From People to People - The Self-Benefit of Crowdsourced Cycling Data as Part of the European Cycling Challenge

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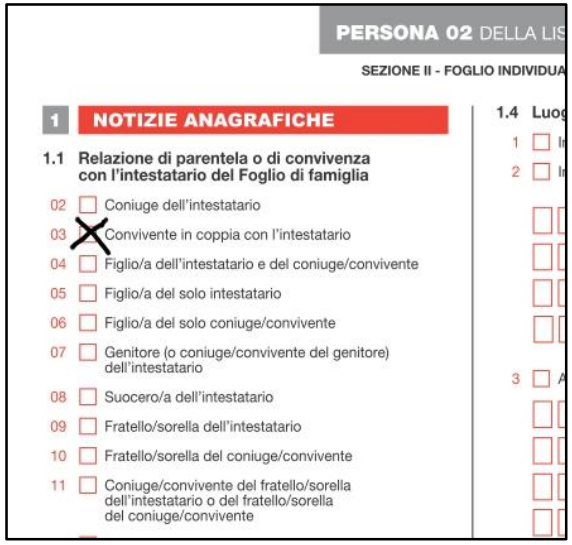
About us

SRM is the local Authority for Public Transport in Bologna area.
SRM is also the inventor and the organizer of the European Cycling Challenge

The **European Cycling Challenge** is the biggest urban cyclists' team competition, which takes place every year May, 1-31.



State of the art

Users can be «produsers»

In collaborative communities the creation of shared content takes place in a networked, participatory environment which breaks down the boundaries between producers and consumers and instead enables all participants to be users as well as producers of information and knowledge - frequently in a hybrid role of *produser* where usage is necessarily also productive. [produsage.org]




Being a produser of crowdsourced data

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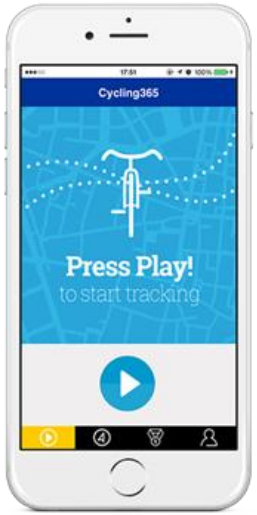
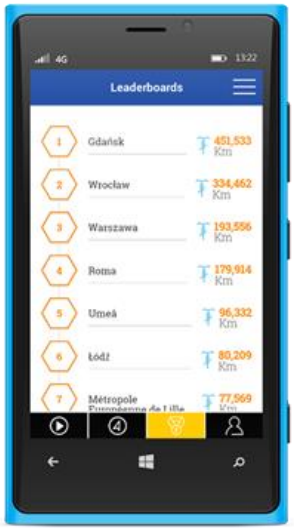
endomondo
FREE YOUR ENDORPHINS

Cycling365

naviki





Bicycle + Smartphone = Data

Bicycle + Smartphone + Competition = More data!

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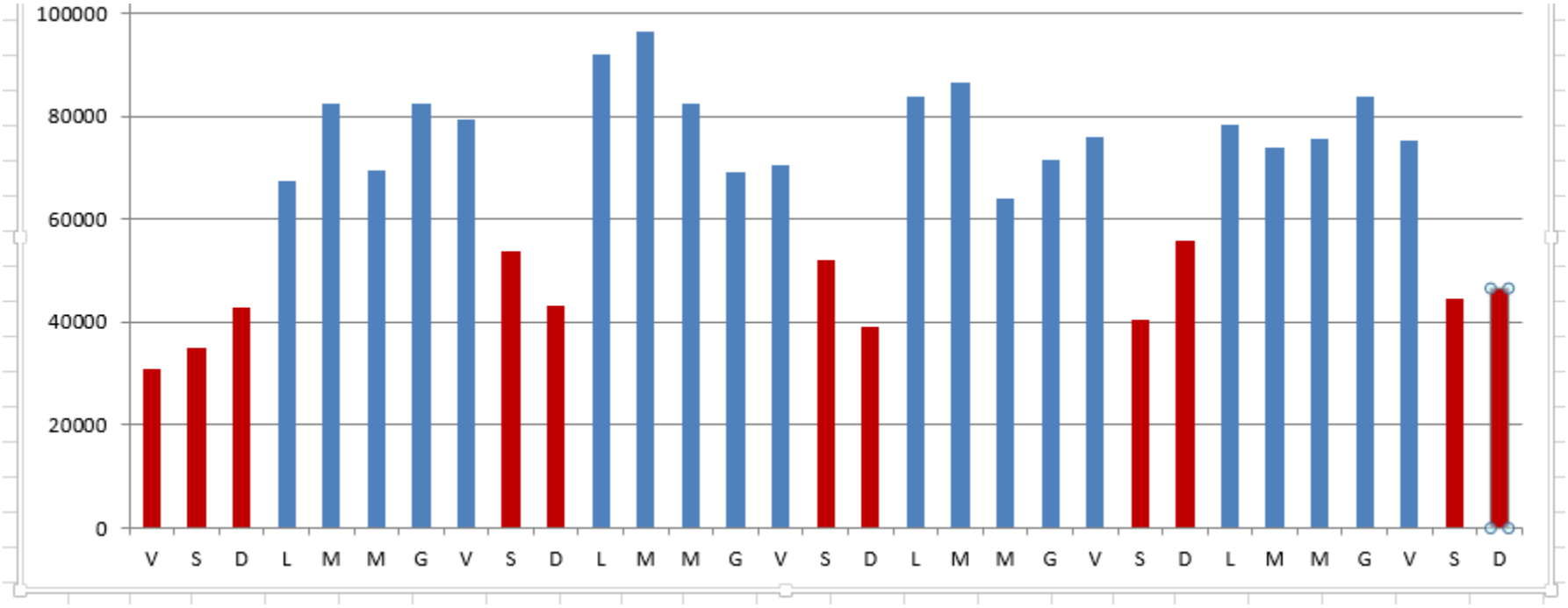
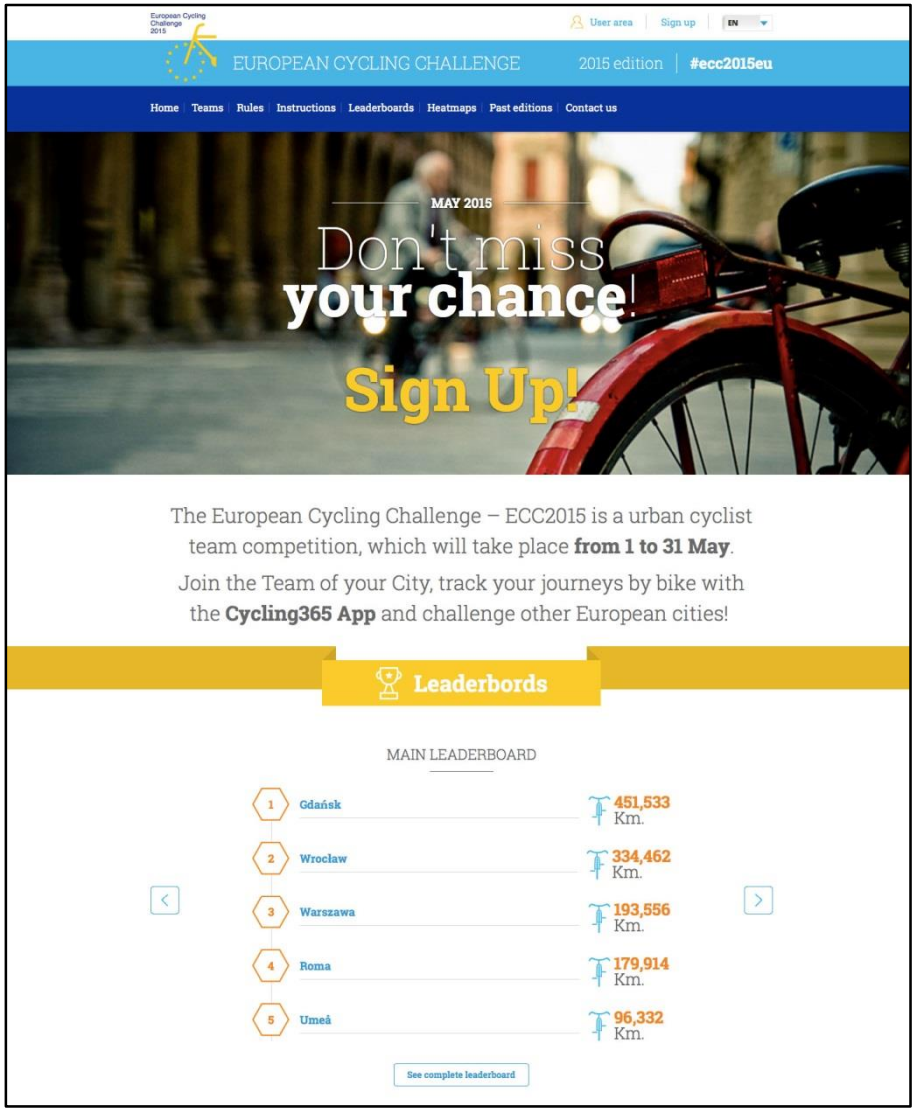
Distribution on a weekly basis





1	Marco Amadori	378 Km.
2	Tommaso BONINO	330 Km.
3	Eugenio Margelli	325 Km.
4	maurizio coppari	316 Km.
5	Giuseppe Liguori	315 Km.
6	Giorgio Fiorillo	209 Km.
7	Neva Divani	200 Km.

Companies

1	Città Metropolitana di Bologna	7,722 Km.
2	SRM	2,901 Km.
3	Telecom Italia	2,058 Km.
4	Regione Emilia-Romagna	1,941 Km.
5	Radio Città del Capo	1,379 Km.
6	EOStech	789 Km.

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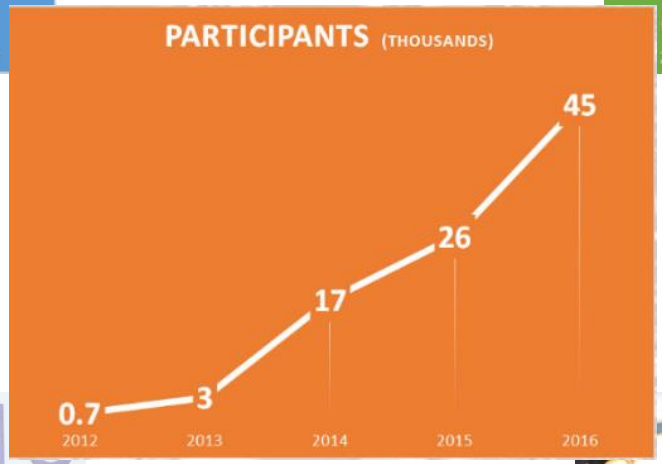
We get rewarded



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What kind
of data
we
collect?

This kind of data

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	TripID, TimeStamp,Date, Latitude, Longitude, Altitude, Distance, Speed, Type														
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In Bologna, in May 2016
16,830 trips tracked - 4,395,204 points collected - 119,337 km tracked

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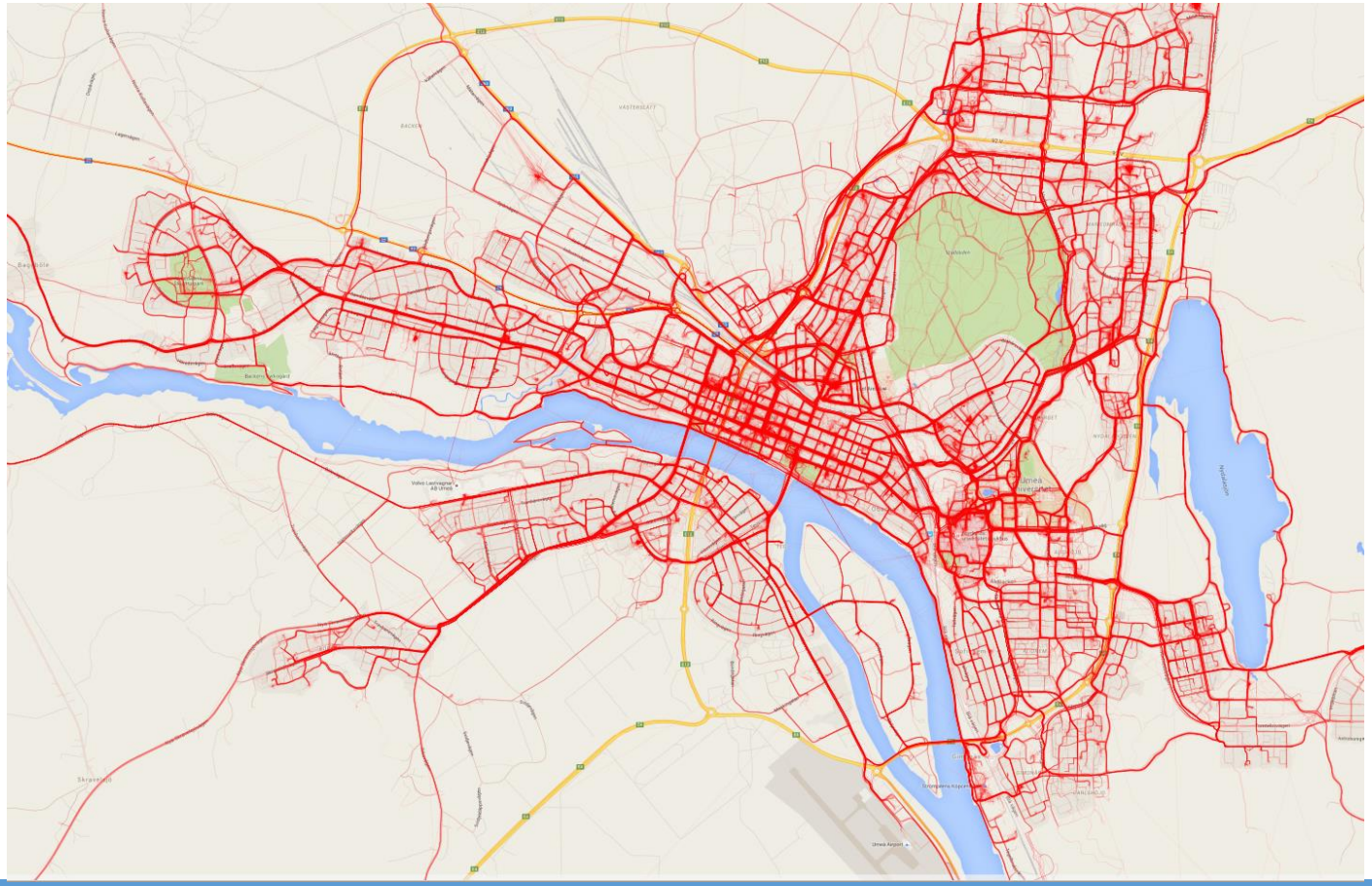
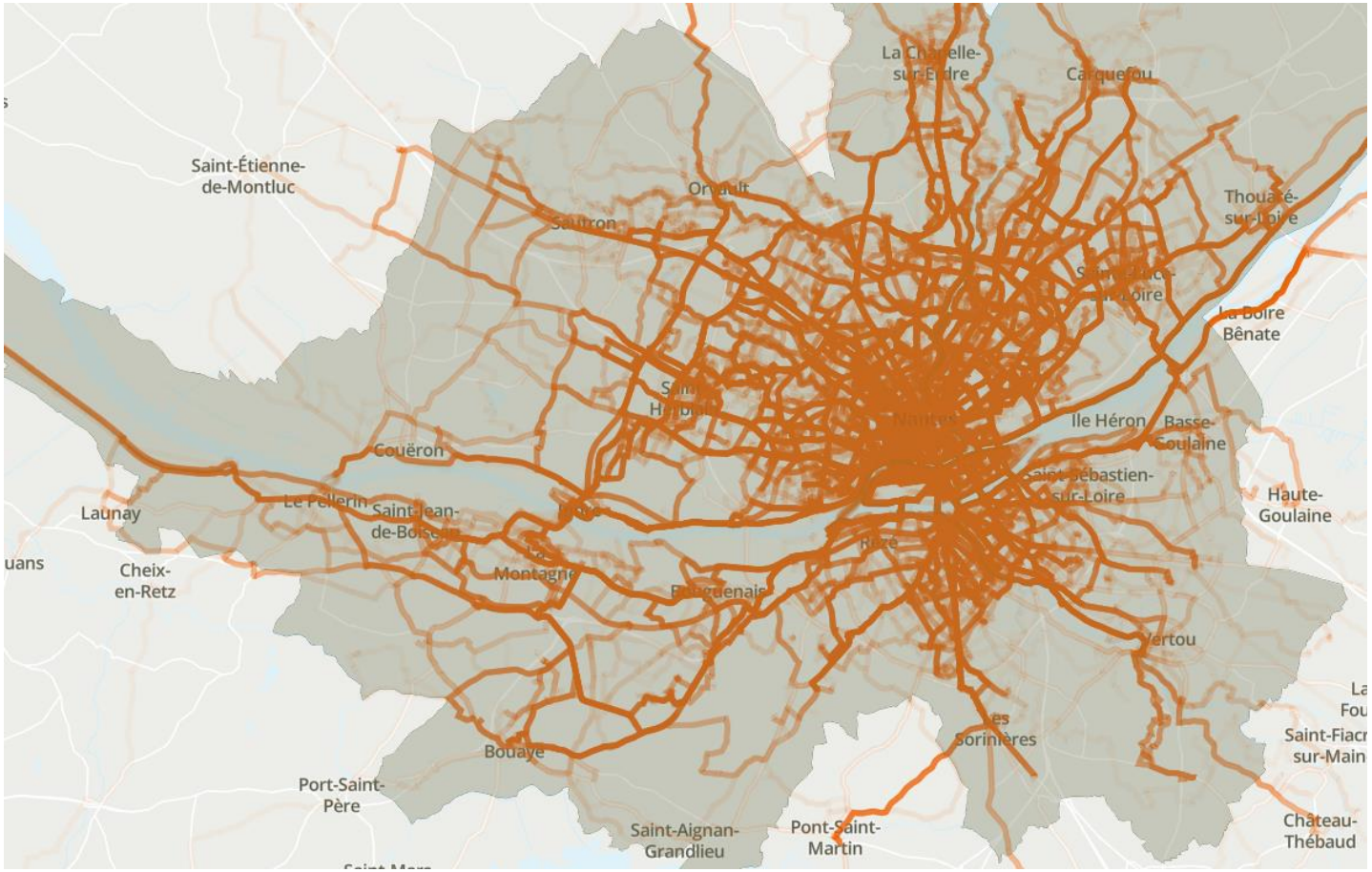
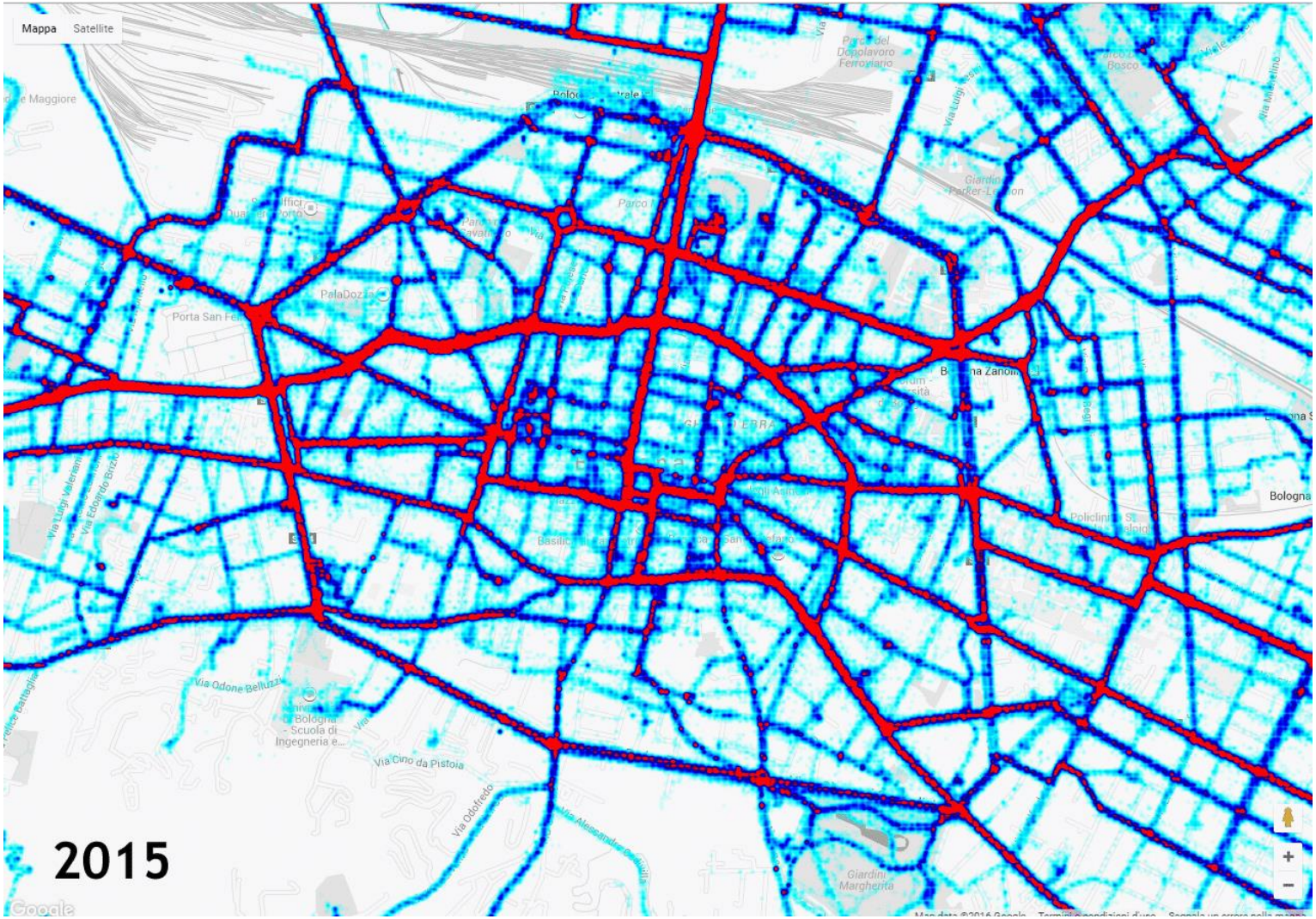
Umea, (SE).



Nantes (FR).

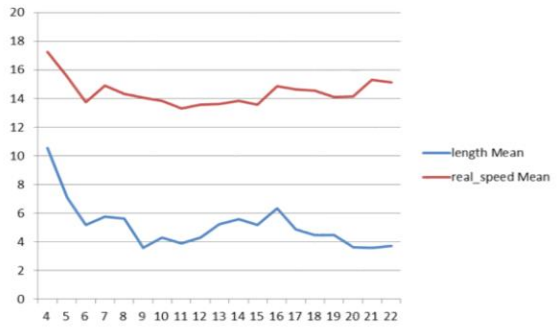

Saint-Étienne-de-Montluc
Couëron
Launay
Cheix-en-Retz
Bouaye
Port-Saint-Père
Saint-Aignan-Grandlieu
Pont-Saint-Martin
Ile Héron
Basse-Goulaine
Haute-Goulaine
Thouaré-sur-Loire
La Boire Bênate
Vertou
Château-Thébaud

Bologna (downtown), 2015 Vs. 2016.



Distribution of trips, average speed and distance in Antwerp (BE), 2015

Speed



Start (hour)		Distance (mean)	Speed (mean)
	4	11	17
	5	7	16
	6	5	14
	7	6	15
	8	6	14
	9	4	14
	10	4	14
	11	4	13
	12	4	14
	13	5	14
	14	6	14
	15	5	14
	16	6	15
	17	5	15
	18	4	15
	19	4	14
	20	4	14
	21	4	15
	22	4	15
	...		

THE EARLY BIRDS CYCLE FASTER

TRIPS OUTSIDE HOMEWORK TRAVEL HOURS ARE SHORTER

MAIN SPEEDS ARE QUITE STABIL

Cycling policy Urban development

Dag x uur

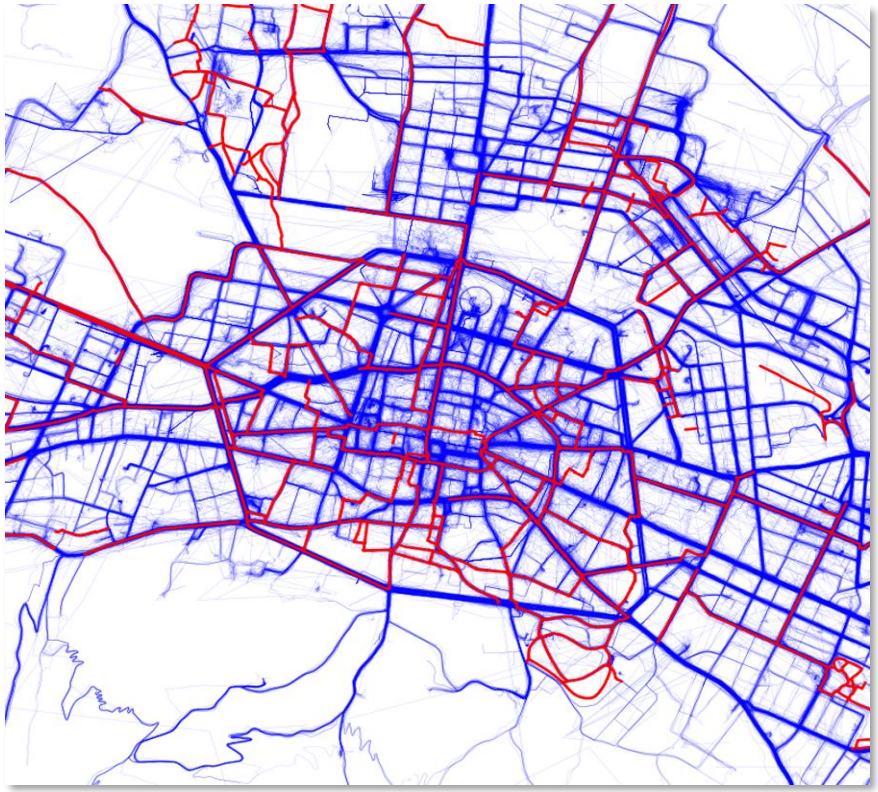
	Maandag	Dinsdag	Woensdag	Donderdag	Vrijdag	Zaterdag	Zondag
0	0	0	0	3	4	2	6
1	0	0	1	1	3	2	2
2	1	0	2	0	0	3	2
3	0	1	0	0	0	0	0
4	7	11	7	10	2	1	1
5	27	35	30	23	27	0	1
6	50	60	65	59	47	2	0
7	27	51	49	37	40	10	9
8	48	54	71	53	59	18	20
9	25	23	36	30	26	18	29
10	15	24	33	21	37	29	25
11	26	31	32	22	20	34	16
12	24	24	31	27	21	24	25
13	24	28	25	31	24	25	26
14	45	51	49	44	50	21	19
15	58	61	53	53	45	16	25
16	55	50	53	51	46	11	10
17	43	53	52	56	41	19	16
18	34	28	36	35	18	21	16
19	10	29	23	21	15	9	7
20	8	22	20	23	16	4	6
21	7	11	9	9	10	8	5
22	5	11	9	5	5	4	10
23	2	5	2	6	3	2	3

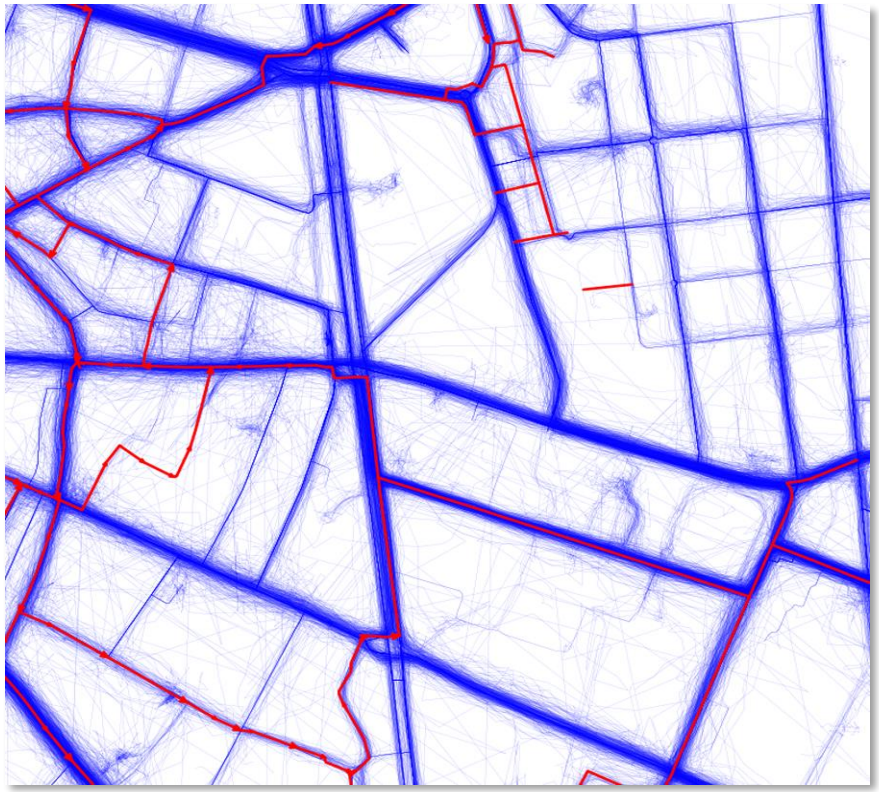
Cycling policy Urban development

Average distances per city or country (e.g. Italian cities comparison), 2015

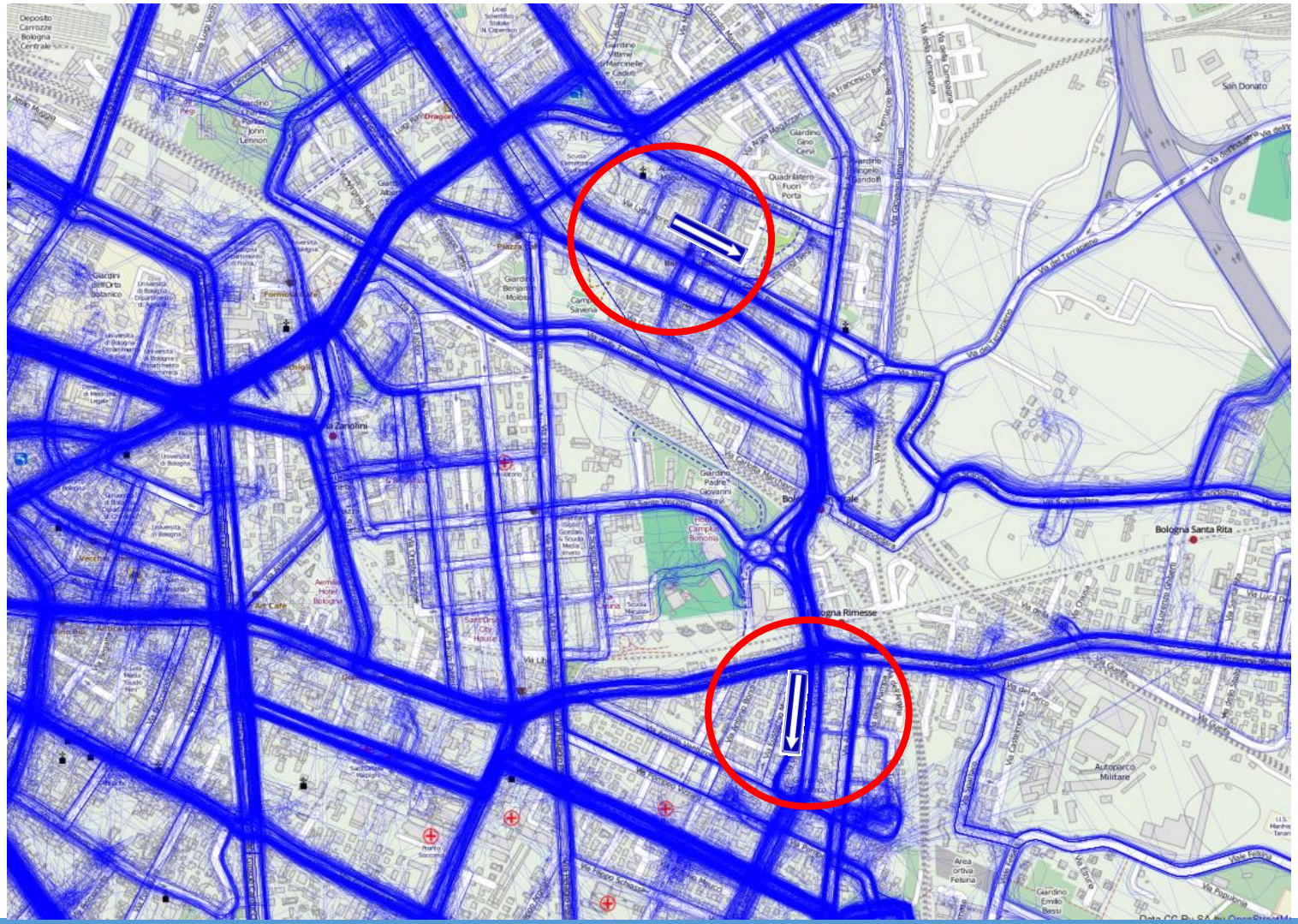
Città	Paese	Popolazione	Distanze medie
Klaipeda	Lithuania	157.350	10,9
Gdynia	Poland	247.821	10,6
Çankaya Belediyesi	Turkey	914.500	10,6
Telšiai	Lithuania	57.700	10,3
Warsaw	Polonia	1.724.404	10,0
Gdansk	Poland	461.531	9,6
Kaunas	Lithuania	304.100	9,6
Algarve	Portugal	451.006	9,4
Nicosia	Cyprus	430.616	9,1
Tallinn	Estonia	435.551	8,5
Cagliari	Italy	149.576	8,1
Bristol	UK	432.500	7,8
Lodz	Poland	715.360	7,8
Napoli	Italy	1.061.644	7,7
Roma	Italy	2.869.461	7,6
Wrocław	Poland	632.067	7,5
Zagreb	Croatia	779.145	7,0
Barcelona	Spain	1.602.000	7,0
Dubvrovnik	Croatia	122.870	6,8
Aalborg	Denmark	130.853	6,1
Lille Métropole	France	1.120.000	6,0
Antwerp	Belgium	502.604	5,6
Savona	Italy	94.539	5,5
Lycksele	Sweden	12.270	5,5
Nantes Métropole	France	579.802	5,2
Växjö	Sweden	86.970	5,1
Umeå	Sweden	119.613	5,1
Padova	Italy	214.125	5,0
Bologna	Italy	386.298	4,9
Gaevleborg Region	Sweden	276.323	4,7
Bergslagen	Sweden	55.959	4,7
Örebro	Sweden	142.618	4,7
Östersund	Sweden	60.495	4,6
Brescia	Italy	194.308	4,1
Tartu	Estonia	98.000	4,0
Reggio Emilia	Italy	171.655	3,5

Cycle Tracks Vs. Actual Behaviour

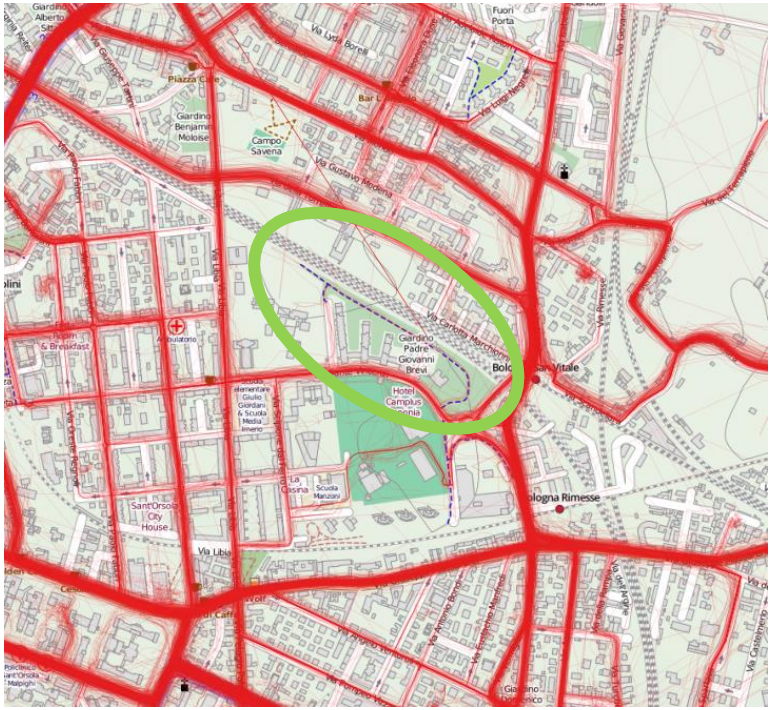




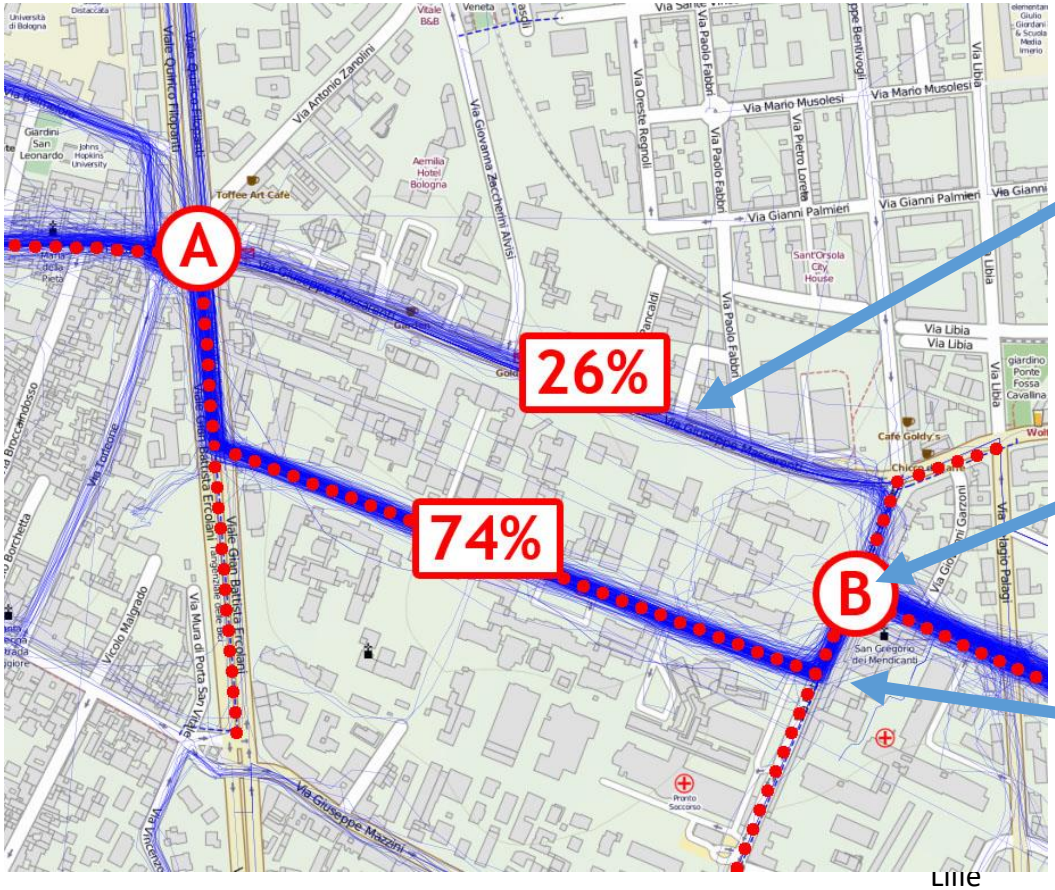
Riding against traffic

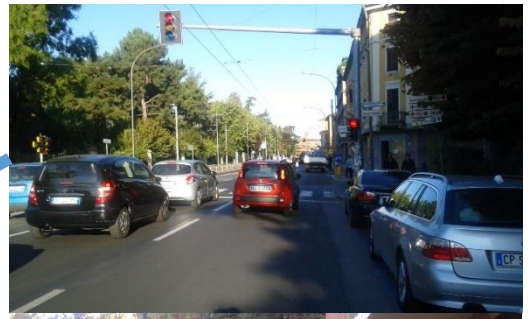


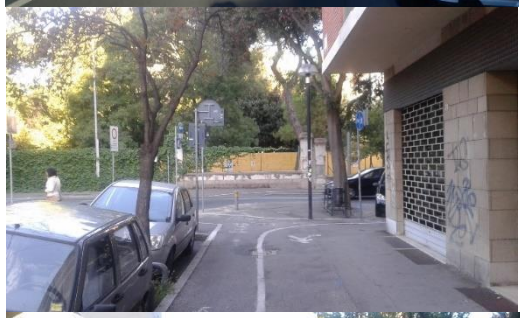
Useless Cycle tracks’



Detailed Studies on Specific Paths and Behaviours

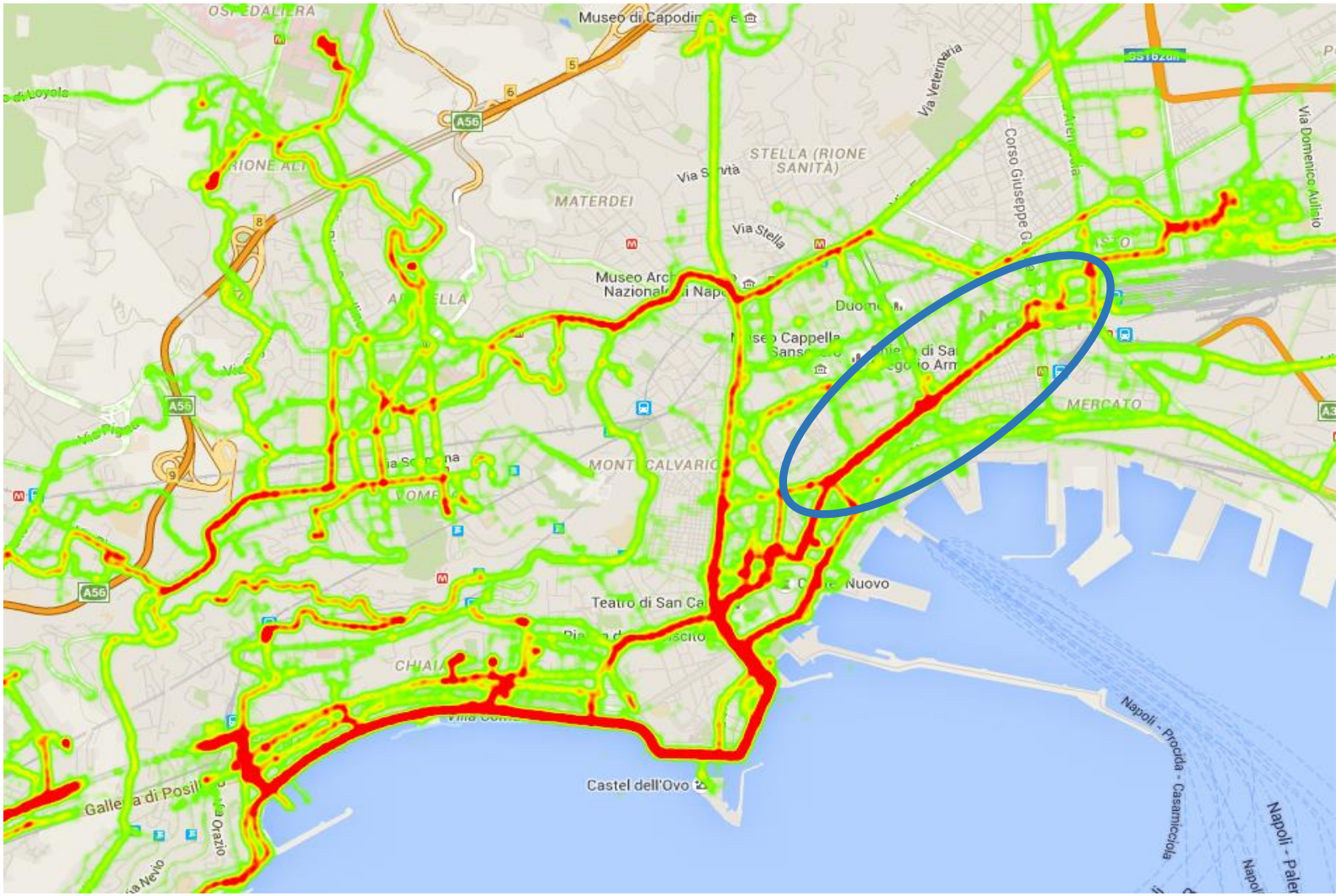






Lille

Validation of Corridors – Naples, 2015



Reshaping of Corridors – Naples, 2015

Redazione - 5 Agosto 2015

2 | 5 | Consiglia 693

Corso Umberto

La Giunta Comunale di Napoli ha approvato lo studio di fattibilità per la **riqualificazione di corso Umberto**. Lo studio punta ad adeguare la mobilità pedonale della zona, che ha forte vocazione commerciale, e tiene conto della presenza di varie sedi Universitarie e delle stazioni "Garibaldi" e "Universita'" della linea metropolitana 1.

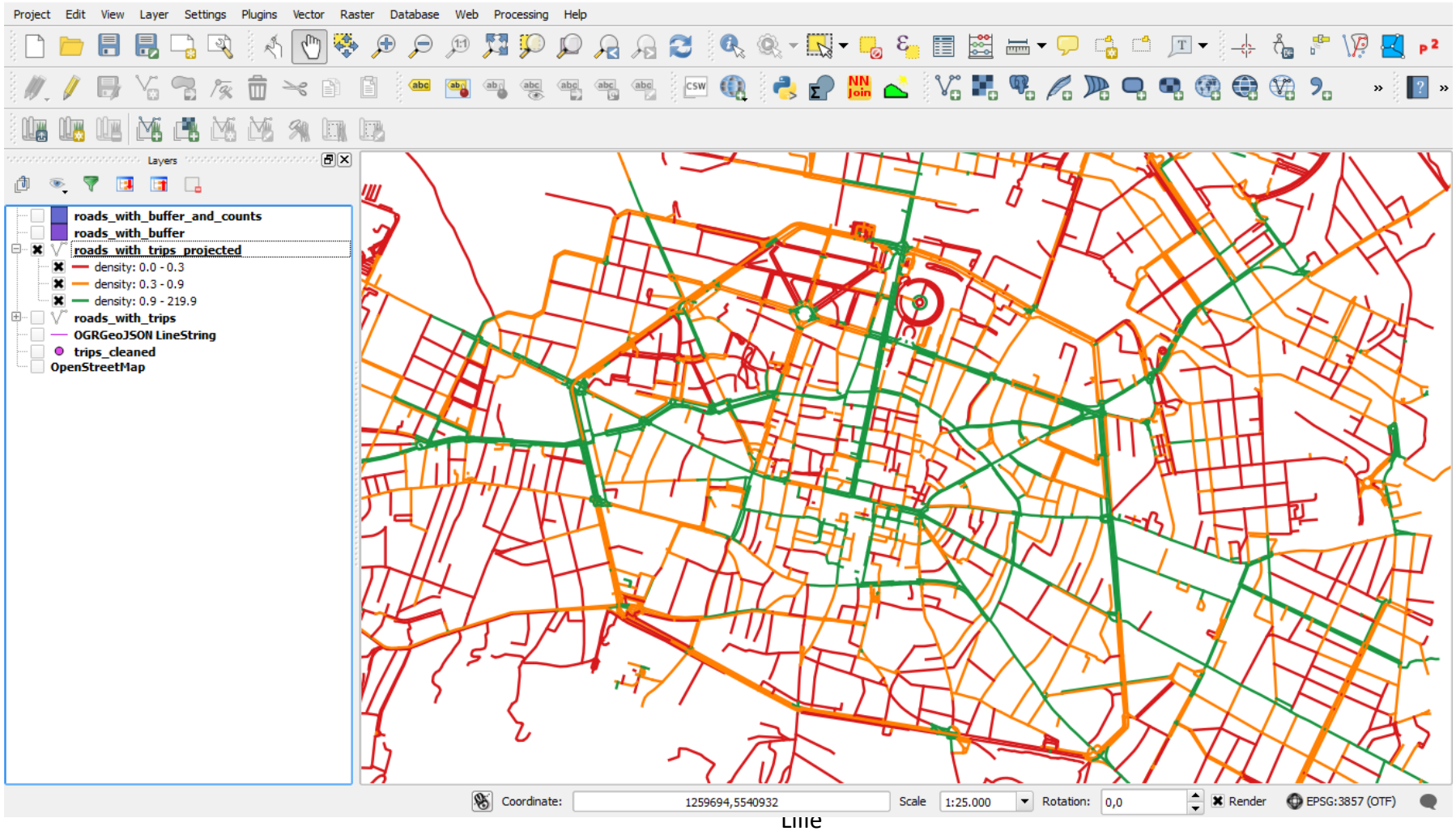
Il monitoraggio della mobilità ciclistica in città, effettuato nell'ambito dello "European Cycling Challenge 2015" ha evidenziato che la tratta compresa tra l' Universita' degli Studi e la Stazione centrale, e' la tratta stradale piu' utilizzata per gli spostamenti in bicicletta.

STORIE CORRELATE

"Pista ciclabile sul corso Umberto": l'annuncio del Comune

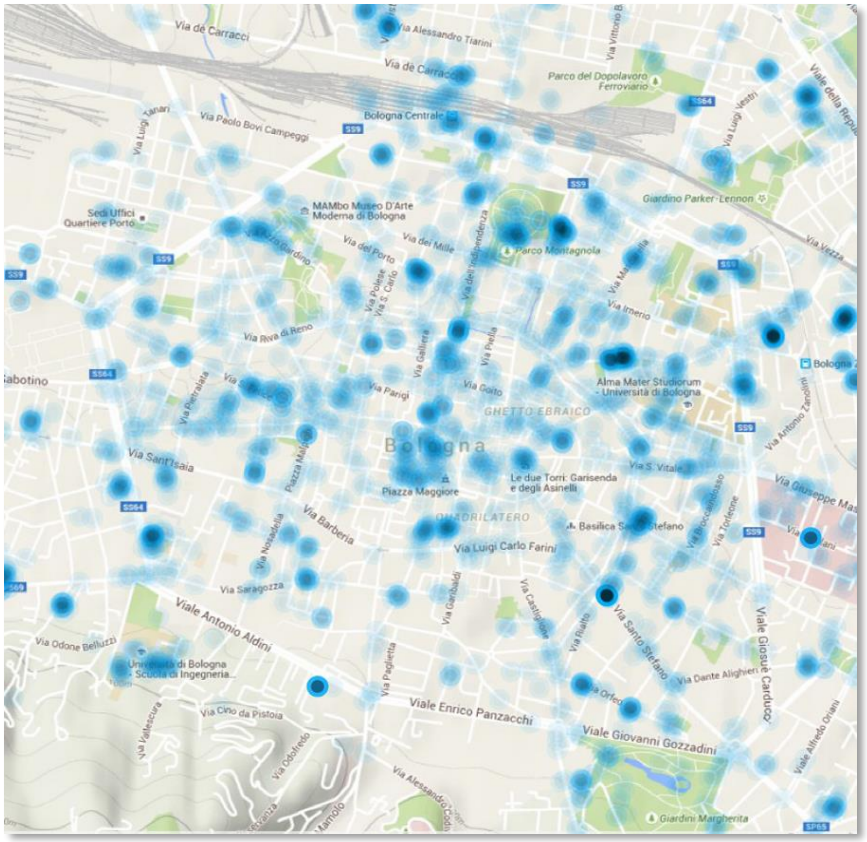
4

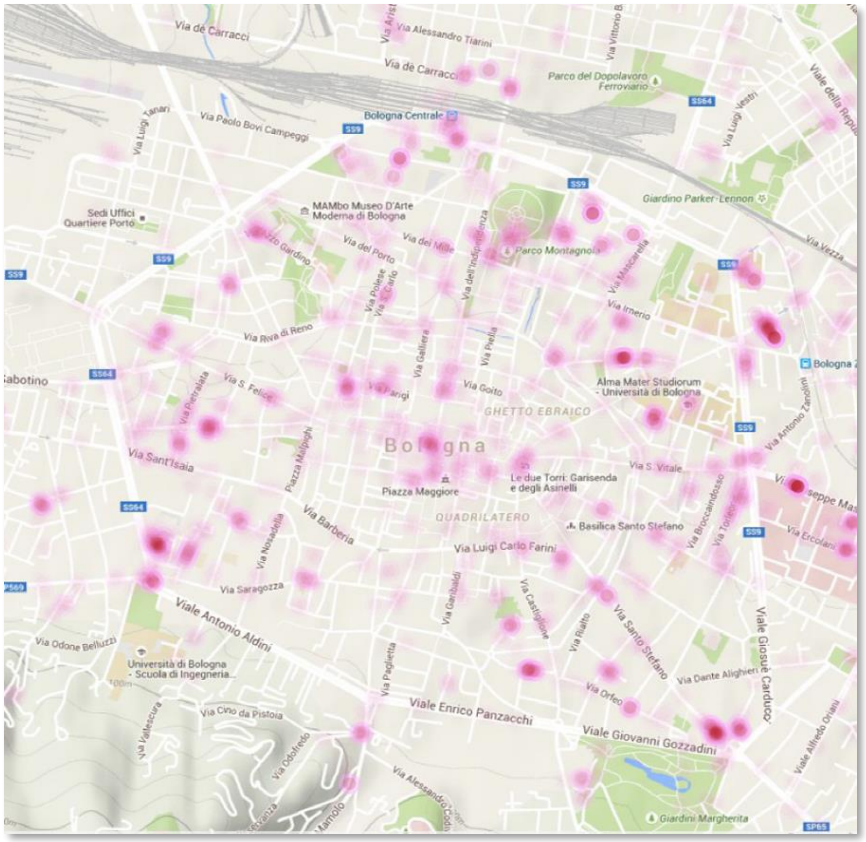
Studies on the Level of Service



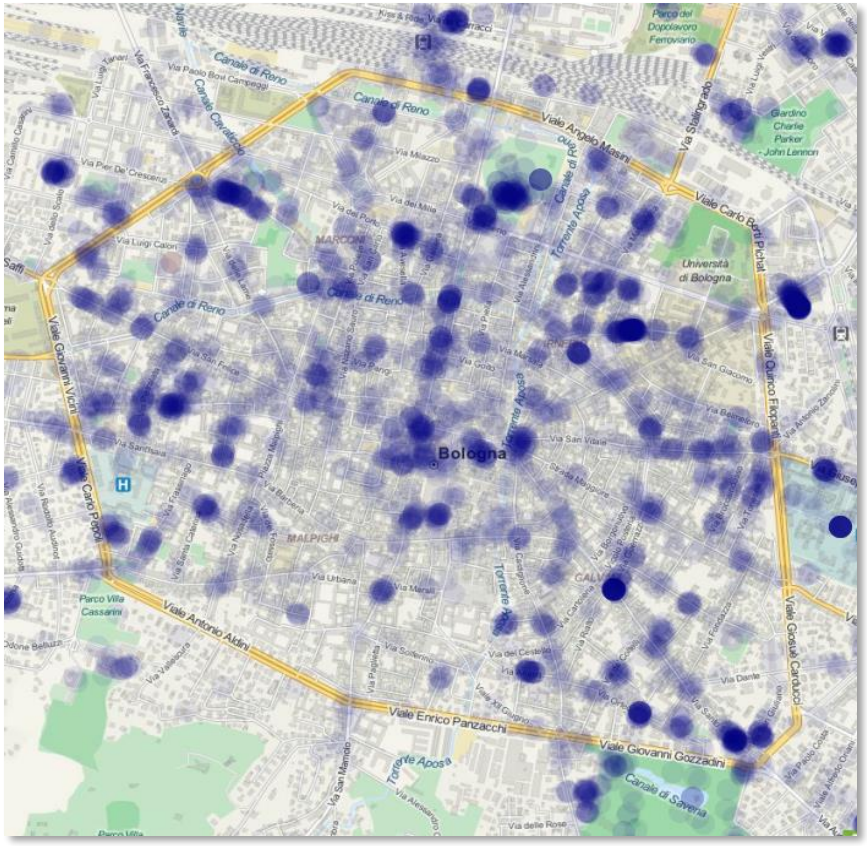
Lille

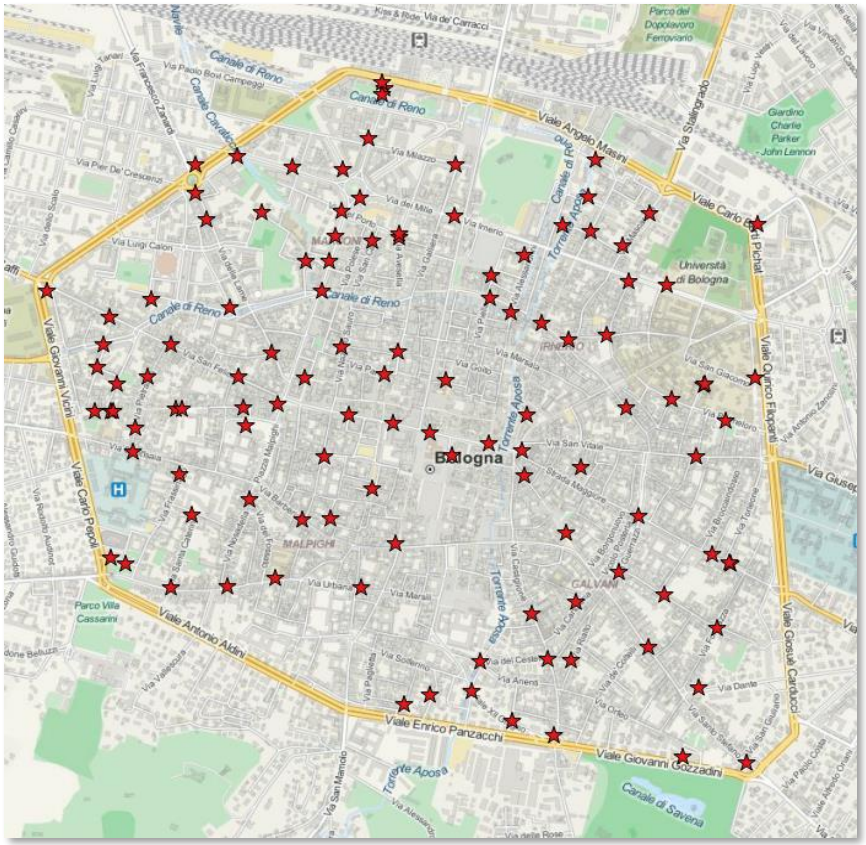
Origins – Destinations (Male/Female), Bologna 2015





Use Case 1 in Bologna: New Bike Racks Locations





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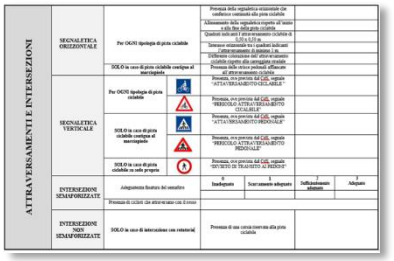
Use Case 2 in Bologna: Crossing Data Sources

Sources

- an activity-based approach

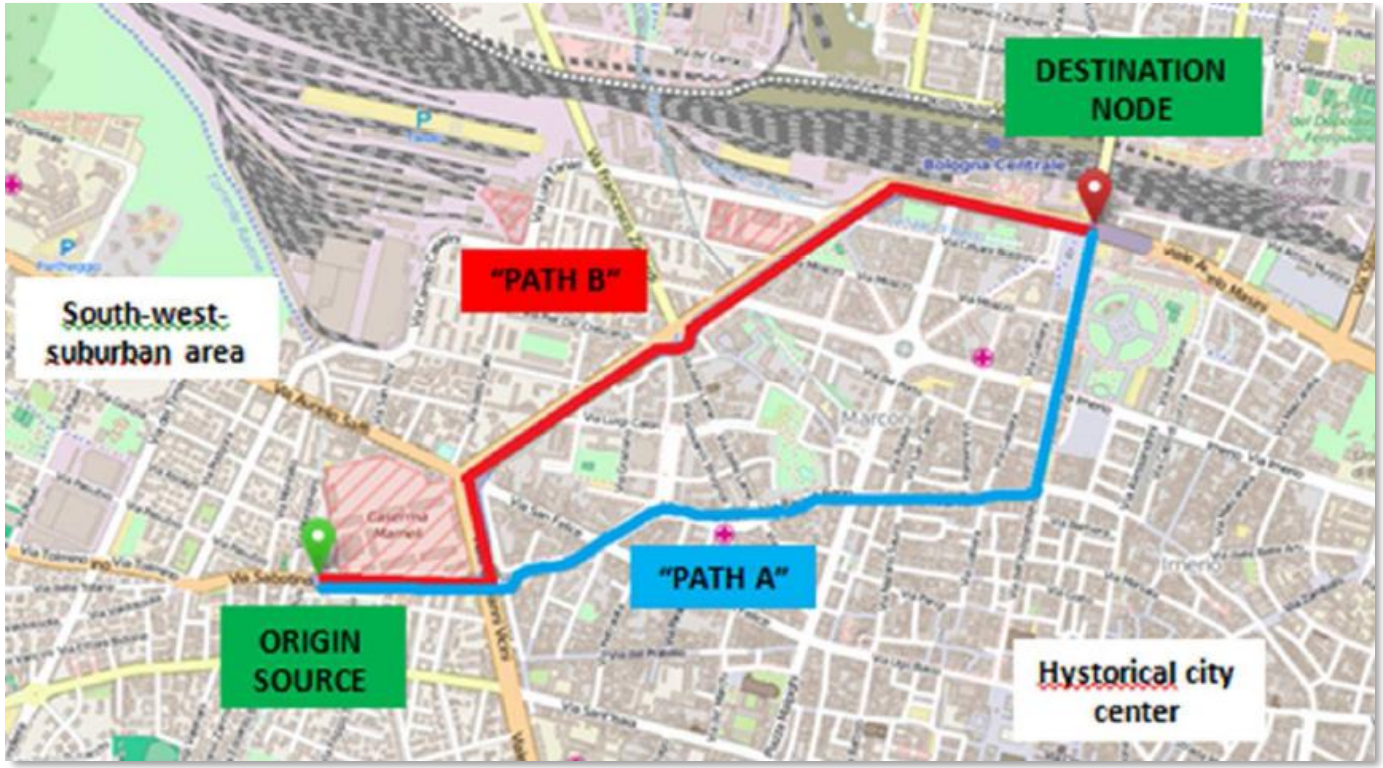
- a safety analysis



- a behavioural analysis

- an on-site behavioural/safety analysis

Use Case 2 in Bologna: Crossing Data Sources



Use Case 2 in Bologna: Crossing Data Sources

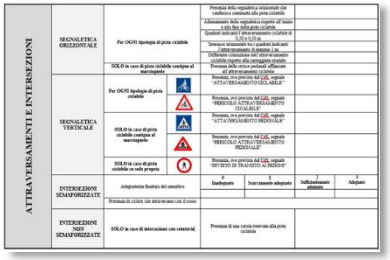
The activity-based approach

- The sample considered in the use case is composed of 456 cyclists, 29.8% females and 70.2% males. Average age for males is 43.96 years, while for females is 40.24.

- Specifically, 114 trips have been counted on the “Path A” and 342 on the “Path B”.

- GPS tracks directionality was also considered, in order to process the analysis of the route on a single way (infrastructural features are different for each way), resulting more significant for the investigation of users’ behaviour.

Use Case 2 in Bologna: Crossing Data Sources

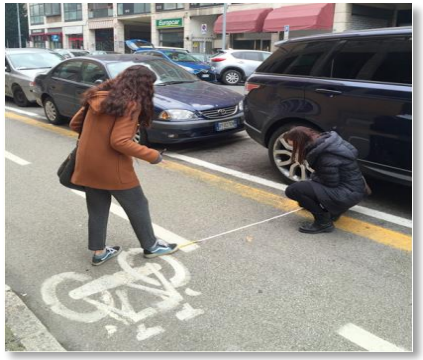


The safety analysis

The two cycling paths have been reviewed by a checklist for technical analysis, according to the concept of Road Safety Review (RSR) and Road Safety Audit (RSA), which are specific frameworks for road infrastructures evaluation (Italian Ministry of Infrastructure and Transport, 2001).

Basic requirements investigated are:

- continuity of paths
- disruptions or unsafe discontinuities
- protection of users at intersections
- good maintenance.



Use Case 2 in Bologna: Crossing Data Sources

The behavioural analysis

- Interviews to cyclists (February 2016)
- 50 users per path
- Three main headings
  - Users' information and habits
  - General data about the trip
  - Specific data about the path (perception of quality, safety level, cycling performance, etc.)

Use Case 2 in Bologna: Crossing Data Sources

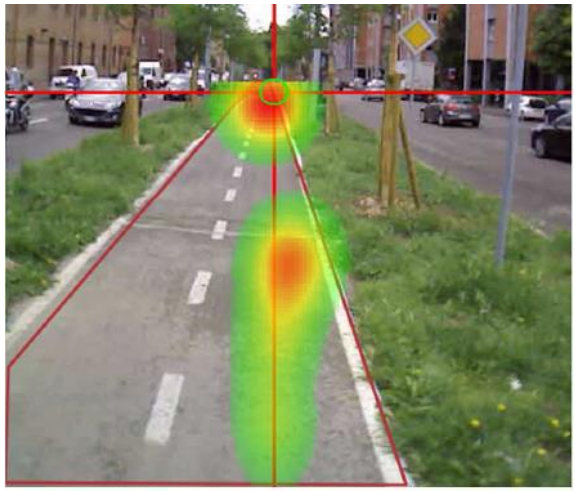
The on-site behavioural/safety analysis

- To identify critical features of the exclusive cycling path (“path B”).

- ASL Mobile Eye-XG system, one camera recorded the pupil position of participant’ right eye and the other camera recorded the environment scene seen by the cyclist**.**

- GPS tracker installed on bike

- 2.1 Km of experiment



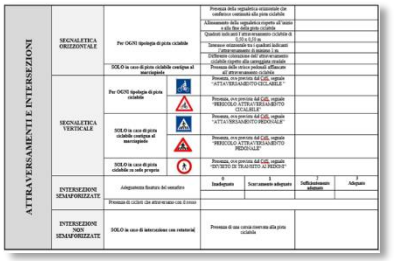
Use Case 2 in Bologna: Crossing Data Sources

Results:

- A thorough study on users' behaviour
- A complete assessment of infrastructures' quality
- A deep knowledge on safety perception

But above all:

An exhaustive "bike lane safety review", that if exploited by policy makers as a best practice, would help public administrations in facilitating safer cycle paths and encouraging cycling mobility.



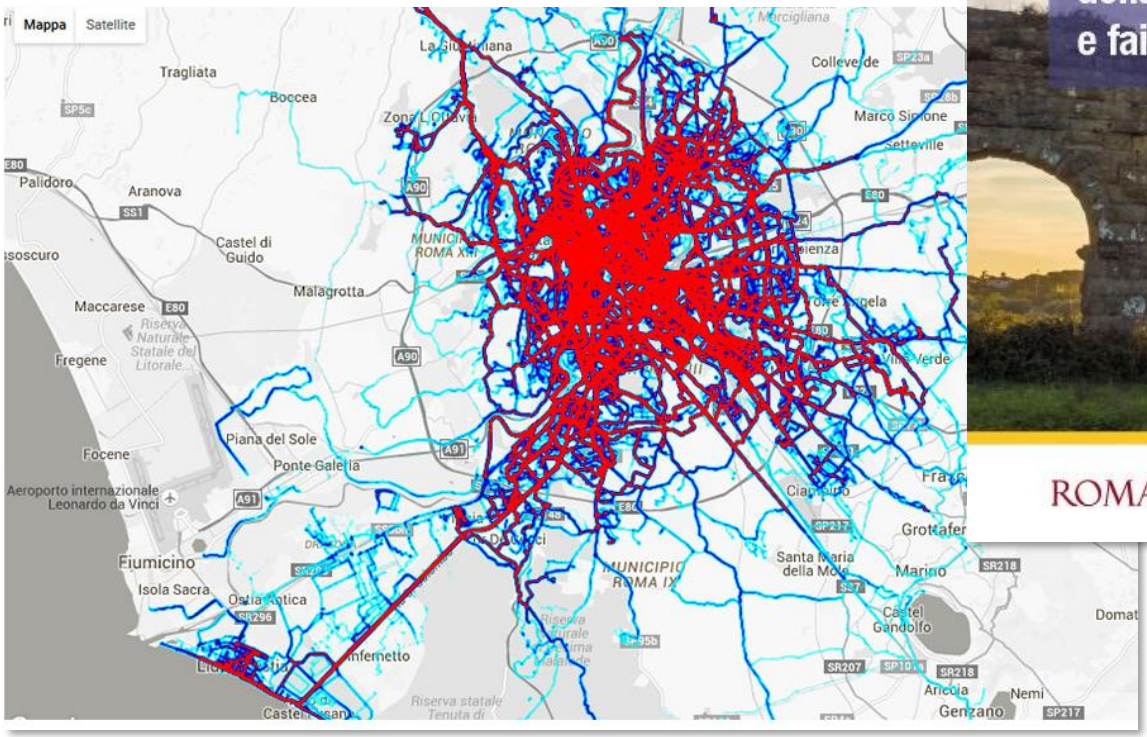
About us

Roma Servizi per la Mobilita (RSM) is the mobility agency for the City of Rome, supporting the city's mobility department in developing policies aimed at reducing the impact of traffic and moving towards a sustainable mobility system.

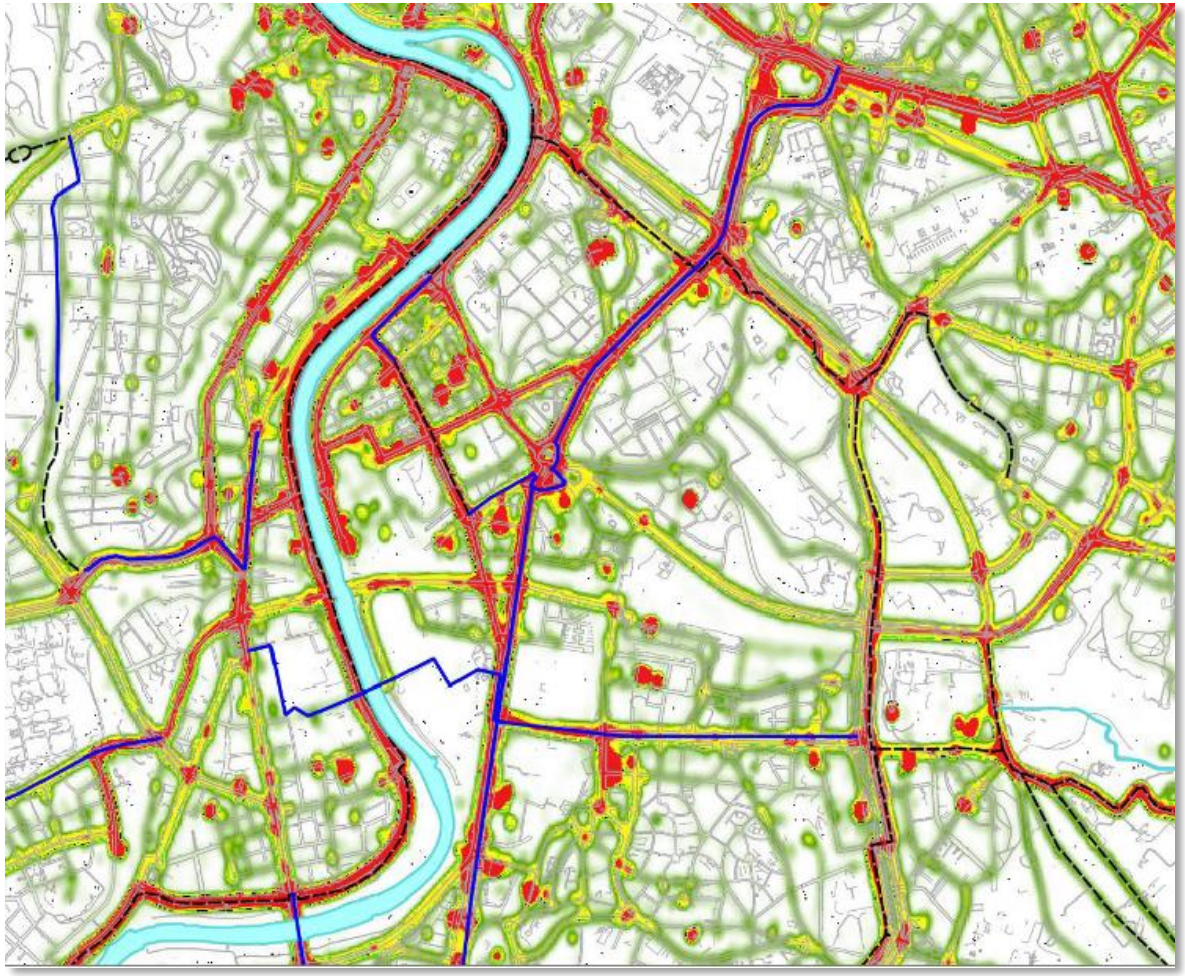
RSM coordinates and manages both private and public mobility, logistics, infrastructure and services in Rome.

RSM is a partner of the P.A.S.T.A project

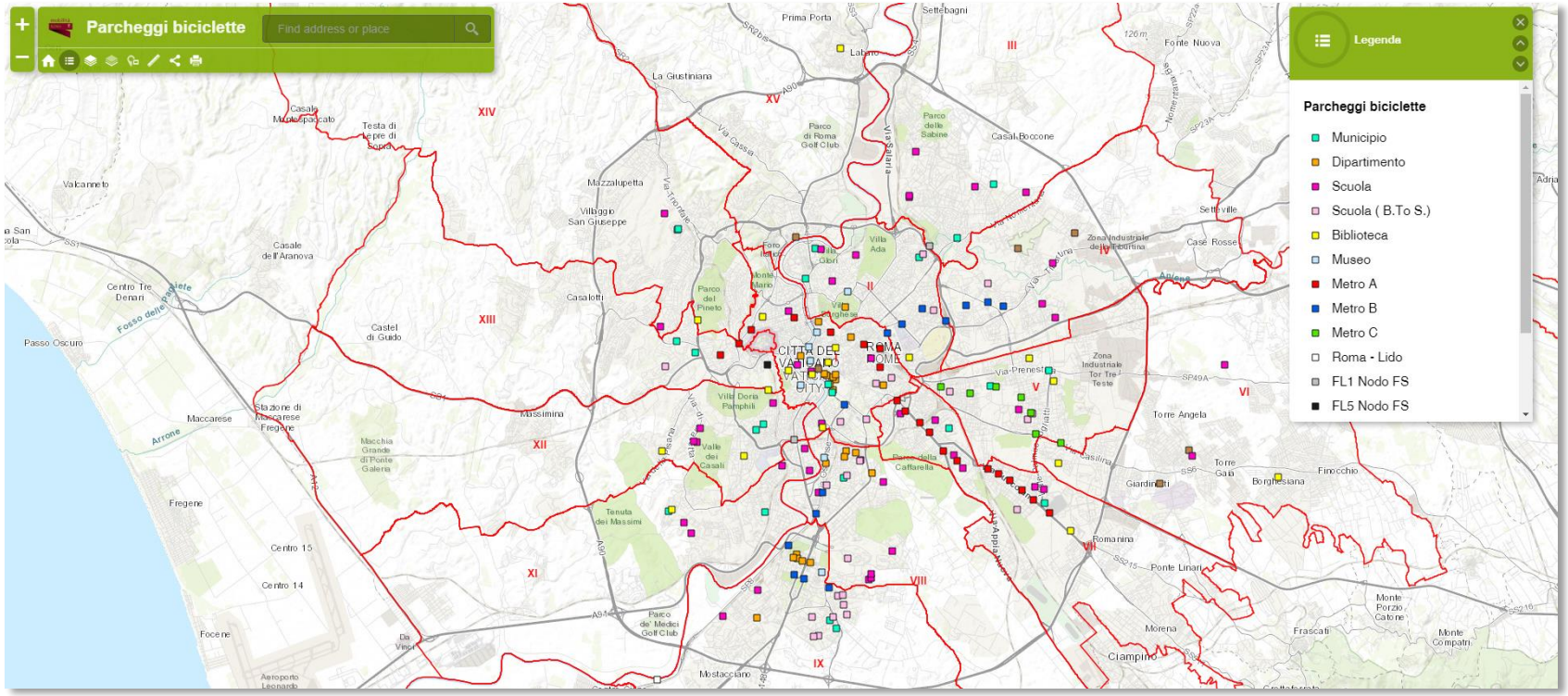
Postcards from Rome



Use Case in Rome: New bike lanes project in Rome



Use Case in Rome: Locations for new 300 bike racks installation



Conclusions

Gamification - The ECC is a unique way to promote cycling, have fun and collect data about cycling.

Policy makers and urban planners - data collected have an important technical value for mobility planners, providing information on the real behaviour of cyclists in cities as an input for city and traffic planning

“Produsers” of crowdsourced data - The use cases presented in this paper, demonstrated that crowdsourced cycling data are the key of a self-benefit process in which the participants are at the same time creators and beneficiaries.

Data exploitation - Collected data can be exploited through various tools and also combined with other data from other sources

Investments – Availability of data, tools and skills are only the first step. To make a step forward, some investments are needed, otherwise all the data you can collect are useless.

Thanks for your attention

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