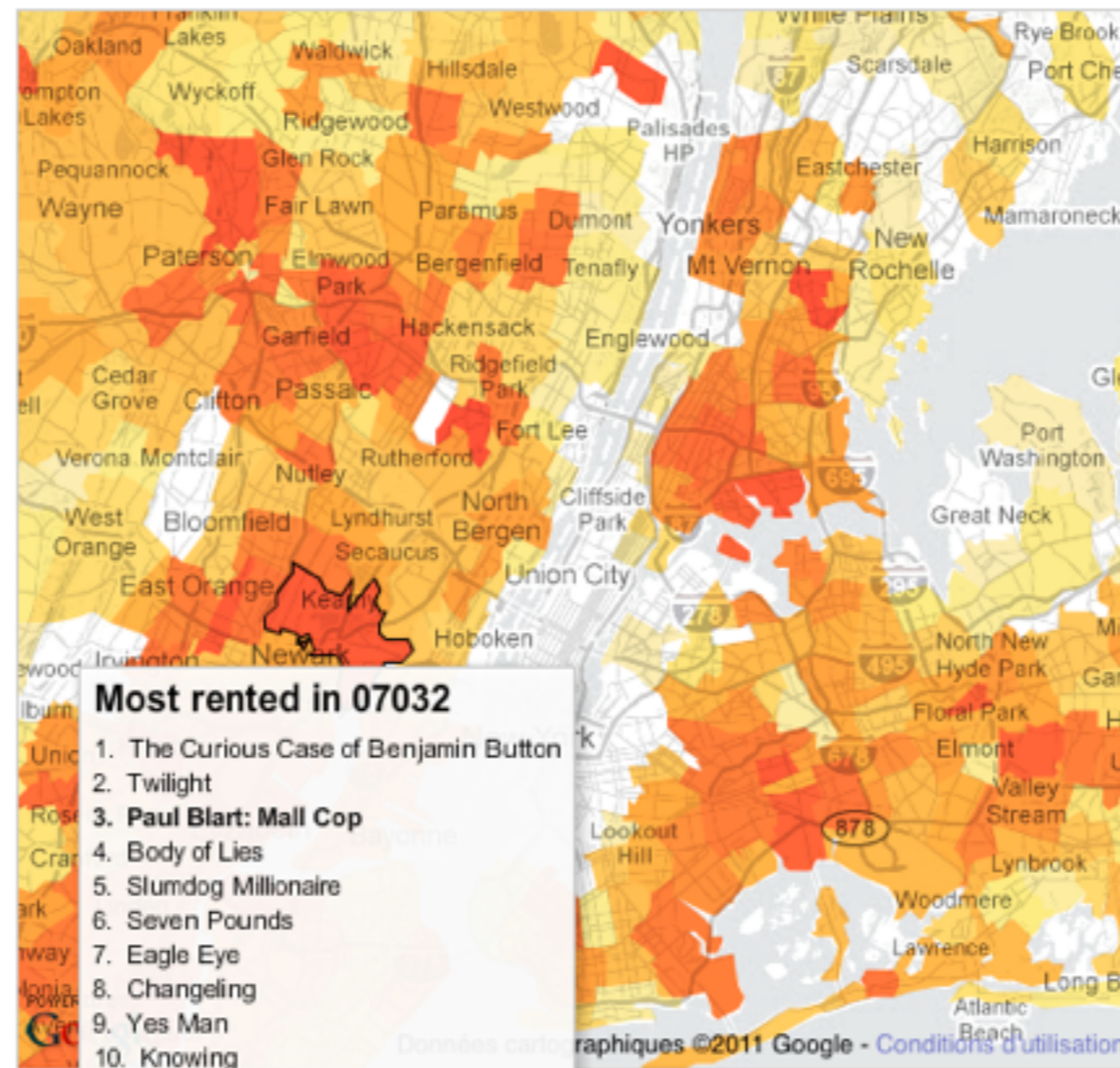
Fat people are funny. Fat people who fall over are funnier. Fat people who fall over and have humiliating working-class jobs? Stop, you're killing me!

[Read Rest of NYT Review »](#)

39

Metacritic score  
100=loved by critics, 0=hated

The ZIP codes are shaded according to each movie's rank. **Ranked No. 1** (red) to **No. 50** (yellow).



Sources: Netflix provided data on the top 50 rentals in 2009 in each ZIP code. Titles are listed in the approximate order of popularity across selected metropolitan areas. Metascores are from metacritic.com.

# La synchronisation

The screenshot shows the Amazon.fr homepage with several promotional banners and product listings. At the top, there is a navigation bar with the Amazon logo, links for 'Chez Beaudé', 'Promotions', 'Chèques-cadeaux', 'Vendre', and 'Aide'. A search bar is present with the text 'Rechercher' and 'Toutes nos boutiques'. On the right, there are links for 'Go', 'Bonjour Beaudé', 'Votre compte', 'Adhérer à Premium', 'Panier', and 'Liste d'envies'. A 'Mode' banner offers '10€ offerts avec le code MODE2013'. Below the navigation, there are banners for 'Amazon MP3', 'Amazon Cloud Player', 'Kindle', 'Cloud Drive', and 'App-Shop'. The 'Kindle' banner features two devices: the 'Kindle' (79€) and the 'Kindle Paperwhite' (129€). A 'Ventes Flash' banner advertises 'Stocks limités'. The 'amazonrachète' banner promotes exchanging books, games, and accessories for gift certificates. A 'Printemps du jouet' banner runs from April 1st to 27th. A 'LES TENTATIONS MODE' banner features clothing items. Below these are 'Vos nouveautés' (New Arrivals) and 'Recommandations pour vous en Livres' (Book Recommendations for you). The 'Vos nouveautés' section lists five items: 'De l'intime: Loin du bruyant Amour' (18,05€), 'Les sciences, ça nous regarde...' (18,53€), 'La Chasse' (17,99€), 'Les P'tites Poules, Tome 9 à 12...' (14,35€), and 'Les mystères de la gauche : De...' (13,30€). The 'Recommandations pour vous en Livres' section shows 'Mille secrets de poissons'. On the right side, there are banners for 'Offres Reconditionnées' (Refurbished Offers) and 'Disques durs internes' (Internal Hard Drives). At the bottom right, there is a 'Nos meilleures ventes' (Our best sellers) section featuring 'High-tech : Casques et écouteurs' and a 'Sony MDR-ZX100B Casque'.

amazon.fr | Chez Beaudé | Promotions | Chèques-cadeaux | Vendre | Aide

Mode | 10€ offerts avec le code MODE2013 | Cliquez ici

Parcourir les boutiques | Rechercher | Toutes nos boutiques | Go | Bonjour Beaudé | Votre compte | Adhérer à Premium | Panier | Liste d'envies

Amazon MP3 | Amazon Cloud Player | **Kindle** | Cloud Drive | App-Shop

**kindle**  
La liseuse la plus vendue au monde  
79€ | Cliquez ici

**kindle paperwhite**  
La liseuse la plus perfectionnée au monde  
129€ | Cliquez ici

Ventes Flash  
Stocks limités | Cliquez ici

amazonrachète  
Echangez vos livres, jeux vidéo, consoles et accessoires contre des chèques-cadeaux  
Cliquez ici

Un auteur et l'auto-édition | Amazon Premium | **Vêtements** | Economisez en vous abonnant | Amazon Rachète

**LES TENTATIONS MODE**  
Découvrez le best of des tendances à adopter ce printemps.  
Tentations Femme  
Tentations Homme  
Tendances Chaussures & Sacs

Printemps du jouet  
Du 1er au 27 avril  
Toutes nos promotions  
Cliquez ici

**Vos nouveautés**

De l'intime: Loin du bruyant Amour  
François Julien  
Broché  
EUR 18,05  
Corriger cette recommandation

Les sciences, ça nous regarde...  
Lionel Larqué, Dominique Pestre, ...  
Broché  
EUR 18,53  
Corriger cette recommandation

La Chasse  
Mads Mikkelsen, Thomas Bo Larsen, ...  
DVD  
★★★★★ (5)  
EUR 19,99 EUR 17,99  
Corriger cette recommandation

Les P'tites Poules, Tome 9 à 12...  
Christian Heinrich, Christian Jolibois  
Album  
EUR 14,35  
Corriger cette recommandation

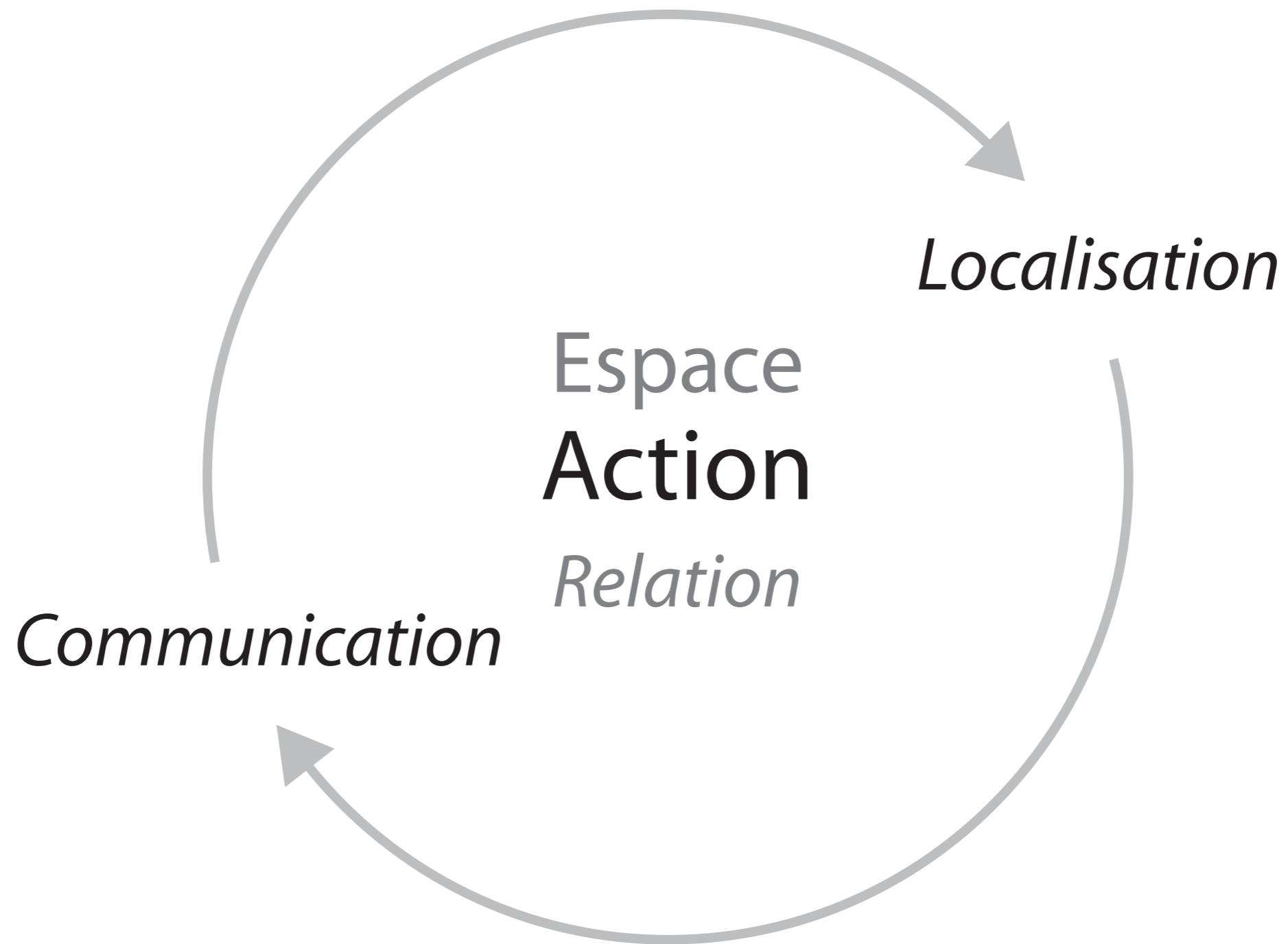
Les mystères de la gauche : De...  
Jean-Claude Michéa  
Broché  
★★★★★ (3)  
EUR 13,30  
Corriger cette recommandation

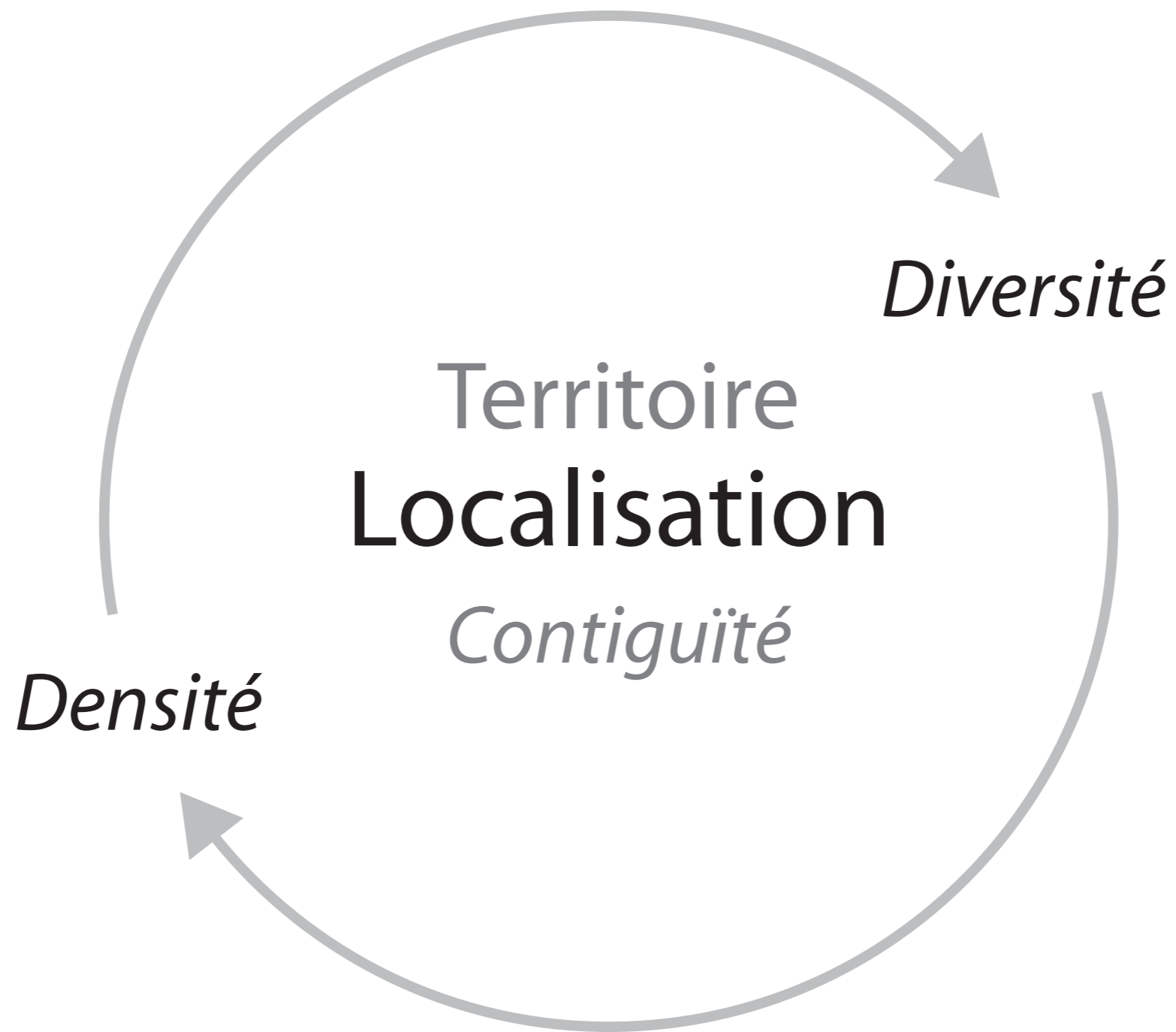
Offres Reconditionnées  
Petits prix sur des articles retournés par des clients ou légèrement endommagés | Cliquez ici

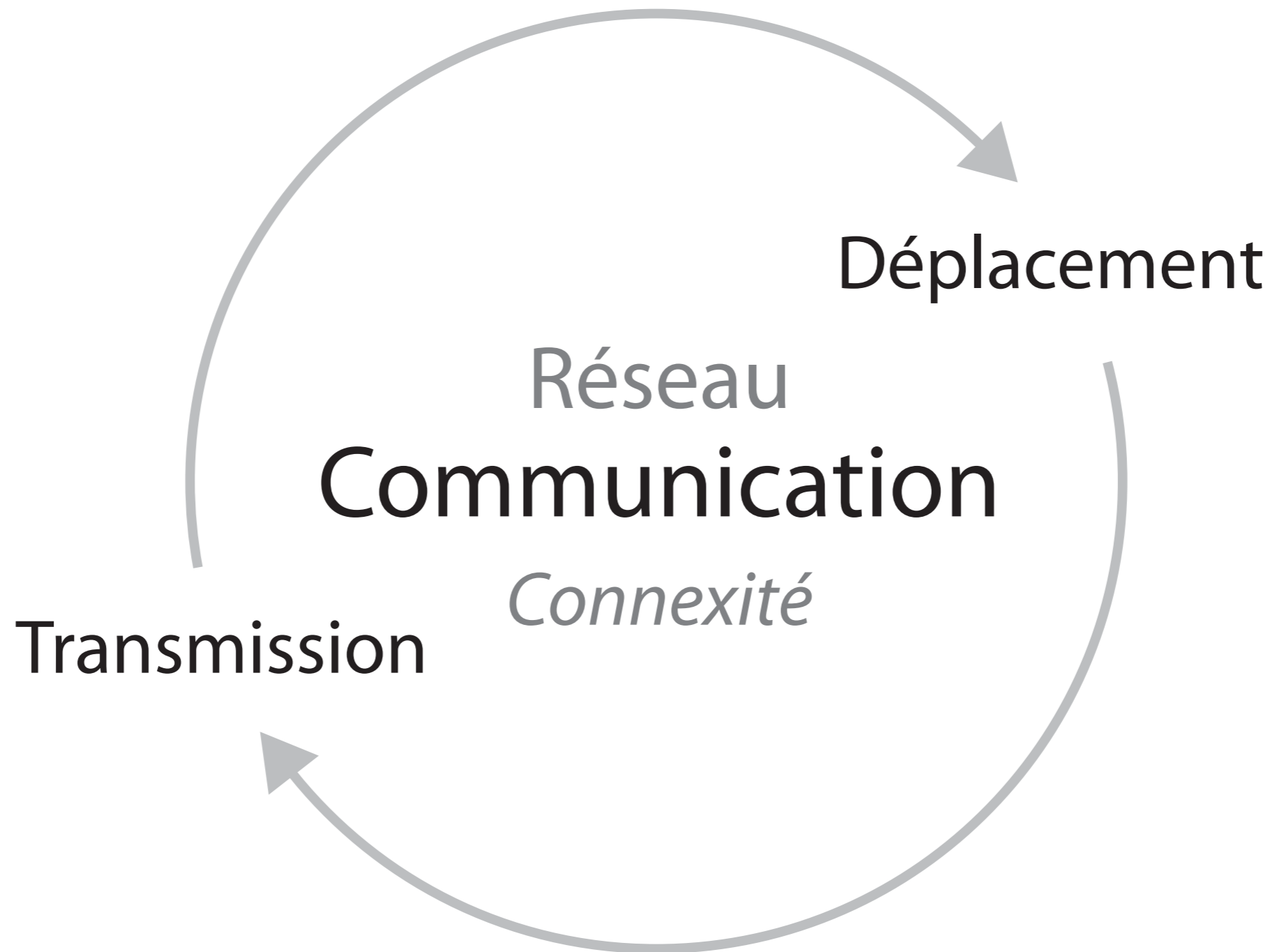
Disques durs internes  
Augmentez votre capacité de stockage  
Cliquez ici

Nos meilleures ventes  
High-tech : Casques et écouteurs  
mises à jour toutes les heures  
1. Sony MDR-ZX100B Casque

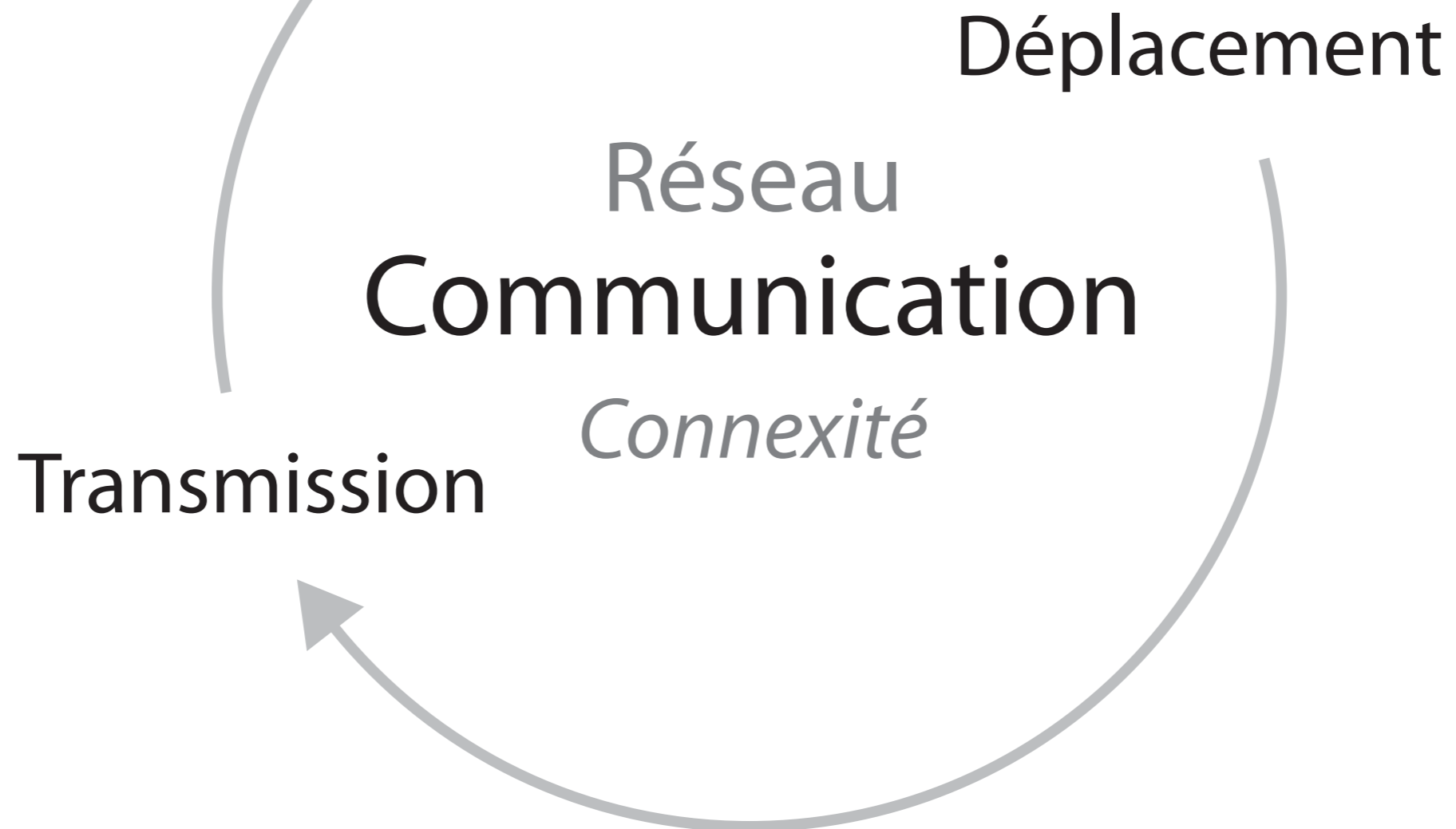
Recommandations pour vous en Livres  
Mille secrets de poissons  
feuilleter! | feuilleter! | feuilleter!







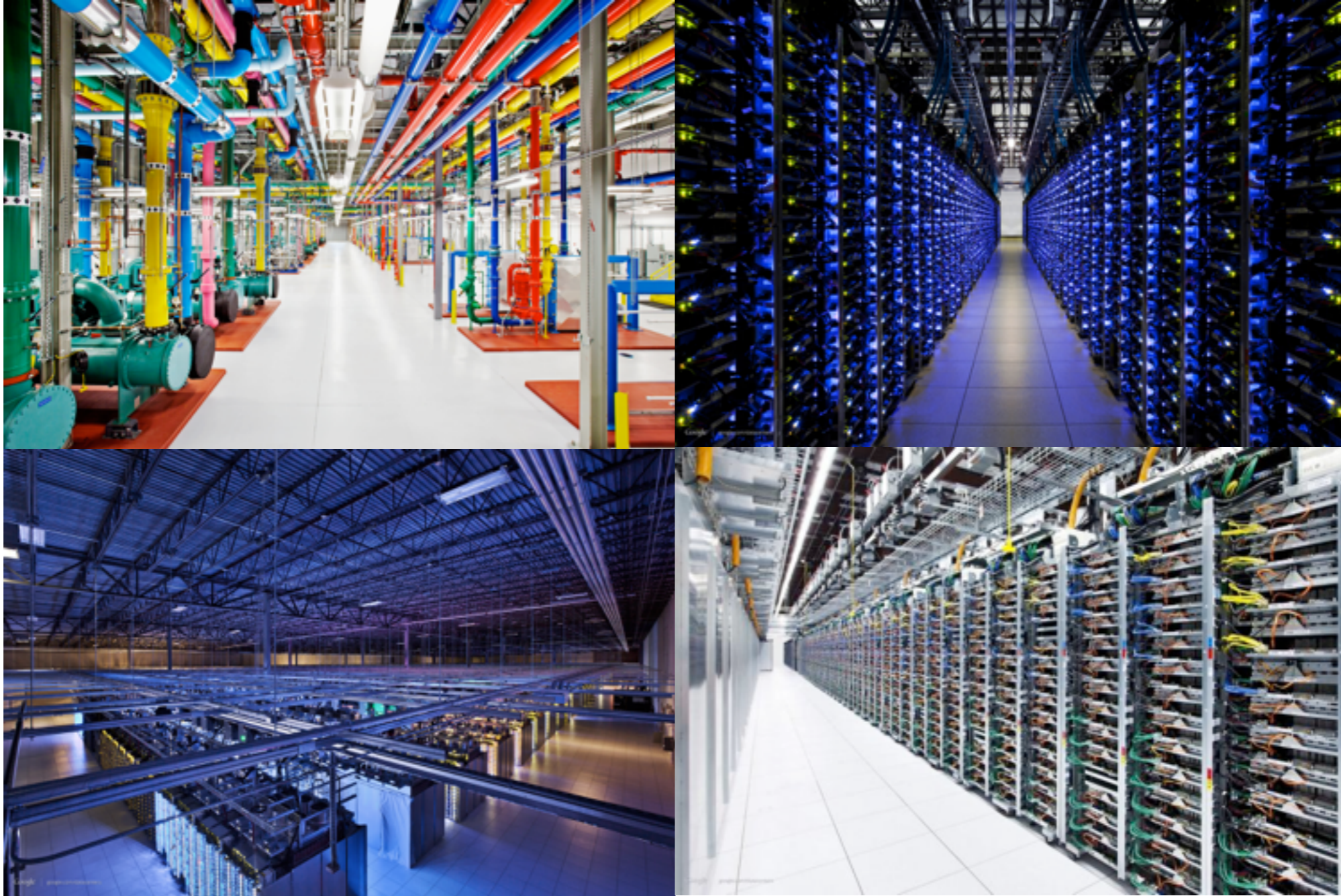




## L'hybridation

# L'hybridation

---



Google Data Centers - 2012

# L'hybridation

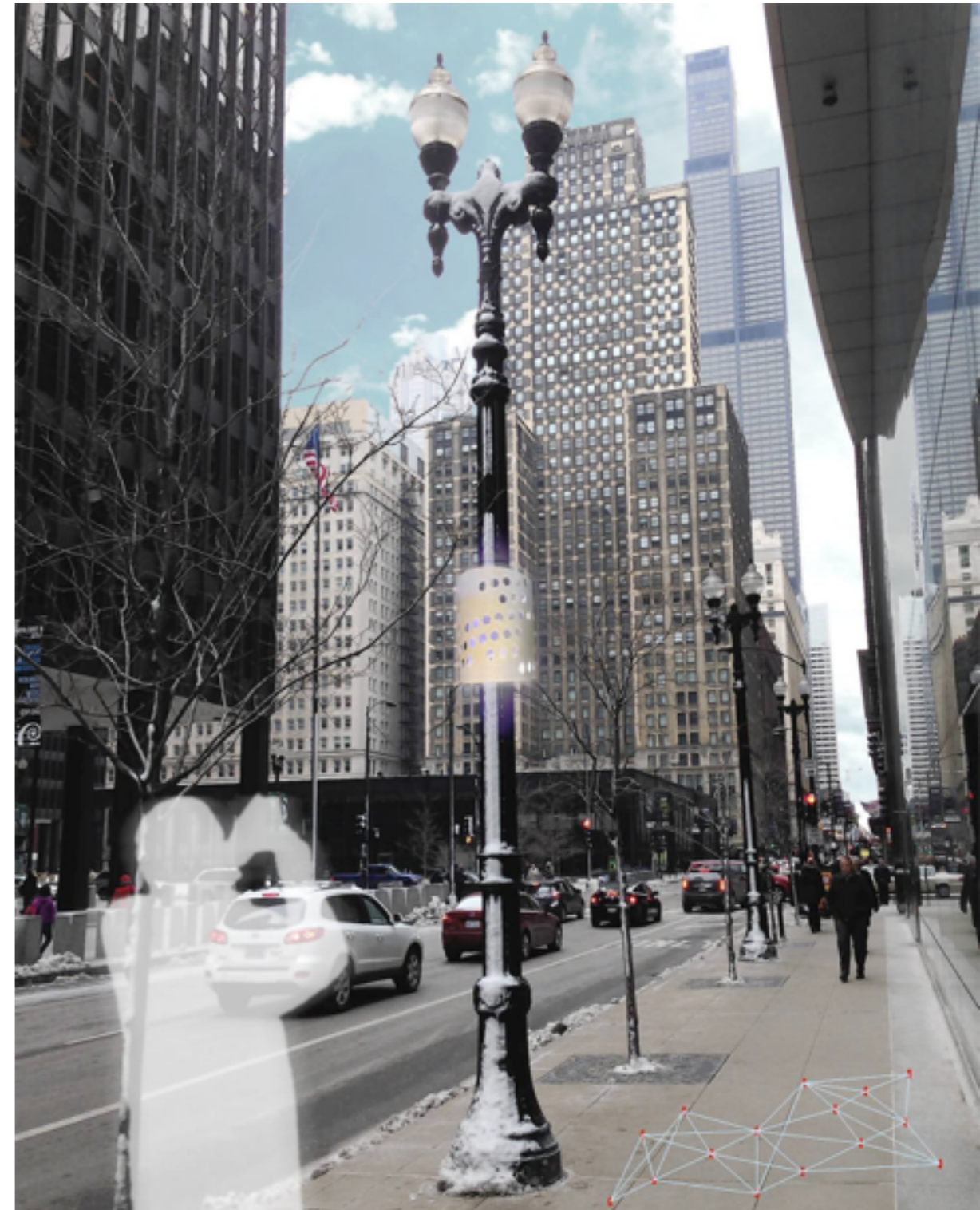
---



*EyeStop* - 2009 - Senseable City Lab - MIT

# L'hybridation

---



*Array of Things Project, Chicago, 2014*

# L'hybridation

---



«Smart»phones, Apple, HTC, Samsung, Nokia

# L'hybridation

---



Google Glass - 2013

## Actualiser les virtualités



# Actualiser les virtualités

+Boris Recherche Images Maps Play Actualités Gmail Drive Agenda Traduction Plus ▾

Boris BEAUDE

2

+ Partager



coper

**copernic**

**copernic epfl**

**copernic desktop search**

**copers unil**

**copernicus**

**copers**

**copernico**

**copertino**

**coopération**

**copernic agent**

Recherche Google

J'ai de la chance

[En savoir plus](#)

Solutions publicitaires

Solutions d'entreprise

Confidentialité et conditions d'utilisation

À propos de Google

Google.com

# Actualiser les virtualités

The screenshot displays the Citymapper app interface for Paris. At the top, there are navigation tabs for 'Citymapper', 'Paris', 'Next City?', and 'FRA'. On the right, there are buttons for 'Applis mobiles', 'Emplois', 'Infos', and 'Se connecter'. The main area is divided into several sections:

- On va où ?**: Departure 'Daumesnil (Félix Eboué)' and arrival '60 IEP Paris'. The time is set to 'Maintenant'.
- Résultats**: A list of transport options with icons for walking, cycling, and driving. The walking option is highlighted with 288 kcal and 70 min. The cycling option has 159 kcal and 34 min. The driving option has 18 min.
- Suggérés**: A list of suggested routes with icons for 6 and 4 lines. The top suggestion is a 27 min route.
- Détails**: A detailed view of the selected route. It shows a green line for the 6 line from Daumesnil (Félix Eboué) to Denfert-rochereau (12 min, 10 stops) and a purple line for the 4 line from Denfert-rochereau to Saint-sulpice (5 min, 5 stops). The total time is 27 min.

The map in the center shows the route through Paris, with the 6 line highlighted in green and the 4 line in purple. The route starts at Daumesnil (Félix Eboué) and ends at 60 IEP Paris.

Citymapper, Paris, 2013

# Actualiser les virtualités

**Résultats** Modifier

Départ: Avenue de Wagram, 8ème Arrondissement  
Arrivée: Rue Meyerbeer, Le Sentier  
Départ: Maintenant  
Heure d'Arrivée

10°C • Mostly Cloudy at destination

Marcher	36 min	148 cal
Vélo	~14 min	53 cal
Bus	11 min	

Suggéré

A	18 min
2 • 3	21 min
22	25 min

Plus: Bus uniquement

43	25 min
93 • 42	36 min

Téléporteur 0 min

**Suggéré** Enregistrer

Dernière mise-à-jour à 14:21

Arrivée

Départ

Départ dans 3, 9, 5 min

125 • 4 • 12	9 min	43 min
Marcher		4 min
BUS Convention - Jaures	125 - départ dans 4, 29, 14 min	13 min en moy.
125	8 arrêts	13 min
BUS Porte d'Orleans-Métro		

**LIVE Bus** Etat des lignes

Arrêt de bus 11:41 C

Palais de la Découverte	4 min
Porte d'Orléans	5 min
Friedland-Hausmann	6 min
Surennes-De Gaulle	10 min
28 Gare Saint-Lazare	
N01 Gare de l'Est	

Lignes et état des lignes 11:41 PM C

12	5 min with delay	✓
1	8 min with delay	✓
8	11 min with delay	✗
7	11 min with delay	✓
13	12 min with delay	i
4	13 min with delay	✓
14	14 min with delay	✓
16	15 min with delay	✓

**Plan Métro** LIVE Vélib

09111 - LA FAYETTE PROVENCE  
2 min à pied, 15 vélos, 3 places

09025 - TAITBOUT CHÂTEAU  
1 min à pied, 10 vélos, 2 places

**Citymapper**

Apps of the Year 2013  
- Apple -

Editor's Choice  
- Apple -

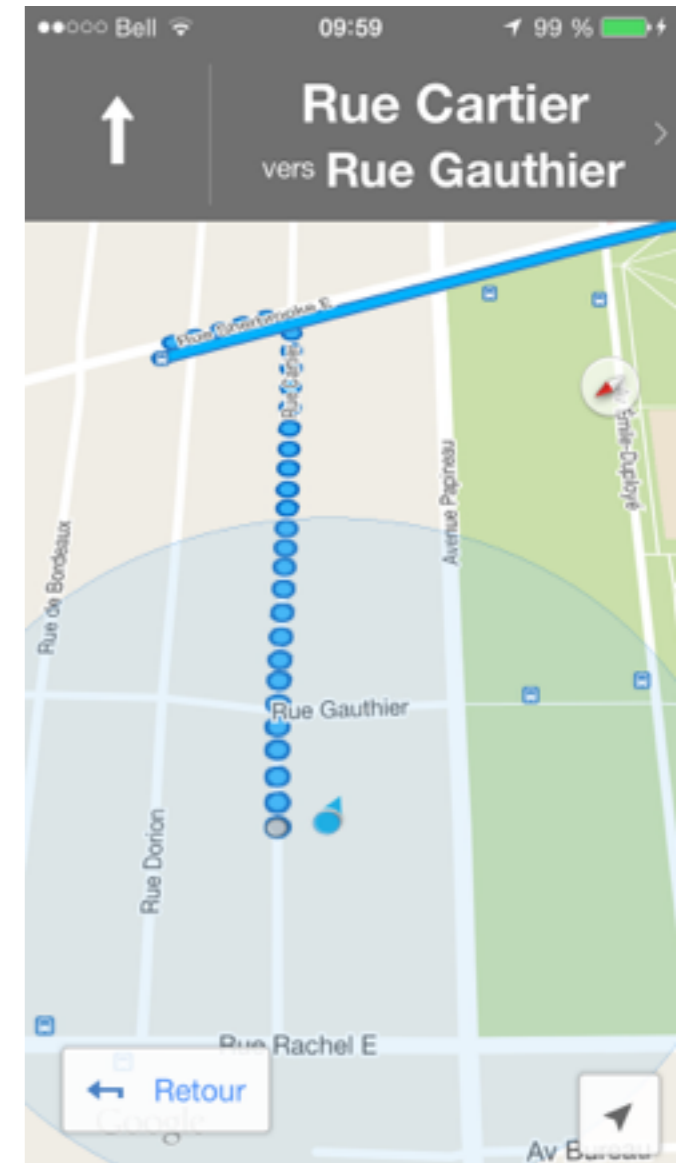
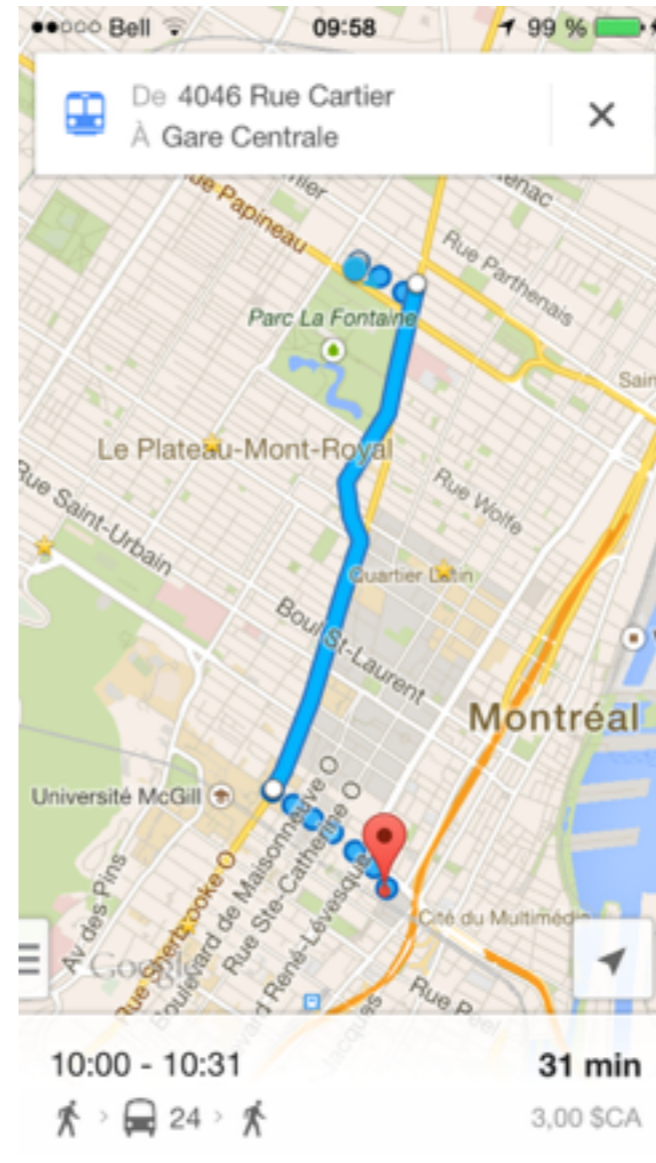
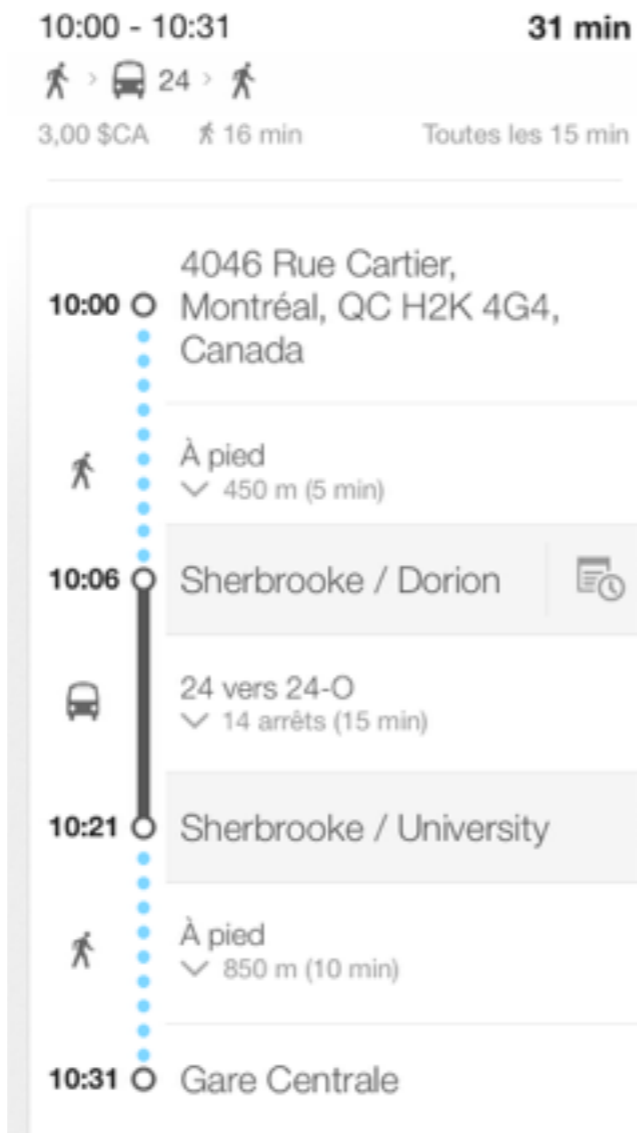
Best Overall Mobile App  
- Mobile World Congress -  
- GSMA 2014

Grand Prize Winner  
- MTA App Quest -  
- New York

Designs of the Year  
- Design Museum -  
- London

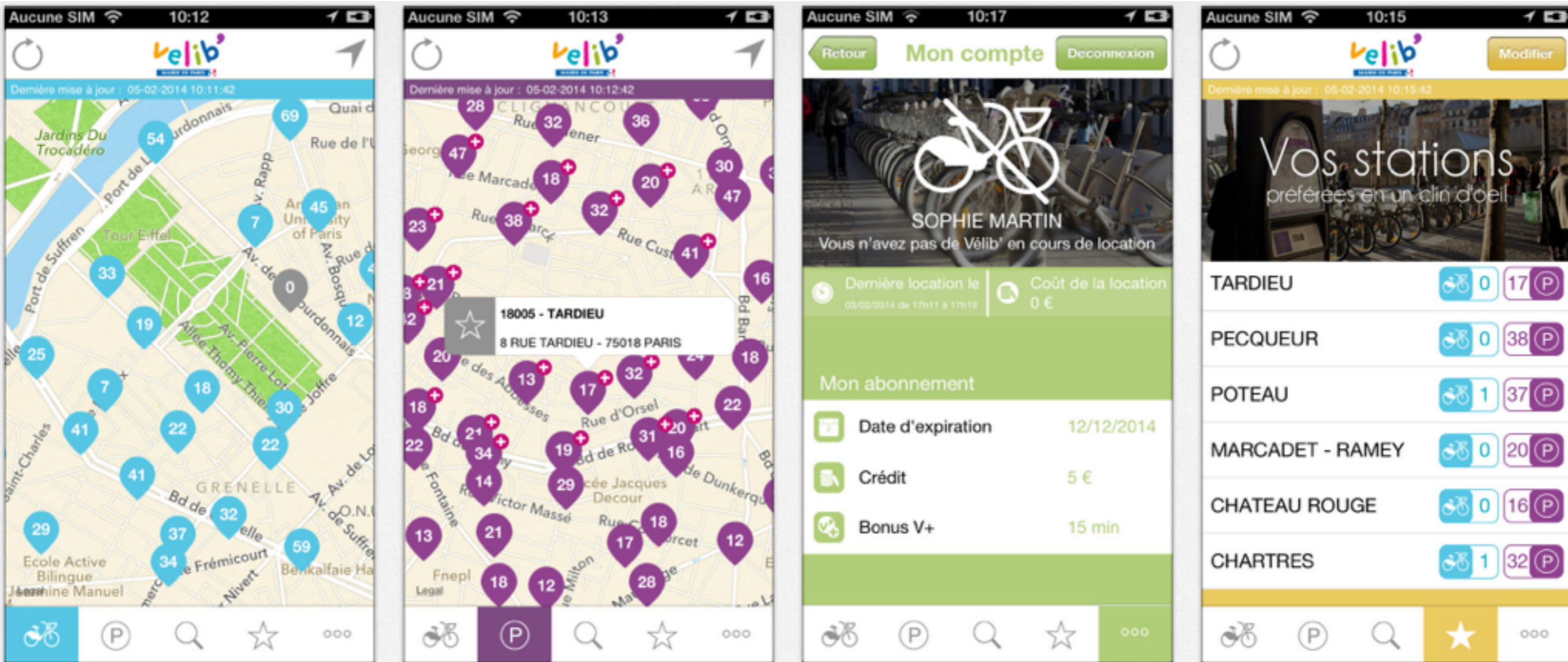
Citymapper, Paris, 2013

# Actualiser les virtualités



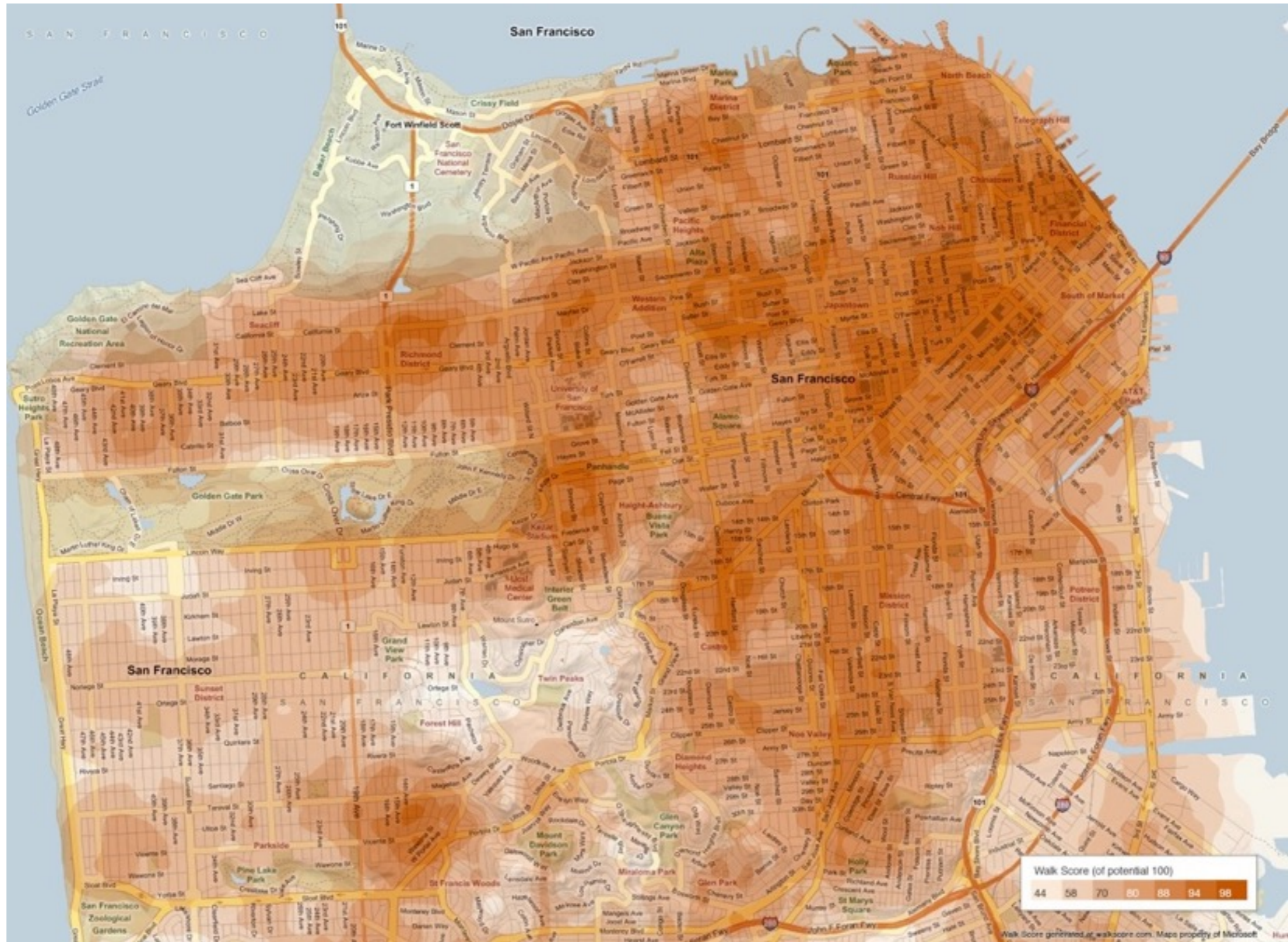
Google Now, Montréal, 2014

# Actualiser les virtualités



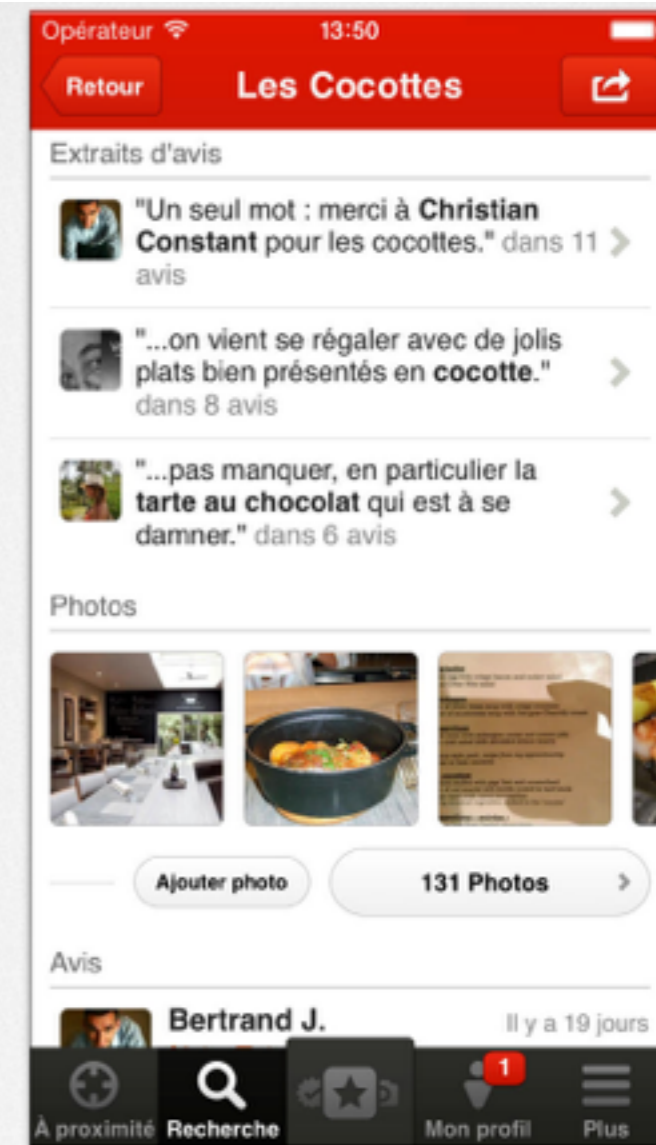
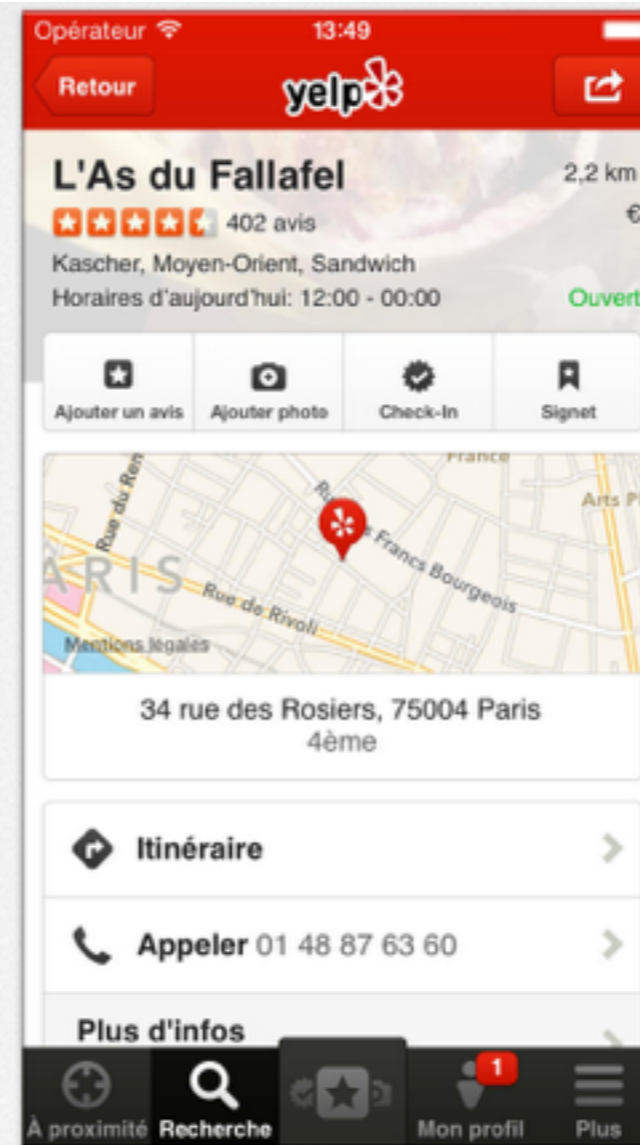
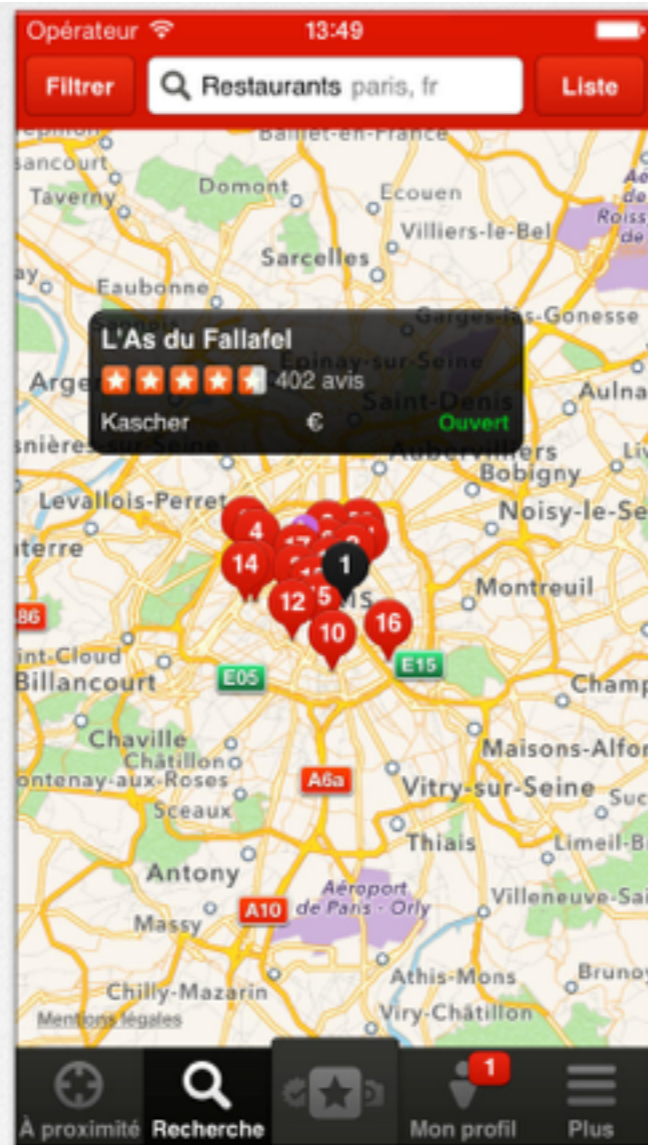
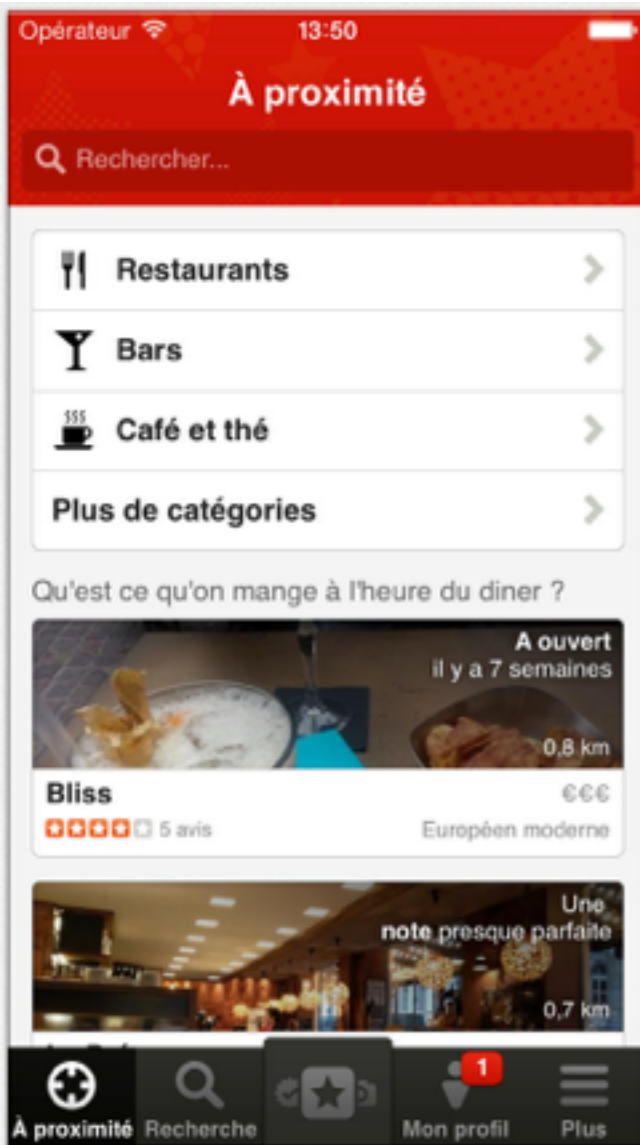
Velib', 2014

# Actualiser les virtualités



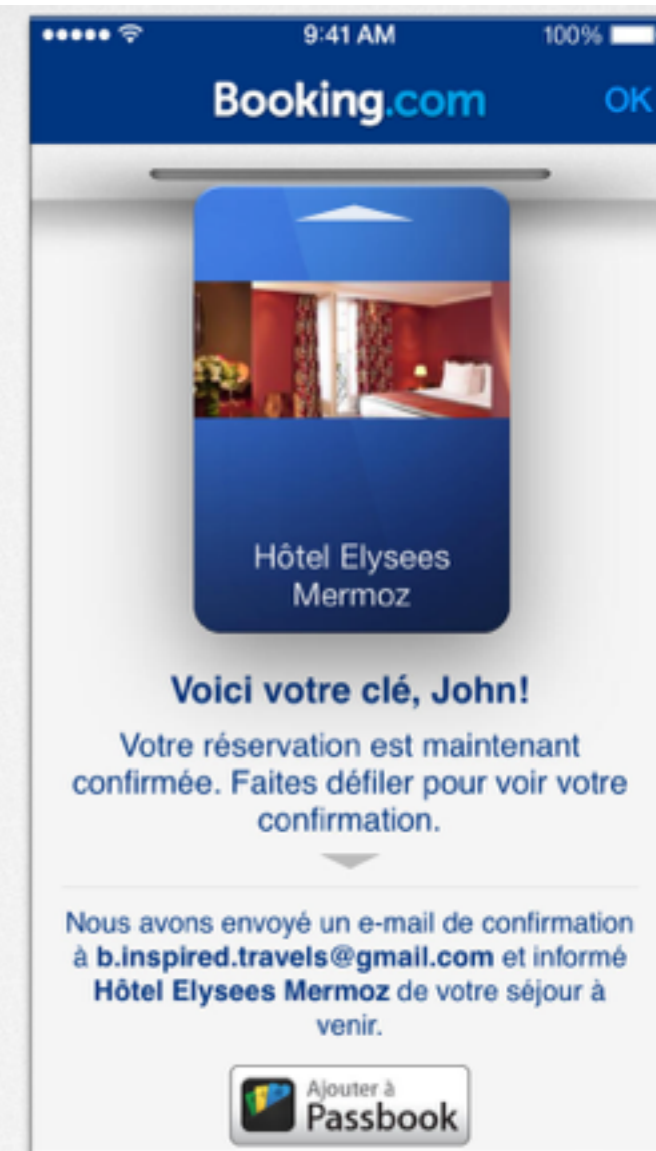
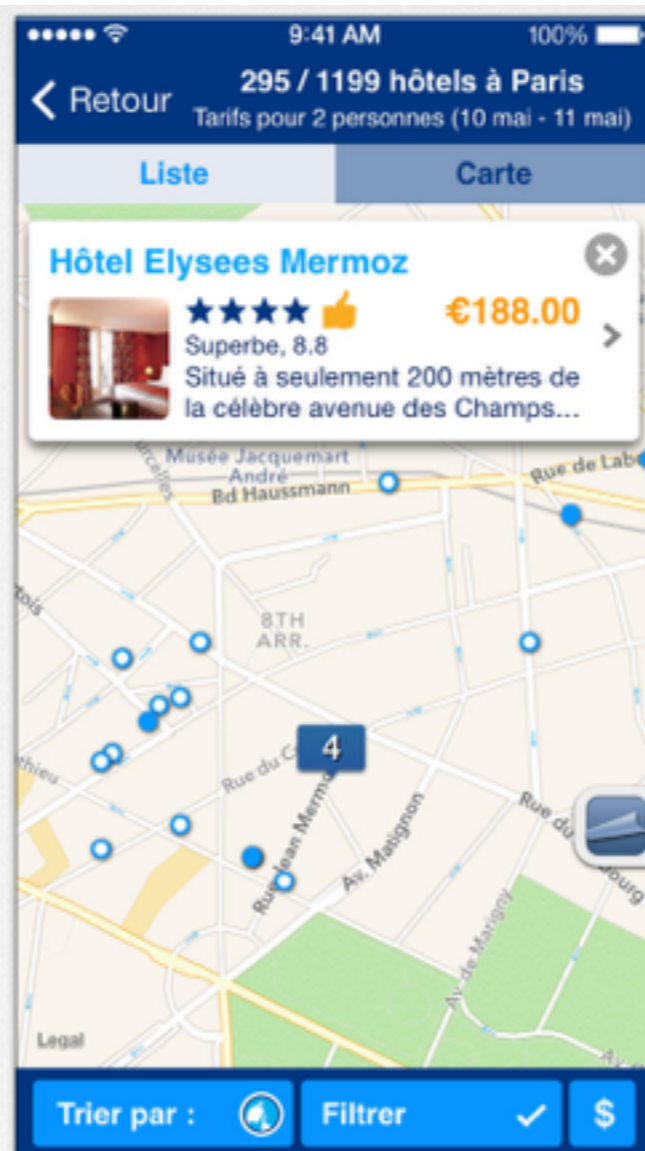
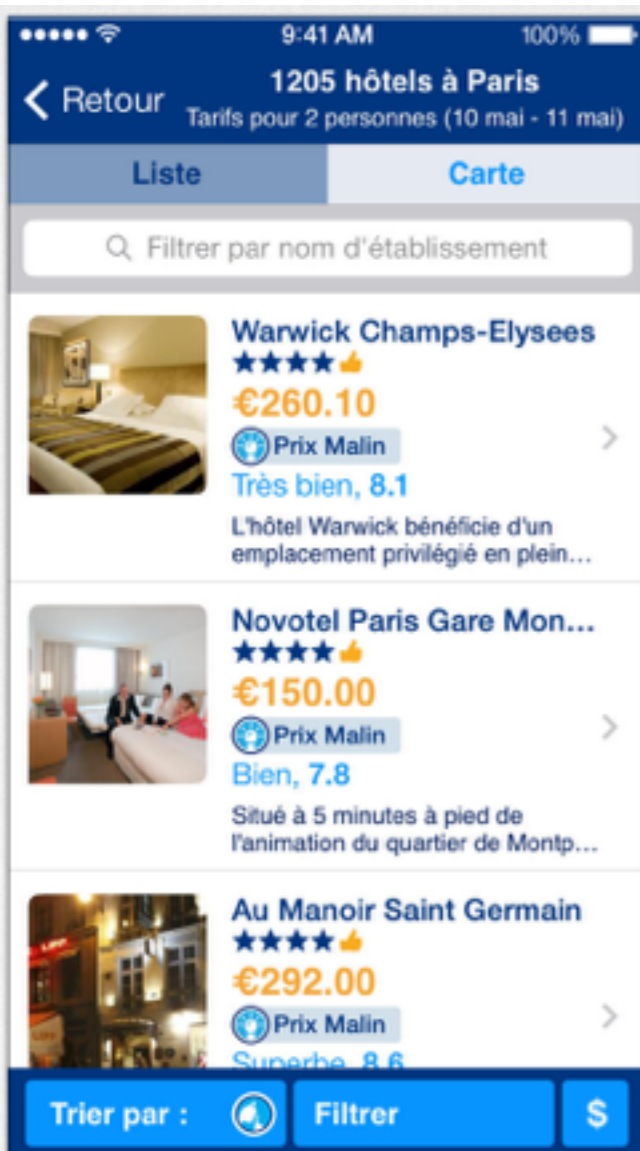
Lee Bryon / 2008 / San Francisco / **Mapping Walkability**

# Actualiser les virtualités



Yelp, 2014

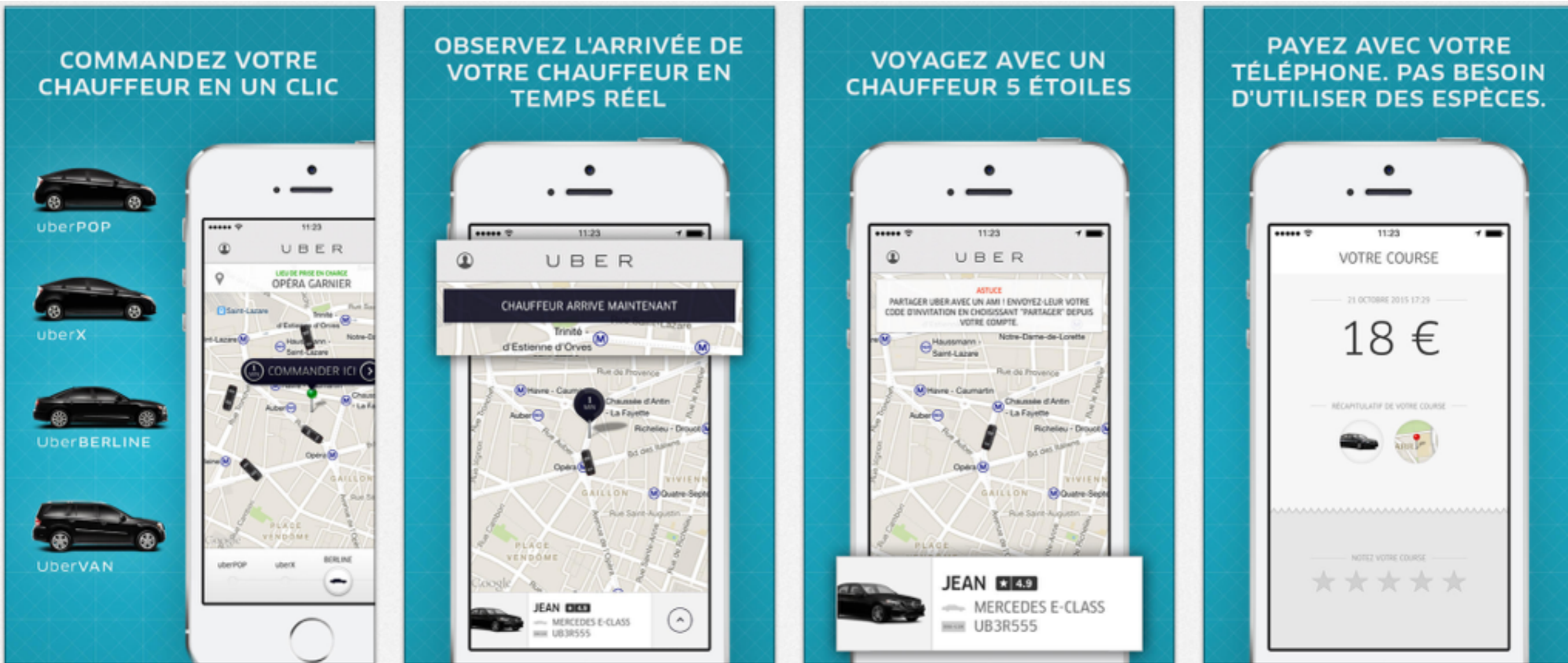
# Actualiser les virtualités



Booking, 2014

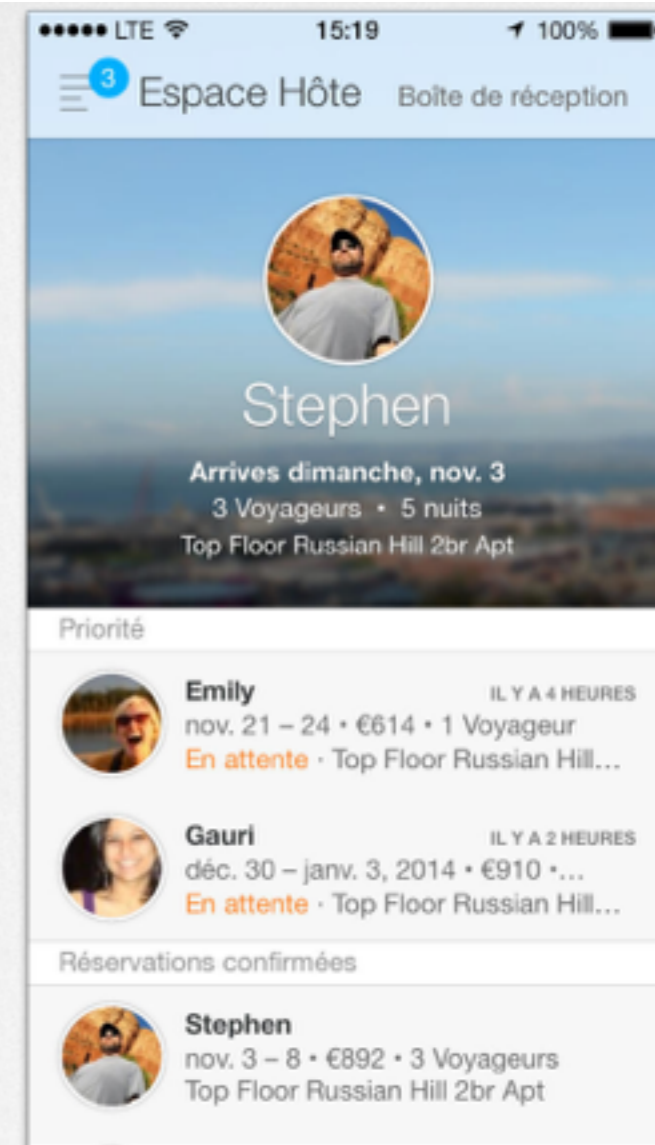
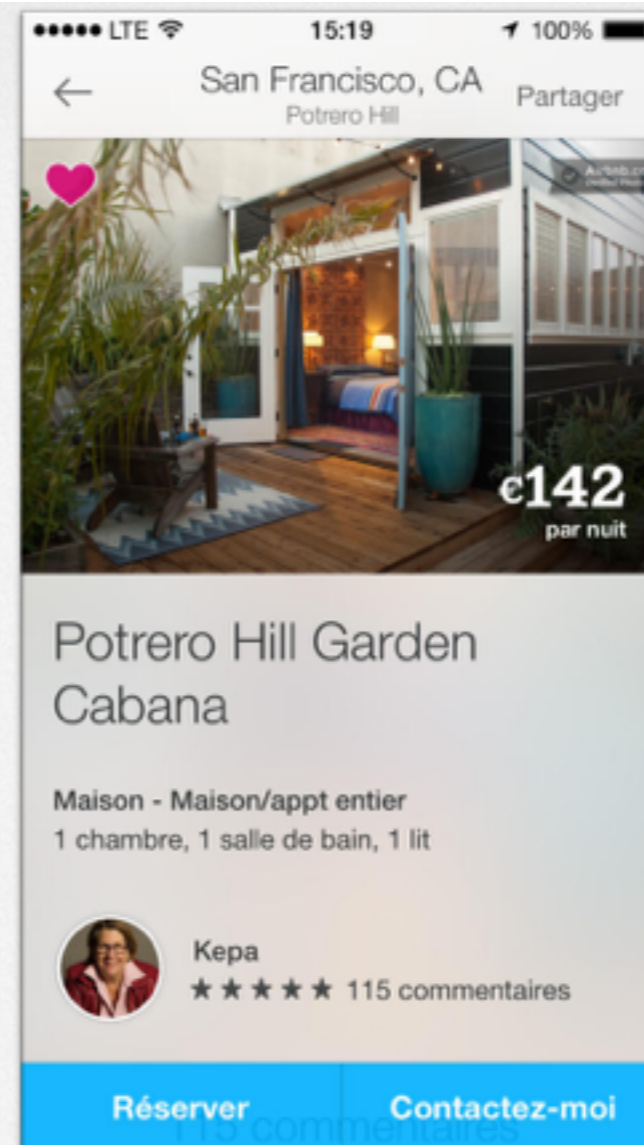


# Actualiser les virtualités



Uber, 2014

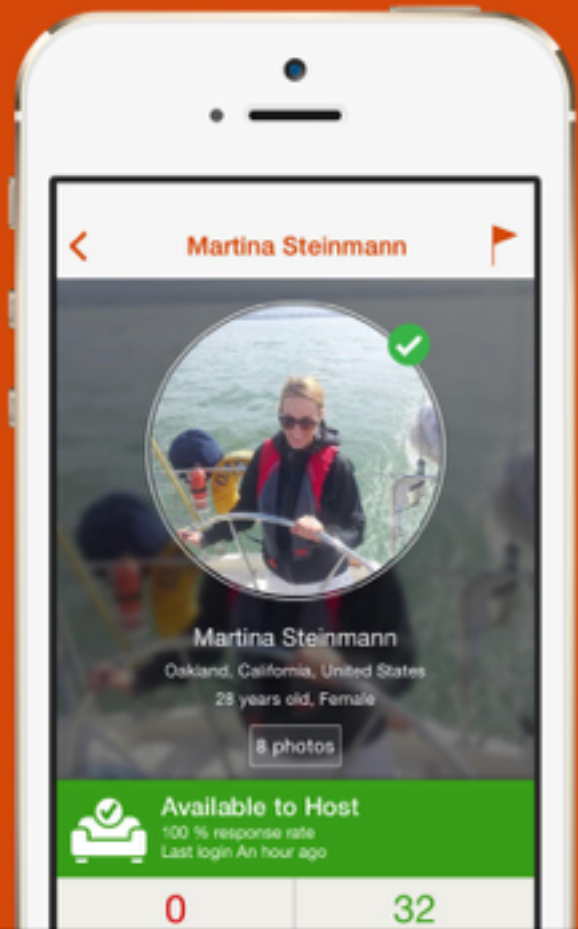
# Actualiser les virtualités



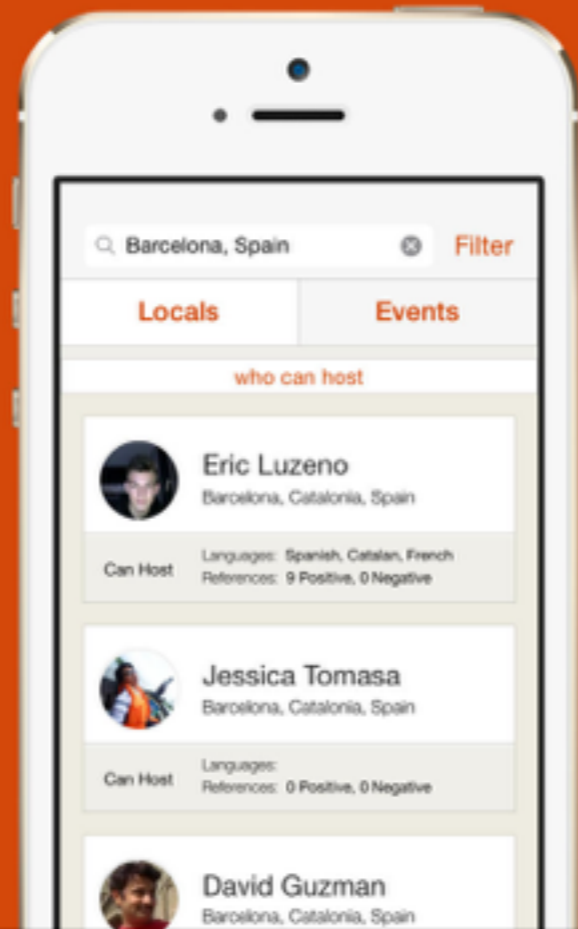
Airbnb, 2014

# Actualiser les virtualités

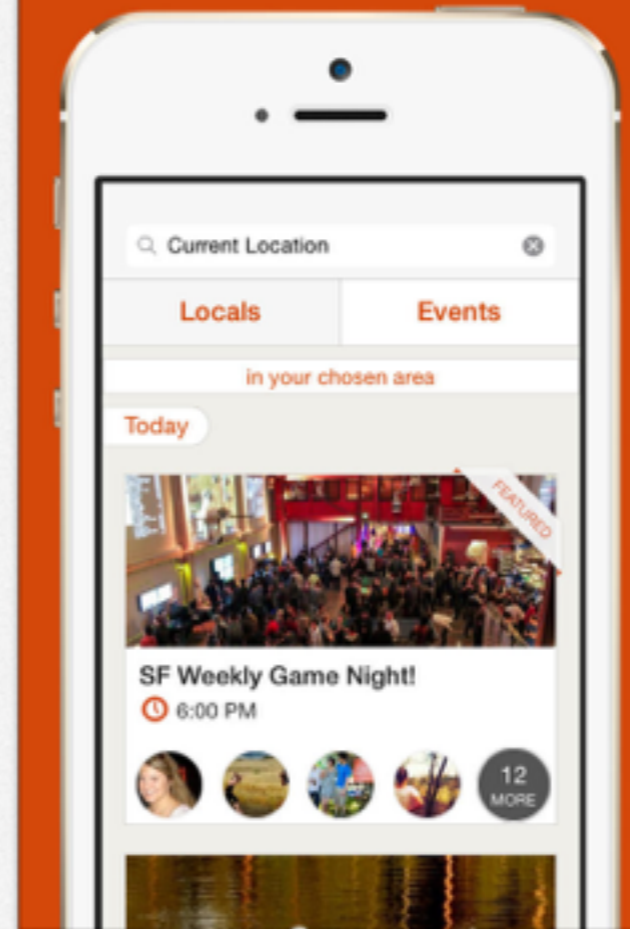
Stay with locals,  
not at hotels



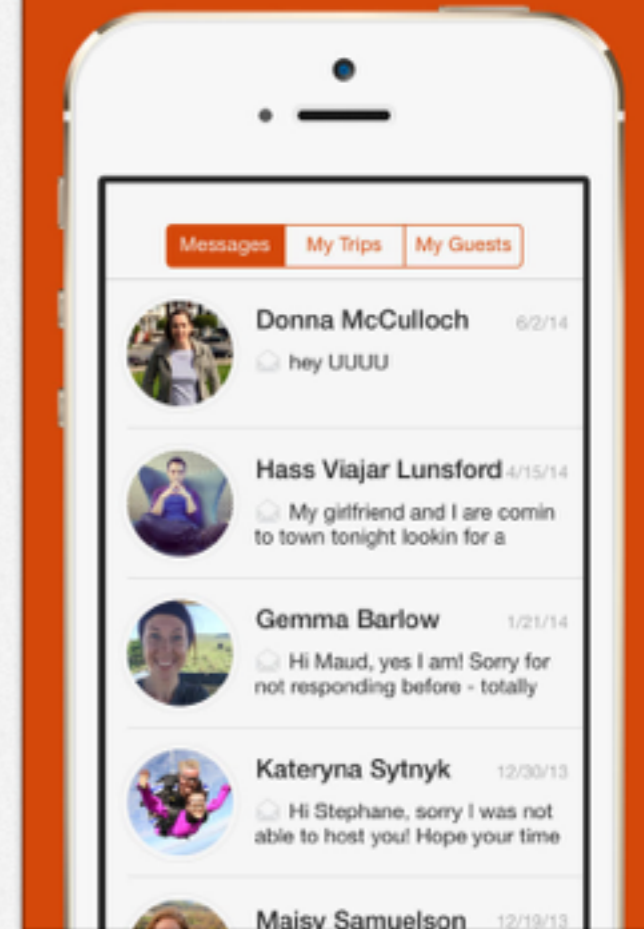
5.6 million hosts  
in 120,000 cities



Meet up with locals  
wherever you are

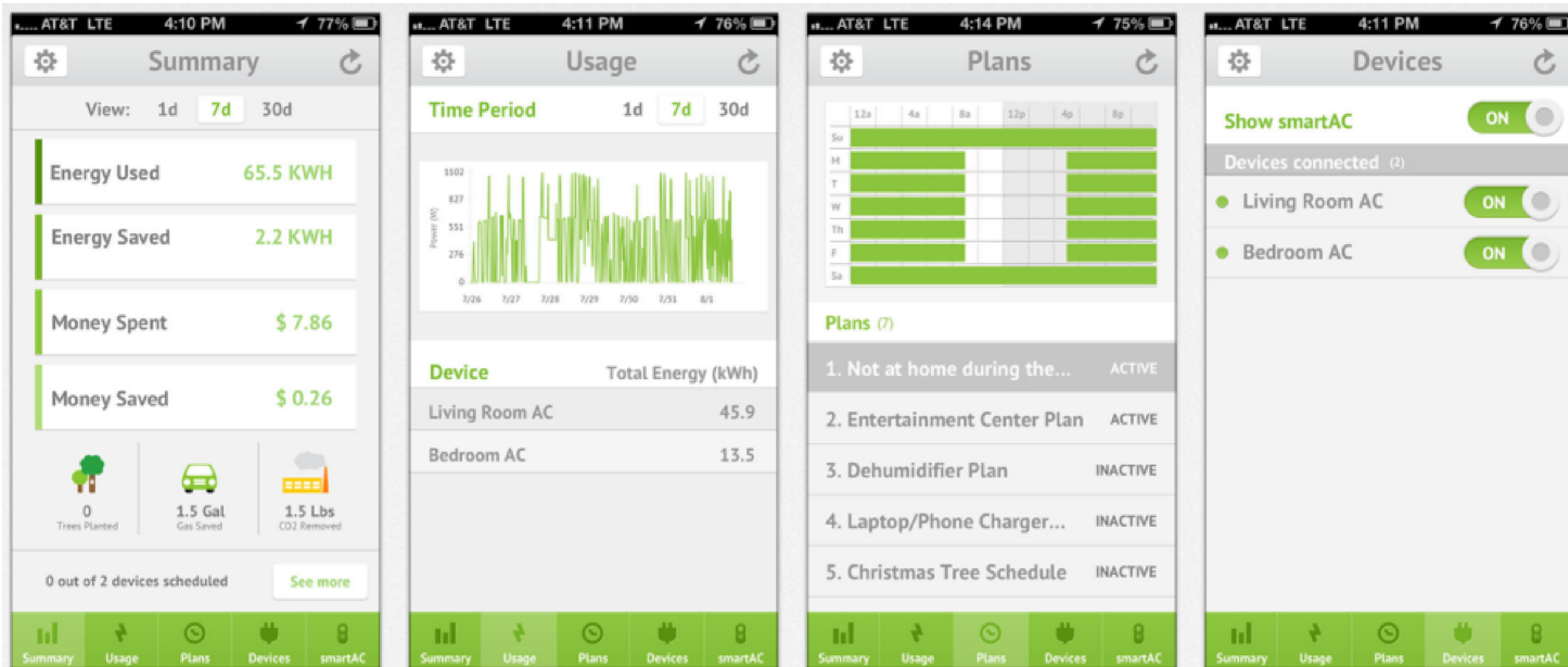


You've got friends  
in every country



Couchsurfing, 2014

# Actualiser les virtualités



Become a coolNYC member



Control your AC from anywhere



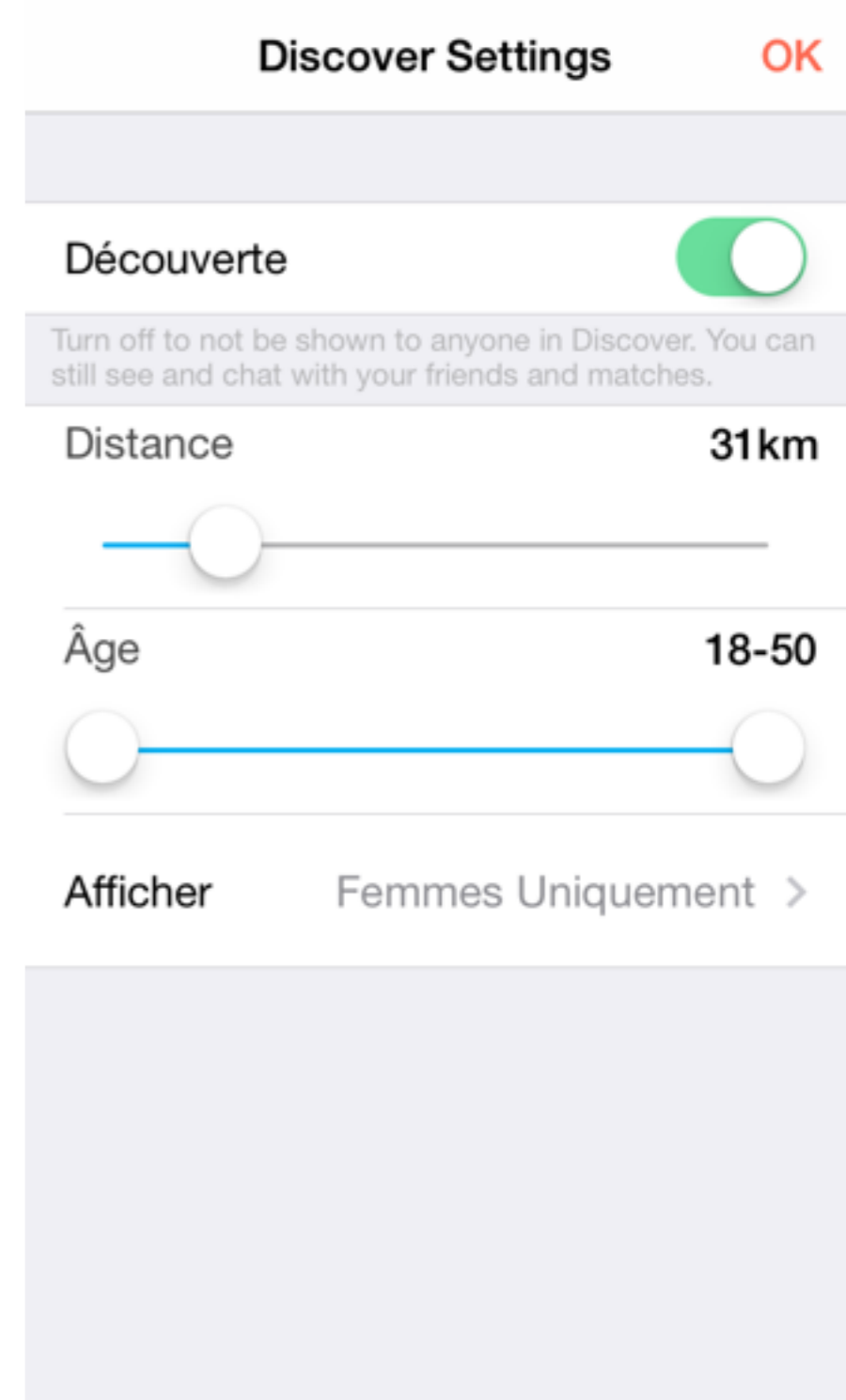
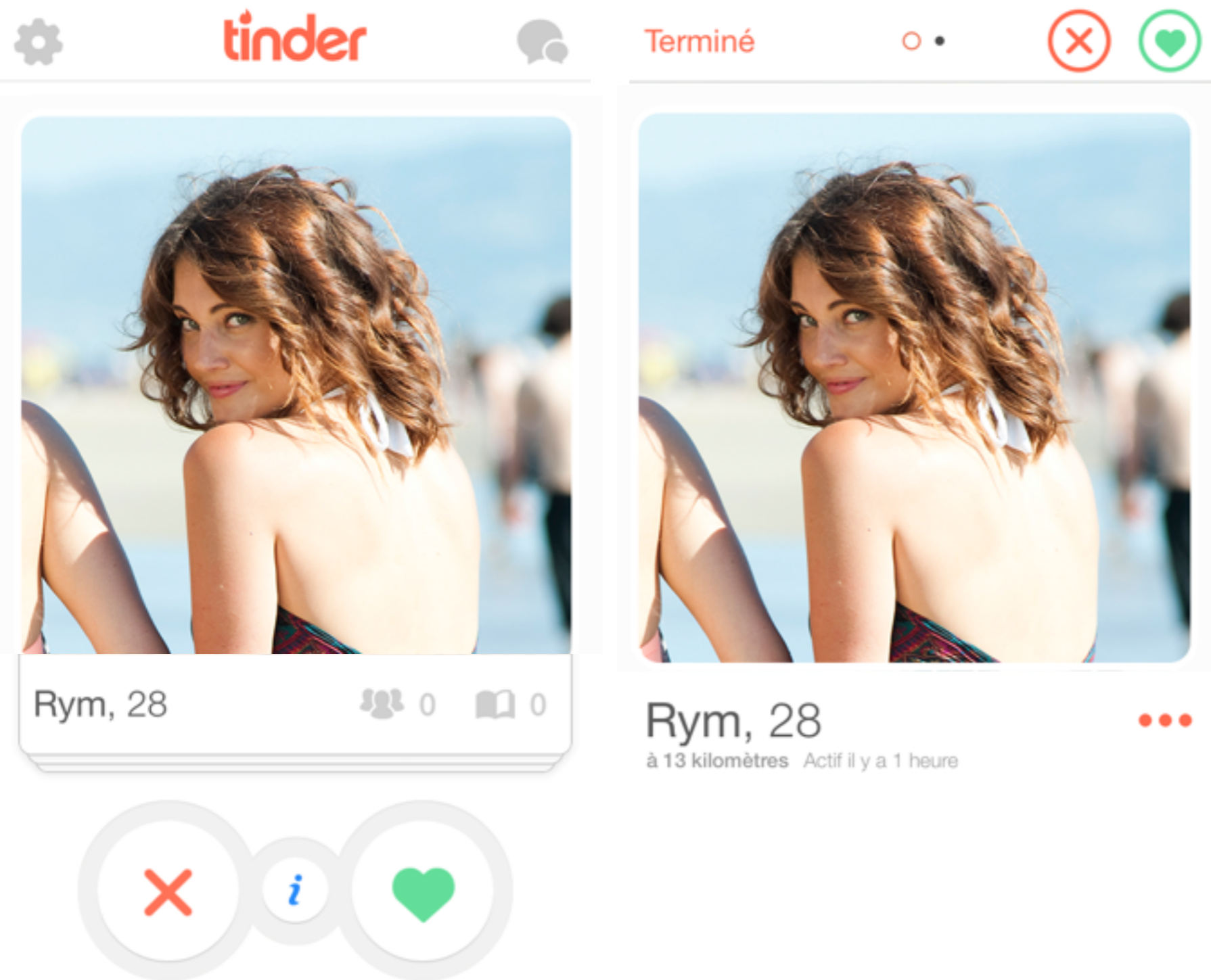
Keep your community cool



Get cash at the end of the summer

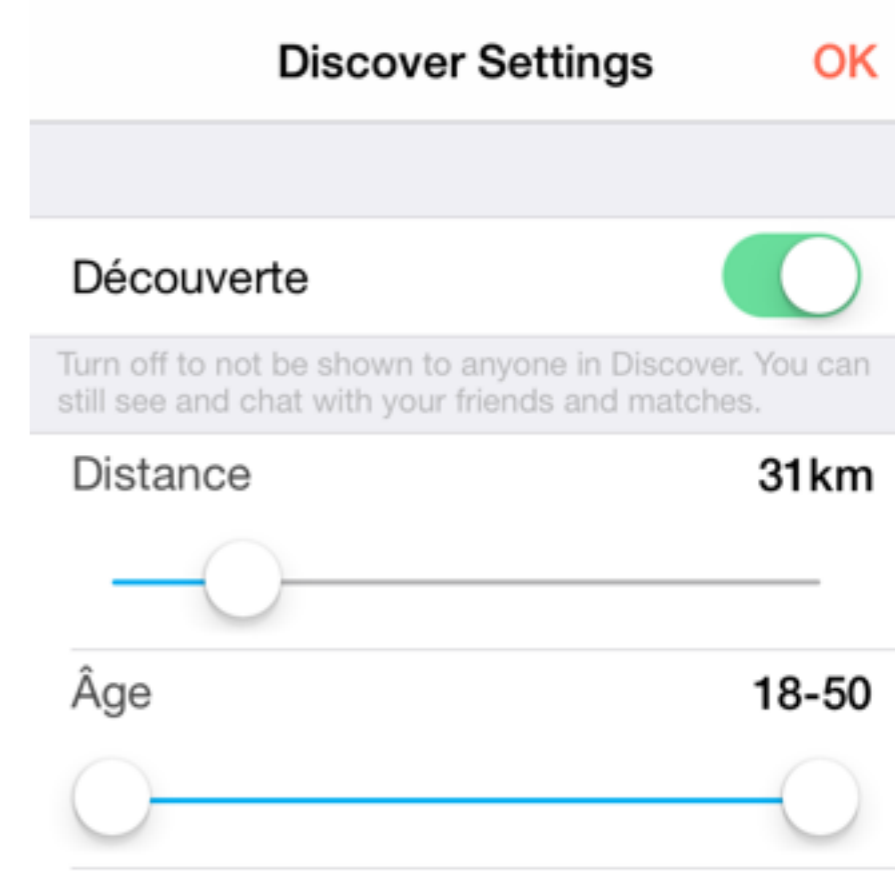
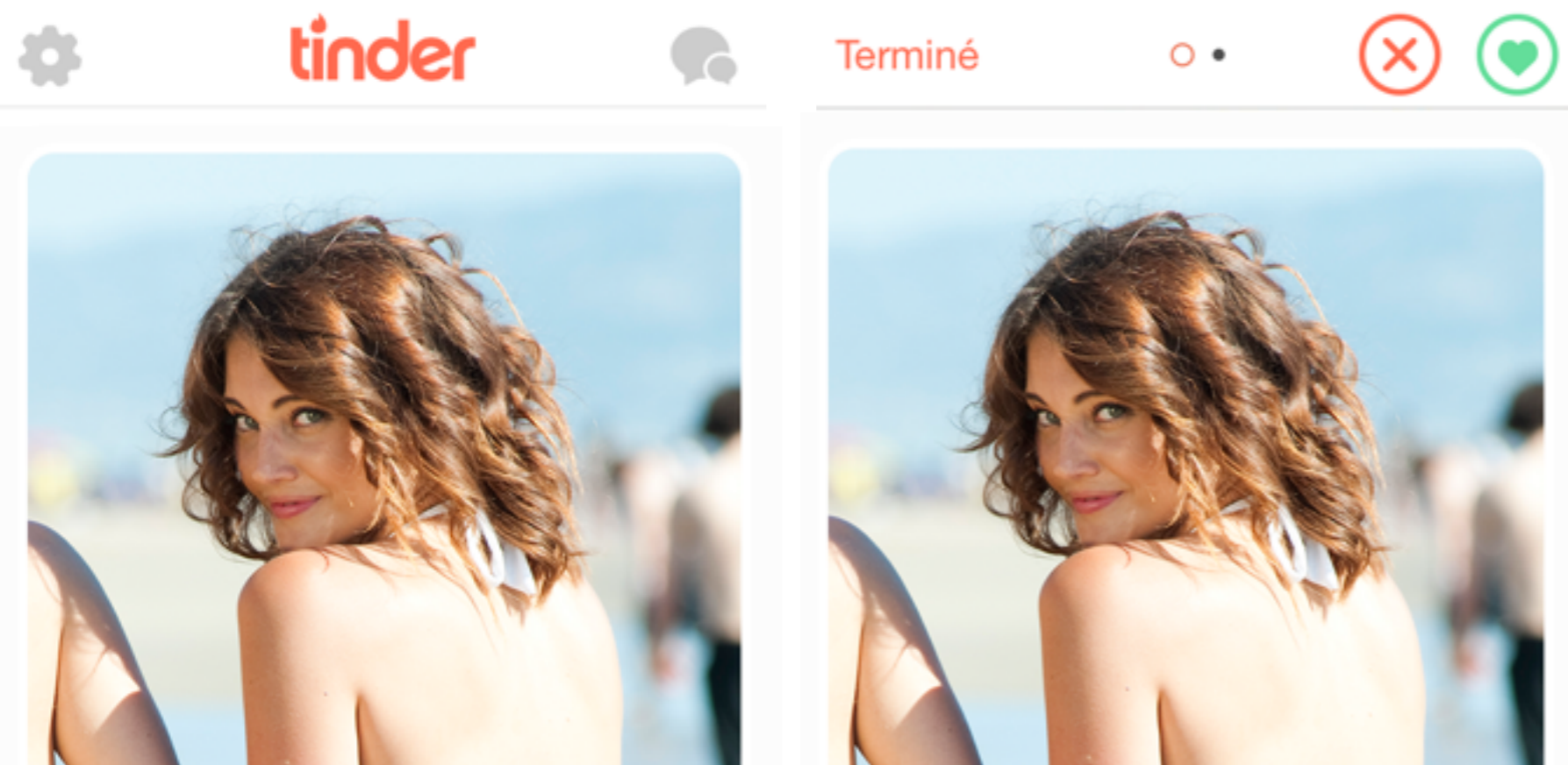
coolNYC, New York, 2014

# Actualiser les virtualités



Tinder 2014

# Actualiser les virtualités



## Eliminate social barriers.

Tinder's vision is to eliminate the barriers involved in making new connections and strengthening existing ones. We believe in fun and familiar experiences that are designed to emulate and advance real world interactions.

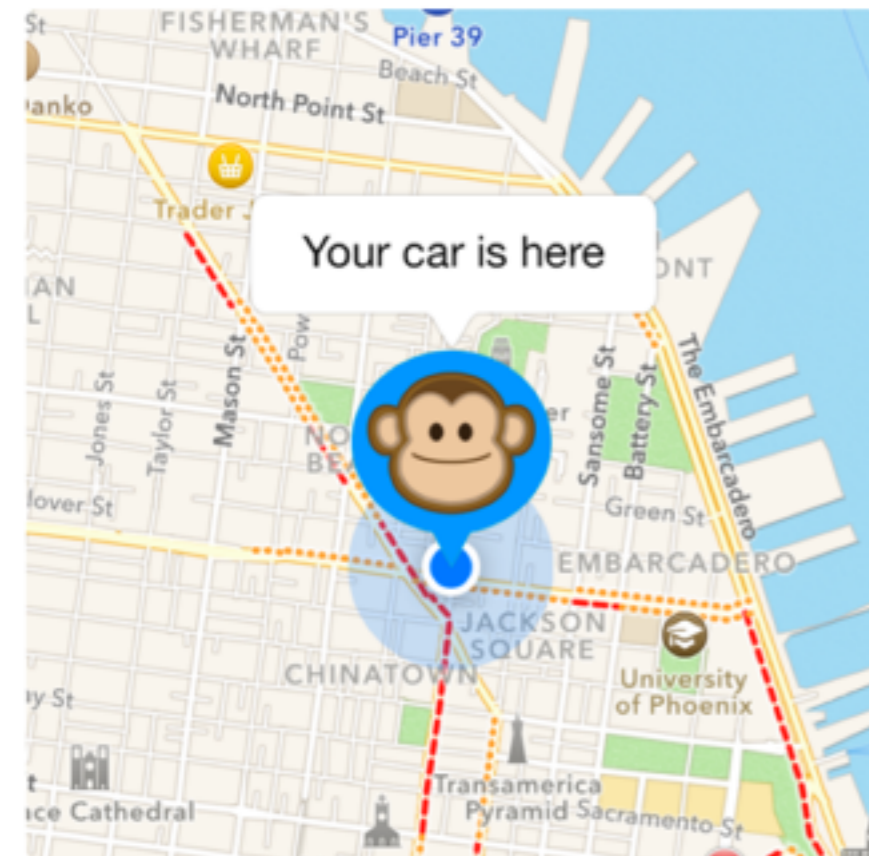
*Tinder 2014*

# Actualiser les virtualités

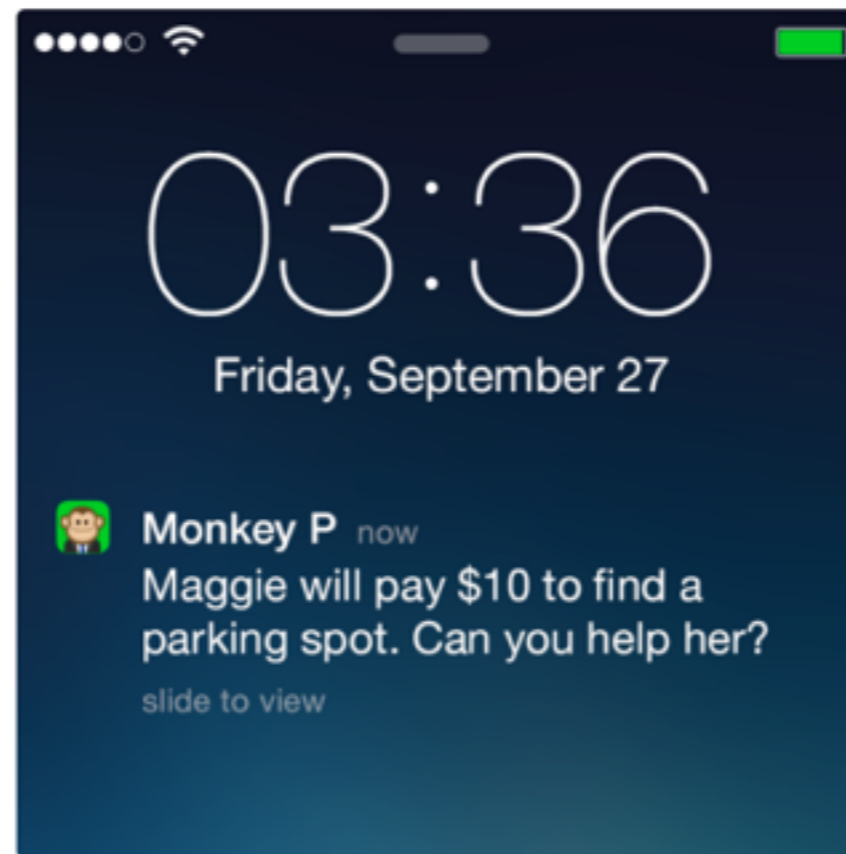


## MONKEYPARKING

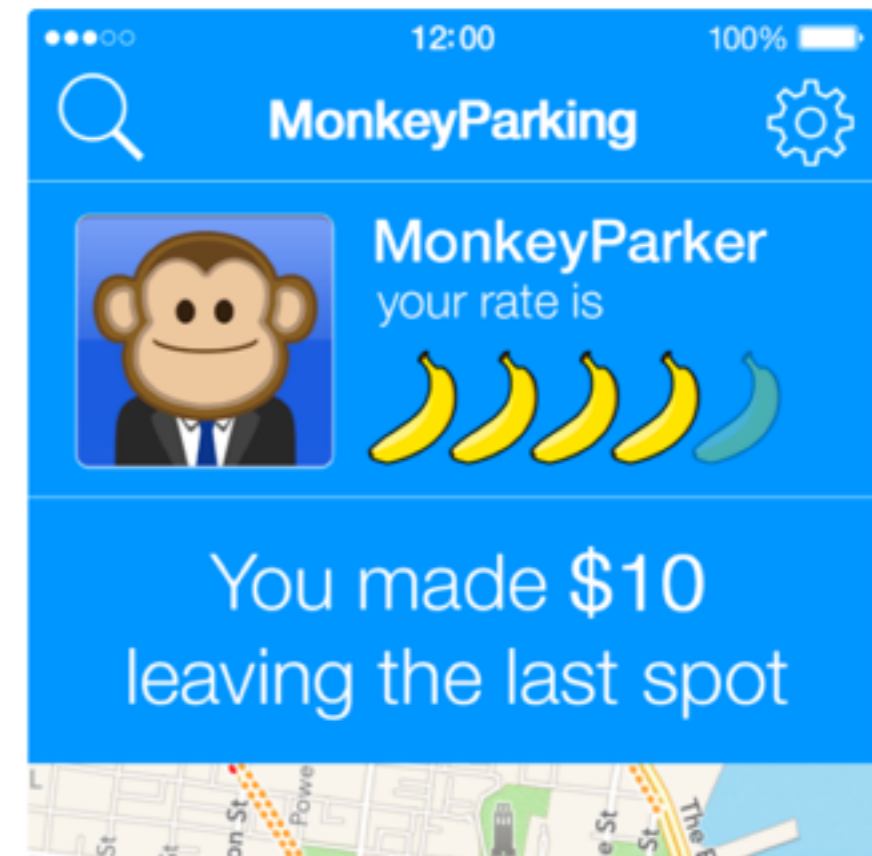
*on-street parking on demand*



Park your car



Start receiving alerts



Get connected and leave the spot

MonkeyParking, San Francisco, 2014

# Actualiser les virtualités

---



Systeme de detection sans fil de  
vehicules pour parkings extérieurs

Tinynode, Lausanne, 2013



# Actualiser les virtualités

**FixMyStreet** [Report a problem](#) [Your reports](#) <sup>NEW</sup> [All reports](#) [Local alerts](#) [Help](#)

**FIX BEFORE THE FREEZE** [mysociety.org](#)

## Cycle path full of leaves

Reported in the Road or pavement obstruction category by james cockayne at 10:27 today

Sent to Transport For London Street Management 2 minutes later

Just fallen off my bike due to a pedestrian not looking walking in the cycle path , hitting wet , greasy leaves which have not been cleaned up this to a cyclist is leathal . Can the council please clean them up asap.



[Offensive? Unsuitable? Tell us](#)



[More problems nearby](#)

[Email me updates](#)

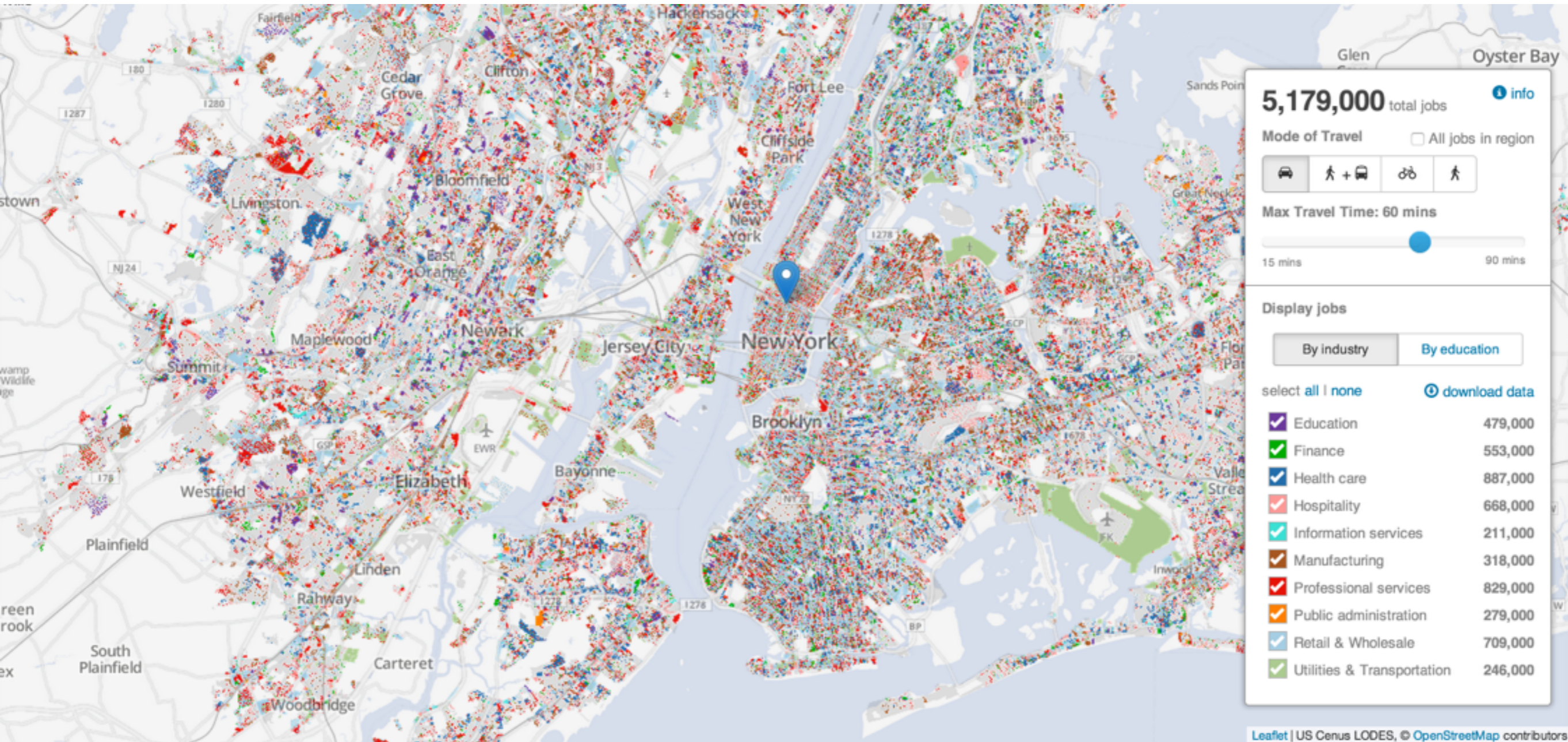
## Updates

Posted by james cockayne at 10:37 today

Attached a photo of the huge amount of dangerous wet leaves



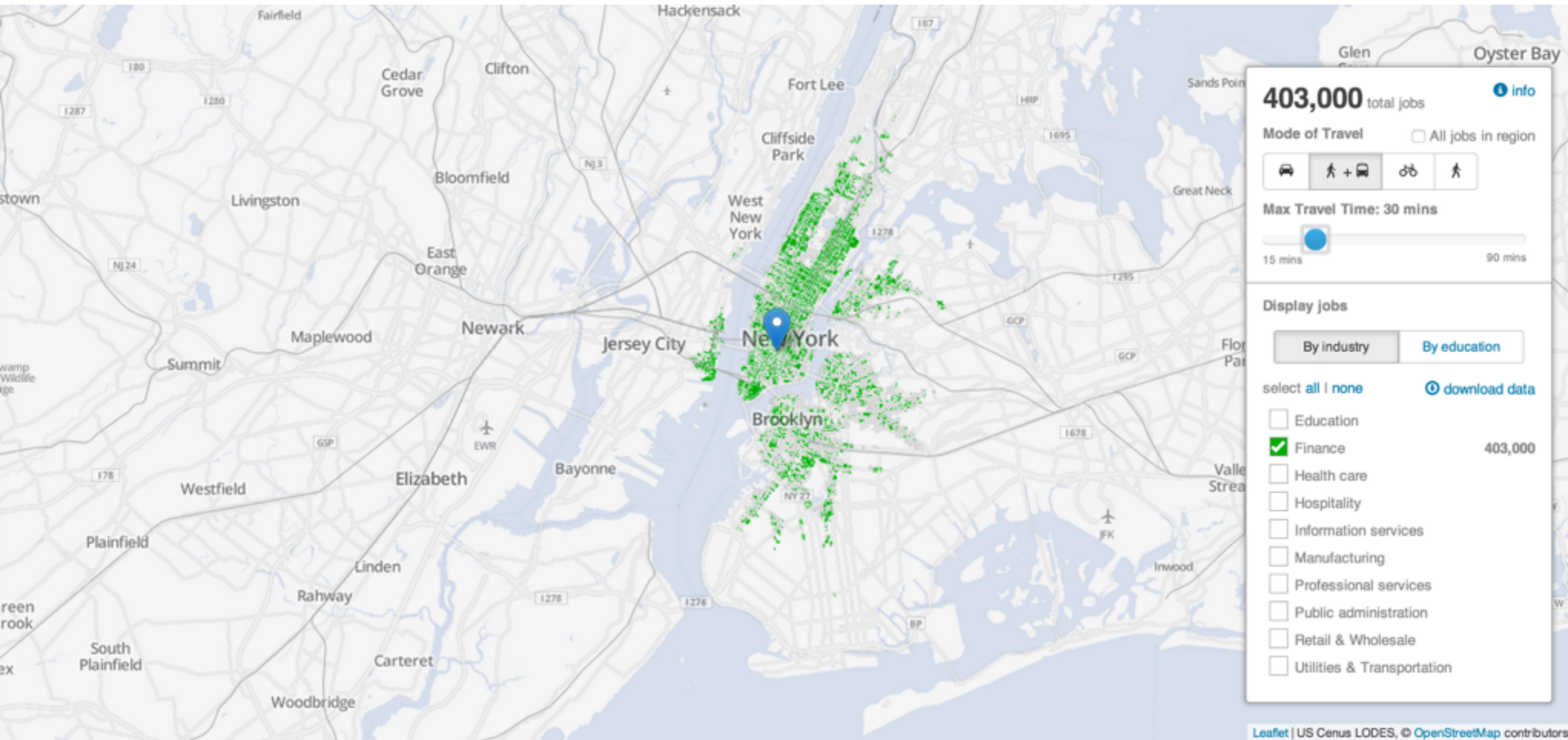
# Actualiser les virtualités



Regional Plan Association - From, « Fragile Success: Taking Stock of the New York Metropolitan Region » - 2014

Sources: U.S. Census LEHD Origin-Destination Employment Statistics, OpenStreetMap, OpenTripPlanner, NJTPA Regional Transportation Model, NYMTC, GTFS Feeds: MTA, NJT, Port Authority, NYCDOT, NY Waterway, Westchester Beeline, Nassau Inter-County Express, Rockland County TZx, CT Transit

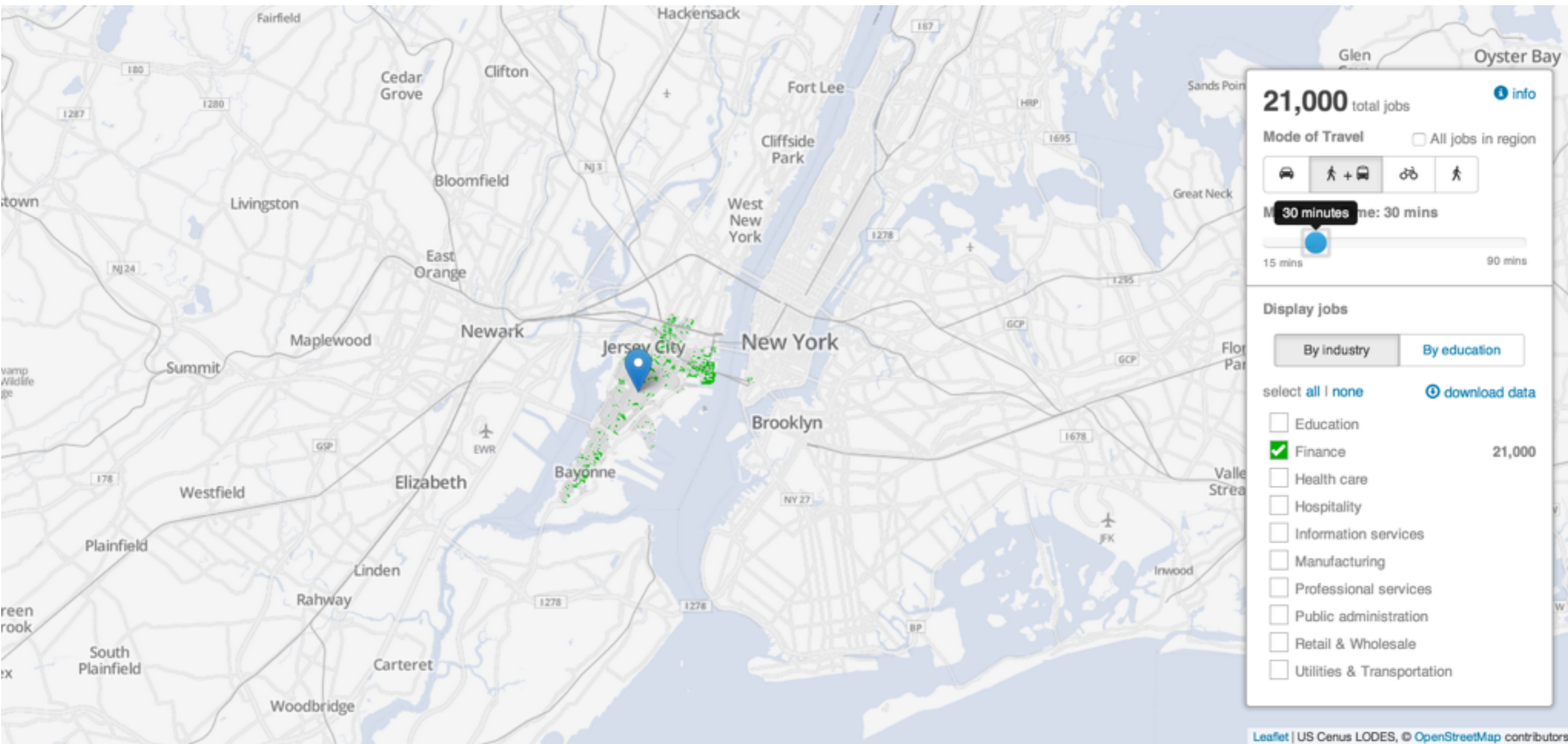
# Actualiser les virtualités



Regional Plan Association - From, "Fragile Success: Taking Stock of the New York Metropolitan Region", Regional Plan Association - 2014

Sources: U.S. Census LEHD Origin-Destination Employment Statistics, OpenStreetMap, OpenTripPlanner, NJTPA Regional Transportation Model, NYMTC, GTFS Feeds: MTA, NJT, Port Authority, NYCDOT, NY Waterway, Westchester Beeline, Nassau Inter-County Express, Rockland County TZx, CT Transit

# Actualiser les virtualités



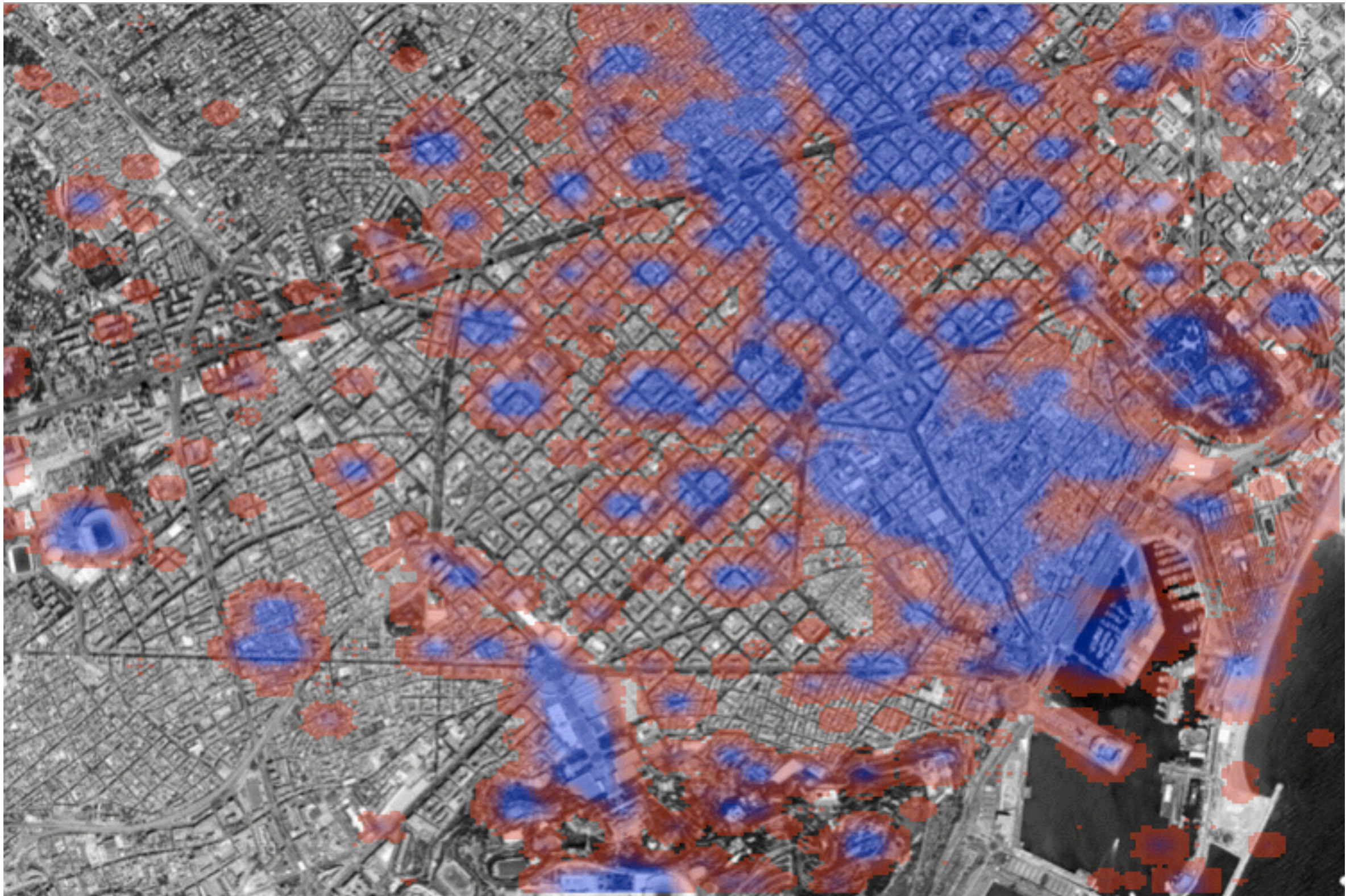
Regional Plan Association - From, "Fragile Success: Taking Stock of the New York Metropolitan Region", Regional Plan Association - 2014

Sources: U.S. Census LEHD Origin-Destination Employment Statistics, OpenStreetMap, OpenTripPlanner, NJTPA Regional Transportation Model, NYMTC, GTFS Feeds: MTA, NJT, Port Authority, NYCDOT, NY Waterway, Westchester Beeline, Nassau Inter-County Express, Rockland County TZx, CT Transit

## Digital footprints

# Digital Footprints

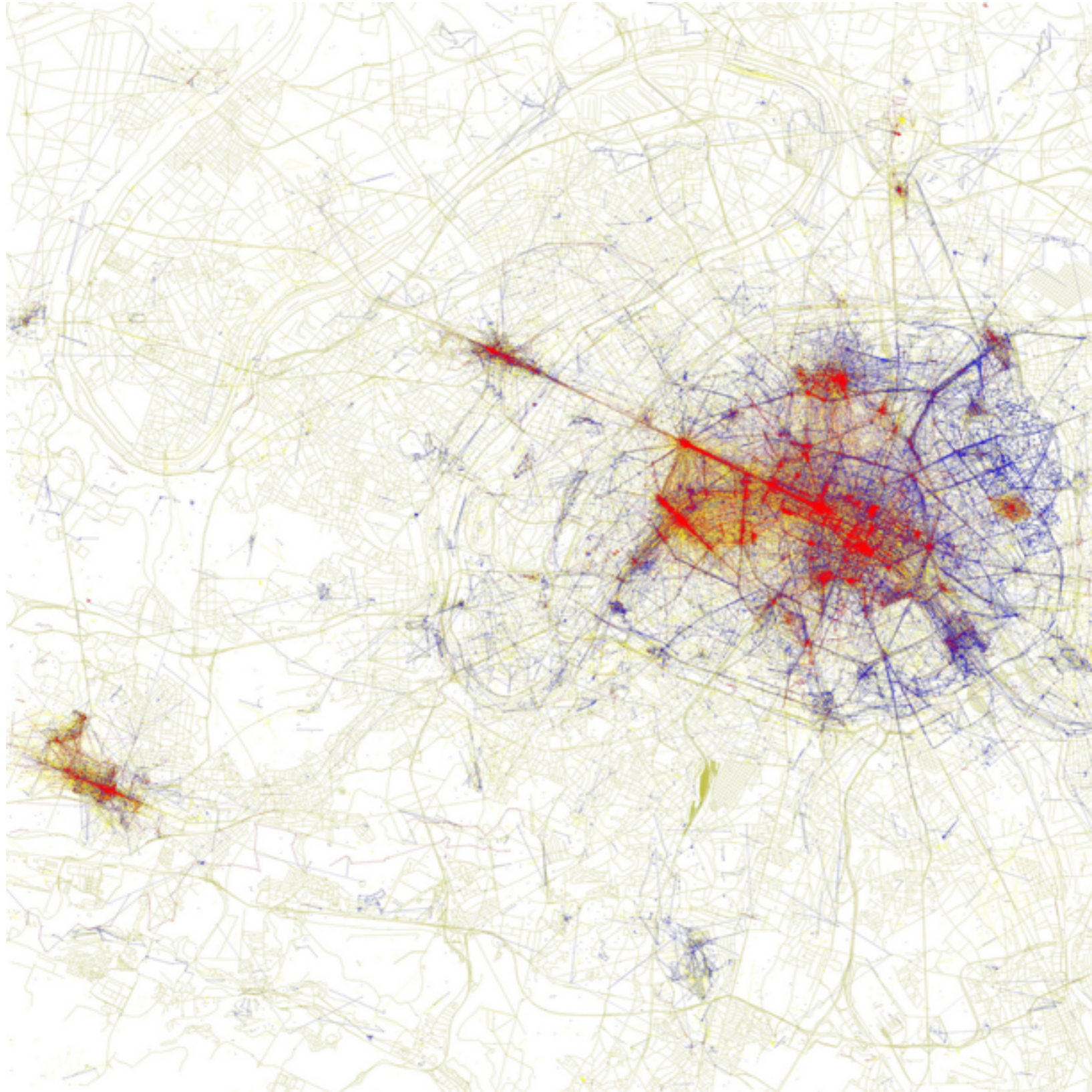
---



Fabien Girardin / 2006 / Barcelone / **Tourist Density**

# Digital Footprints

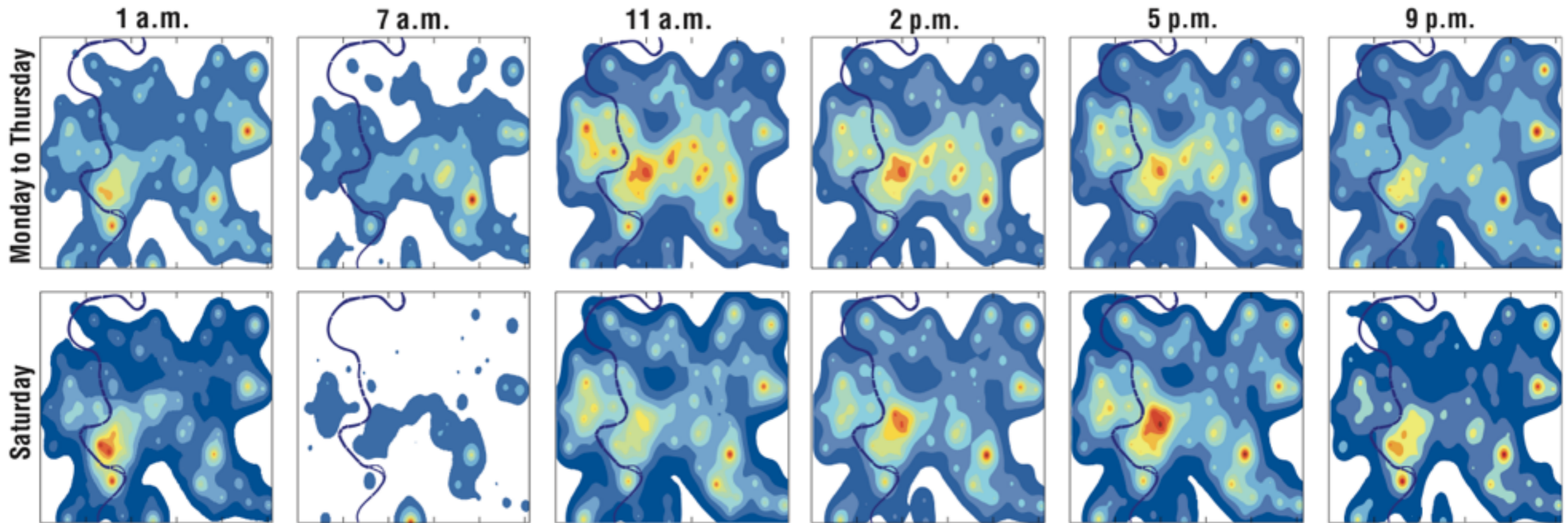
---



Eric Fischer / 2010 / Paris / **Locals and Tourists**

# Digital Footprints

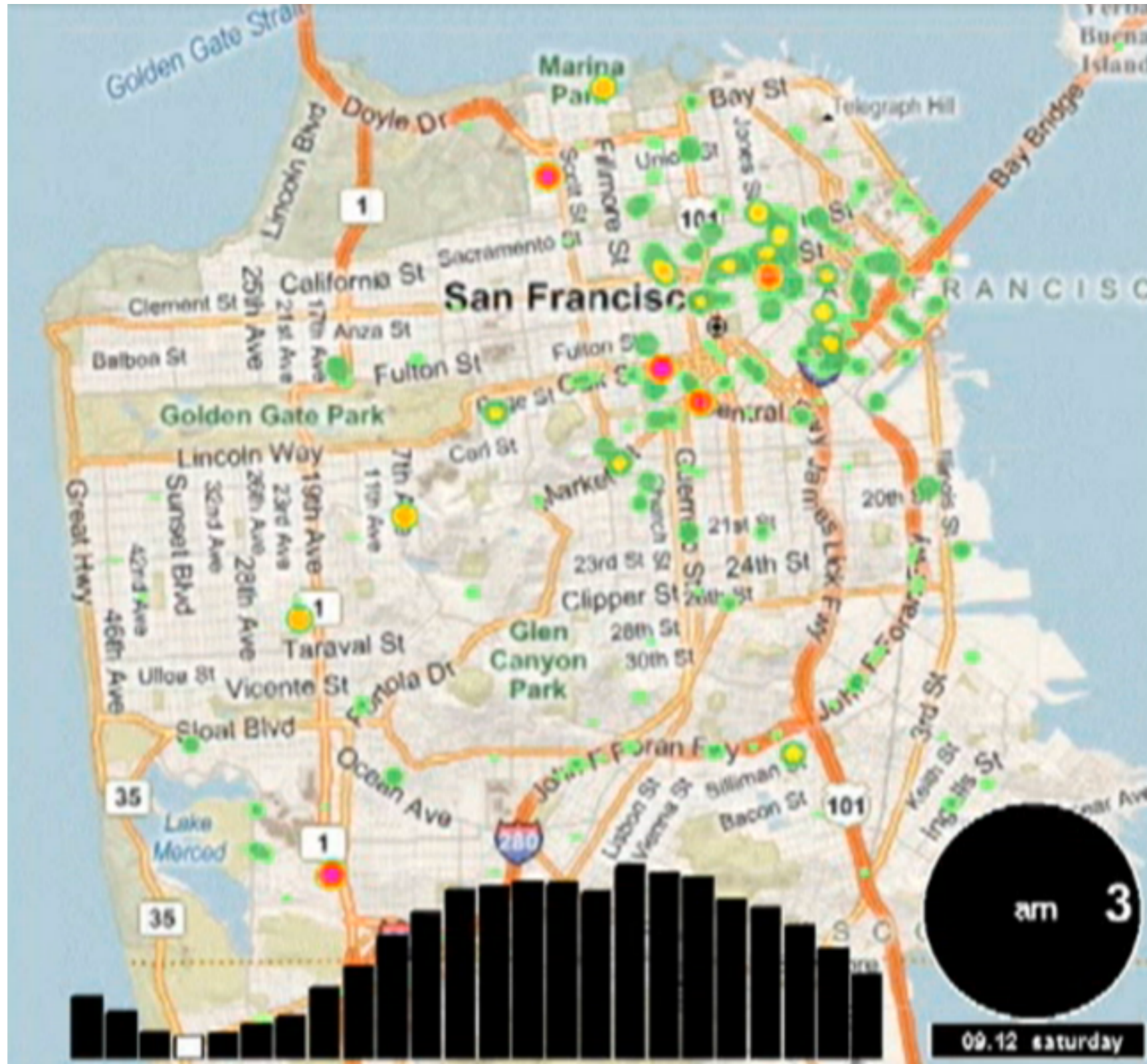
---



Reades, J et al. 2007. "Cellular Census: Explorations in Urban Data Collection." IEEE Pervasive Computing 6(3): 30–38.

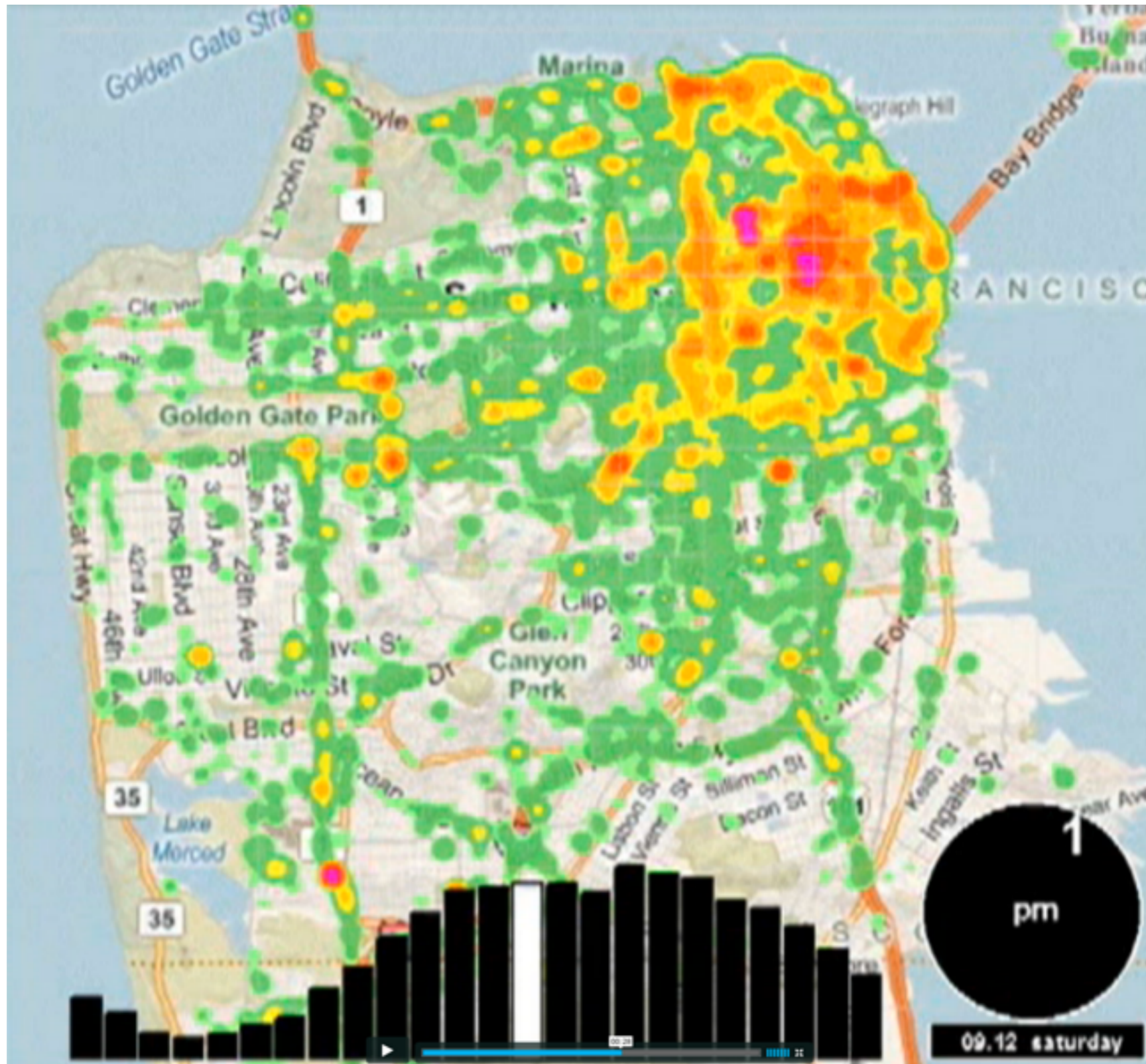


# Digital Footprints



Skyhook / 2011 / San Francisco / **SpotRank**

# Digital Footprints



Skyhook / 2011 / San Francisco / **SpotRank**

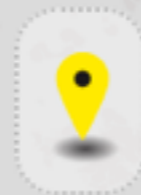
# Digital Footprints



**hubcab**



HubCab is an interactive visualization that invites you to explore the ways in which over 150 million taxi trips connect the City of New York in a given year. [Show me how it works.](#)



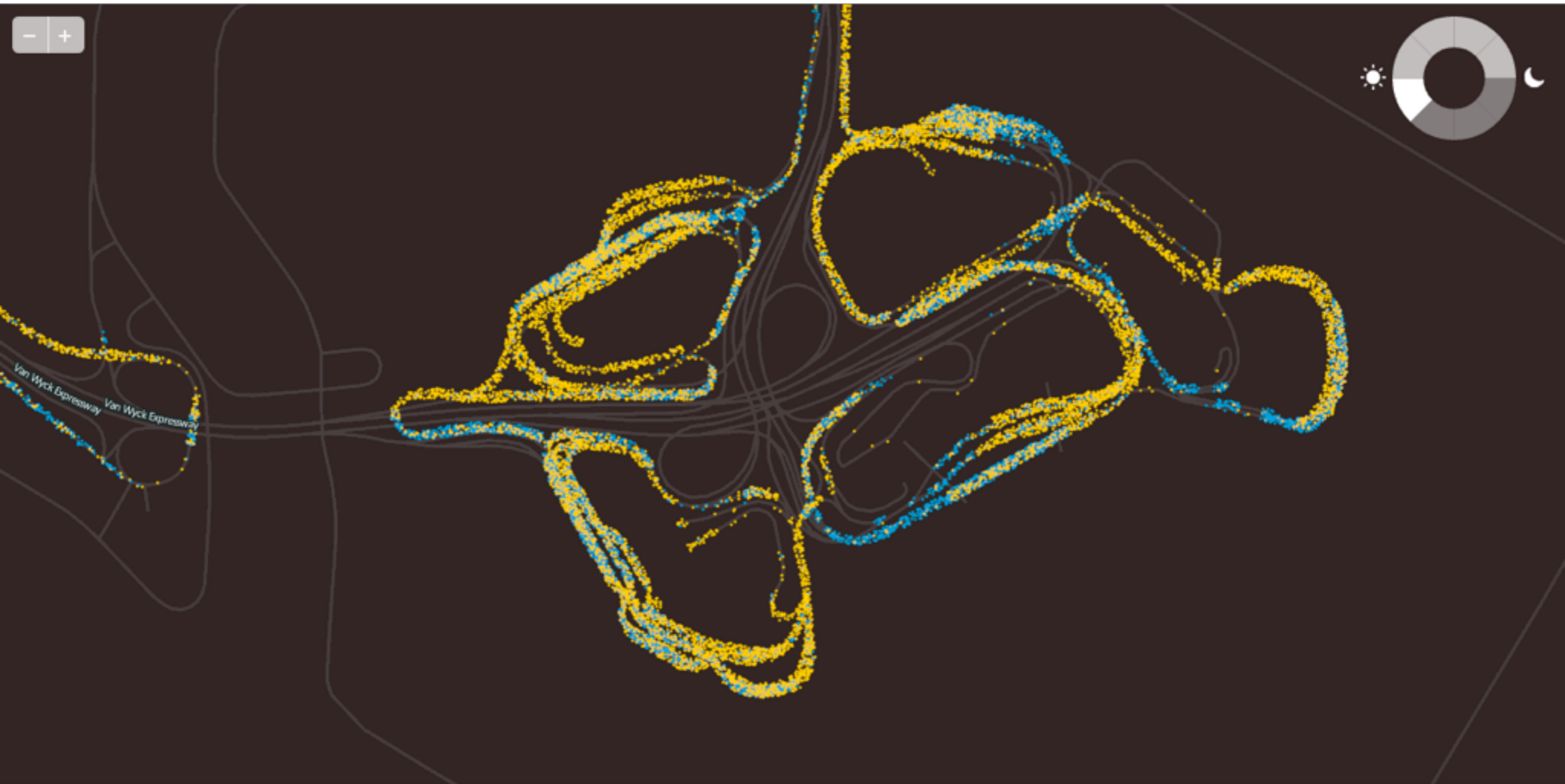
Taxi Pickup



Taxi Dropoff

*Hubcab, senseable city lab, 2014*

# Digital Footprints



**hubcab**



HubCab is an interactive visualization that invites you to explore the ways in which over 150 million taxi trips connect the City of New York in a given year. [Show me how it works.](#)



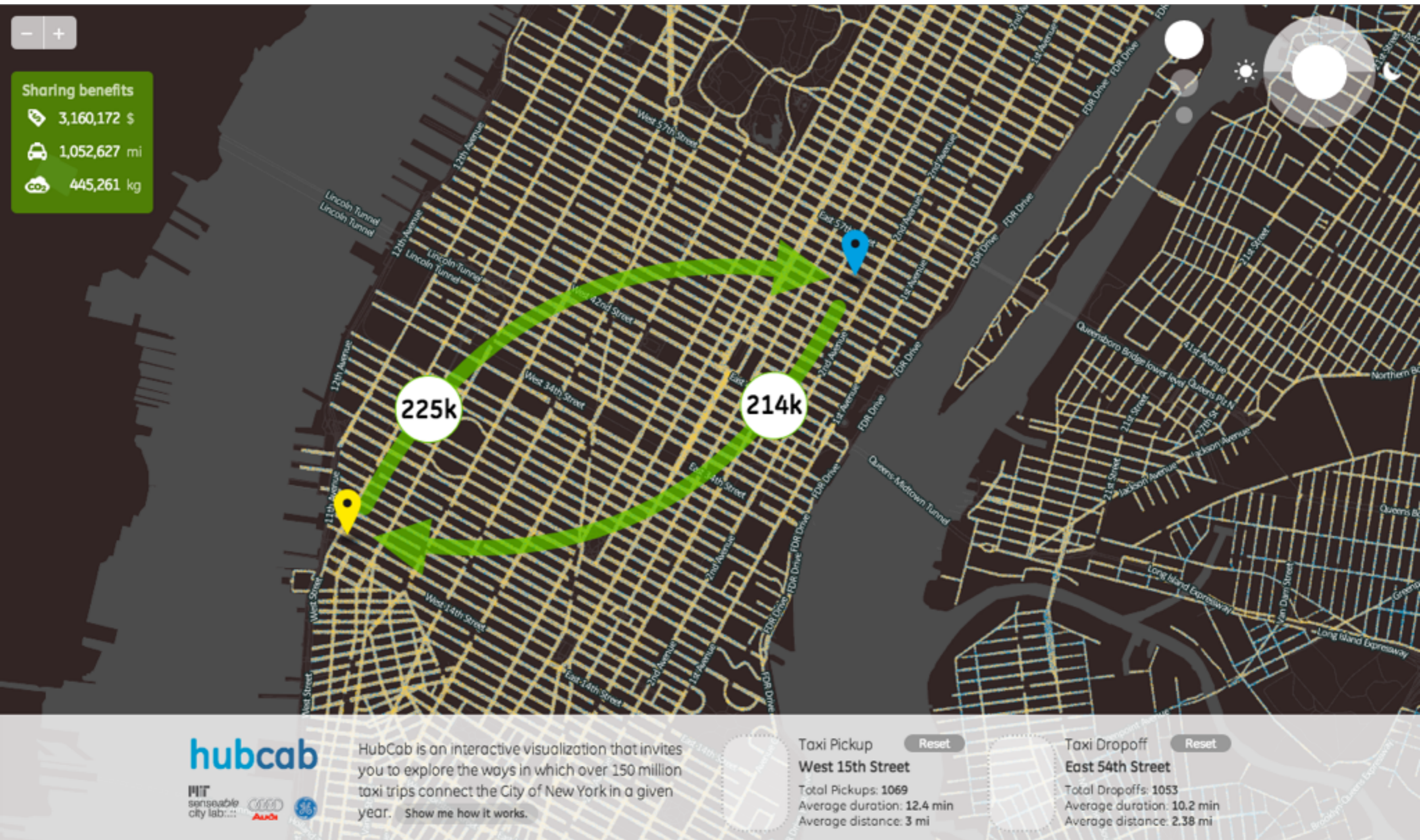
Taxi Pickup



Taxi Dropoff

*Hubcab, senseable city lab, 2014*

# Digital Footprints



Hubcab, senseable city lab, 2014

# Digital Footprints

**STRAVA** | LABS Global Heatmap

## Heatmap Options

### Heatmap Style

Gray  Blue  Yellow

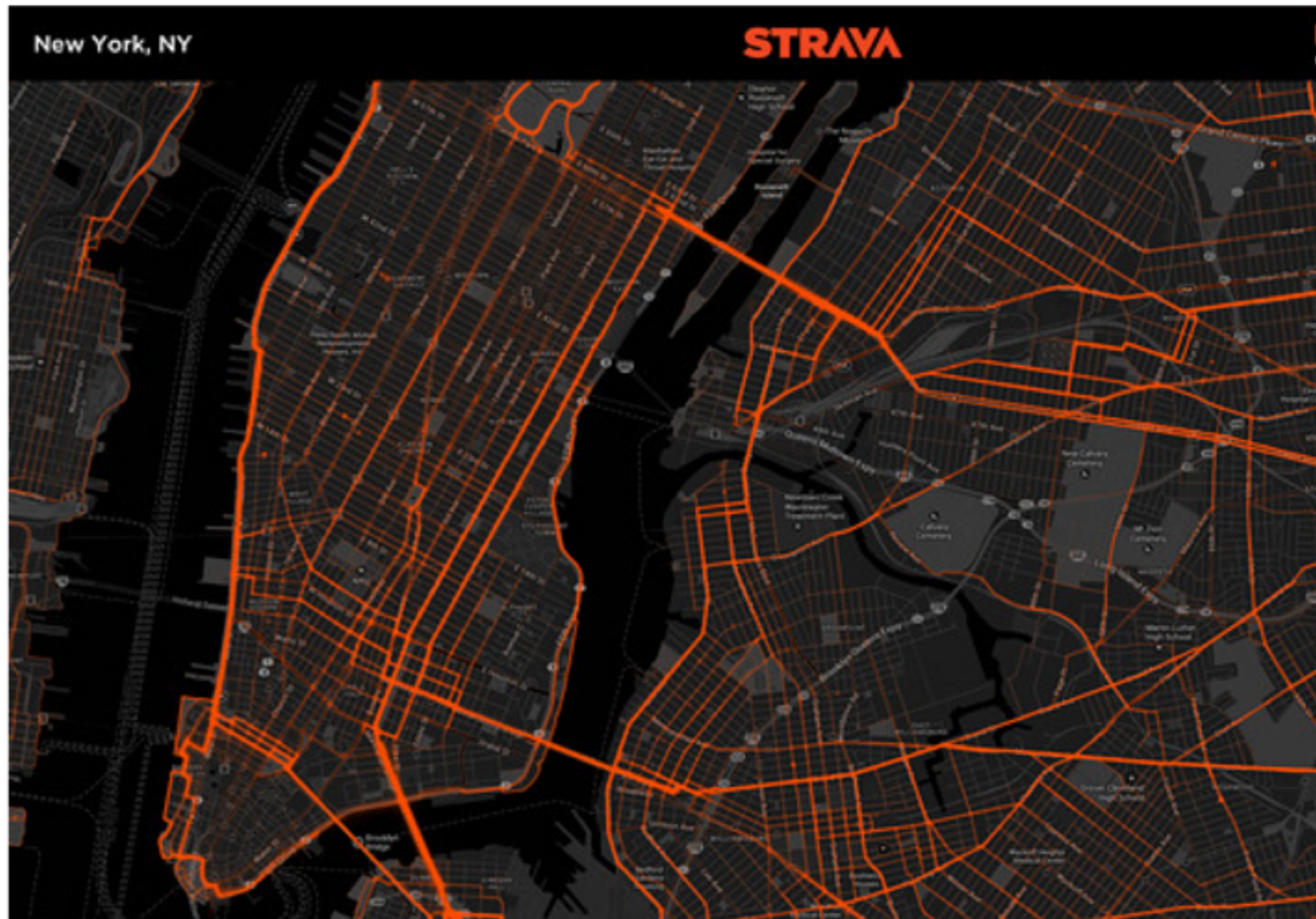
### Path Opacity

0%  40%  60%  80%  100%

### Activity View

Bike  Run  Both

**What's this:** This dataset includes 77,688,848 rides and 19,660,163 runs representing about 220 billion total data points.



# Digital Footprints

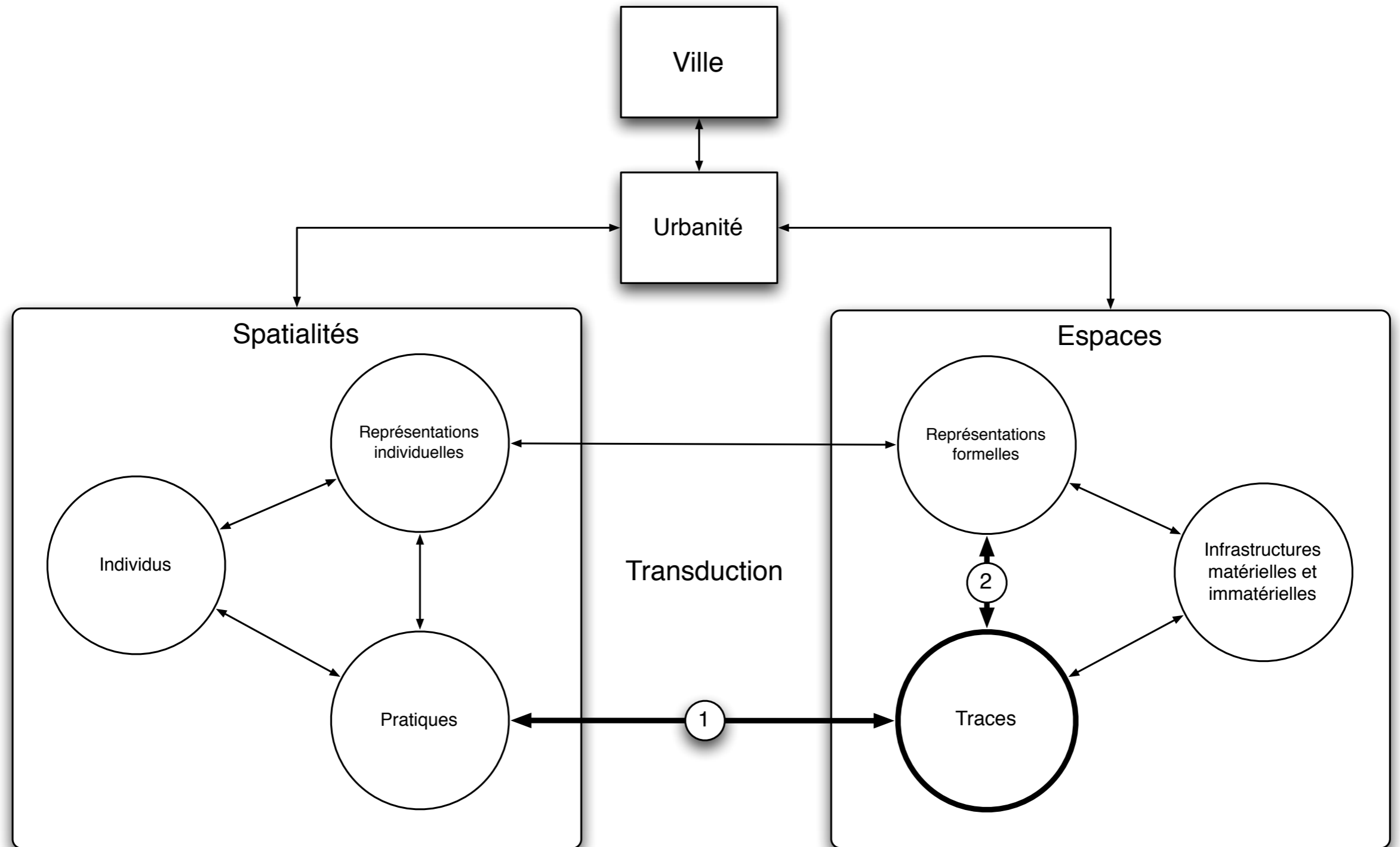
---

- L'expression individuelle
- Pas de question *a priori*
- Production continue
- La fin des normes et des catégories ?
- L'immanence du réel
- L'illusion de la donnée
- L'importance de la transduction

## La transduction

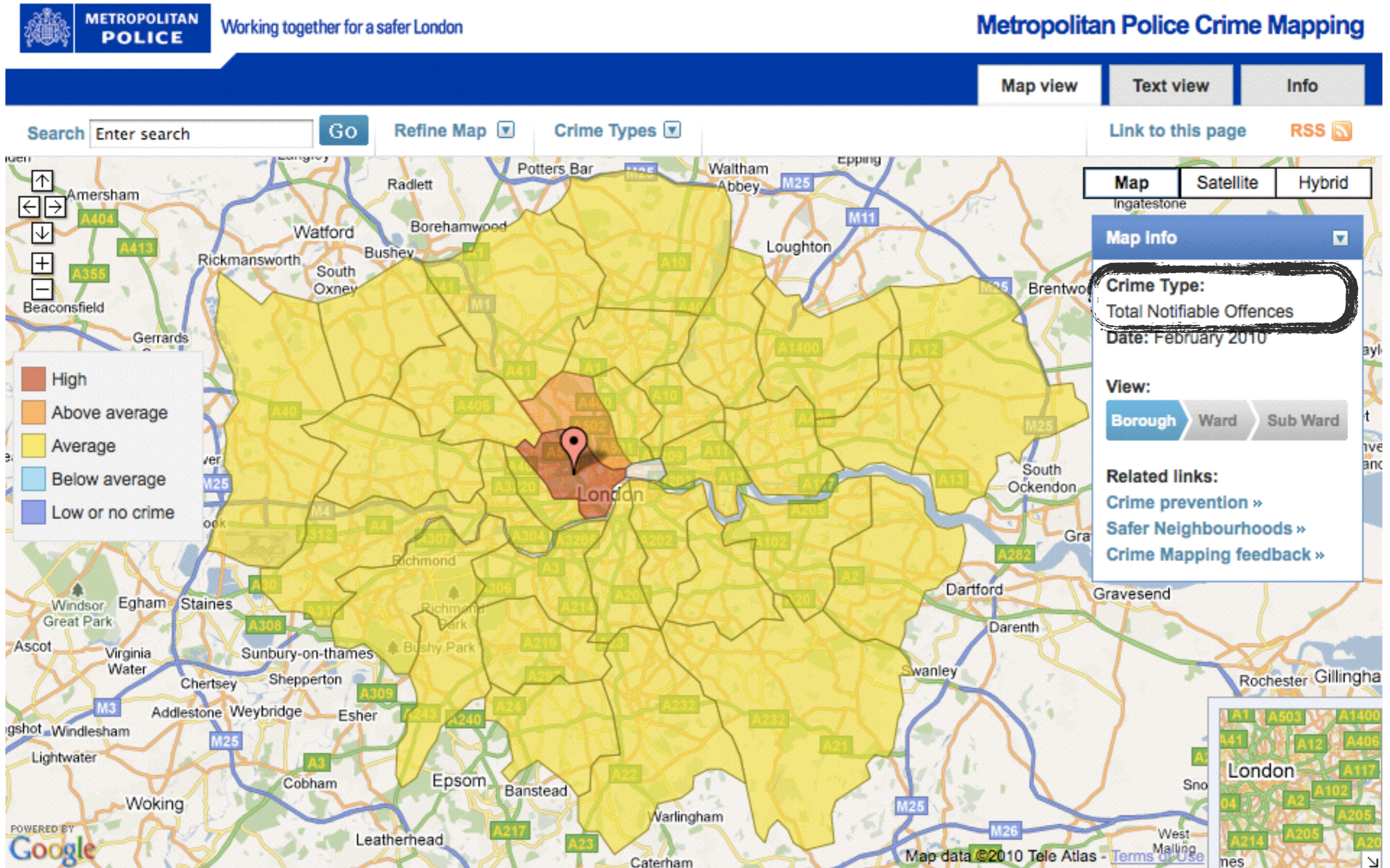


# La transduction



*Explicities*, Boris Beauce et Nicolas Nova, EPFL-HEAD, 2011

# La transduction



# La transduction



Working together for a safer London

## Metropolitan Police Crime Mapping

Map view

Text view

Info

Search Enter search

Go

Refine Map

Crime Types

Link to this page

RSS

Map

Satellite

Hybrid

Map Info

Crime Type:

Total Notifiable Offences

Date: February 2010

View:

Borough

Ward

Sub Ward

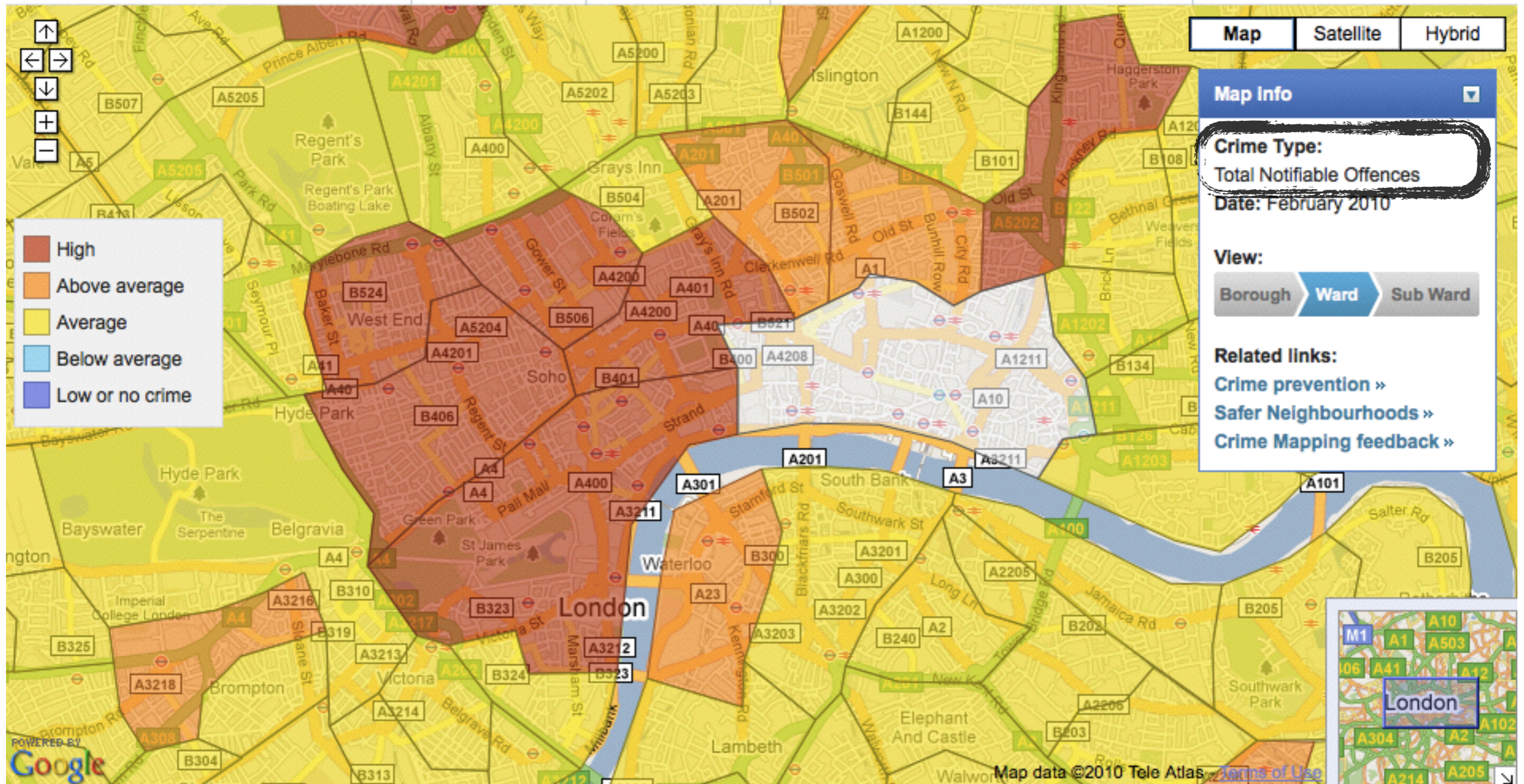
Related links:

[Crime prevention »](#)

[Safer Neighbourhoods »](#)

[Crime Mapping feedback »](#)

- High
- Above average
- Average
- Below average
- Low or no crime



# La transduction



Working together for a safer London

## Metropolitan Police Crime Mapping

Map view

Text view

Info

Search Enter search

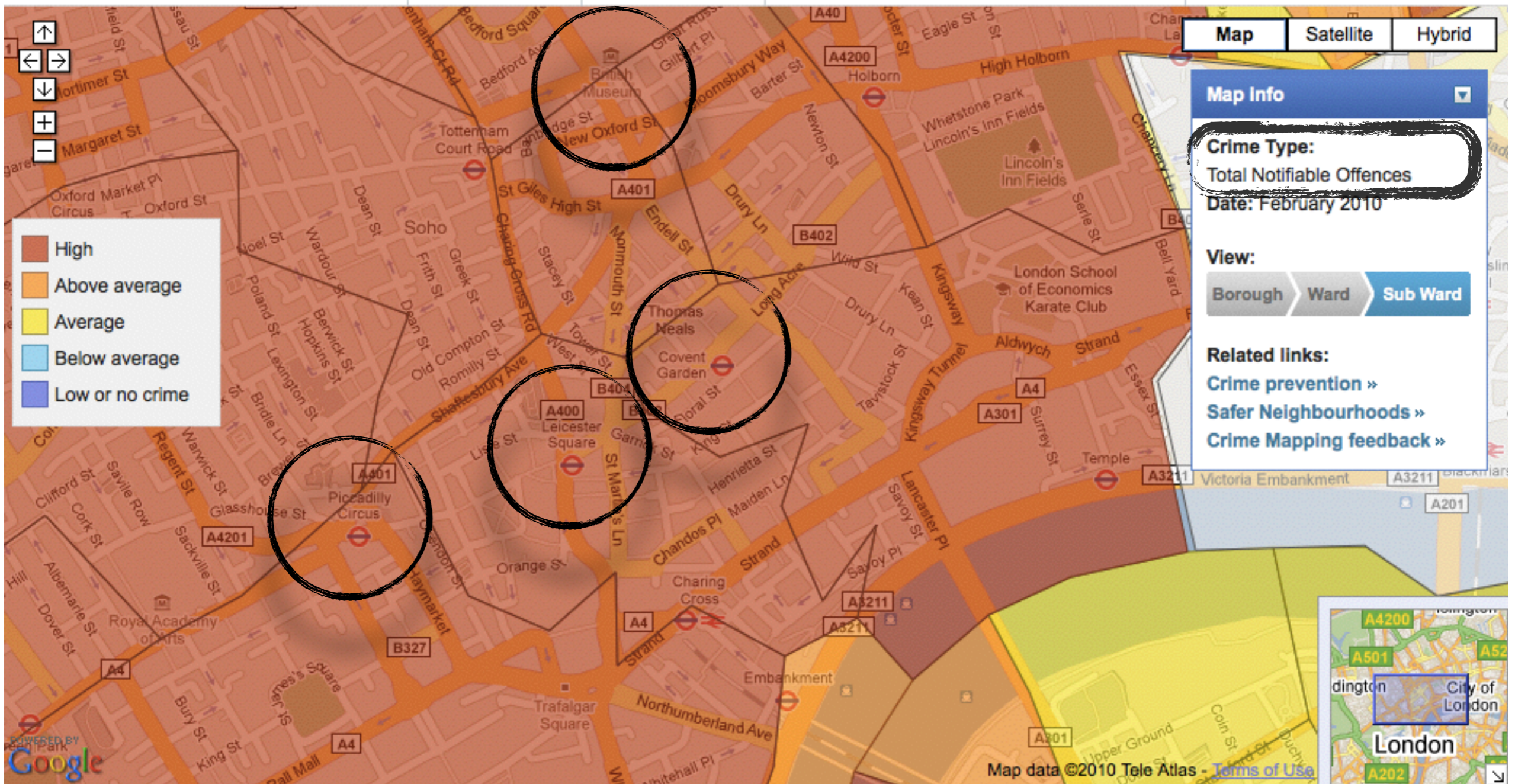
Go

Refine Map

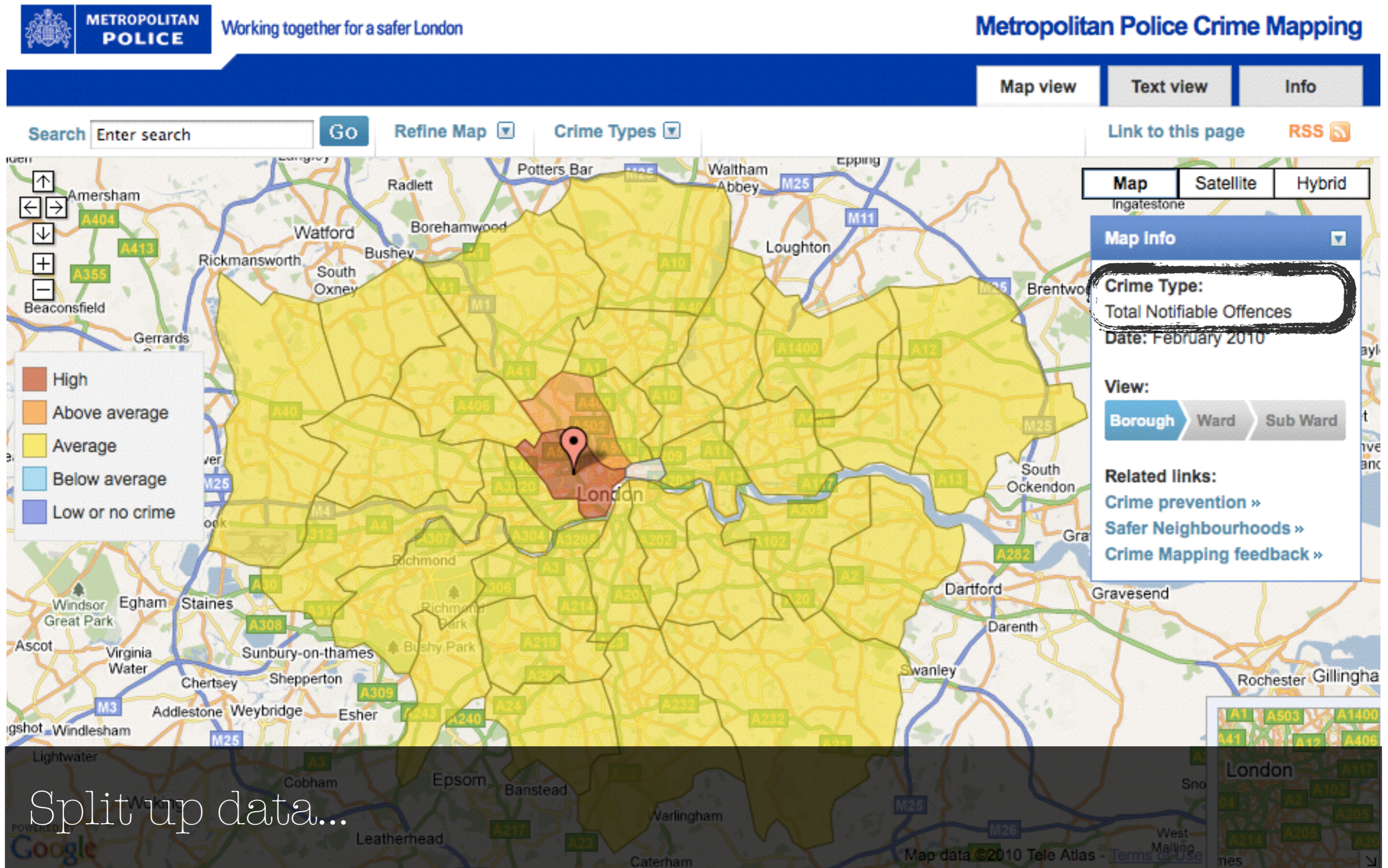
Crime Types

Link to this page

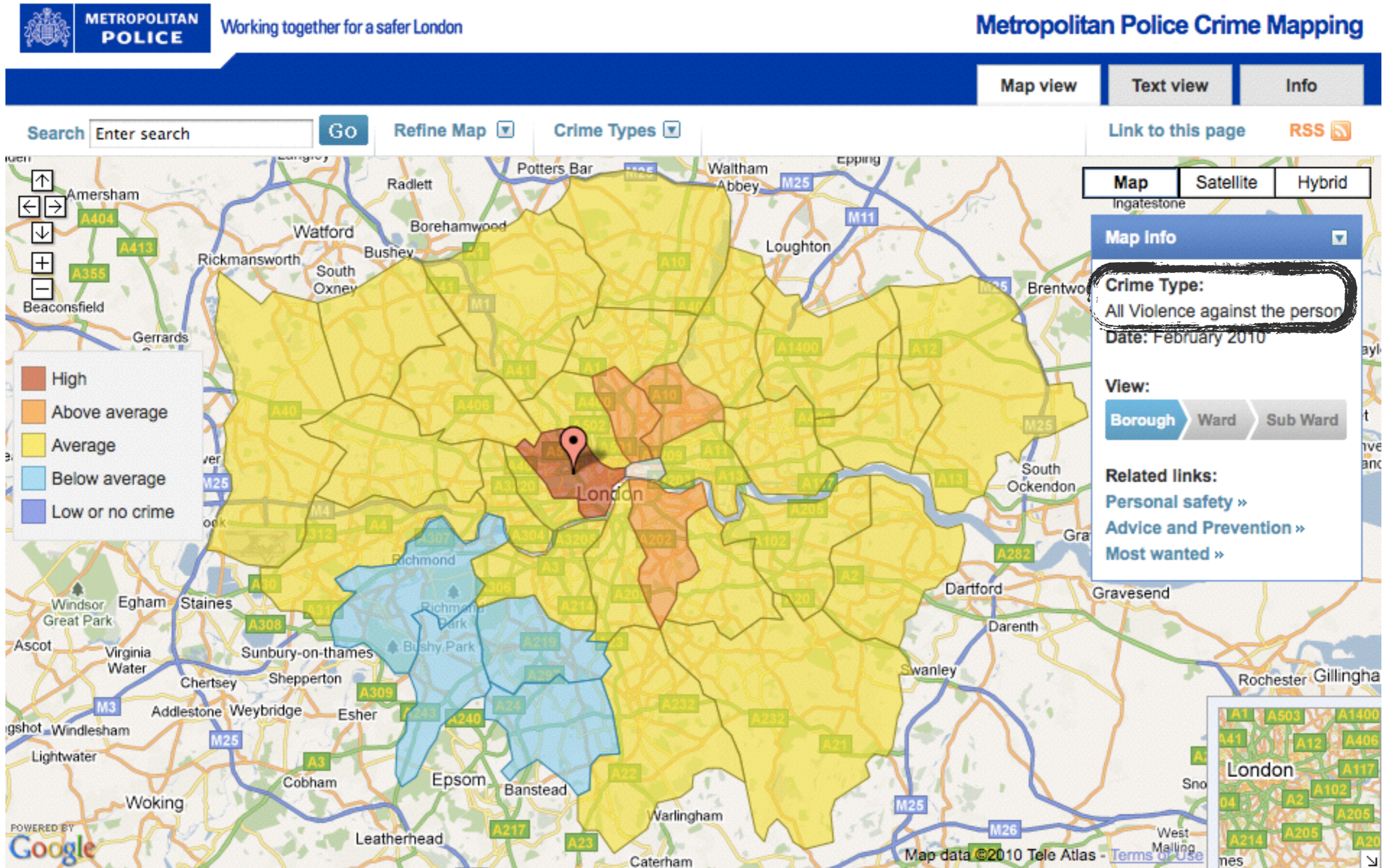
RSS



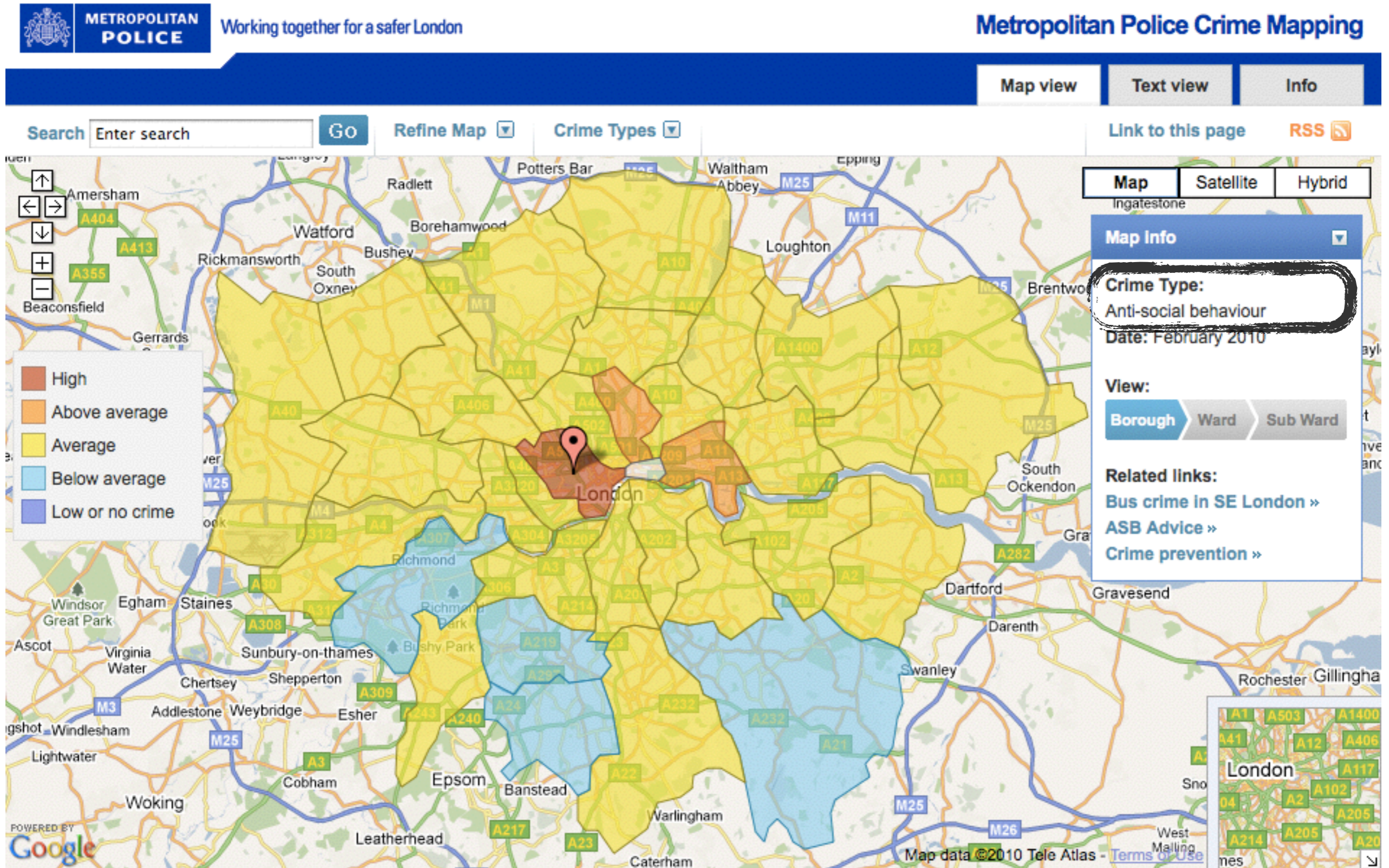
# La transduction



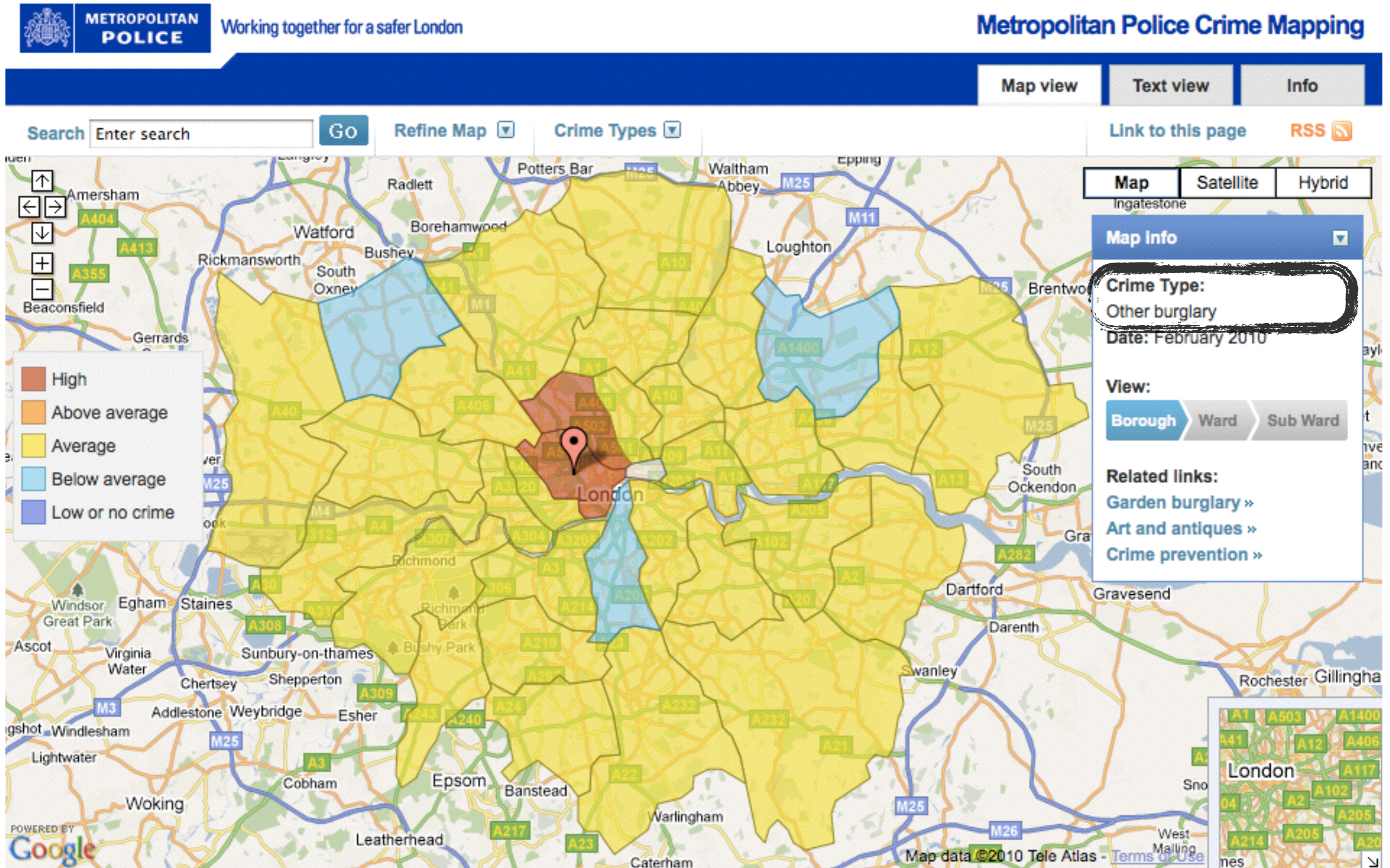
# La transduction



# La transduction

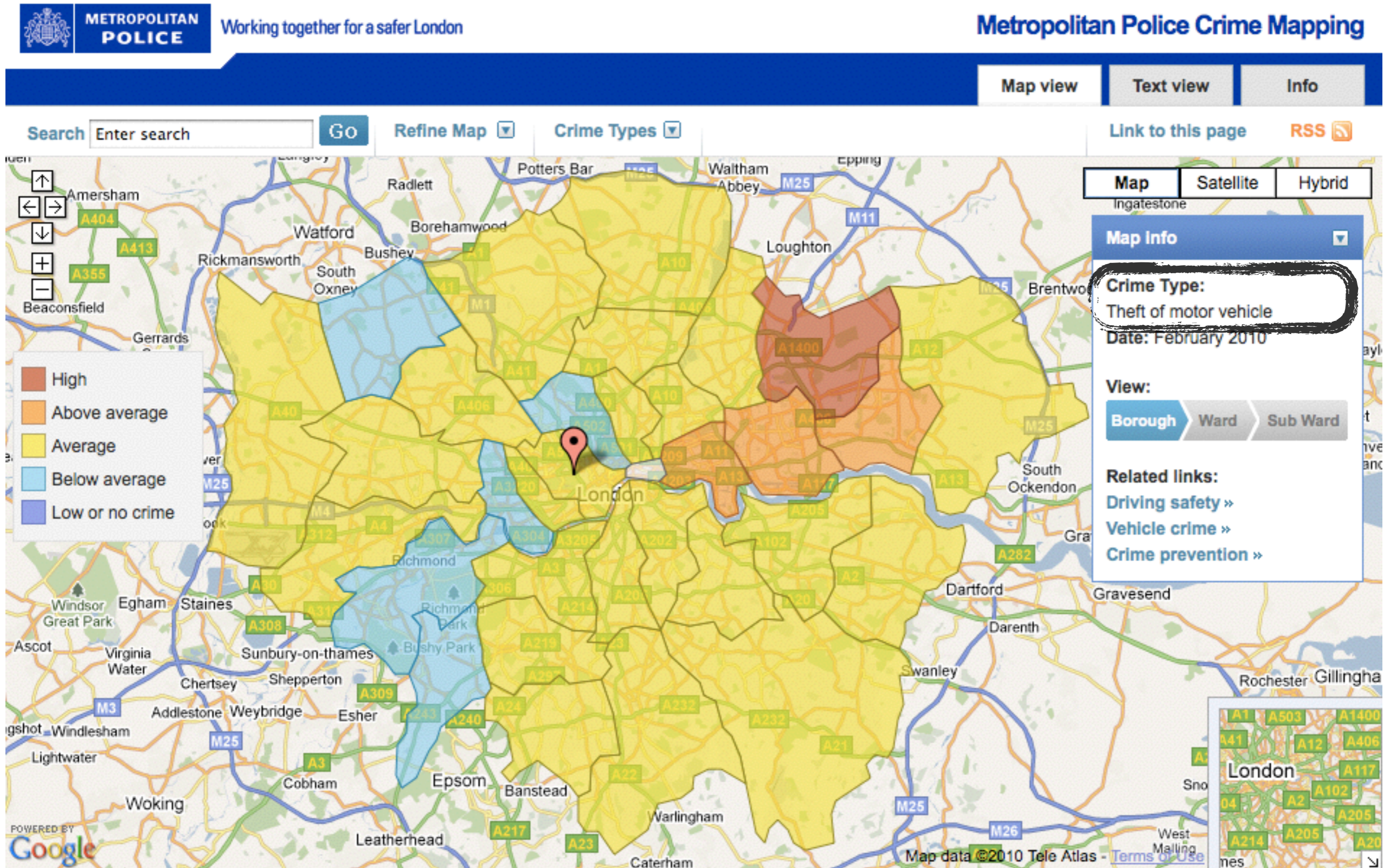


# La transduction

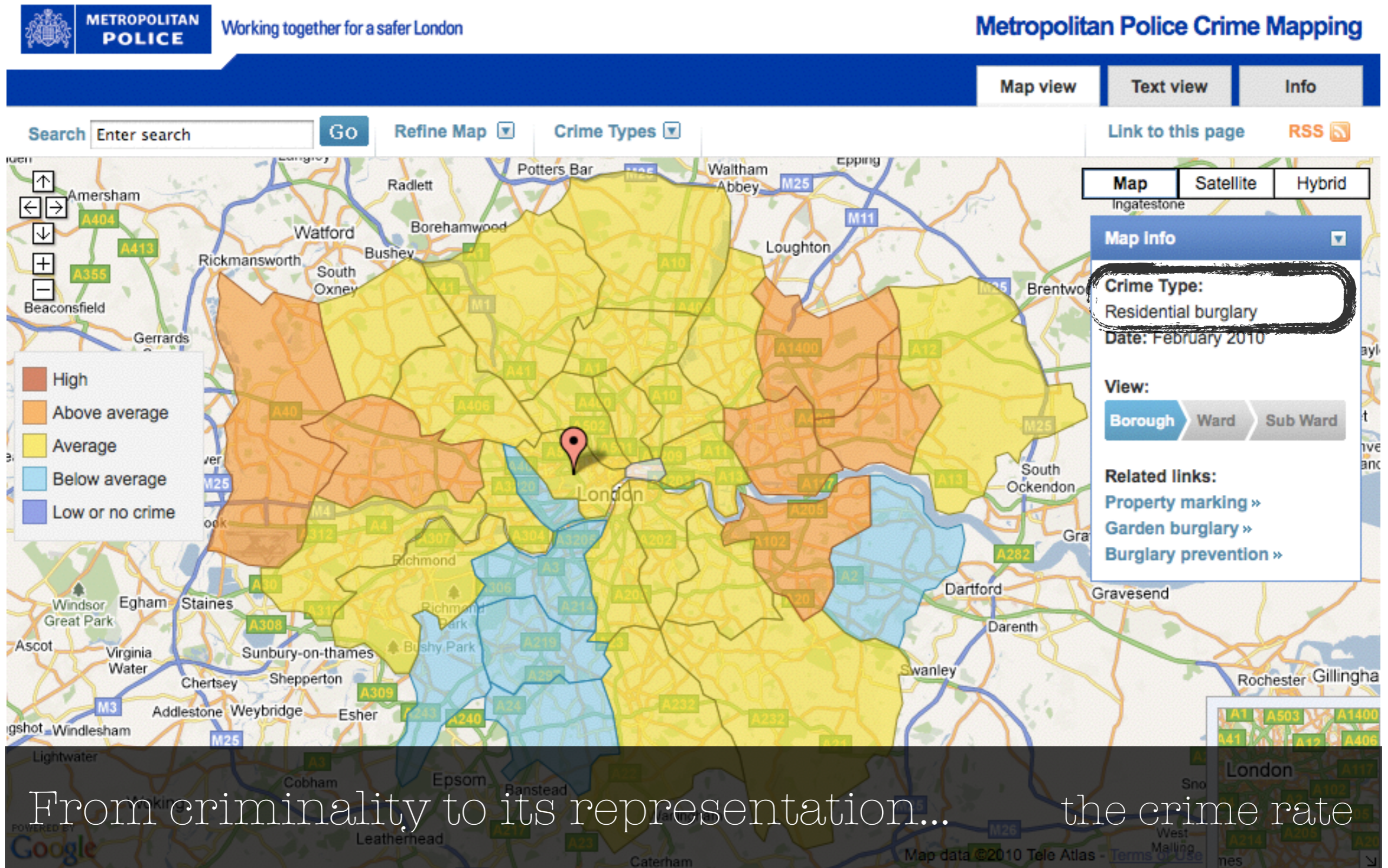




# La transduction



# La transduction



# La transduction



**METROPOLITAN POLICE**

Working together for a safer London

## Metropolitan Police Crime Mapping

Map view

**Text view**

Info

Search

Go

Refine Map

Crime Types

[Link to this page](#)

RSS

### Crime Mapping text view: Total notifiable offences, February 2010

You are in > London

#### London boroughs

<a href="#">Borough</a> ▲	<a href="#">Crime count</a>	<a href="#">Crime rate</a>	
<a href="#">Barking &amp; Dagenham</a>	1553	9.47	+
<a href="#">Barnet</a>	2145	6.82	+
<a href="#">Bexley</a>	1159	5.31	+
<a href="#">Brent</a>	2226	8.45	+
<a href="#">Bromley</a>	1730	5.85	+
<a href="#">Camden</a>	2653	13.40	+
<a href="#">Croydon</a>	2570	7.77	+
<a href="#">Ealing</a>	2778	9.23	+
<a href="#">Enfield</a>	2016	7.37	+
<a href="#">Greenwich</a>	1961	9.15	+
<a href="#">Hackney</a>	2167	10.68	+
<a href="#">Hammersmith &amp; Fulham</a>	1719	10.40	+
<a href="#">Haringey</a>	1815	8.38	+
<a href="#">Havering</a>	1389	6.19	+

#### Crimes in Metropolitan Police District

Crime type	Crime count	Crime rate
Total notifiable offences	63786	8.90
<b>Residential burglary</b>	<b>5002</b>	<b>0.70</b>
Burglary other	2456	0.34
Theft of motor vehicle	1927	0.27
Theft from motor vehicle	5637	0.79
Robbery business	290	0.04
Robbery personal	2590	0.36
<b>Violence against the person</b>	<b>13170</b>	<b>1.84</b>
Most serious violence	756	0.11
<b>Anti-social behaviour</b>	<b>30493</b>	<b>4.26</b>

#### Related links

- [Crime prevention »](#)
- [Safer Neighbourhoods »](#)
- [Crime Mapping feedback »](#)

#### Last three months trend

Area	December	January	February
MPS	62890	63647	63786

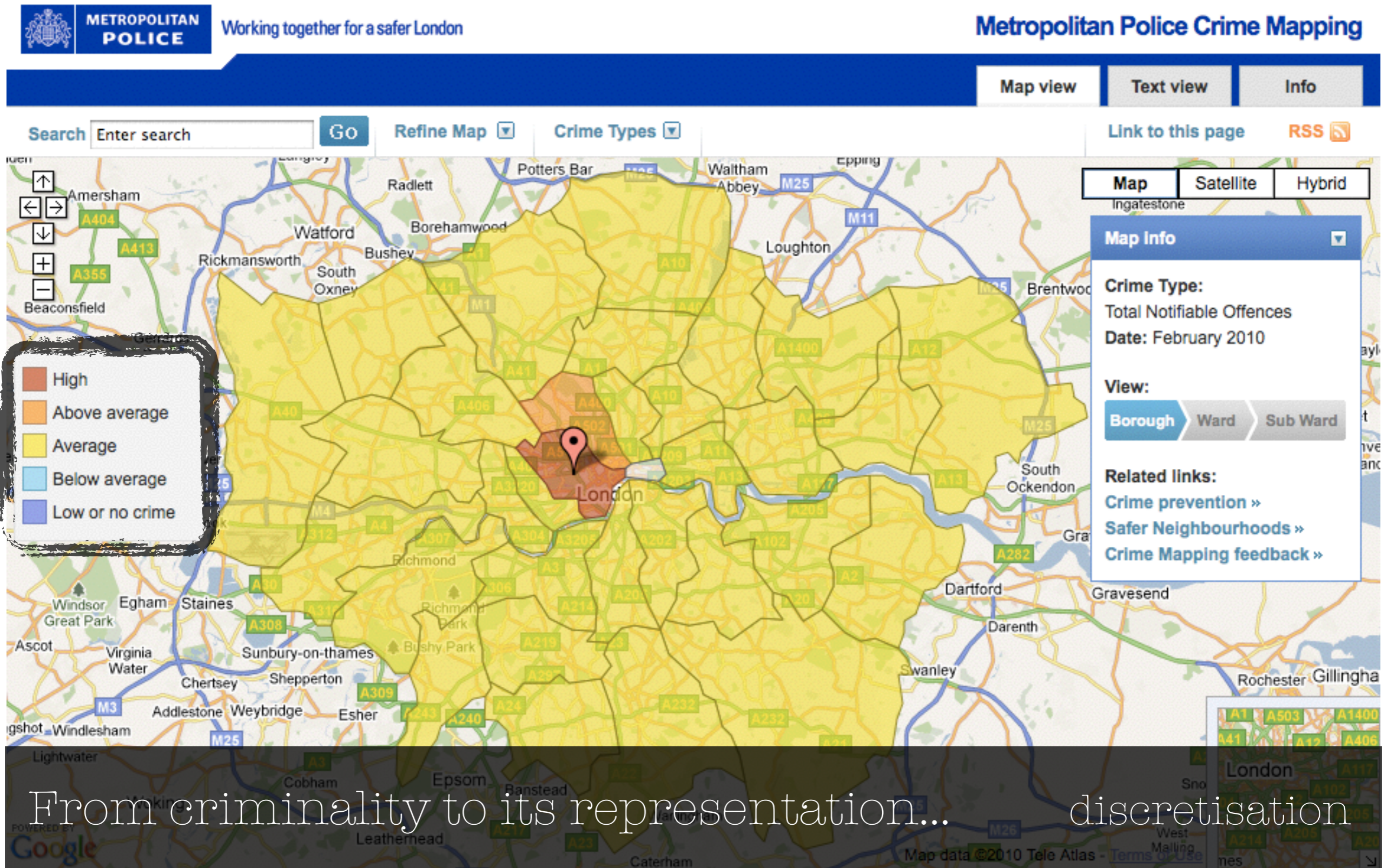
#### Annual crime count

Area	2006/07	2007/08	2008/09
------	---------	---------	---------

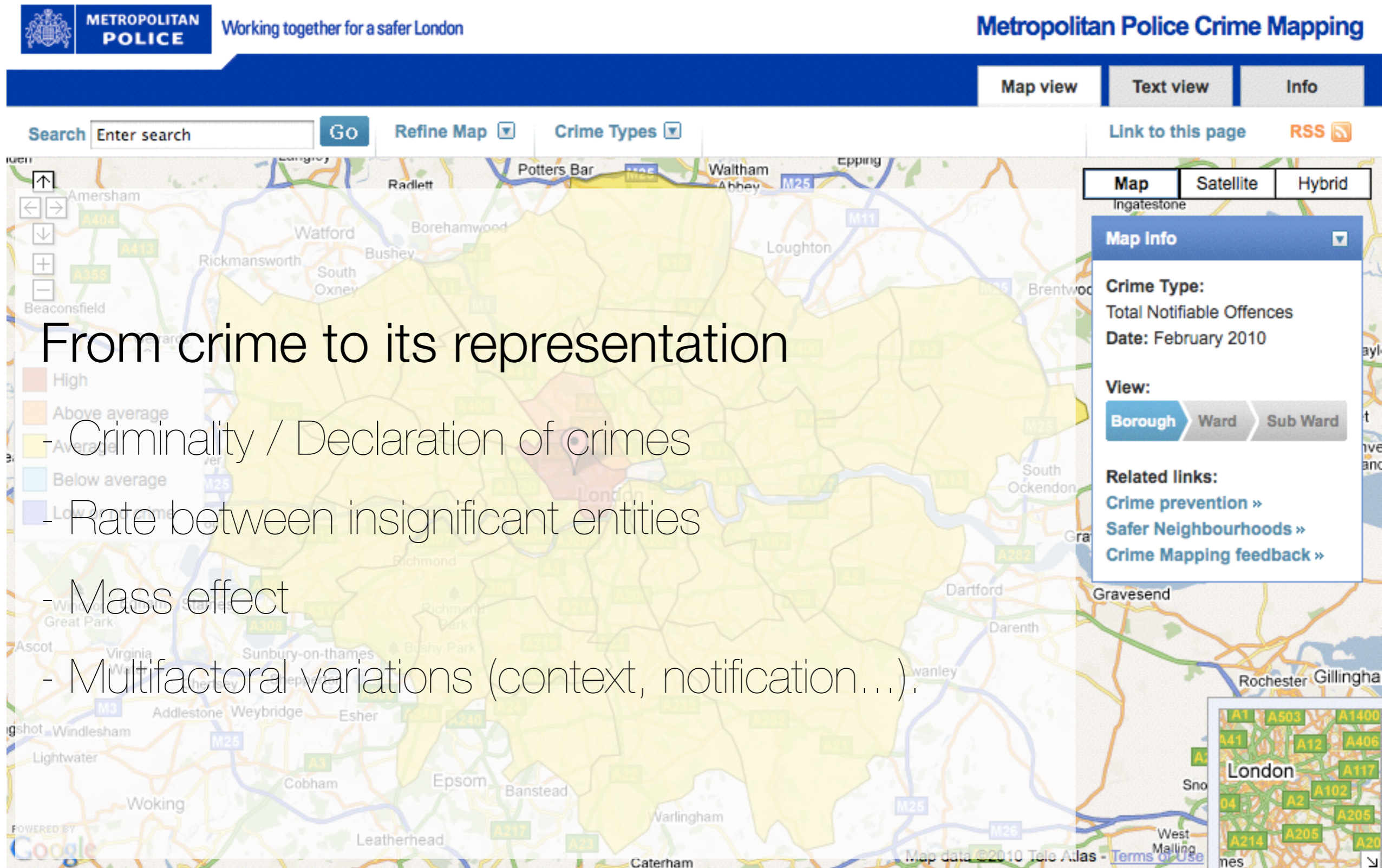
From criminality to its representation...

aggregation

# La transduction



# La transduction

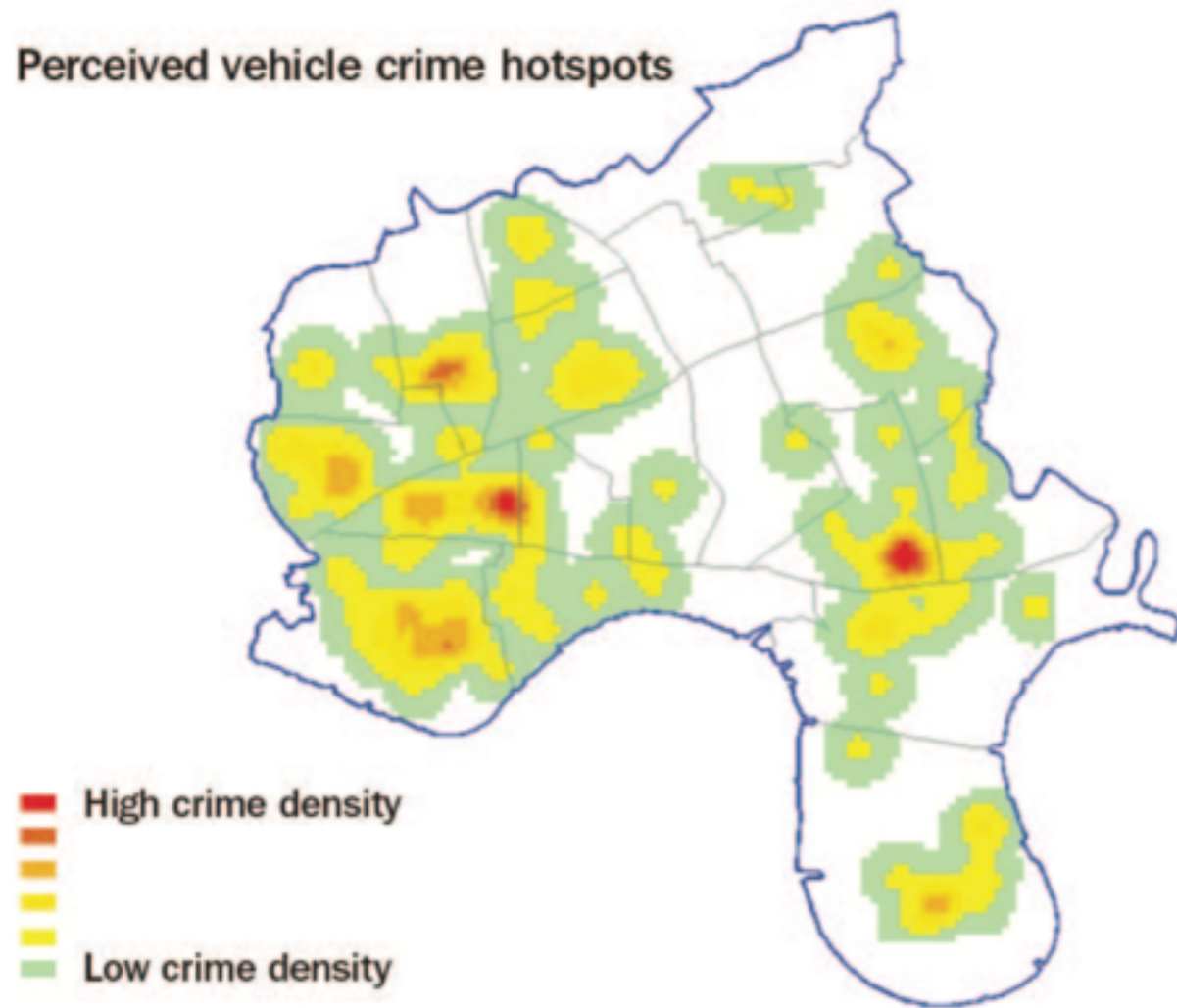


## From crime to its representation

- Criminology / Declaration of crimes
- Rate between insignificant entities
- Mass effect
- Multifactorial variations (context, notification...)

# La transduction

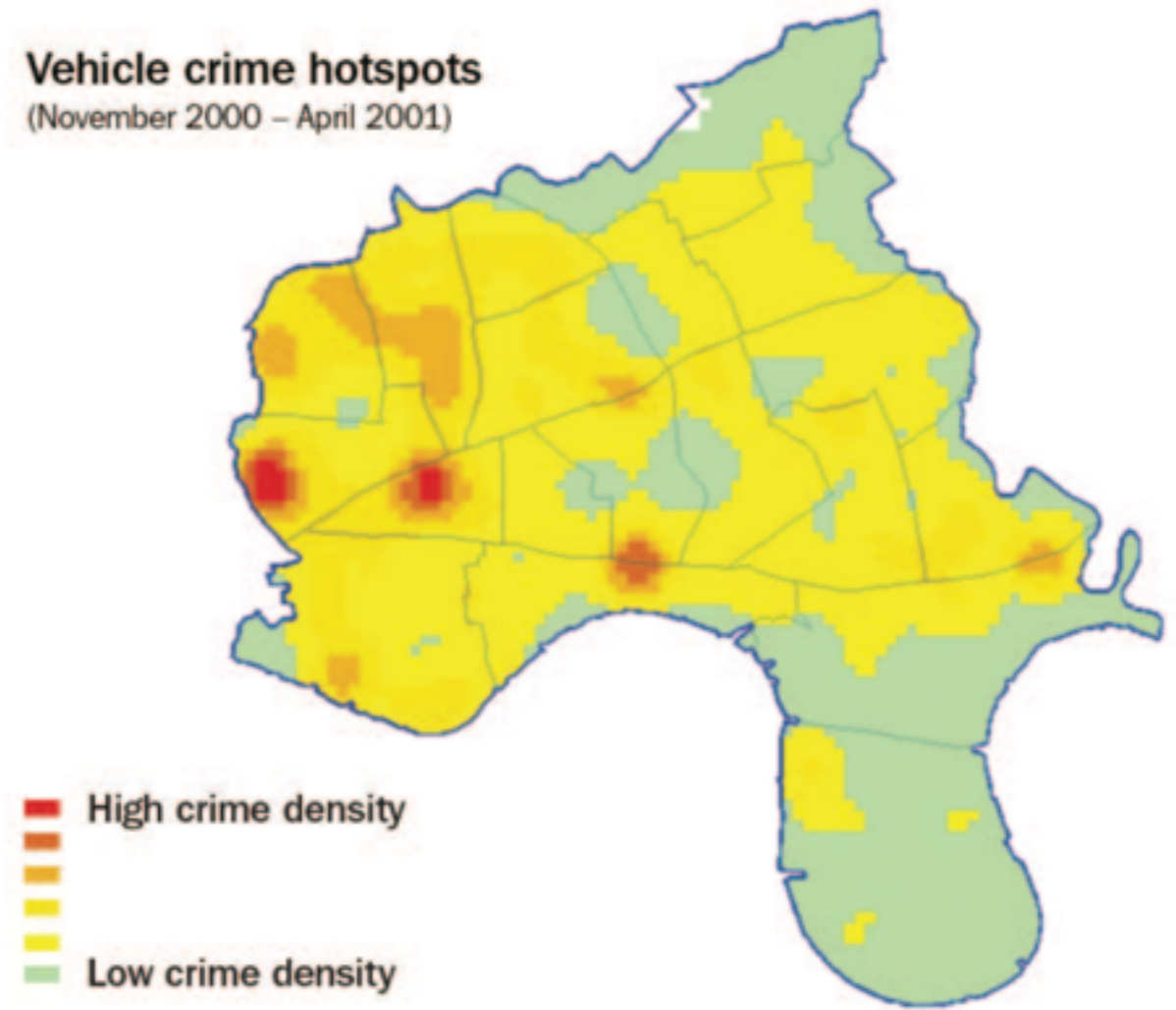
Perceived vehicle crime hotspots



Map A: Perceived hotspots

Vehicle crime hotspots

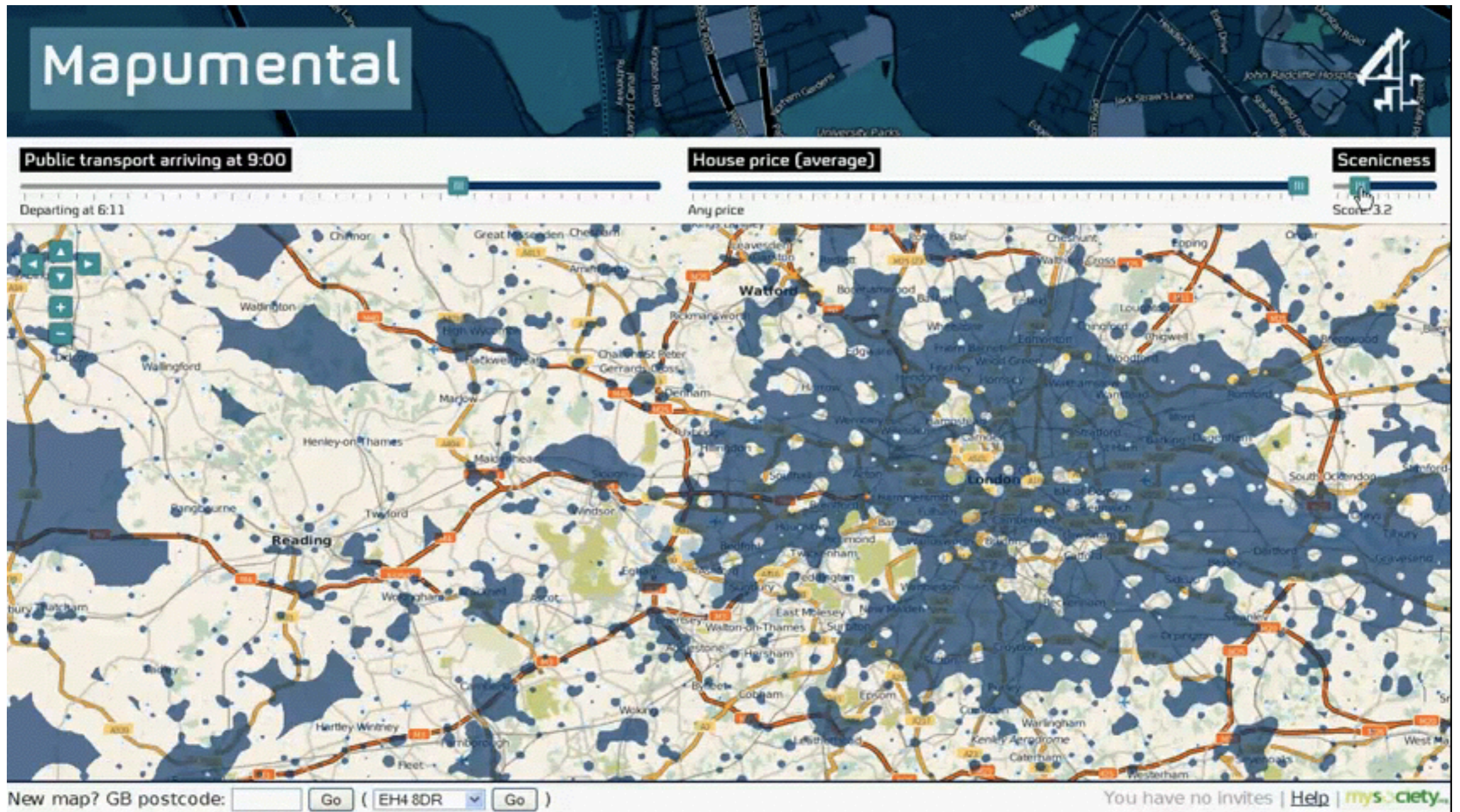
(November 2000 – April 2001)



Map B: Actual hotspots

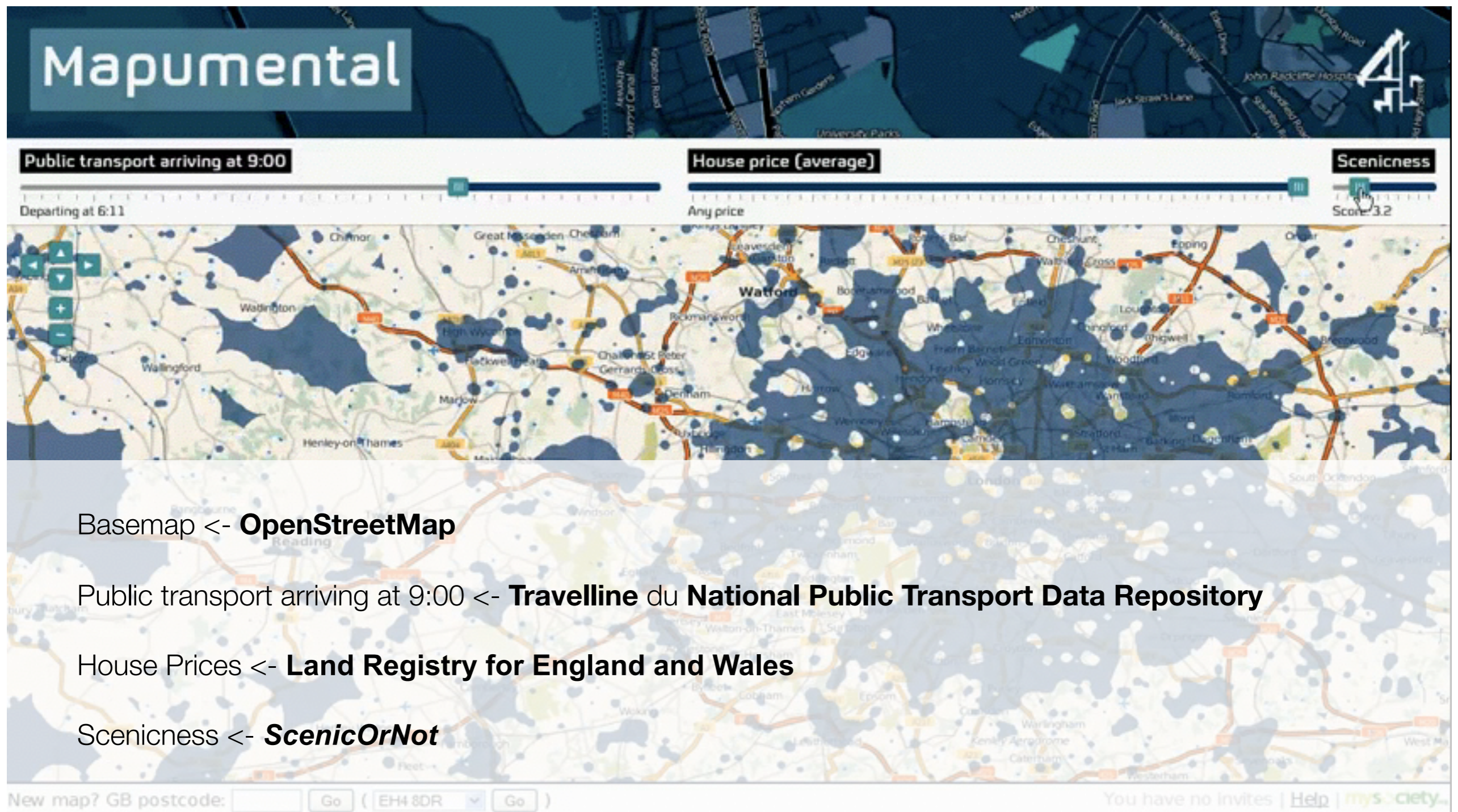
*Crime Mapping: Improving Performance, Home Office, « Perception de la criminalité par les officiers de police », 2005*

# La transduction



MySociety, Mapumental *beta*, 2010

# La transduction



MySociety, Mapumental *beta*, 2010



# La transduction

**SCENIC OR NOT**  
Rate Great Britain's pretty places

Home  
FAQ  
Leaderboard

You've just rated:



**The coastal path west of Golden Cap** ([map](#))  
Rating: 7 (from 2 votes)

**VOTING BOARD**  
- click numbers below to vote -

Not Scenic 1 2 3 4 5 6 7 8 9 10 Very Scenic



Photo by [trevor willis](#) ([Licence](#))

A mini-project for [mySociety](#). [Contact us](#).

# La transduction

## Home

View  
[Search](#)  
[Maps](#)  
[Explore](#)  
[Collections](#)

Interact  
[Games](#)  
[Activities](#)  
[Discussions](#)

Contributors  
[Submit](#)  
[Statistics](#)  
[Leaderboards](#)

General  
[FAQ](#)  
[Information](#)  
[Sitemap](#)  
[Contact Us](#)

sponsored by



## Share your Geographing Trips!

There are two new recent features worthy of highlight.

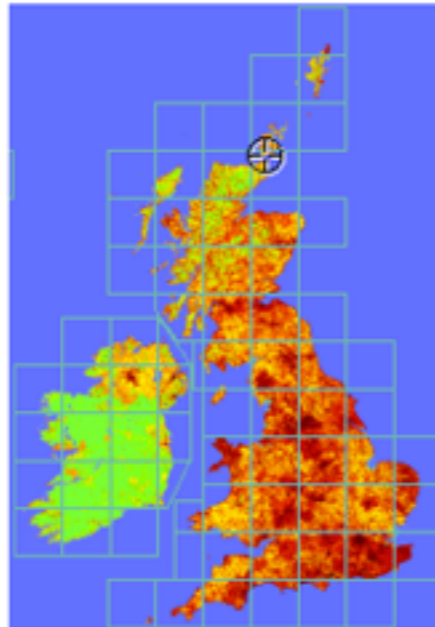
The first is the [new Blog section](#), linked in the left side-menu. Use this to share musings or interesting accounts of recent Geographing trips. Of course can illustrate the post with Geograph images easily.

## Welcome to Geograph Britain and Ireland

The Geograph Britain and Ireland project aims to collect geographically representative photographs and information for every square kilometre of [Great Britain](#) and [Ireland](#), and you can be part of it.

Looking for [Geograph British Isles?](#)


### Coverage Map



### Photograph of the day [\[more...\]](#)



#### [Skua attack](#)

 by [malcolm simpson](#) for [ND3884](#)  
Taken 25 Jun, 2009

### What is Geographing?

- It's a game - how many grid squares will you contribute? ·
- It's a geography project for the people ·
  - It's a national photography project ·
  - It's a good excuse to get out more! ·
- It's a free and [open online community](#) project for all ·

## Recent Photos

[\[more...\]](#)



[Cricket Pavilion](#) by [Julianne Savage](#) for square [TQ9384](#)



[Shoeburyness QF battery \(2\)](#) by [Julianne Savage](#) for square [TQ9384](#)



[Shoebury Garrison: Former Married Officers' Quarters](#) by [Nigel Cox](#) for square [TQ9384](#)



[Across the old Range](#) by [Glyn Baker](#) for square [TQ9384](#)



# La transduction

...

3

5

4

2



**4,23**  
*cv 0,32*

205 827 pictures  
1 349 343 votes  
6,55 votes average  
1 picture per 1 km<sup>2</sup>



**5,72**  
*cv 0,21*



**3,96**  
*cv 0,41*

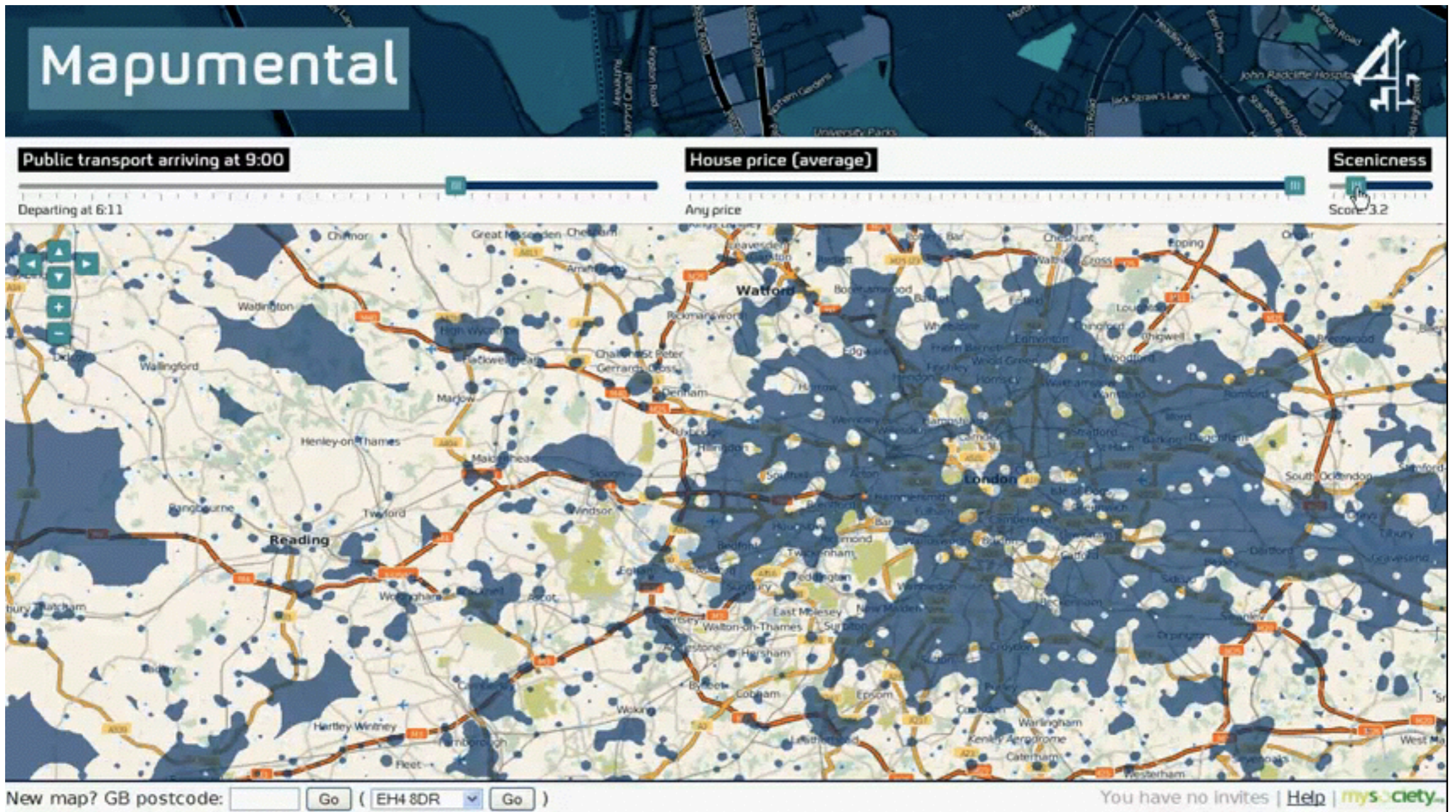


**3,11**  
*cv 0,39*



...

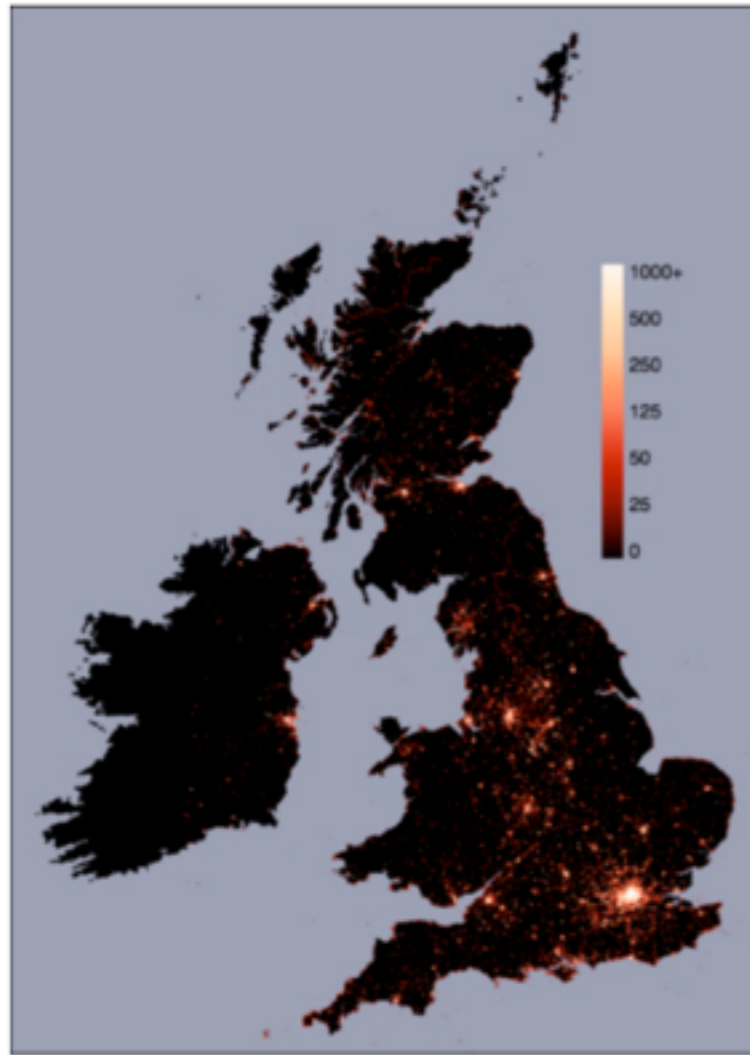
# La transduction



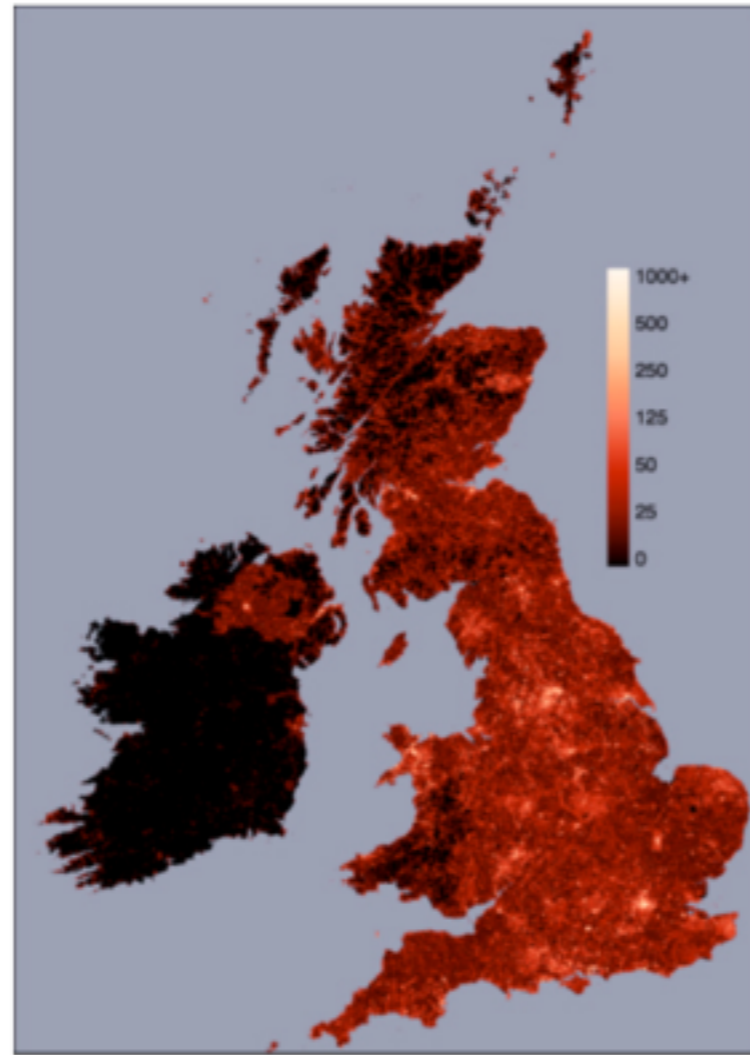
MySociety, Mapumental *beta*, 2010

Smart Big Data ?

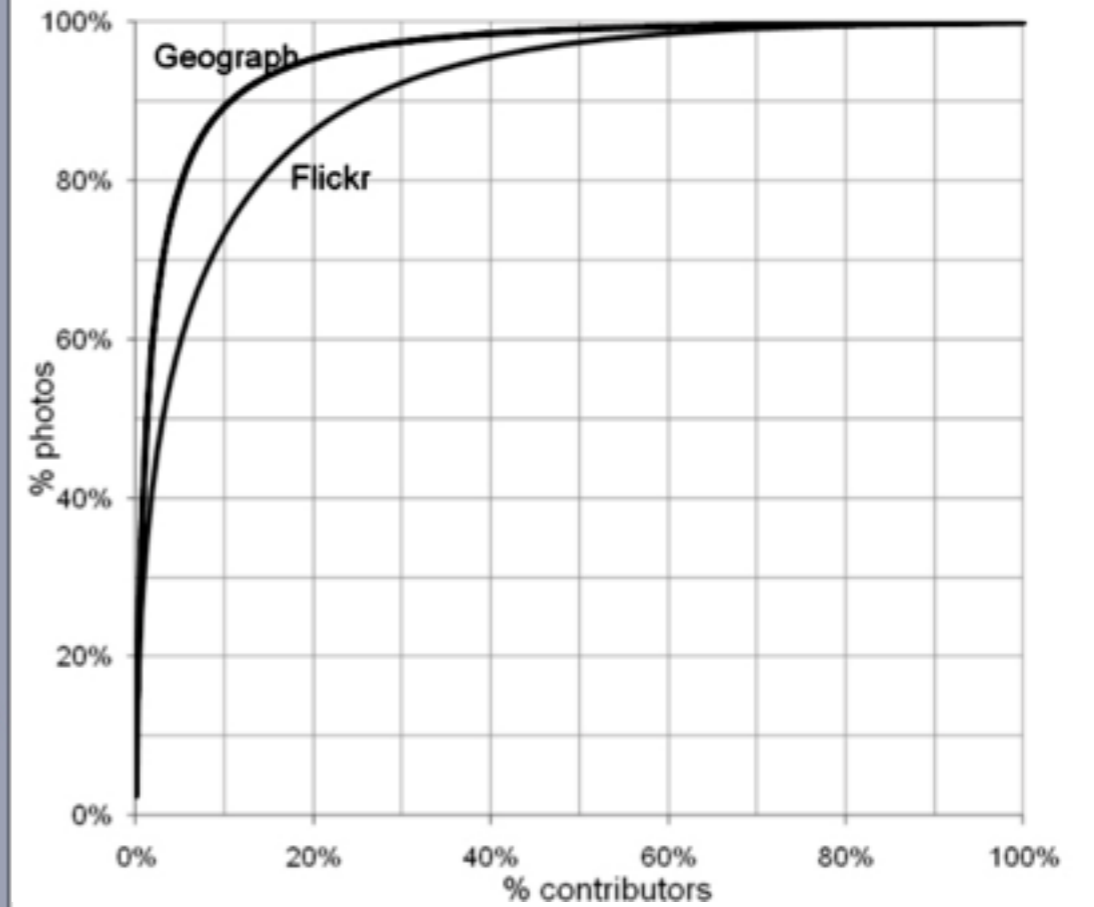
# Smart Big Data ?



Flickr



Geograph



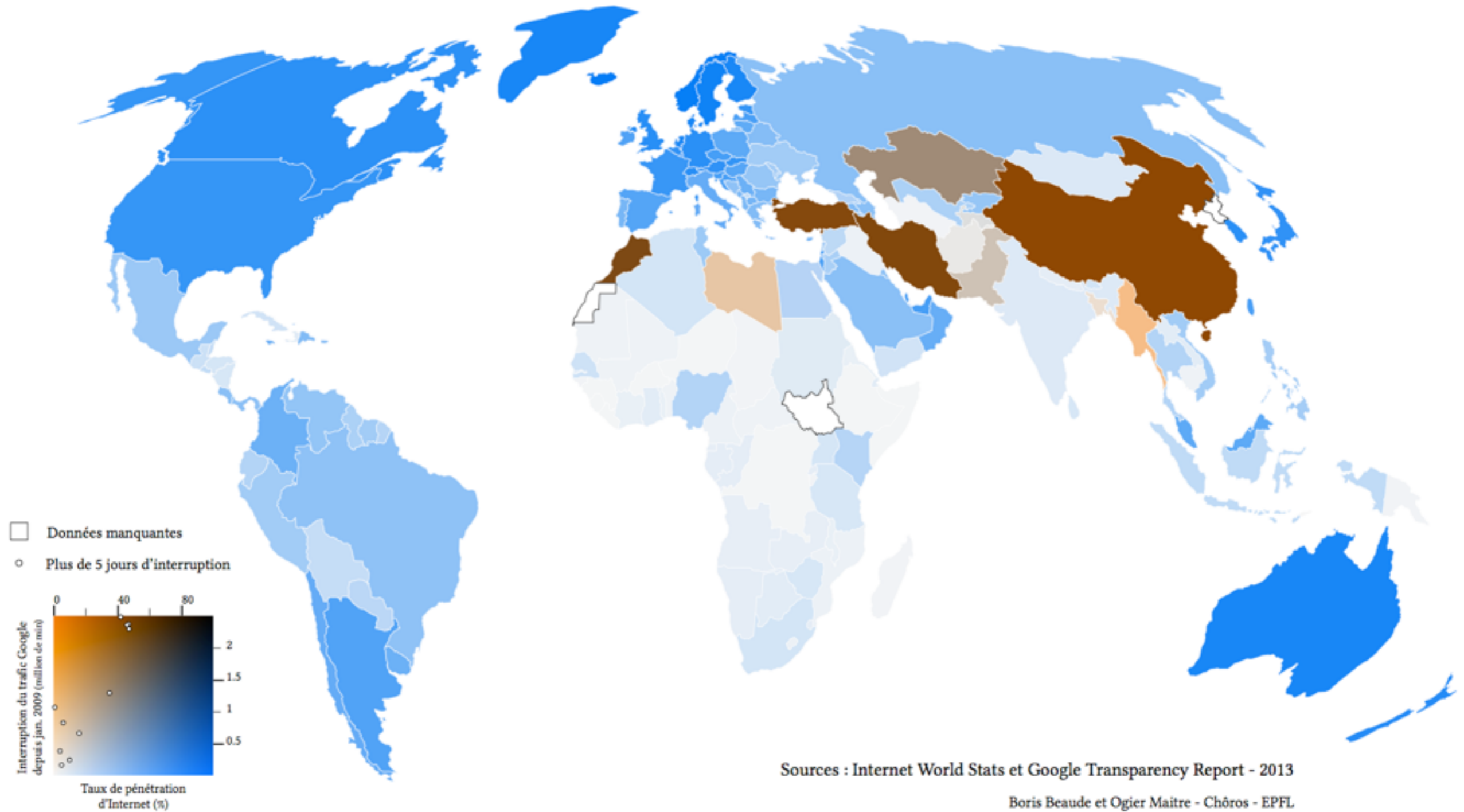
Purves et Edwardes, **Inégale représentativité spatiale à gauche et sociale à droite**, 2011

# Smart Big Data ?



Open Street Map et Cloud Made / 2008 / Lausanne - EPFL

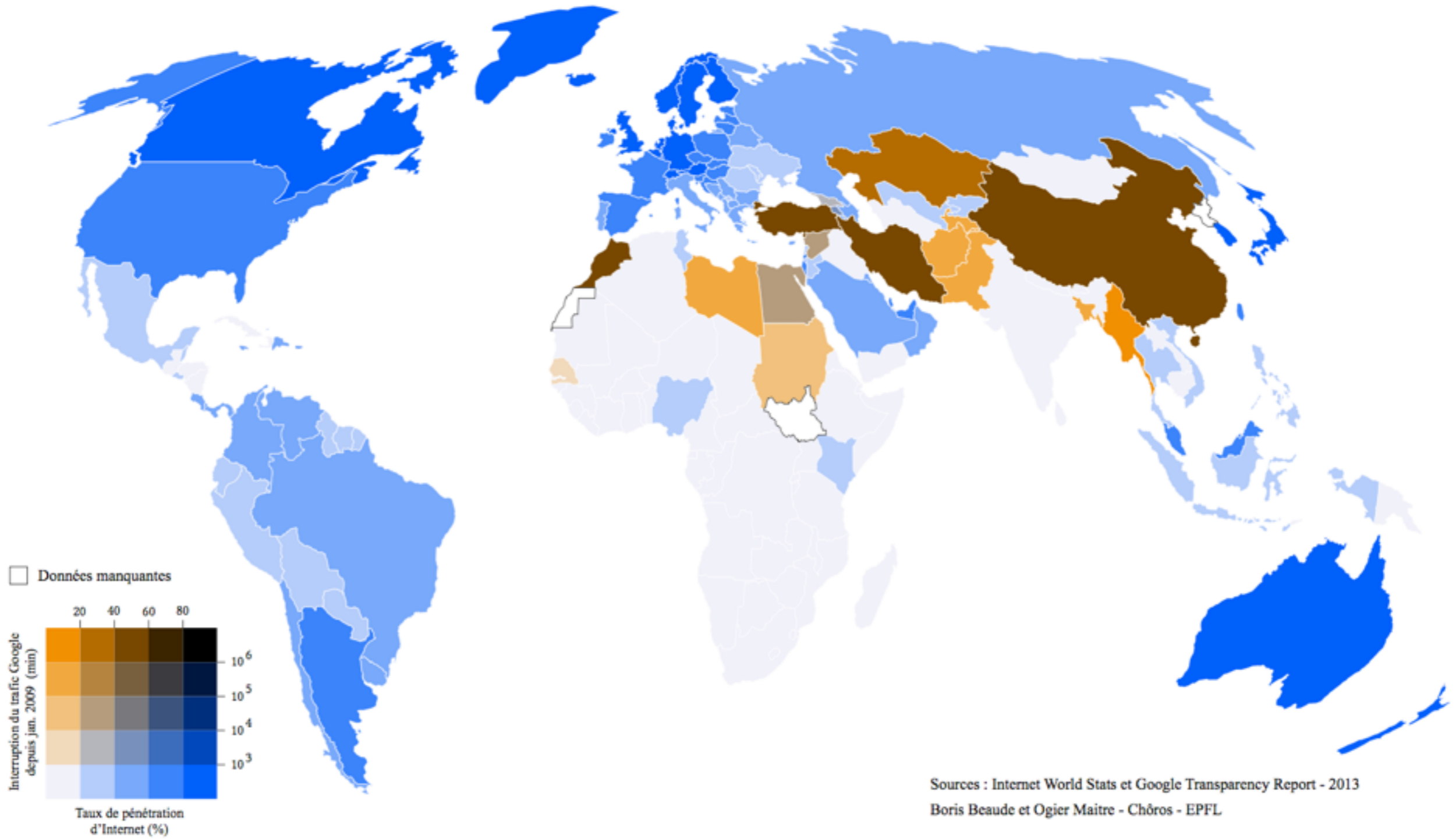
# Smart Big Data ?



Boris Beaudé et Ogier Maitre - **L'ubiquité fracturée** - 2014



# Smart Big Data ?

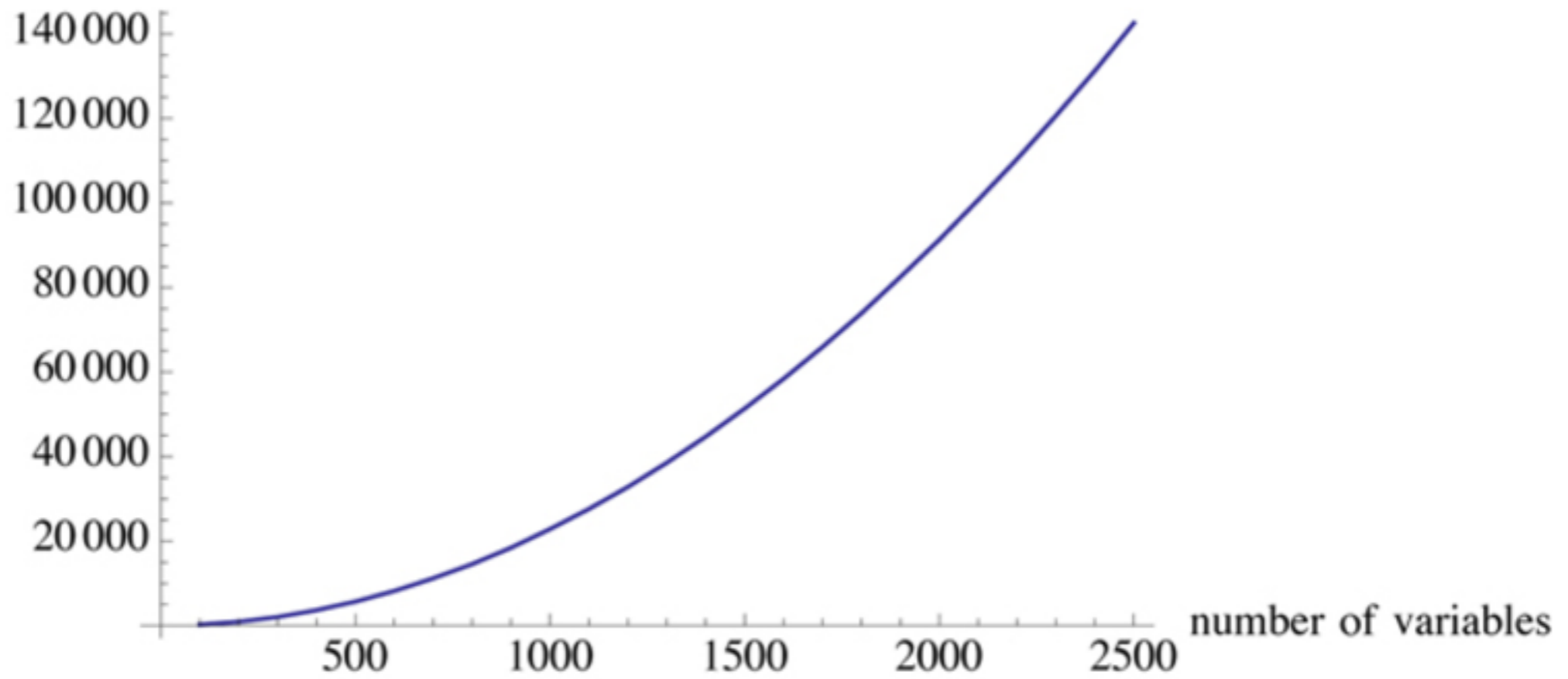


Boris Beaudé et Ogier Maitre - **L'ubiquité fracturée** - 2014

# Smart Big Data ?

---

Spurious Correlations



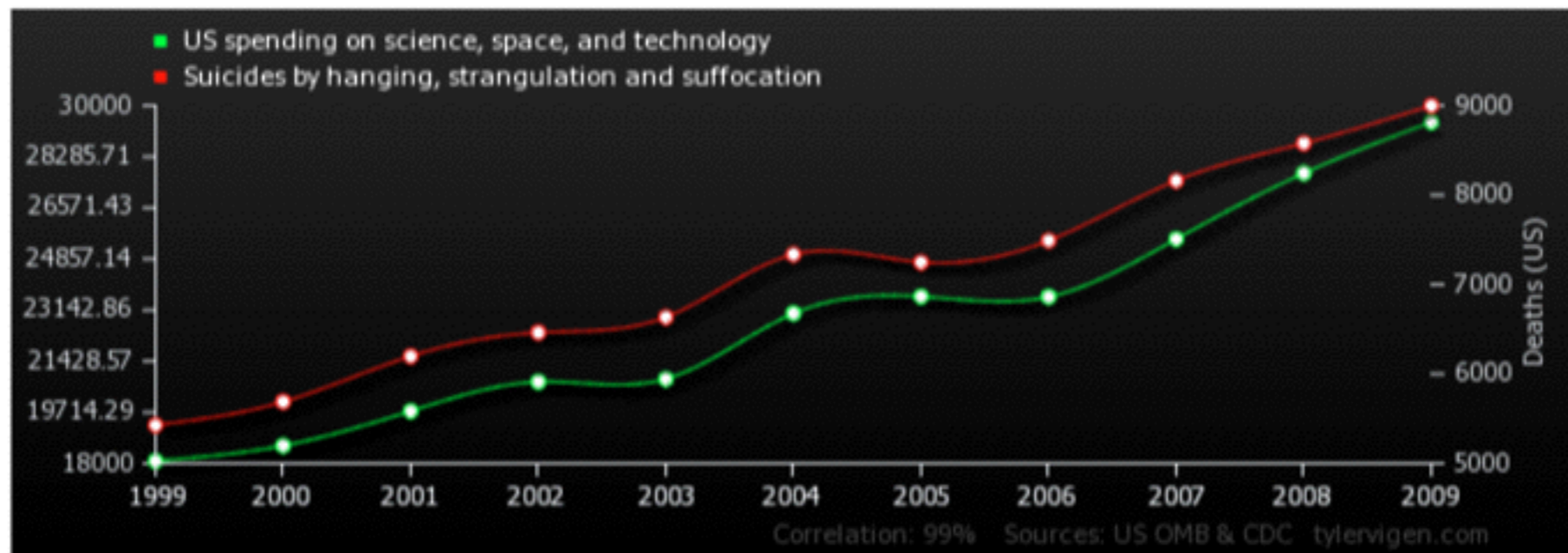
Nassim Taleb, **Antifragile**, 2014

# Smart Big Data ?

## spurious correlations

Discover a new correlation

US spending on science, space, and technology  
correlates with  
Suicides by hanging, strangulation and suffocation



	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>
<i>US spending on science, space, and technology Millions of todays dollars (US OMB)</i>	18,079	18,594	19,753	20,734	20,831	23,029	23,597	23,584	25,525	27,731	29,449
<i>Suicides by hanging, strangulation and suffocation Deaths (US) (CDC)</i>	5,427	5,688	6,198	6,462	6,635	7,336	7,248	7,491	8,161	8,578	9,000

**Correlation: 0.992082**

Tyler Vigen, **Spurious correlations**, 2014

# Smart Big Data ?

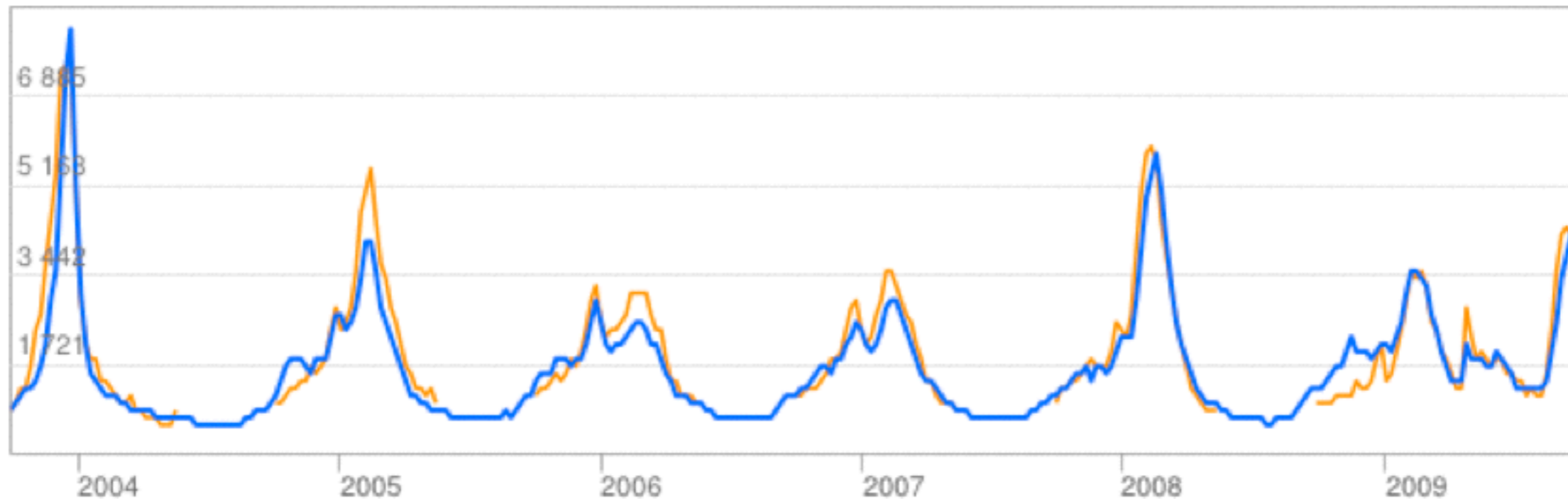
Estimations historiques

Voir les données pour : États-Unis

## États-Unis - Propagation du virus

Estimation de la grippe

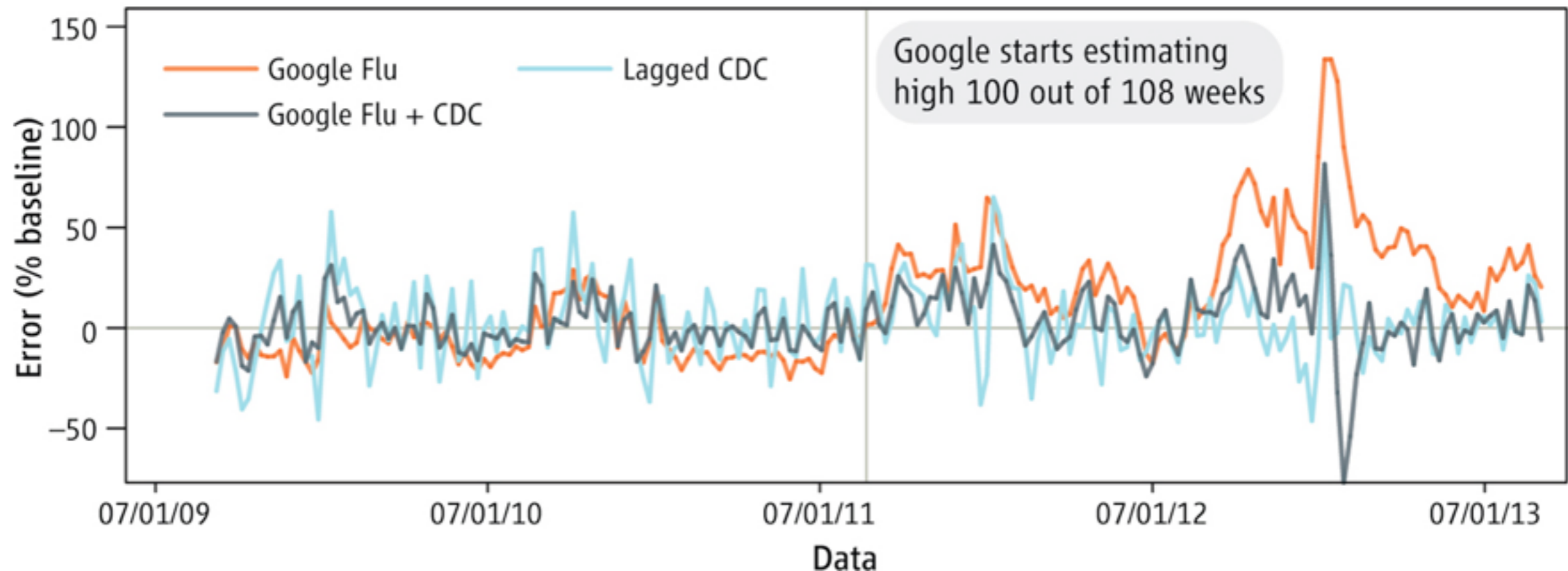
● Estimation Google Suivi de la grippe ● Données pour : États-Unis



États-Unis : Données publiques sur le syndrome grippal (ILI) fournies par les [Centres américains de prévention et de contrôle des maladies](#).

Ginsberg, Jeremy et al. 2008. "Detecting influenza epidemics using search engine query data." *Nature* 457(7232): 1012–1014.

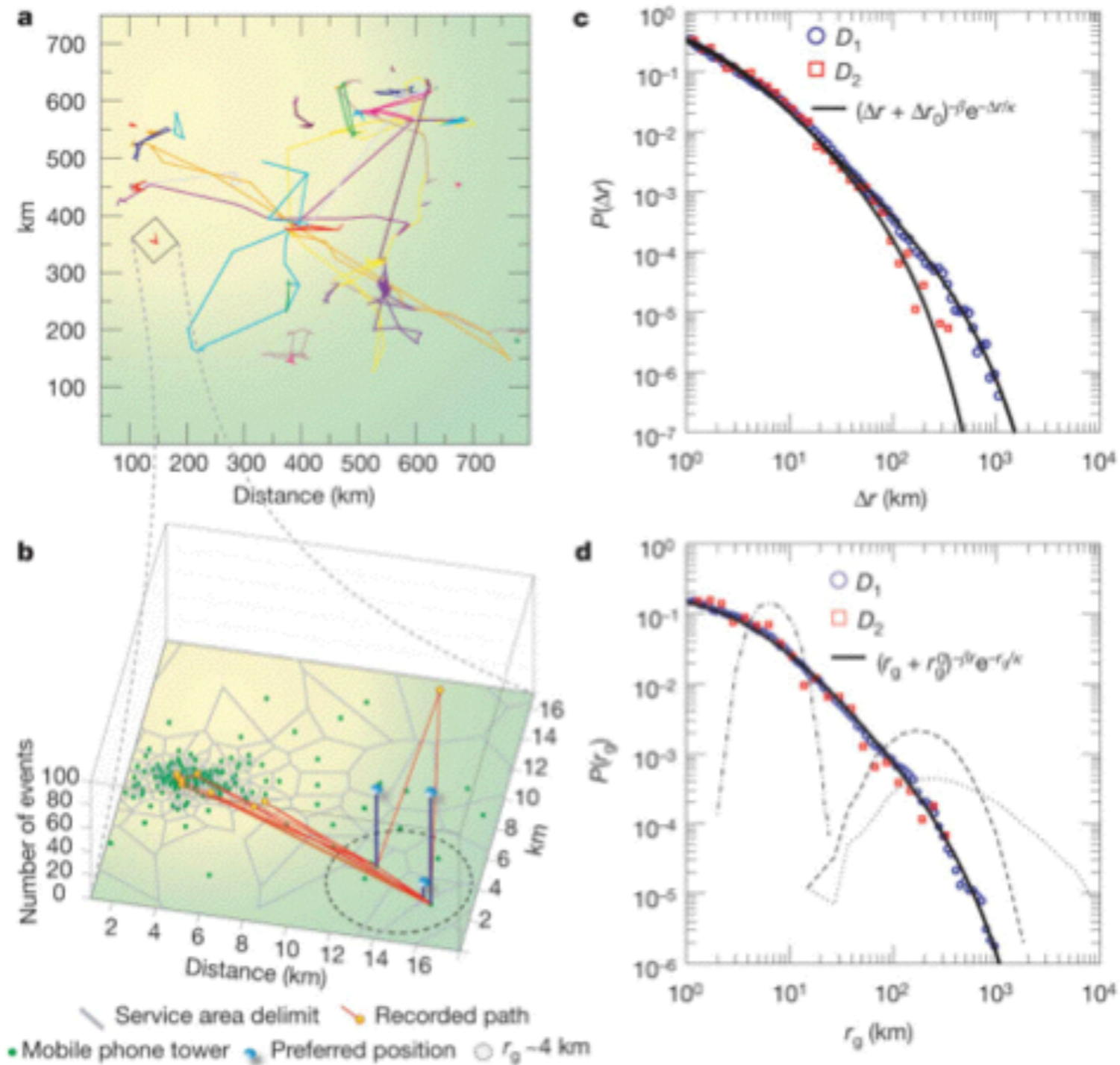
# Smart Big Data ?



« Instead of focusing on a “big data revolution,” perhaps it is time we were focused on an “all data revolution,” where we recognize that the critical change in the world has been innovative analytics, using data from all traditional and new sources, and providing a deeper, clearer understanding of our world ».

David Lazer, et al. 2014, **The Parable of Google Flu: Traps in Big Data Analysis**, Science 343(6176): 1203-1205.

# Smart Big Data ?



González, Marta C, César A Hidalgo, and Albert-László Barabási. 2008. "Understanding individual human mobility patterns." Nature 453(7196): 779–782.

# Smart Big Data ?

---

Google

comment \_\_\_\_\_ après|



comment **maigrir** après **accouchement**  
comment **maigrir** après **50 ans**  
comment **tenir** après **une nuit blanche**  
comment **réagir** après **une rupture**  
comment **vivre** après **une rupture**  
comment **maigrir** après **une grossesse**  
comment **maigrir** après **la ménopause**  
comment **réagir** après **un rateau**  
comment **vivre** après **un divorce**  
comment **rebondir** après **une rupture**

# Smart Big Data ?

---

« Big data: are we making a big mistake? »

*Tim Harford, Financial Times Magazine, March 28, 2014.*



- N=all doesn't exist
- Sampling error & Sampling bias
- Correlations are not causation
- We are not studying a stable environment