



Cell phone presence data and geomatics for the analysis of tourist behaviour

CBTS 2017

Mindfulness, Well-being and Happiness in Tourism Research
From Definitions to Measurements

Brunico 15 Dicembre 2017

Salvatore Amaduzzi

Dipartimento Lingue e Letterature, Comunicazione, Formazione e Società Università degli Studi di Udine

2000

2010

GLOBAL MIGRANTS IN 2013

MIGRANTS TO ITALY

COUNTRIES TO ITALY

224.867.083

5.721.457 (3%)

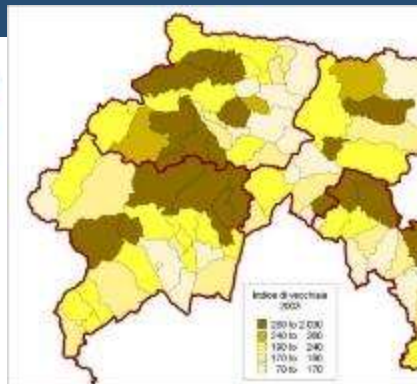
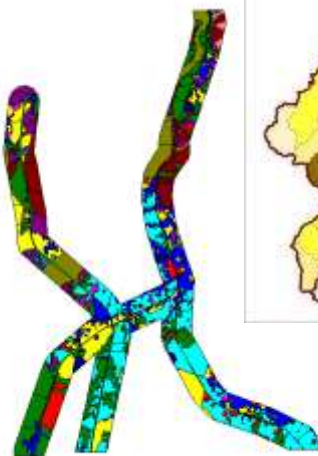
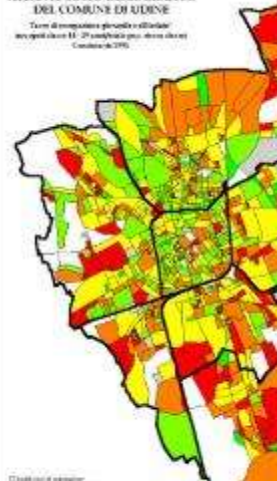
194



GEOmatics LAB of DILL

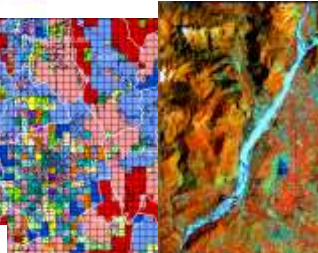
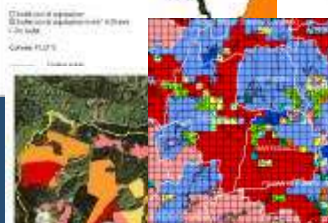
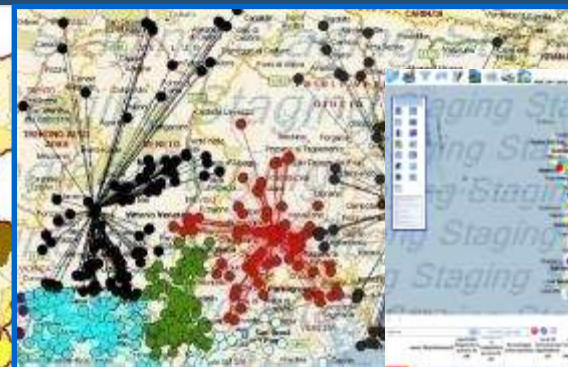
ATLANTI SOCIO-DEMOGRAFICO
DEL COMUNE DI UDINE

Tutti gli insediamenti principali e affollati
sontopograficamente in 200 metri circa
Cantone di Udine

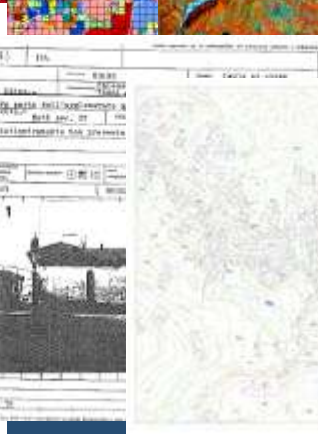


Indice di vecchiaia
2005

280 to 2 000
240 to 260
120 to 240
100 to 120
70 to 100



Banca Dati Territoriale delle Industrie





Goal of the project

Develop a WEB platform to
structure, organize and analyze
the data of **presence**,
movements, **sentiment** of
people moving in FVG Region



Cell phone data

presence inside a cell of 150X150 meters

divided per **country of origin** and, for the Italians, **typology**
(residents, regular visitors, occasional visitors, region of provenance)

interval of 15 minutes

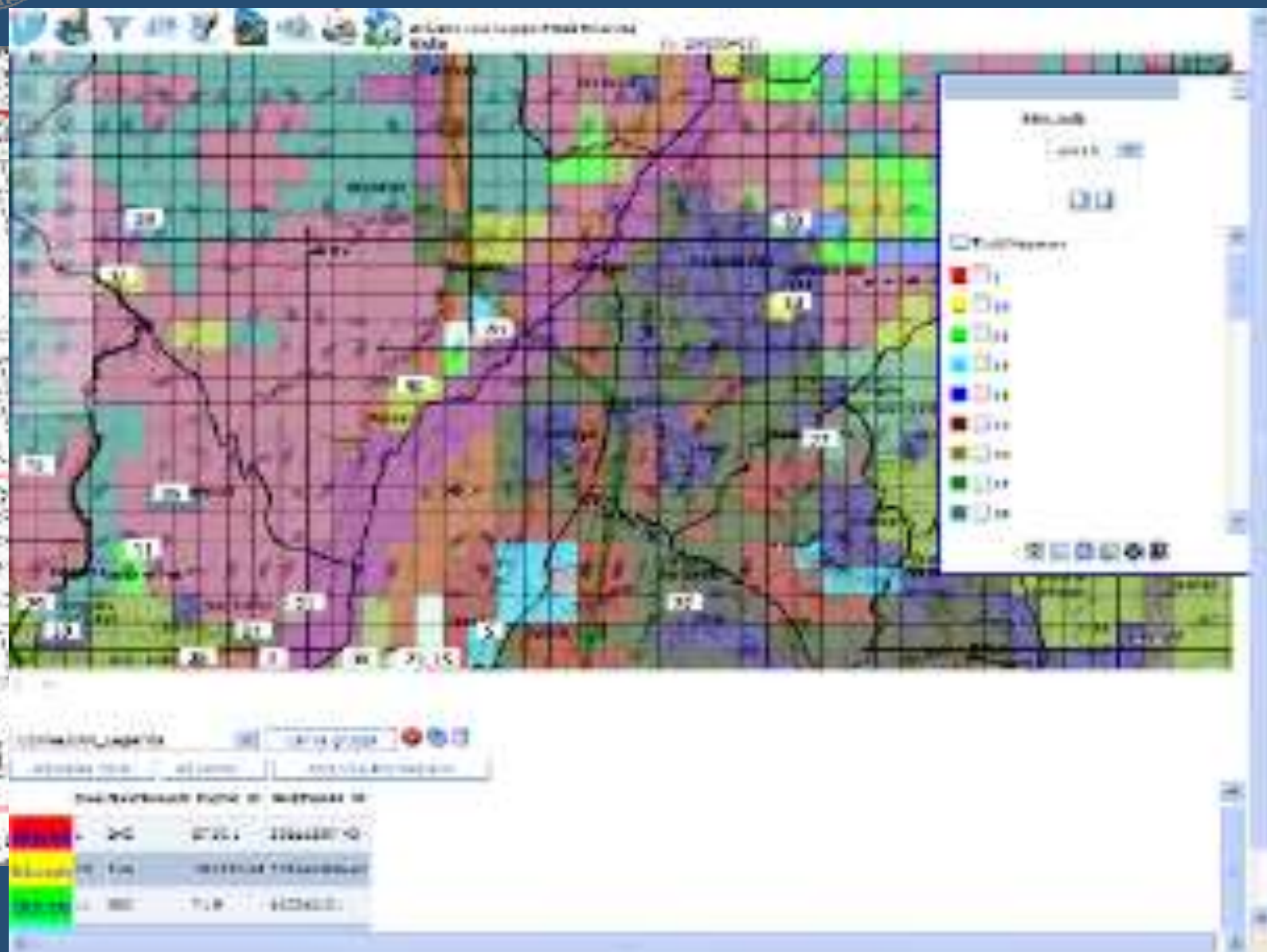
Friuli Venezia Giulia 350.000 **cells**

35 millions **records** daily

12 *billion* **records** per year



Cell phone data





Cell phone data

Municipal base simulation

data base with the following characteristics:

- period March 2016 to September 2016
- 4 records per day at 00, 06, 12, 18 time
- subdivided Italians and foreigners
- foreigners per country of origin
- Italians divided per
 - type of presence
 - resident
 - occasional visitor
 - regular visitor
 - region of provenance

More than 2 millions records



Grado Sunny Island

One of the most attractive seaside resort of Friuli Venezia Giulia
In 2016 approximately 400.000 arrivals (250.000 foreign)
1.600.000 presences

Analysis of Italian and foreign tourist behavior in a rainy day
during the summer season

Tuesday 9th august 2016 sunny day

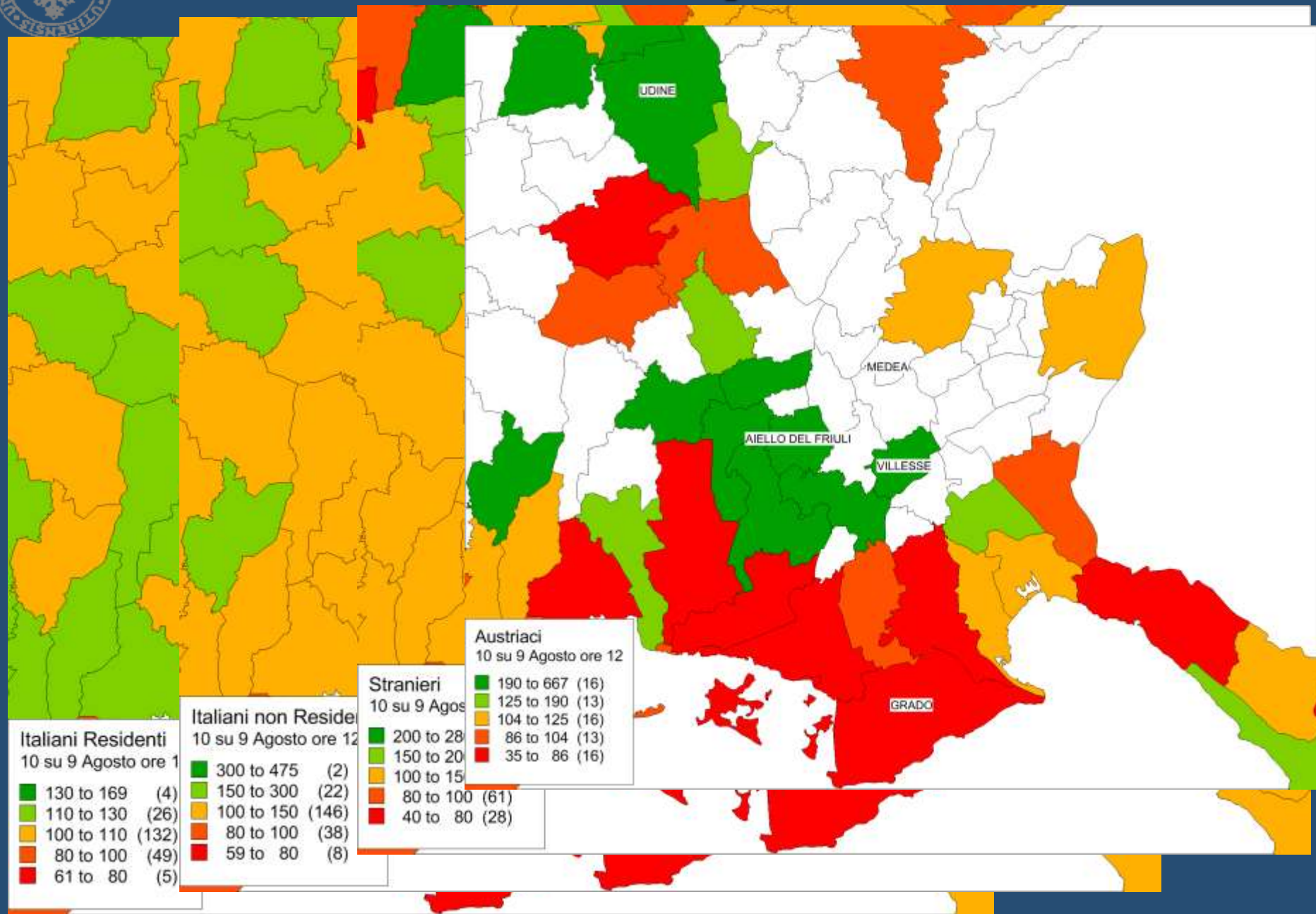
Wednesday 10th august 2016 rainy day

Midweek days not influenced by weekly changes and shop closures





Grado Sunny Island





Grado Sunny Island

	ITA res.			ITA non res.			Foreign			Austrian		
COMUNE	9/8	10/8	%	9/8	10/8	%	9/8	10/8	%	9/8	10/8	%
GRADO	16.201	9.997	62	5.057	3.700	73	4.768	3.721	78	1.971	1.520	77
VILLESSE	2.639	4.449	169	353	1.186	336	582	1.288	221	18	120	667
AQUILEIA	1.674	1.516	91	307	379	123	256	271	106	91	77	85
UDINE	69.480	72.909	105	3.576	4.014	112	1.179	1.874	159	127	340	268
BAGNARIA ARSA	2.656	2.993	113	283	433	153	235	428	182	14	61	436
AIELLO DEL FRIULI	1.797	2.145	119	346	961	278	607	1.648	271	47	270	574
MEDEA	365	445	122	4	19	475	17	15	88	0	0	
CAMPOLONGO TAPOGLIANO	1.114	1.526	137	167	336	201	229	391	171	0	31	

Italian

- Villesse: where a big mall with Ikea is located
- Medea: where Ara Pacis, a famous monument recalling fallen of all the wars, is located
- Udine and surrounding municipalities

Foreign

- Villesse and Bagnaria Arsa
- Aiello: famous for more than 150 sundials
- Udine: with a growth of more than 60%





Friuli DOC

four days event in the city of Udine that becomes a shop window to advertise regional culture, food, wine and crafts products

Who?

Where from?

How long?

What?

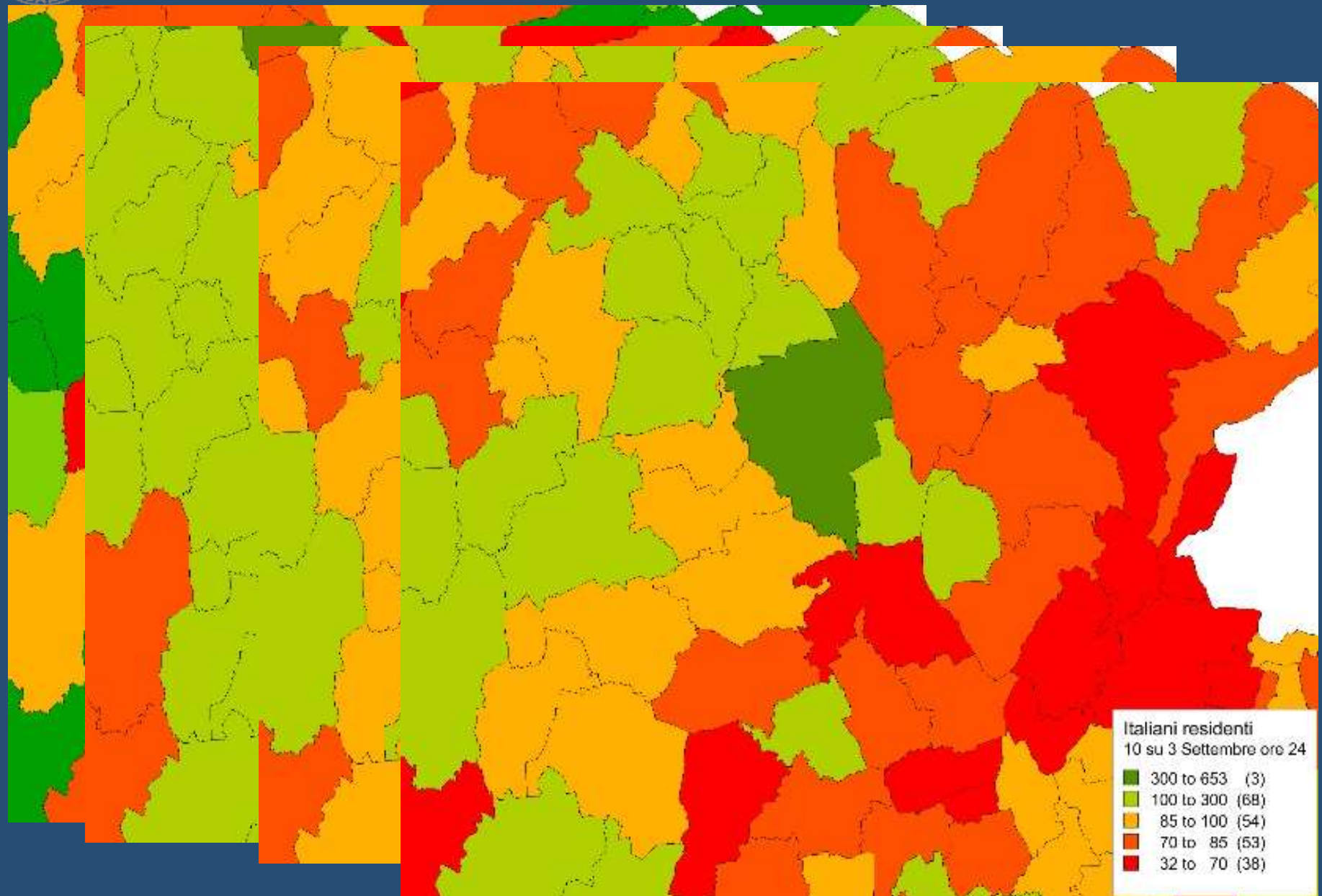
Where to?

.....





Cell phone data analysis





Cell phone data analysis

	Friulani		Italiani Extra Regione		Foreign	
	ore 18	ore 24	ore 18	ore 24	ore 18	ore 24
03-set	67.463	59.249	3.336	2.791	856	499
10-set	107.006	178.701	9.936	16.200	1.238	804



Cell phone data analysis

Other type of data available is the **OD matrix** that contains the number of movements of the different type of people for each couple of municipalities or from a defined area to any municipality

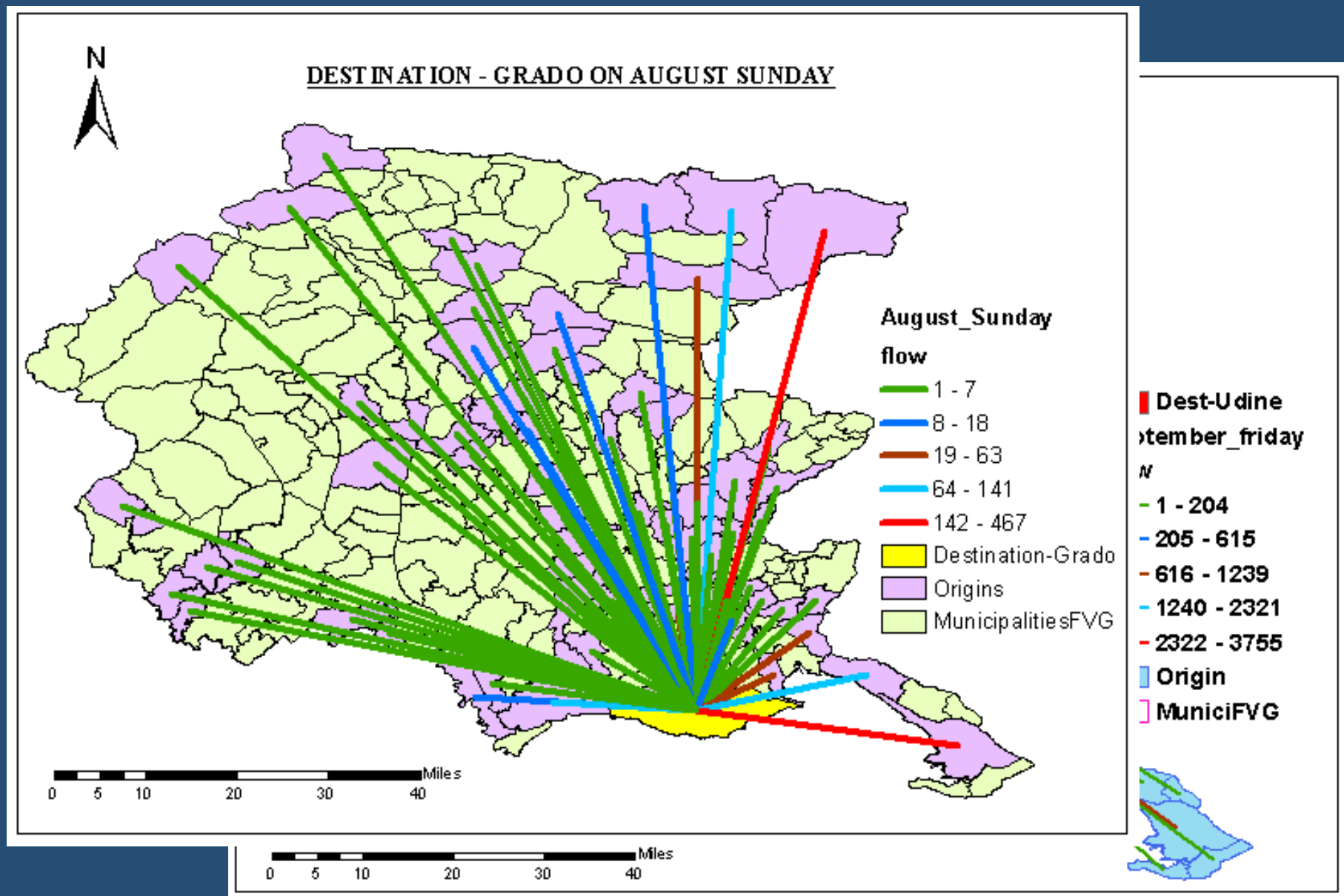
Question that can be answered are:

- How many people enter Udine between 7am and 8am and from which municipalities they come from?
- Where are **today** the passenger arrived in Trieste airport from Moscow **yesterday** at 9PM?
- ...

We have organized a DB of 4.5 million records with the total movements of the period between each municipality and each other

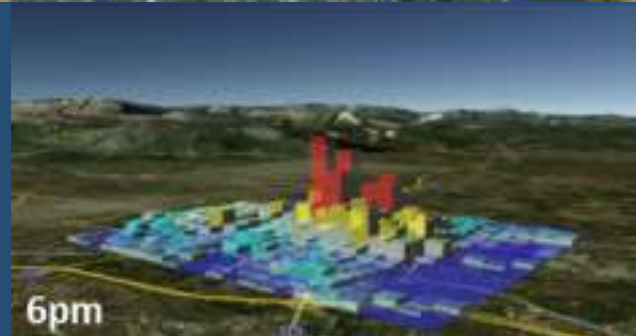
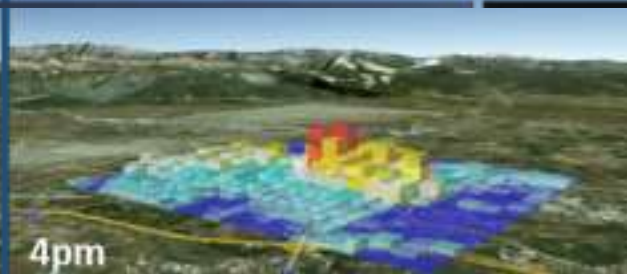
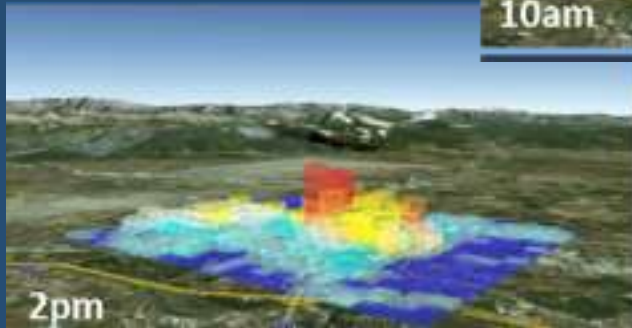
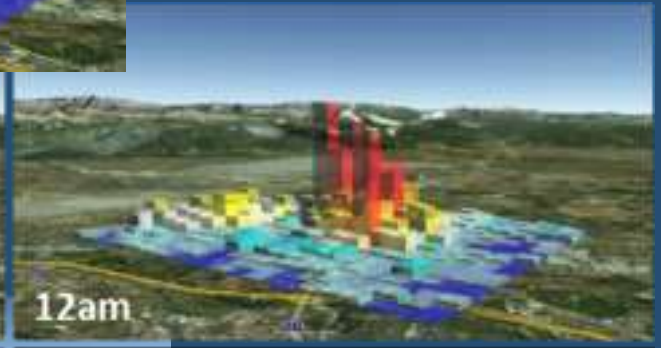
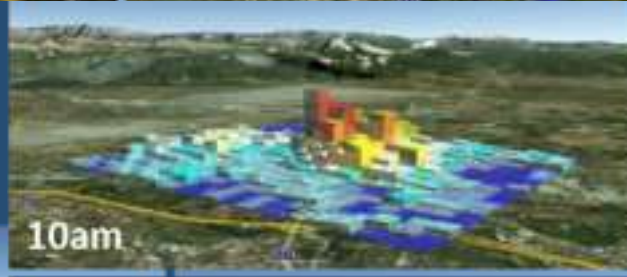
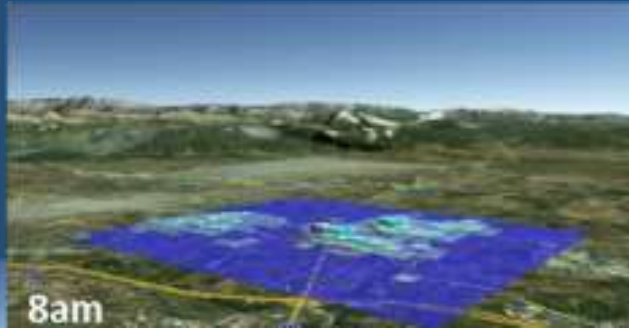
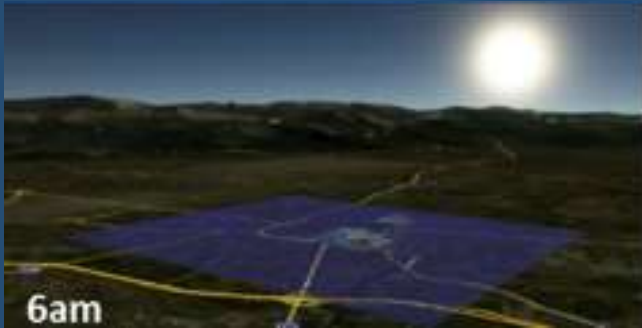


Cell phone data analysis





Udine 24 hours





Problems we are facing

Data to information

The MORE **data** available is NOT always MORE **information**

Real timing

ex depending on the meteo forecast tomorrow change the timetable of public transportation

Awareness of Public Administration

Cell phone data companies willingness to do everything themselves and their inability



Social Media and Mobile trend

**JAN
2016**

GLOBAL DIGITAL SNAPSHOT

A SNAPSHOT OF THE WORLD'S KEY DIGITAL STATISTICAL INDICATORS



TOTAL
POPULATION



we
are
social

**7.395
BILLION**

URBANISATION: 54%

FIGURE REPRESENTS TOTAL GLOBAL
POPULATION, INCLUDING CHILDREN

INTERNET
USERS



we
are
social

**3.419
BILLION**

PENETRATION: 46%

FIGURE INCLUDES ACCESS VIA
FIXED AND MOBILE CONNECTIONS

ACTIVE SOCIAL
MEDIA USERS



we
are
social

**2.307
BILLION**

PENETRATION: 31%

FIGURE BASED ON ACTIVE USER
ACCOUNTS, NOT UNIQUE INDIVIDUALS

UNIQUE
MOBILE USERS



we
are
social

**3.790
BILLION**

PENETRATION: 51%

FIGURE REPRESENTS
UNIQUE MOBILE PHONE USERS

ACTIVE MOBILE
SOCIAL USERS



we
are
social

**1.968
BILLION**

PENETRATION: 27%

FIGURE BASED ON ACTIVE USER
ACCOUNTS, NOT UNIQUE INDIVIDUALS



Social





Twitter data base

Every day 140 millions of active users post more than 400 millions Tweets of 140 chr

5.000 per second

15% geocoded



Twitter data base

The application developed have query functionalities for all the attributes available through the twitter API:

- Tweet text
- Language
- Date and time
- Country of registration
- Alias
- Account date of creation
- Number of followers
- Number of followed
- Coordinates

It is possible to activate listening campaigns of days weeks months years filtering, for example, tweets that:

- contain certain words
- have been posted by users of a certain country
- written in a certain language
- posted in a certain area
-



Data analysis

TestTweet

Keywords (comma is OR, space is AND):

☐ Auto-Show in map

☐ Auto-Save On ☐ Every tweets

Received tweets: 66

Place filter:

Language filter:

Winy Five "natural" wines from South Africa th
6/7/2017 4:48:31 PM Location: Place: Lat: 0 Long: 0

Idalia Rodriguez RT @AP_Oddities: 90 minutes and \$500
6/7/2017 4:48:28 PM Location: Place: Lat: 0 Long: 0

Malice RT @Lilpeep: Anthem
white wine (prod. nedarb) by @LIL PEEP
6/7/2017 4:48:28 PM Location: Place: Lat: 0 Long: 0

Leanne RT @Gift_Company: Hey! @MissBlissLas
6/7/2017 4:48:26 PM Location: Place: Lat: 0 Long: 0

Amie The Whitest Headline o' The Day Award goes to...Woman dies after falling off golf cart onto wine glasses https://t.co/zSE5XyMALT
6/7/2017 4:48:25 PM Location: Place: Lat: 0 Long: 0

Filmscope New artwork for sale! - "Spilled My Wine" - https://t.co/Tydf7dVE3E ... #fineartamerica
#Artist - @AMothersFineArt https://t.co/XvfZUjMIWb
6/7/2017 4:48:25 PM Location: Place: Kolkata, India Lat: 22.2695 Long: 88.0945

Auto-Save On ☐ Every tweets

Percorso salvataggio automatico

C:\Users\utente\AppData\Local\Packages\ffbfbc5-4a55-41f0-9eb0-341cfcd457c_pz4949mk1pp2\LocalState

C:\Users\utente\AppData\Local\Packages\ffbfbc5-4a55-41f0-9eb0-341cfcd457c_pz4949mk1pp2\LocalState

C:\Users\utente\AppData\Local\Packages\ffbfbc5-4a55-41f0-9eb0-341cfcd457c_65vm86kgjtmvw\LocalState





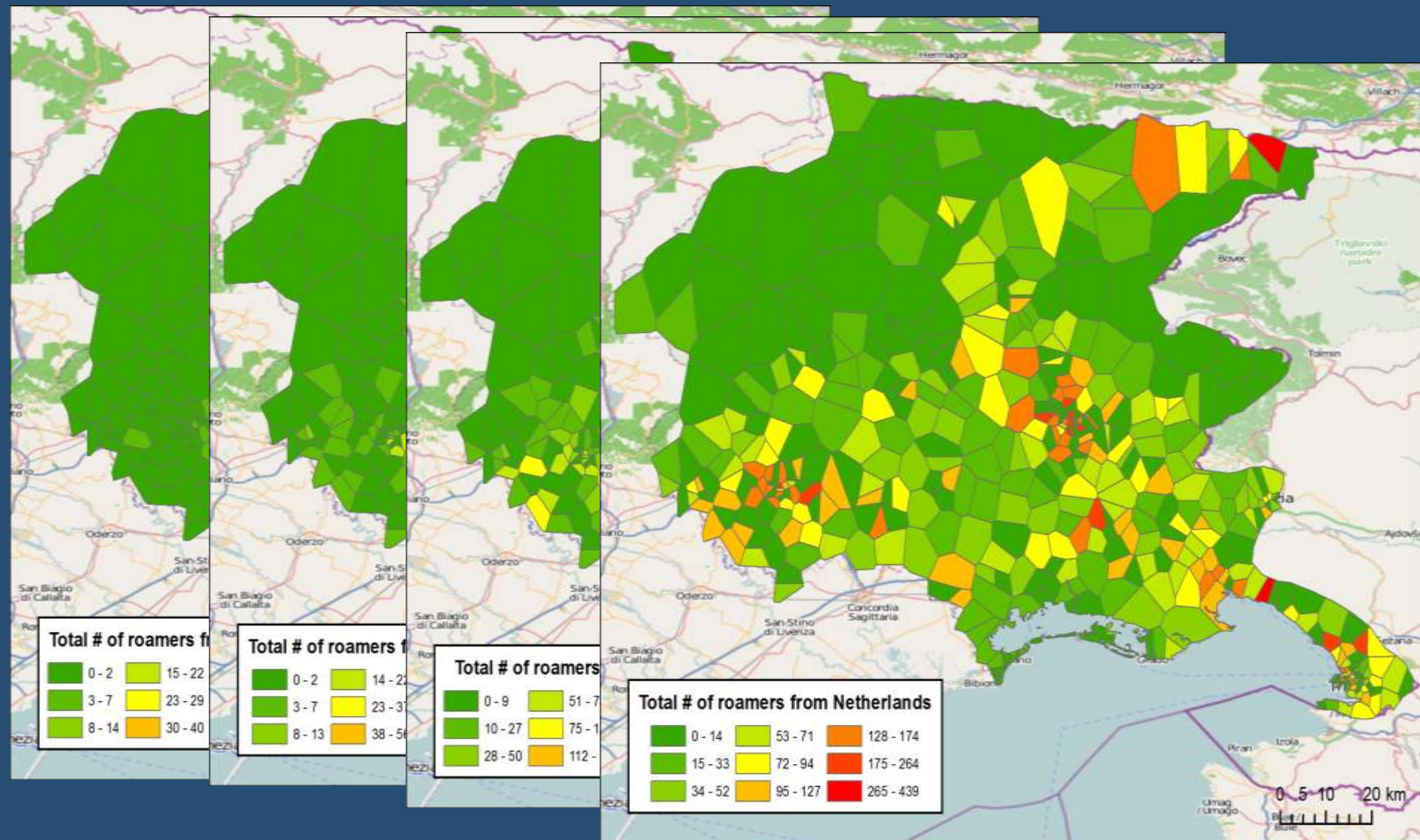
Thanks for your attention

salvatore.amaduzzi@uniud.it



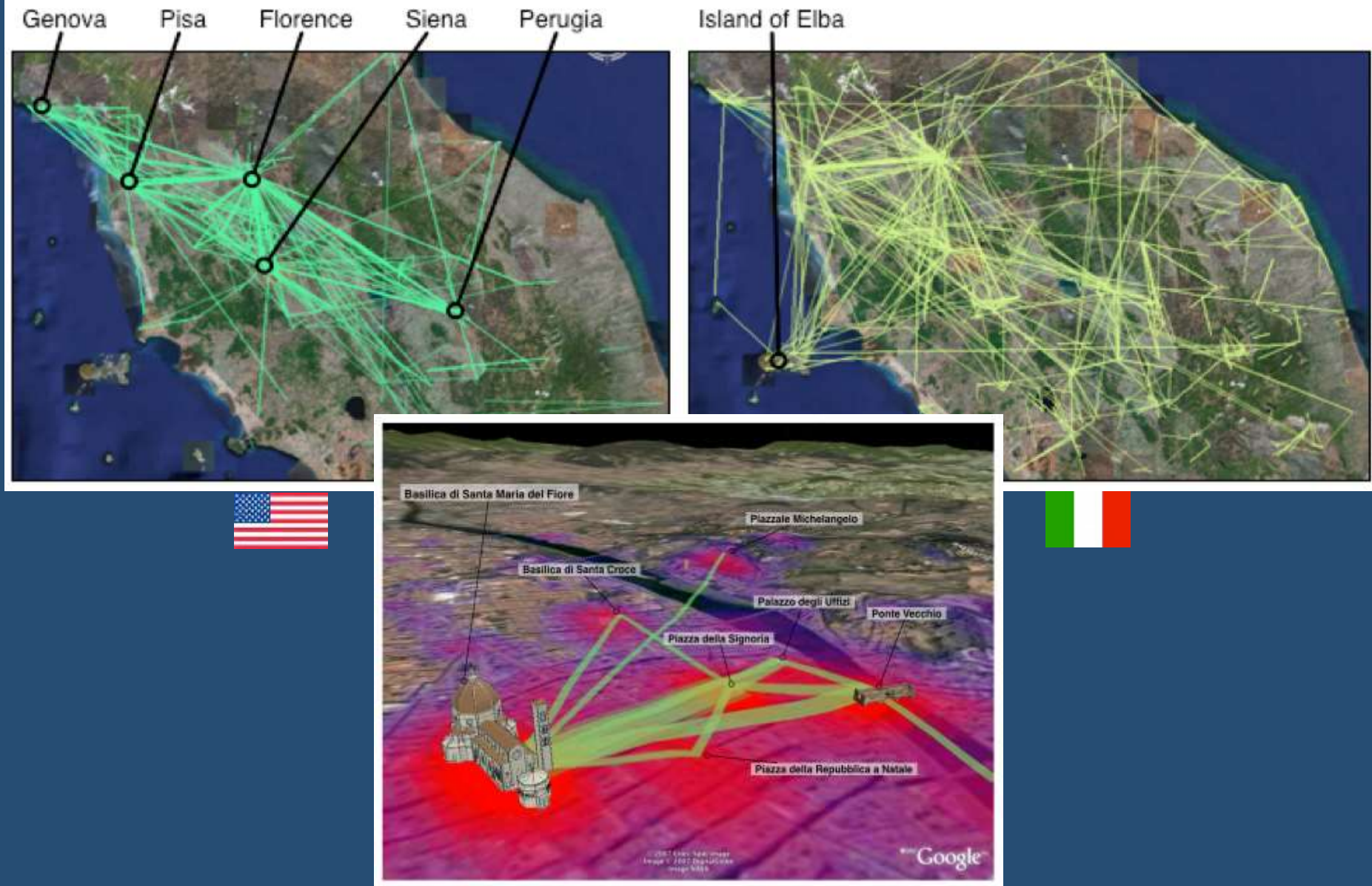


Cell phone data analysis





Tourism in Tuscany





Usabilità



Social
brand

Migration

Dashboard



DEMO Twitter

