

# Smart City Control Room

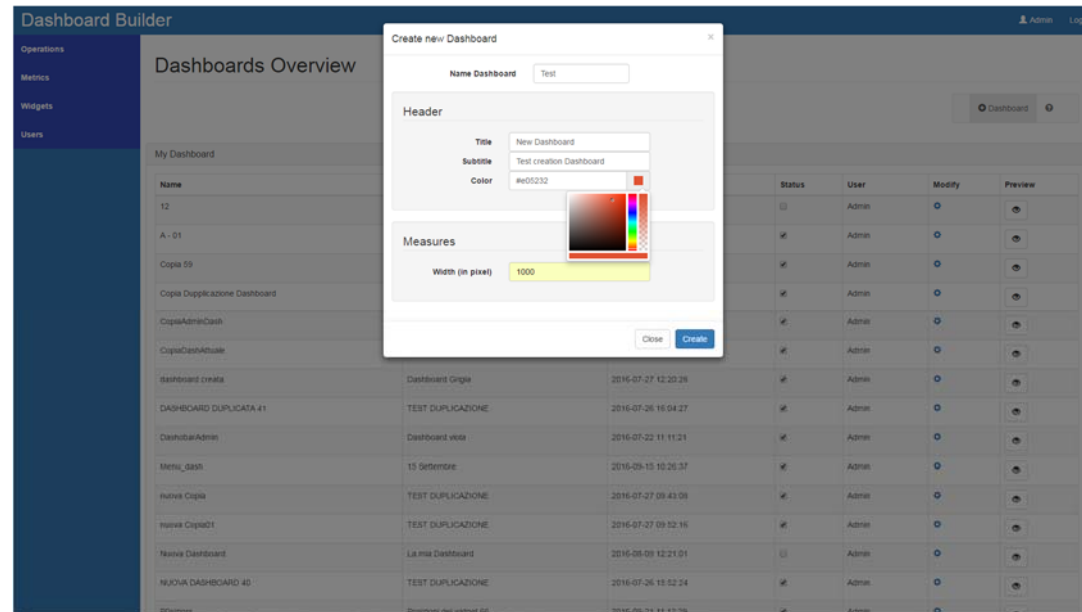


# *Control Room*



# Dashboard Builder

## *Widgets user manual*



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

**DINFO**  
DIPARTIMENTO DI  
INGEGNERIA  
DELL'INFORMAZIONE

**DISIT**  
DISTRIBUTED SYSTEMS  
AND INTERNET  
TECHNOLOGIES LAB

[www.disit.org](http://www.disit.org)

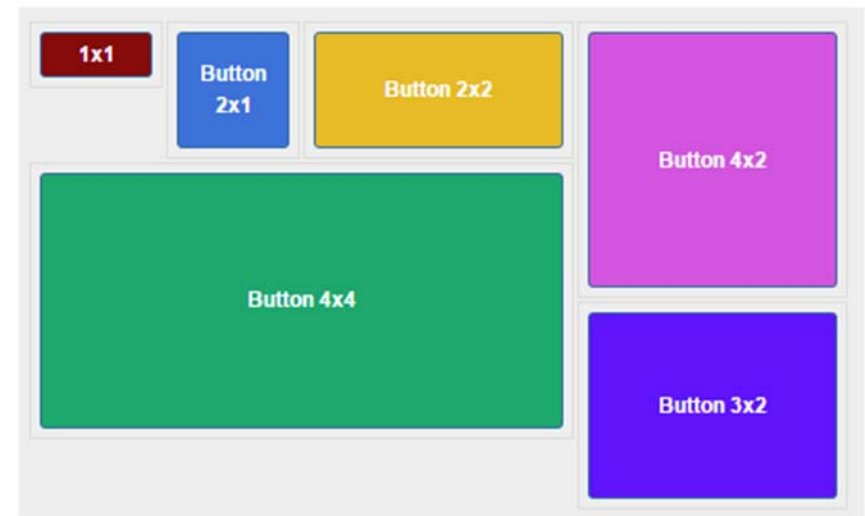
ver. 0.3, December, 2016



<http://replicate-project.eu/>

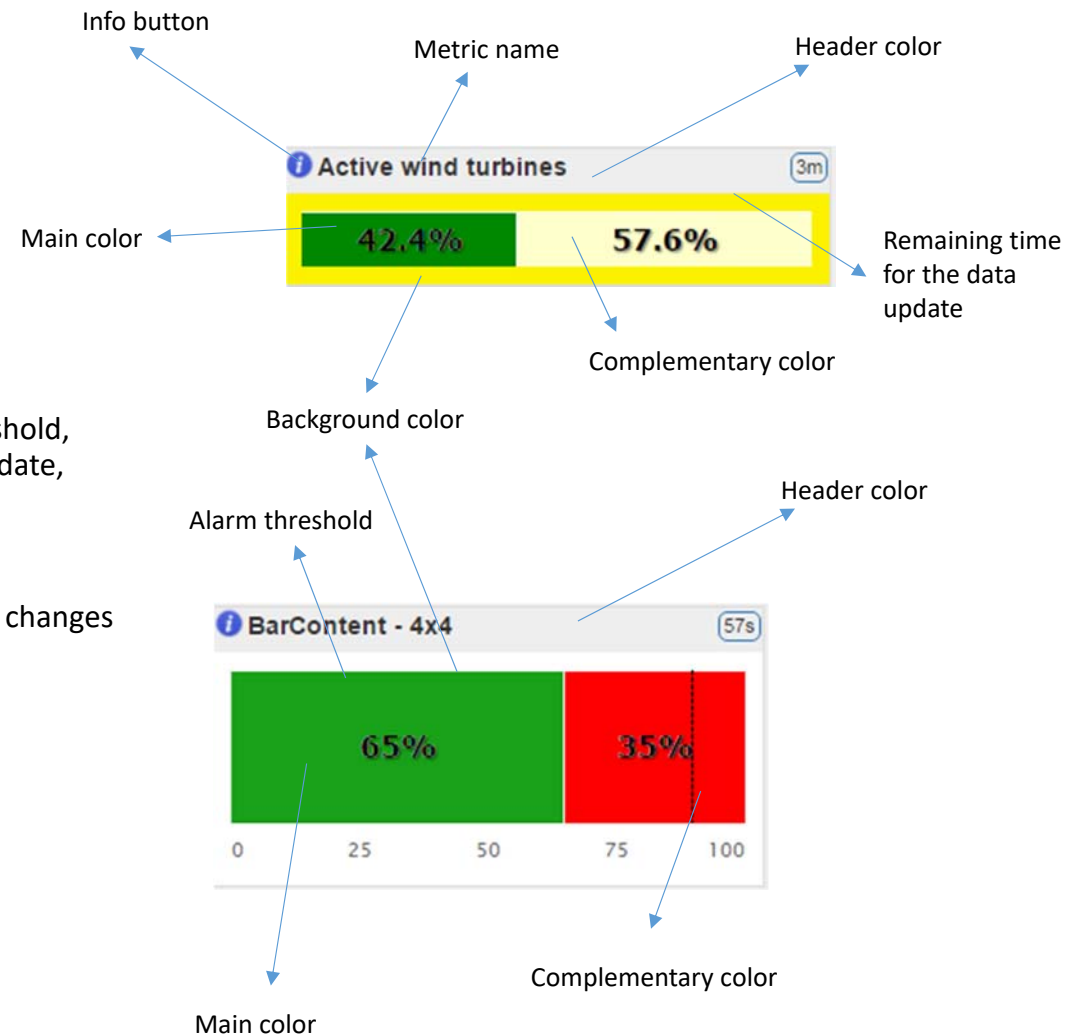
# Widget «Button»

- **Dimensions:** variable
- **Width:** from 1 to 16
- **Height:** from 1 to 16
- **Visualized metrics:** 0 (it is only a command)
- **Editing properties:** text, background color, automatic hover color, action command, font size, font color
- **Type of data:** n/a
- **Behavior in case of alarm:** n/a



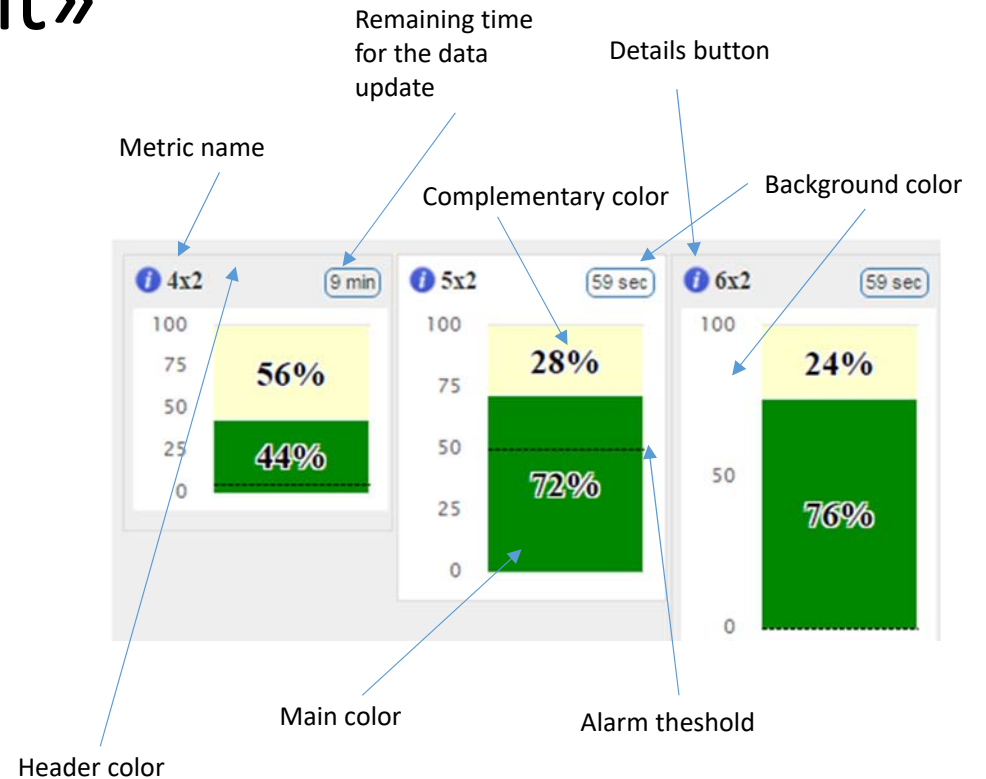
# Widget «Bar Content»

- **Dimensions:** variable
- **Width:** from 2 to 16
- **Height:** from 2 to 16
- **Visualized metrics:** 1
- **Editing properties:** header color, background color, title (optional), alarm threshold, alarm comparison operator, main color, complementary color, frequency of update, font size, font color.
- **Type of data:** percentage.
- **Behavior in case of alarm:** flashing title background, the complementary color changes from the one chosen by the user to red.



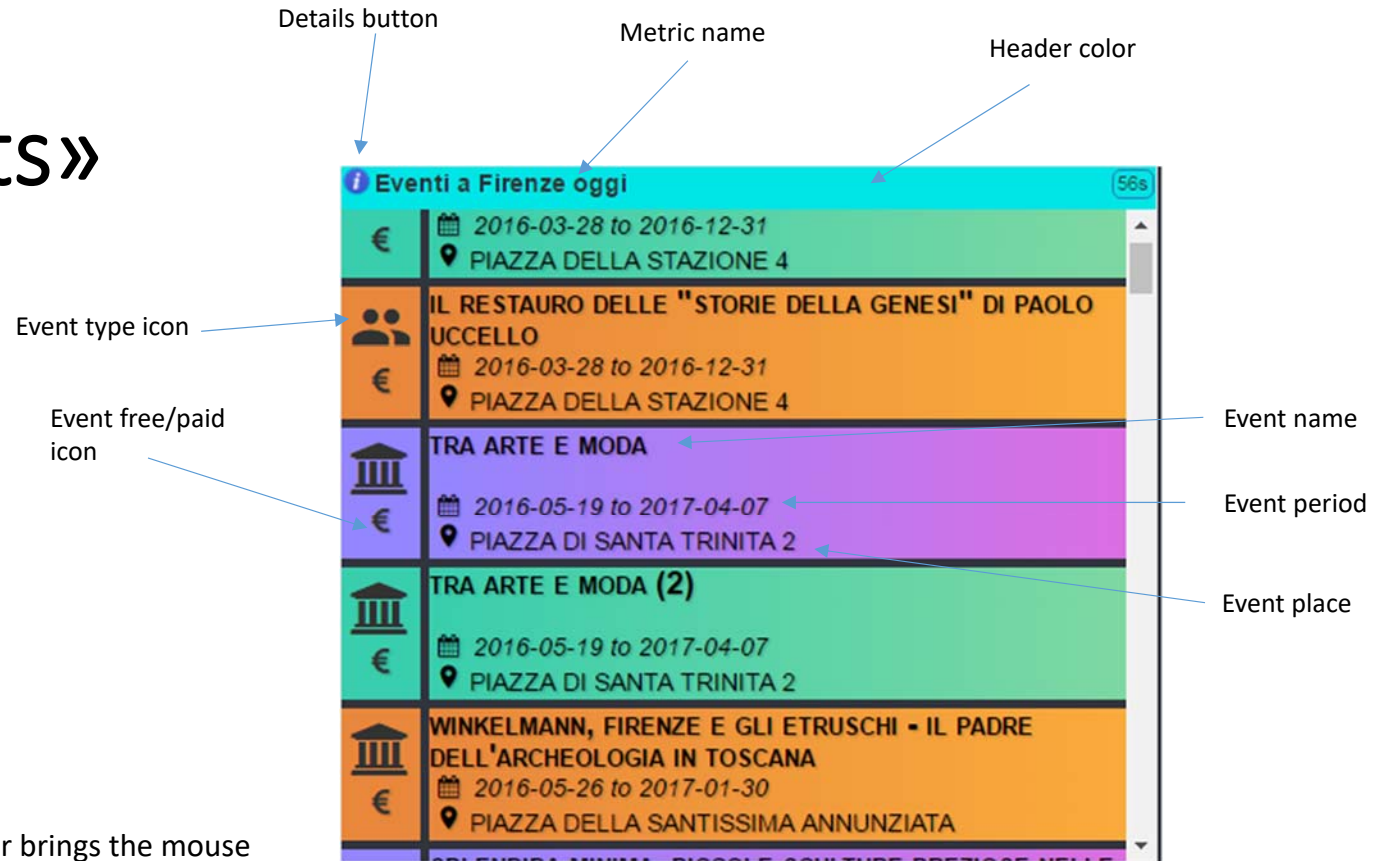
# Widget «Column Content»

- **Dimensions:** variable
- **Width:** from 2 to 16
- **Height:** from 4 to 16
- **Visualized metrics:** 1
- **Editing properties:** header color, Background color, title (optional), alarm threshold, alarm comparison operator, Main color, Complementary color, frequency of update, font size, font color.
- **Type of data:** percentage.
- **Behavior in case of alarm:** flashing title background, the complementary color changes from the one chosen by the user to red.



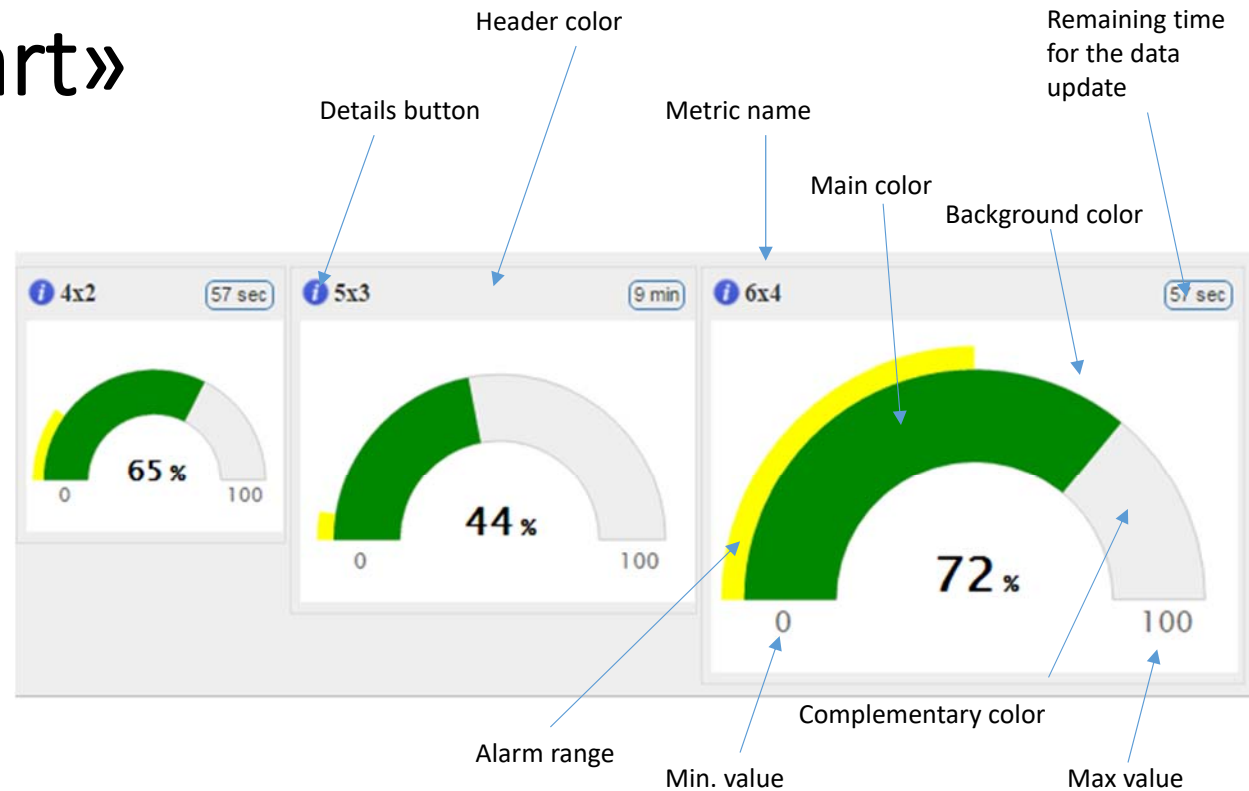
# Widget «Events»

- **Dimensions:** variable
- **Width:** from 3 to 16
- **Height:** from 3 to 16
- **Visualized metrics:** 1
- **Editing properties:** Background color, title (optional), header color, frequency of update, event name font size.
- **Type of data:** textual
- **Behavior in case of alarm:** n/a.
- **Notes:**
  - Autoscroll with stop when the user brings the mouse pointer over the widget.
  - Free / paid event icon automatically shown.
  - Event type icon automatically shown.
  - Event duration automatically shown.
  - Event geolocation link (Servicemap).



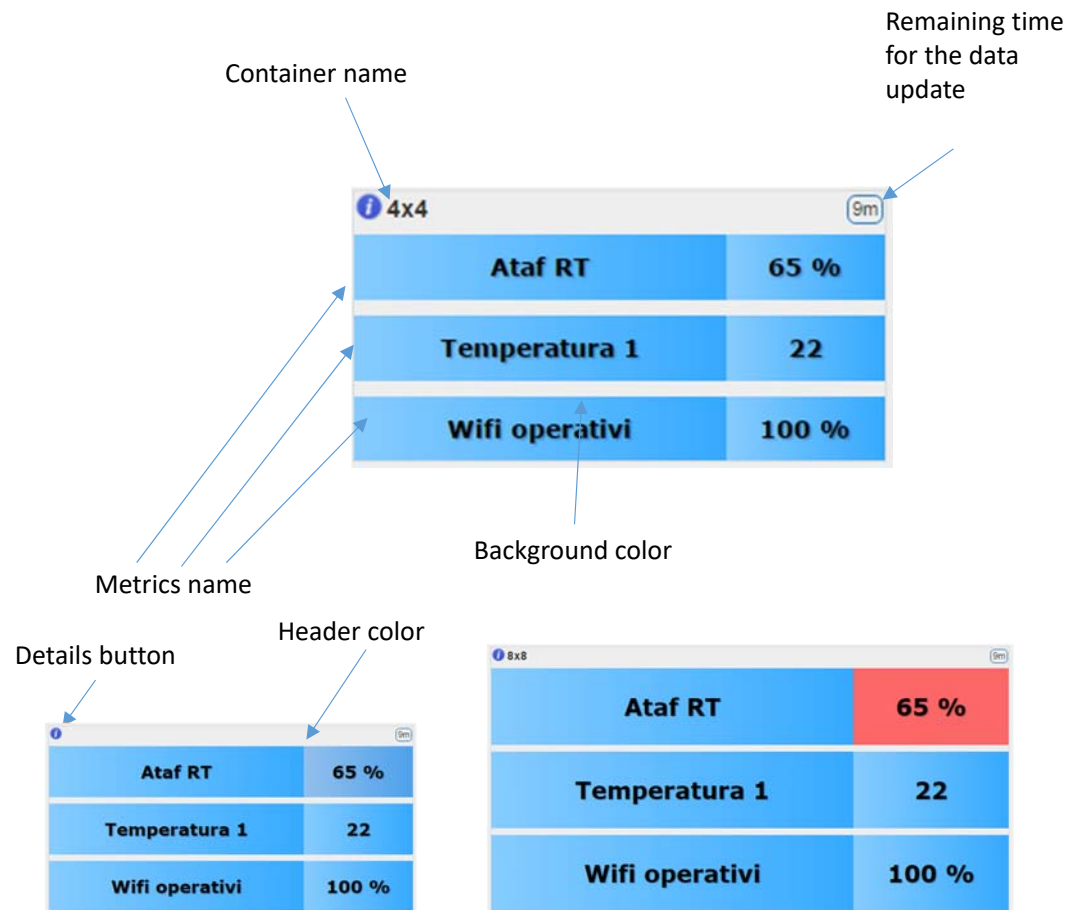
# Widget «Gauge Chart»

- **Dimensions:** variable but predefined (4x2, 5x3, 6x4)
- **Width:** 2, 3 or 4
- **Height:** 4, 5 or 6
- **Visualized metrics:** 1
- **Editing properties:** Background color, title (optional), Alarm threshold, alarm comparison operator, Main color, Complementary color, frequency of update, minimum showed value, max showed value, Alarm range header color, font color.
- **Type of data:** integer, float, percentage.
- **Behavior in case of alarm:** flashing title background, the Main color changes from the one, to the second color set by the user.



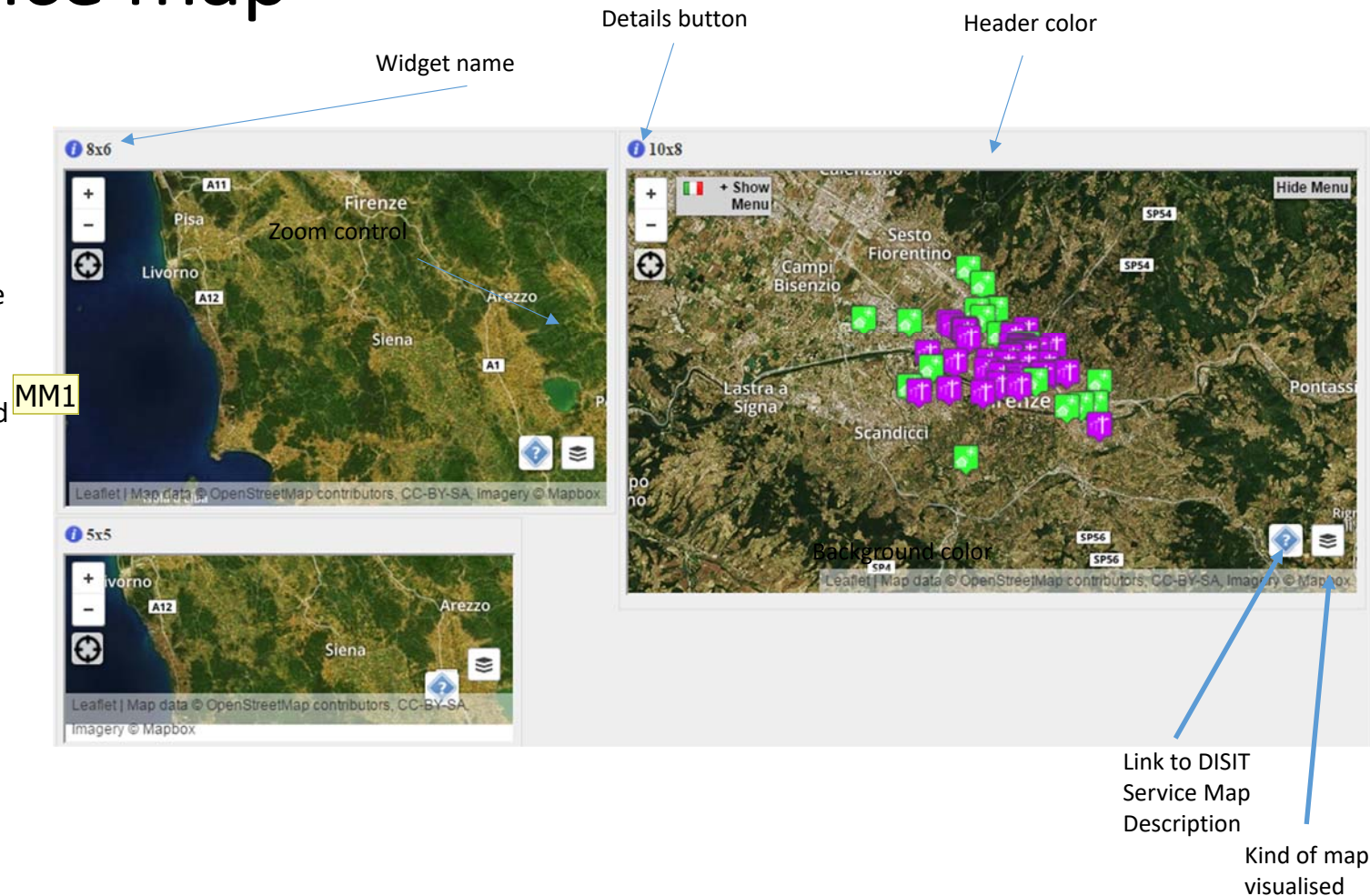
# Widget “Generic Content”

- **Dimensions:** variable
- **Width:** from 4 to 16
- **Height:** from 4 to 16
- **Visualized metrics:** up to 3
- **Editing properties:** Background color, title (optional), Alarm threshold for every metric, alarm comparison operator for every metric, frequency of update, header color, font color.
- **Type of data:** integer, float, percentage, textual.
- **Behavior in case of alarm:** flashing value background, the value background color changes from the one chosen by the user to red.



# Widget “Service map”

- **Dimensions:** variable
- **Width:** from 4 to 16
- **Height:** from 4 to 16
- **Visualized metrics :** associated to the metrics *Bus\_postion\_Map* and *Recharge\_Columns\_Position\_Map*.
- **Note:** this widget can be personalised by editing a simple PHP
- **Editing properties:** title (optional), frequency of update, header color.



## Diapositiva 10

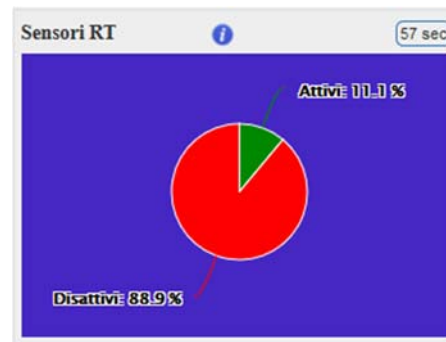
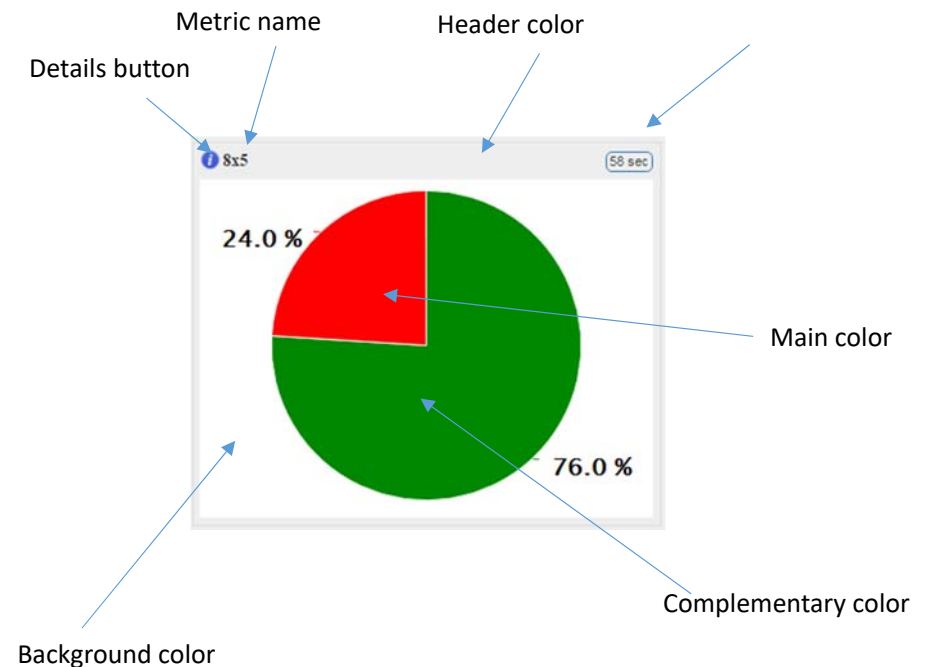
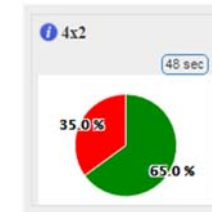
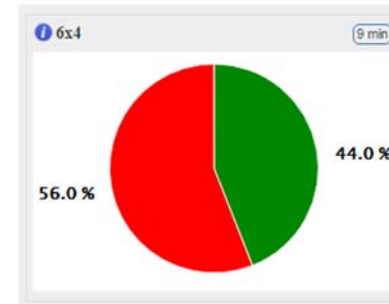
---

**MM1**

Riparlarne col Prof. Nesi?  
Mino Marazzini; 21/12/2016

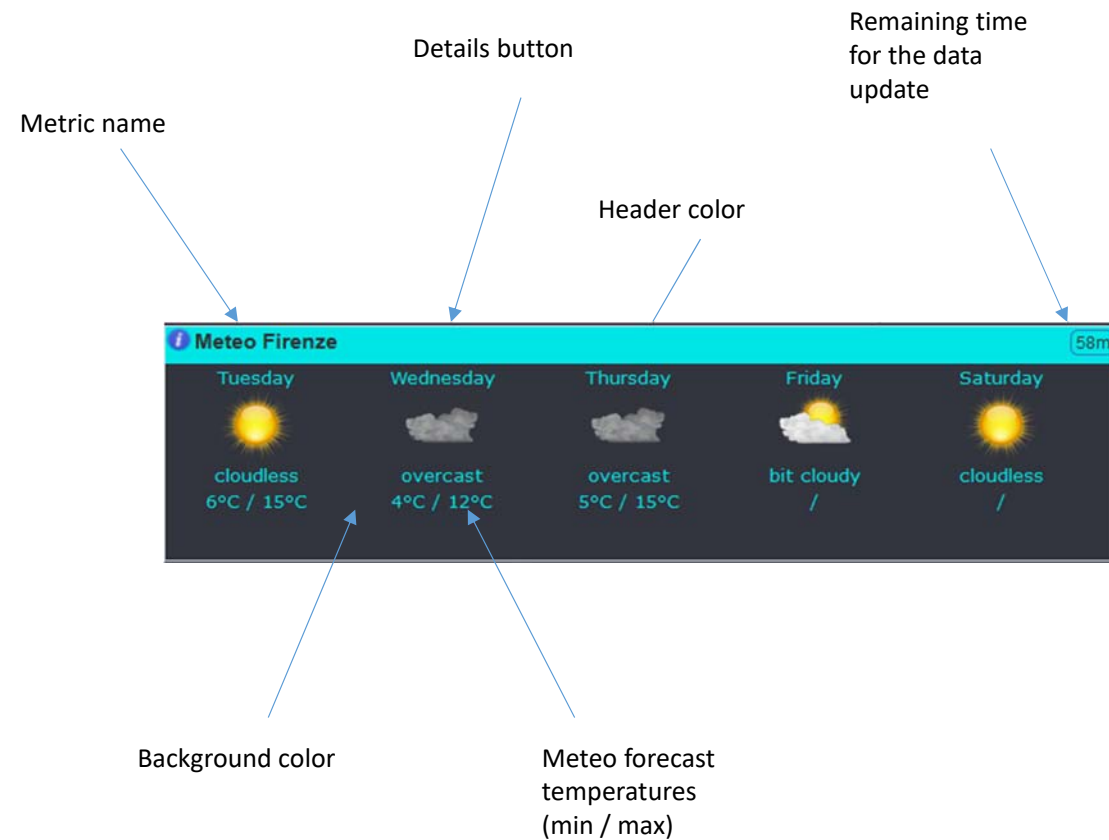
# Widget “Pie Chart”

- **Dimensions:** variable but predefined (4x2, 6x4, 8x5)
- **Width:** 2, 4 or 5
- **height:** 4, 6 or 8
- **Visualized metrics:** 1
- **Editing properties:** Background color, title (optional), Alarm threshold, alarm comparison operator, Main color, Complementary color, header color, frequency of update, data labels font size, data labels font color.
- **Type of data:** percentage.
- **Behavior in case of alarm:** flashing title background.



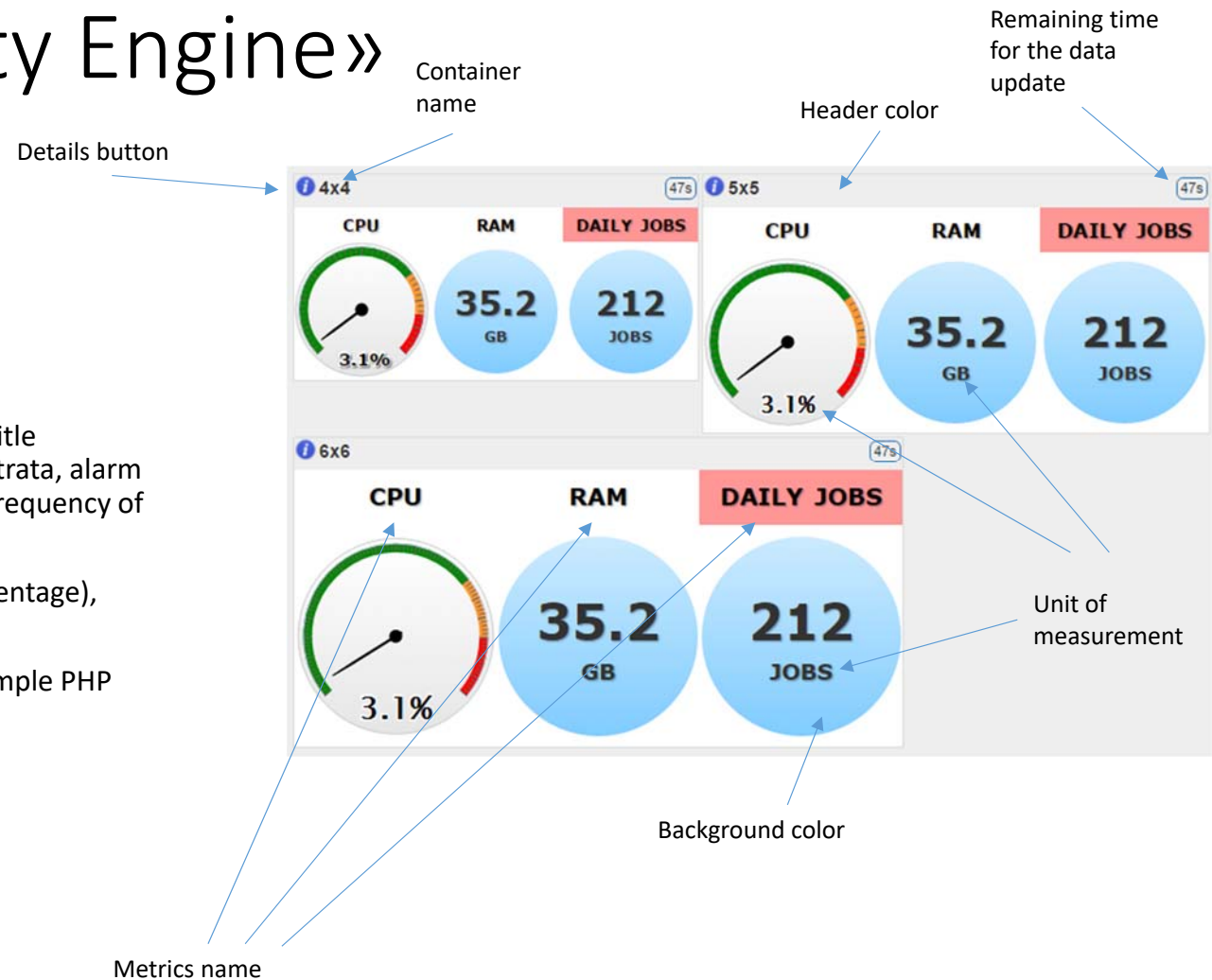
# Widget “Prev Meteo”

- **Dimensions:** fixed
- **Width:** 8
- **Height:** 4
- **Visualized metrics:** 1
- **Editing properties:** Background color, header color, title (optional), Alarm threshold, alarm comparison operator, frequency of update, font-color.
- **Type of data:** percentage.
- **Behavior in case of alarm:** flashing title background.



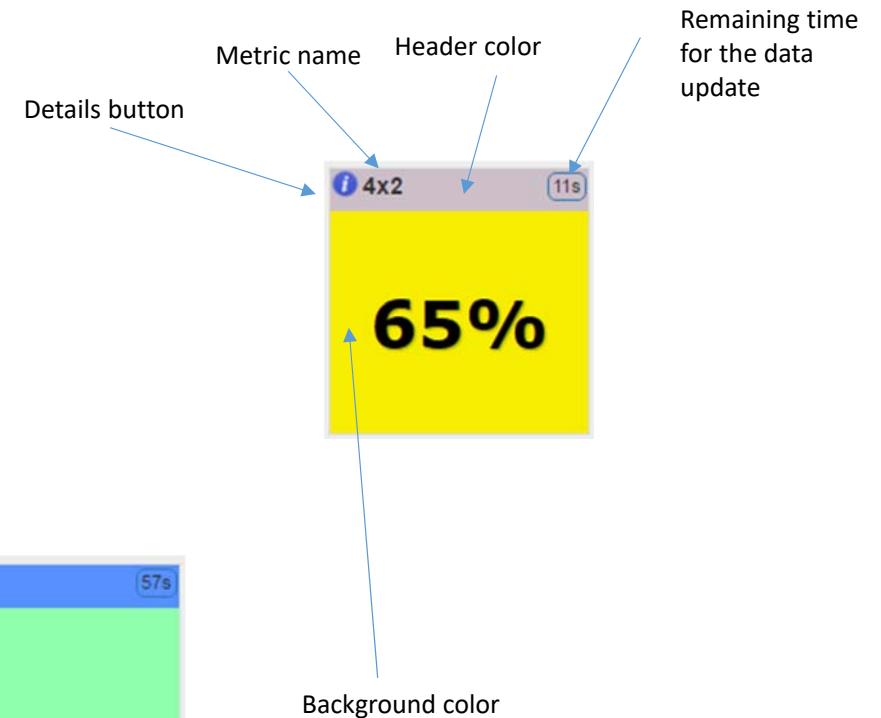
# Widget «Smart City Engine»

- **Dimensions:** variable but predefined (4x4, 5x5, 6x6)
- **Width:** 4, 5 or 6
- **Height :** 4, 5 or 6
- **Visualized metrics:** 1
- **Proprietà settabili:** Background color, header color, title (optional), Alarm threshold per ciascuna metrica mostrata, alarm comparison operator di ciascuna metrica mostrata, frequency of update, unit of measurement, font color.
- **Tipi di dati:** Associated to the metrics *Sce\_CPU* (percentage), *Sce\_Job\_Day* (integer), *Sce\_Mem* (integer)
- **Note:** this widget can be personalised by editing a simple PHP
- **Behavior in case of alarm:** flashing title background.



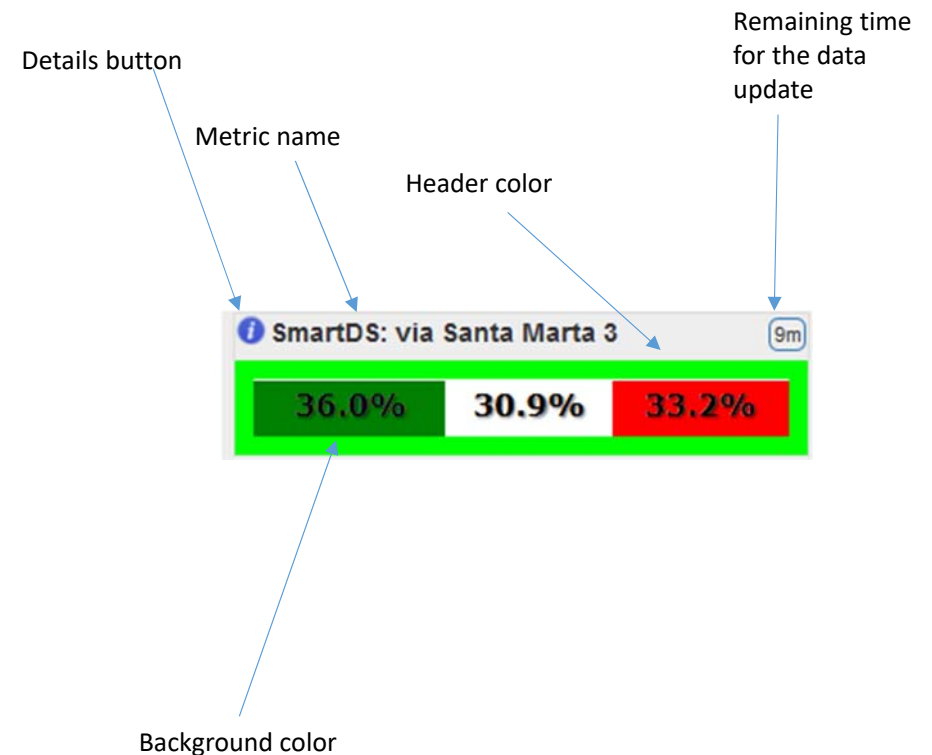
# Widget «Single Content»

- **Dimensions:** variable
- **Width:** from 2 to 16
- **Height:** from 4 to 16
- **Visualized metrics:** 1
- **Editing properties:** Background color, header color, title (optional), Alarm threshold, alarm comparison operator, frequency of update, font color, units of measure.
- **Type of data:** integer, float, percentage, textual.
- **Behavior in case of alarm:** flashing title background.



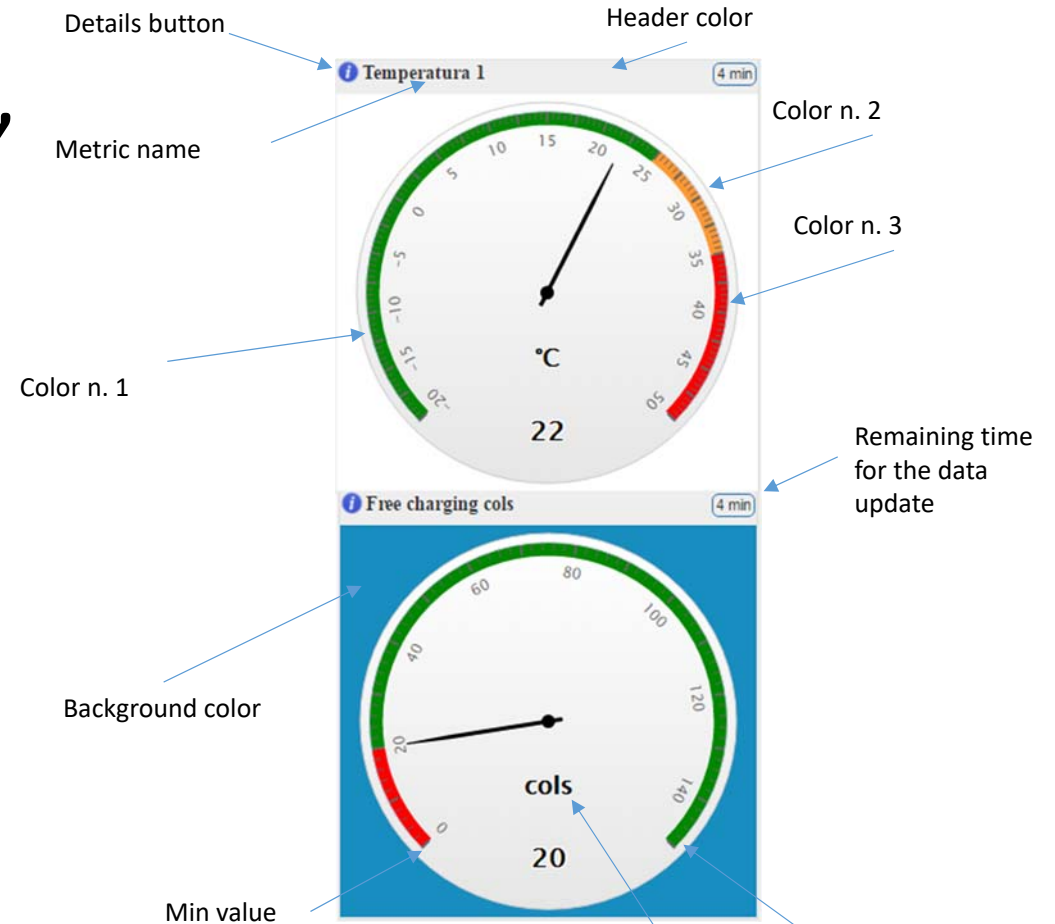
# Widget «SmartDS»

- **Dimensions:** variable
- **Width:** from 2 to 16
- **Height:** from 2 to 16
- **Visualized metrics:** 1
- **Editing properties:** Background color, header color color, title (optional), frequency of update, font-size, font-color.
- **Type of data:** Associated only to the metric *SmartDS\_Process* (percentage)
- **Note:** this widget can be personalised by editing a simple PHP
- **Behavior in case of alarm:** flashing title background.



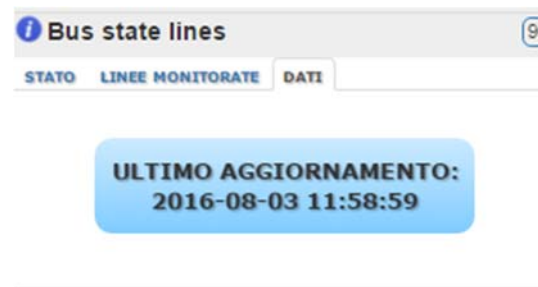
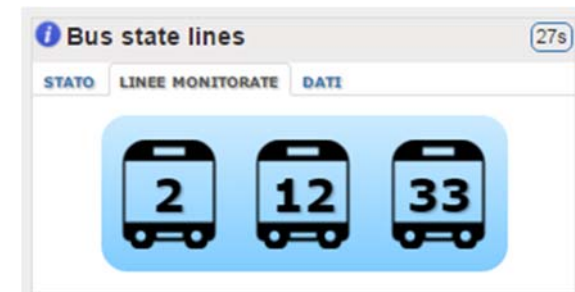
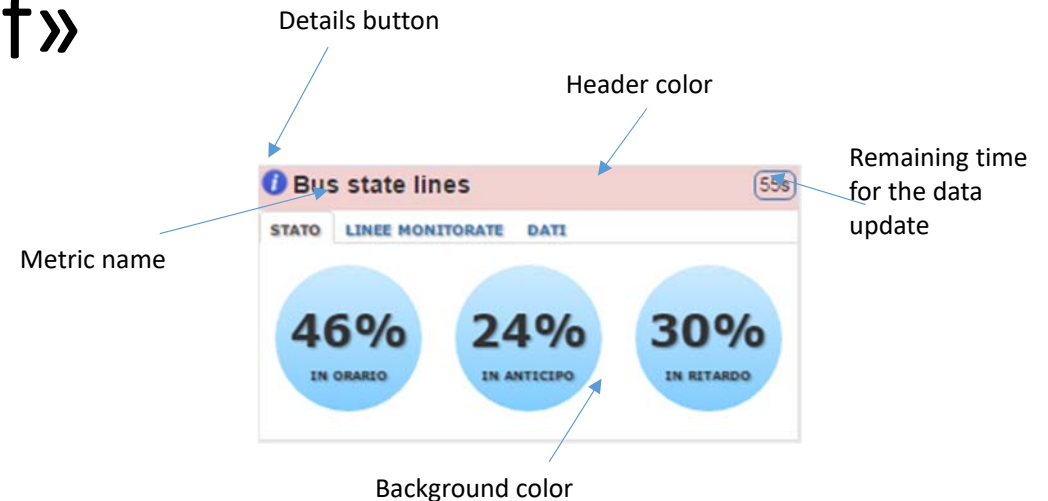
# Widget “Speedometer”

- **Dimensions:** variable but predefined (4x2, 8x4)
- **Width:** 2 or 4
- **Height:** 4 or 8
- **Visualized metrics:** 1
- **Editing properties:** Background color, header color, title, alarm threshold, alarm comparison operator, color n.1, color n.2, color n.3, frequency of update, minimum value, max value, unit of measurement.
- **Type of data:** percentage, integer, float.
- **Behavior in case of alarm:** flashing title background, the needle indicates a value in the range of the color n.3.



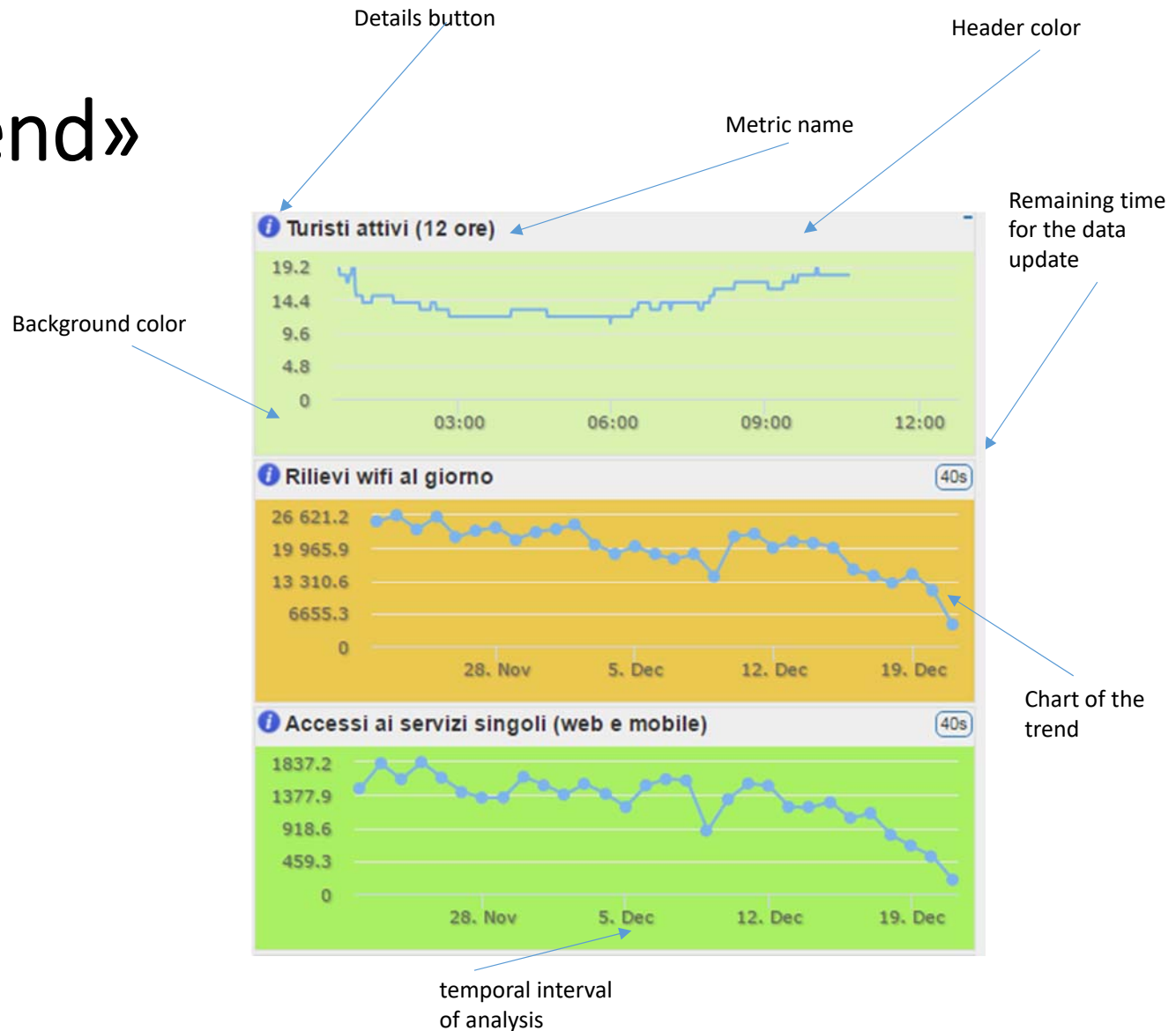
# Widget «State Ride Ataf»

- **Dimensions:** variable but predefined (4x4, 5x5, 6x6, 7x7, 8x8)
- **Width:** from 4 to 8
- **Height:** from 4 to 8
- **Visualized metrics:** 1
- **Editing properties:** Background color, frame color, title (optional), alarm treshold, alarm comparison operator, frequency of update, default tab.
- **Tipi di Dati:** associated only to the metric *Bus\_state\_lines* (percentage)
- **Notes:**
  - Autoscroll with stop when the user brings the mouse pointer over the widget.
  - Multitab views.
- **Behavior in case of alarm:** flashing title background.



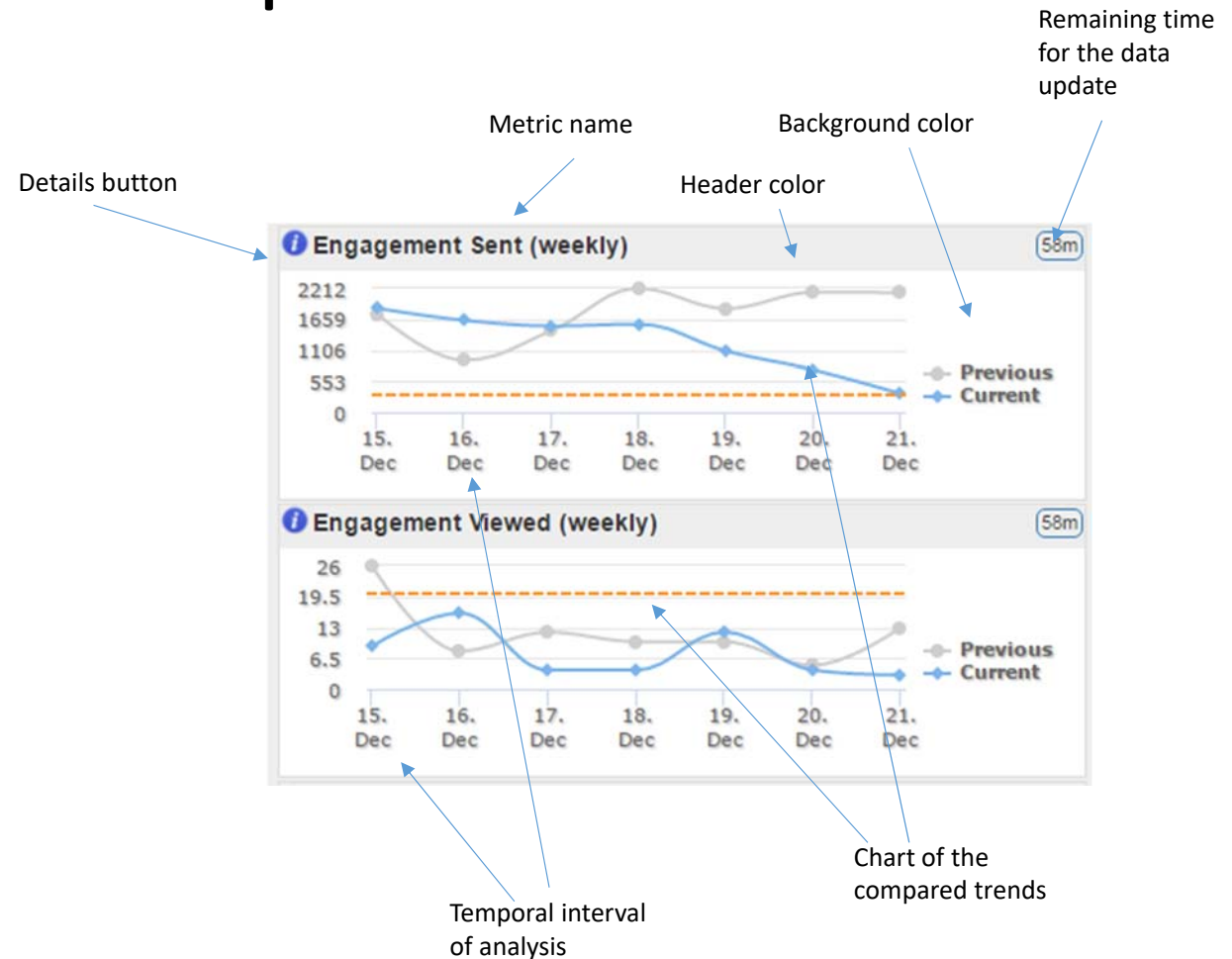
# Widget «Time Trend»

- **Dimensions:** variable
- **Width:** from 2 to 16
- **Height:** from 2 to 16
- **Visualized metrics :** 1
- **Editing properties:** Background color, title color, title, alarm treshold, alarm comparison operator, frequency of update, temporal interval of analysis, font size, font color.
- **Type of data:** associated to different types of metrics (integer, float, percentage)
- **Behavior in case of alarm:** flashing title background.



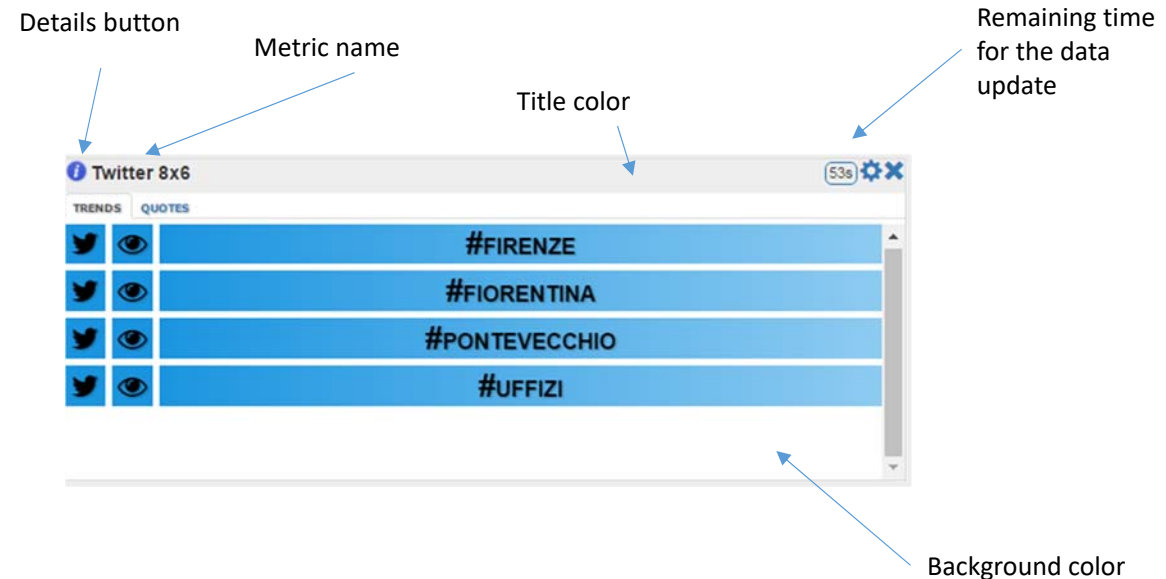
# Widget «Time Trend Compare»

- **Dimensions:** variable
- **Width:** from 2 to 16
- **Height:** from 2 to 16
- **Visualized metrics :** 1
- **Editing properties:** Background color, title color, title, alarm treshold, alarm comparison operator, frequency of update, temporal interval of analysis, font size, font color.
- **Type of data:** associated to different types of metrics (integer, float, percentage)
- **Behavior in case of alarm:** flashing title background.



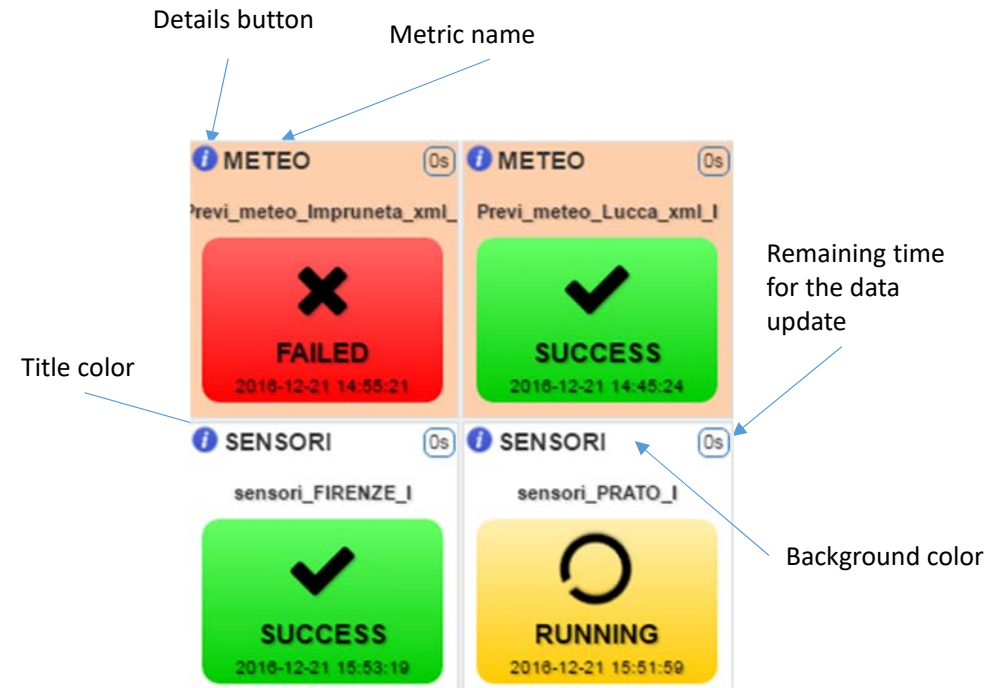
# Widget “Trend Mentions”

- **Dimensions:** variable
- **Width:** from 4 to 16
- **Height:** from 4 to 16
- **Visualized metrics :** 2
- **Editing properties:** Background color, title color, title, alarm threshold, alarm comparison operator, frequency of update, temporal interval of analysis, default tab.
- **Notes:**
  - Vertical autoscroll with stop when the user brings the mouse pointer over the widget.
  - Horizontal autoscroll with stop when the user brings the mouse pointer over the widget.
  - Multitab views.
  - Link to Twitter page about selected trend/quote.
  - Link to Twitter vigilance about selected trend/quote.
- **Type of data:** Associated only to the metric *MentionsTrends\_FI\_Day* (textual)



# Widget “Process”

- **Dimensions:** variable
- **Width:** from 2 to 16
- **Height:** from 4 to 16
- **Visualized metrics :** 1
- **Editing properties:** Scheduler, job area, job group, job name, background color, header color, title (optional), frequency of update.
- **Notes:**
  - Color codes:
    - Green → Success
    - Yellow → Process running
    - Red → Process failed or misfired
  - Automatic full process name.
  - Timestamp of last poll.
- **Type of data:** process last execution status.



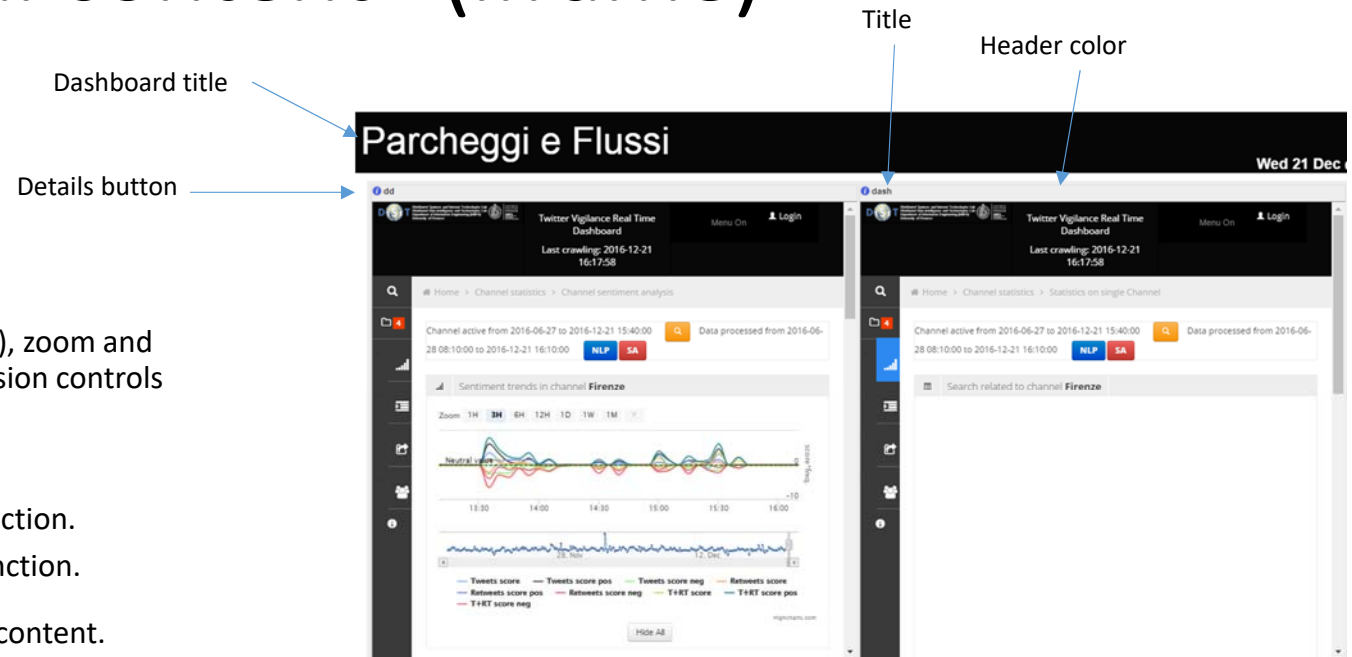
# Widget “Civil protection”

- **Dimensions:** variable
- **Width:** from 4 to 30
- **Height:** from 4 to 30
- **Visualized metrics :** 2
- **Editing properties:** Background color, title color, alarm, frequency of update, default tab.
- **Notes:**
  - General bulletin tab.
  - Meteo risk tab:
    - Hydraulic risk, showers risk, hydrogeologic risk, snow risk, ice risk, wind risk, sea storm risk.
    - Automatic color code based on risk grade.
    - Automatic general alarm color code.
- **Type of data:** textual.



# Widget “External content” (iframe)

- **Dimensions:** variable
- **Width:** from 4 to 30
- **Height:** from 4 to 30
- **Visualized metrics :** 1
- **Editing properties:** header color, title (optional), zoom and dimensions controls visibility, zoom and dimension controls position (dashboard edit), title visibility.
- **Notes:**
  - Resize widget controls with autosave function.
  - Zoom content controls with autosave function.
- **Type of data:** external Web applications/sites content.



Background color

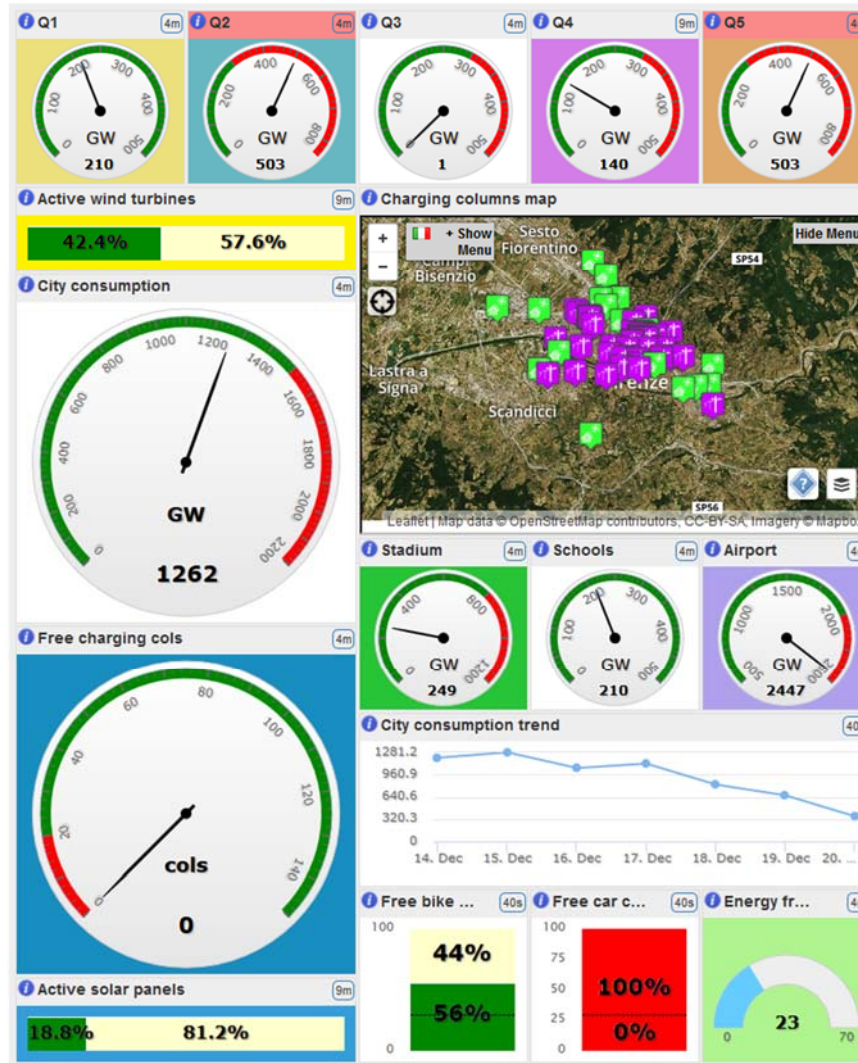
# List of Links:

- [Http://www.km4city.org/dashboard/disitdc.html](http://www.km4city.org/dashboard/disitdc.html)
- [Http://www.km4city.org/dashboard/firenzewifi.html](http://www.km4city.org/dashboard/firenzewifi.html)
- [Http://www.km4city.org/dashboard/engagement.html](http://www.km4city.org/dashboard/engagement.html)
- [Http://www.km4city.org/dashboard/energy.html](http://www.km4city.org/dashboard/energy.html)
- [Http://www.km4city.org/dashboard/gen1.html](http://www.km4city.org/dashboard/gen1.html)
- [Http://www.km4city.org/dashboard/mugnone2016.html](http://www.km4city.org/dashboard/mugnone2016.html)
- [Http://www.km4city.org/dashboard/processes-s.html](http://www.km4city.org/dashboard/processes-s.html)
- [Http://www.km4city.org/dashboard/userblack.html](http://www.km4city.org/dashboard/userblack.html)
- [Http://www.km4city.org/dashboard/tv.html](http://www.km4city.org/dashboard/tv.html)
- [Http://www.km4city.org/dashboard/tables.html](http://www.km4city.org/dashboard/tables.html)
- [Http://www.km4city.org/dashboard/scdata.html](http://www.km4city.org/dashboard/scdata.html)
-

# Energy (demo)



Tue 20 Dec @ 18:16:39



<http://www.km4city.org/dashboard/energy.html>



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

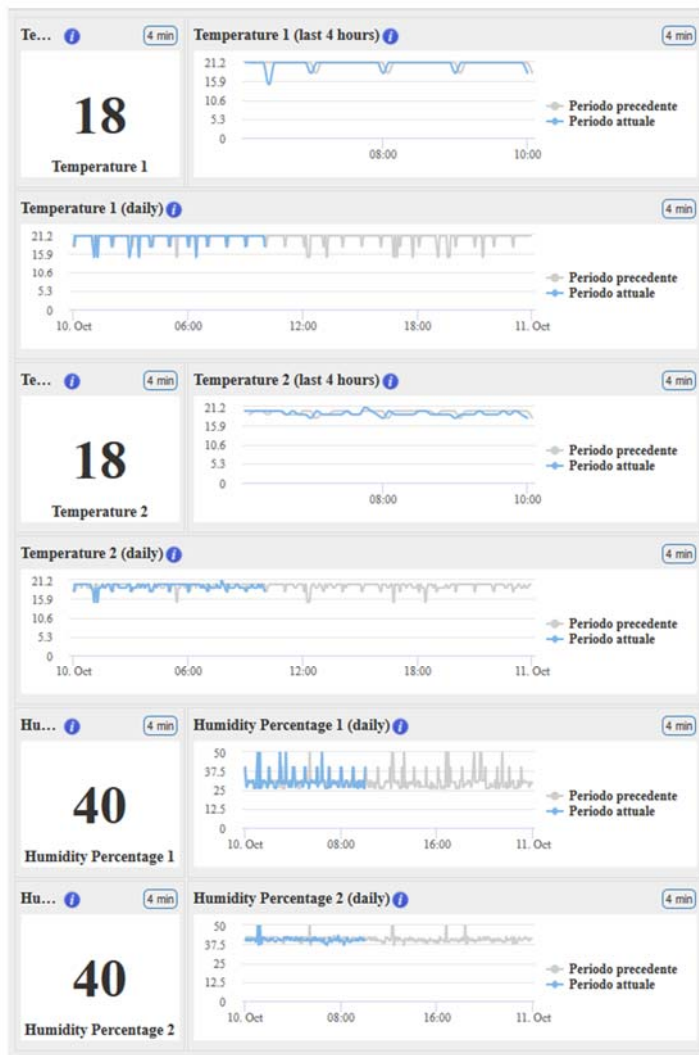
**DINFO**  
DIPARTIMENTO DI  
INGEGNERIA  
DELL'INFORMAZIONE

**DISIT**  
DISTRIBUTED SYSTEMS  
AND INTERNET  
TECHNOLOGIES LAB

# DataCenter

ServiceMap, SmartDS

Mon 10 Oct @ 09:04:52



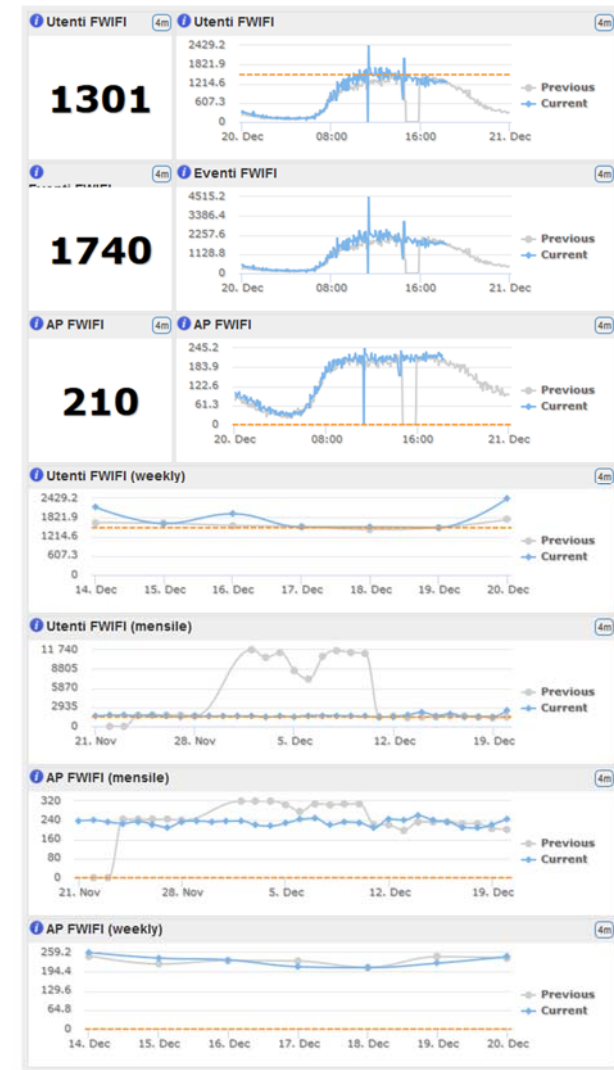
[Http://www.km4city.org/dashboard/disitdc.html](http://www.km4city.org/dashboard/disitdc.html)

# FirenzeWifi

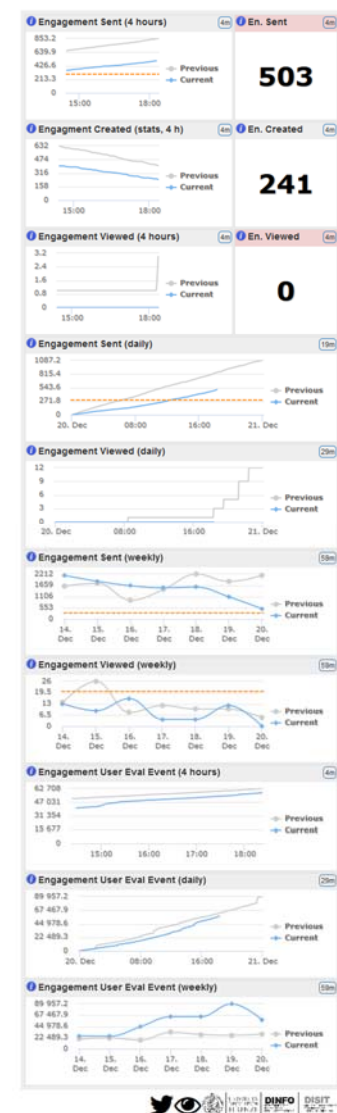
monitor



Tue 20 Dec @ 18:18:15



[Http://www.km4city.org/dashboard/firenzewifi.html](http://www.km4city.org/dashboard/firenzewifi.html)

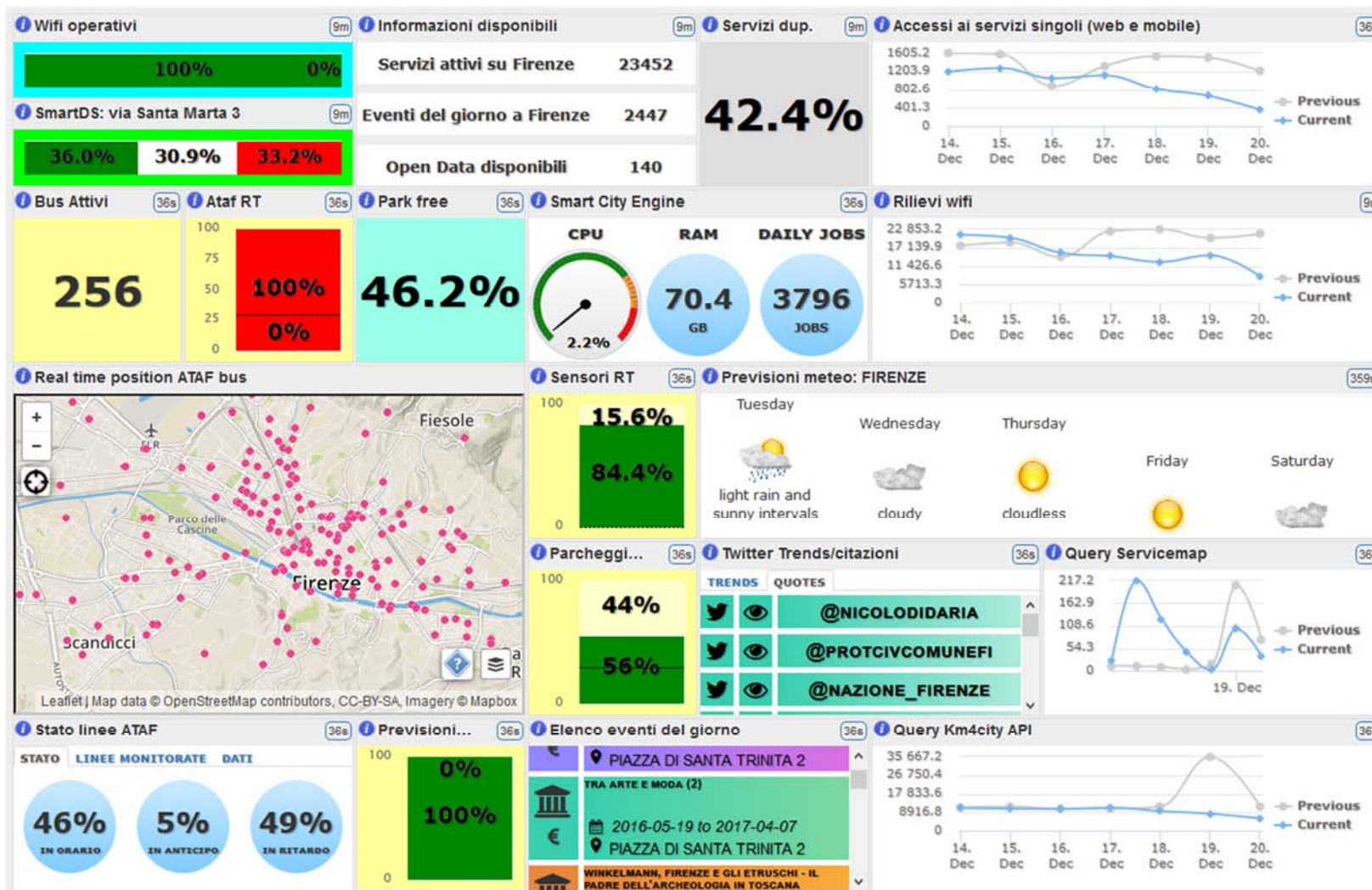


# Firenze

43.7693, 11.2560



Tue 20 Dec @ 18:15:25



<http://www.km4city.org/dashboard/gen1.html>



# Servizi agli Utenti

Firenze (sperimentale)

Tue 20 Dec @ 18:32:38



# SmartCity Processes

Fri 4 Nov @ 23:51:10

<b>ATAF</b> 53 sec avm_linea17_I  <b>RUNNING</b> 2016-11-04 23:42:31	<b>ATAF</b> 53 sec avm_linea31_I  <b>SUCCESS</b> 2016-11-04 23:50:28	<b>ATAF</b> 53 sec avm_linea4_I  <b>RUNNING</b> 2016-11-04 23:49:04	<b>ATAF</b> 53 sec avm_linea6_I  <b>SUCCESS</b> 2016-11-04 23:46:59	<b>CHECK RT</b> 53 sec check_RT  <b>SUCCESS</b> 2016-11-04 09:27:48	<b>EVENTI FI</b> 53 sec Eventi_a_Firenze_I  <b>SUCCESS</b> 2016-11-04 22:05:32
<b>PARK</b> 53 sec parcheggi1_I  <b>FAILED</b> 2016-11-04 23:49:18	<b>PARK</b> 53 sec parcheggi2_I  <b>SUCCESS</b> 2016-11-04 23:49:33	<b>PARK</b> 53 sec parcheggi160_I  <b>SUCCESS</b> 2016-11-04 23:49:31	<b>PARK</b> 53 sec parcheggi161_I  <b>SUCCESS</b> 2016-11-04 23:49:20	<b>PARK</b> 53 sec parcheggi162_I  <b>SUCCESS</b> 2016-11-04 23:49:26	<b>PARK</b> 53 sec parcheggi163_I  <b>SUCCESS</b> 2016-11-04 23:49:21
<b>METEO</b> 53 sec Previ_meteo_Abetone_xml_I  <b>SUCCESS</b> 2016-11-04 22:39:08	<b>METEO</b> 53 sec Previ_meteo_Arezzo_xml_I  <b>SUCCESS</b> 2016-11-04 22:48:08	<b>METEO</b> 53 sec Previ_meteo_Fiesole_xml_I  <b>SUCCESS</b> 2016-11-04 19:09:23	<b>METEO</b> 53 sec Previ_meteo_Firenze_xml_I  <b>SUCCESS</b> 2016-11-04 19:15:11	<b>METEO</b> 53 sec Previ_meteo_Impruneta_xml_I  <b>SUCCESS</b> 2016-11-04 20:54:42	<b>METEO</b> 53 sec Previ_meteo_Lucca_xml_I  <b>SUCCESS</b> 2016-11-04 20:45:24
<b>SENSORI</b> 53 sec sensoridinamicimetro  <b>SUCCESS</b> 2016-11-04 23:42:14	<b>SENSORI</b> 53 sec sensori_AREZZO_I  <b>SUCCESS</b> 2016-11-04 23:48:37	<b>SENSORI</b> 53 sec sensori_EMPOLI_I  <b>RUNNING</b> 2016-11-04 23:50:59	<b>SENSORI</b> 53 sec sensori_PISA_I  <b>SUCCESS</b> 2016-11-04 23:50:05	<b>SENSORI</b> 53 sec sensori_FIRENZE_I  <b>SUCCESS</b> 2016-11-04 23:48:18	<b>SENSORI</b> 53 sec sensori_PRATO_I  <b>SUCCESS</b> 2016-11-04 23:47:03
<b>TWITTER</b> 53 sec insertTweetsRecommender  <b>SUCCESS</b> 2016-11-04 23:46:58	<b>TWITTER</b> 53 sec TwitterVigilanceIndexing  <b>RUNNING</b> 2016-11-04 23:00:00	<b>FI WIFI</b> 53 sec calculateAPsTimeSeries  <b>RUNNING</b> 2016-11-04 10:30:07	<b>FI WIFI</b> 53 sec calculateNewUsers  <b>SUCCESS</b> 2016-11-04 23:03:18	<b>FI WIFI</b> 53 sec calculateUsersStatus  <b>SUCCESS</b> 2016-11-04 23:50:45	<b>FI WIFI</b> 53 sec GraphsJSGenerator  <b>FAILED</b> 2016-11-04 23:24:42

# Twitter Vigilance su Firenze (sperimentale)

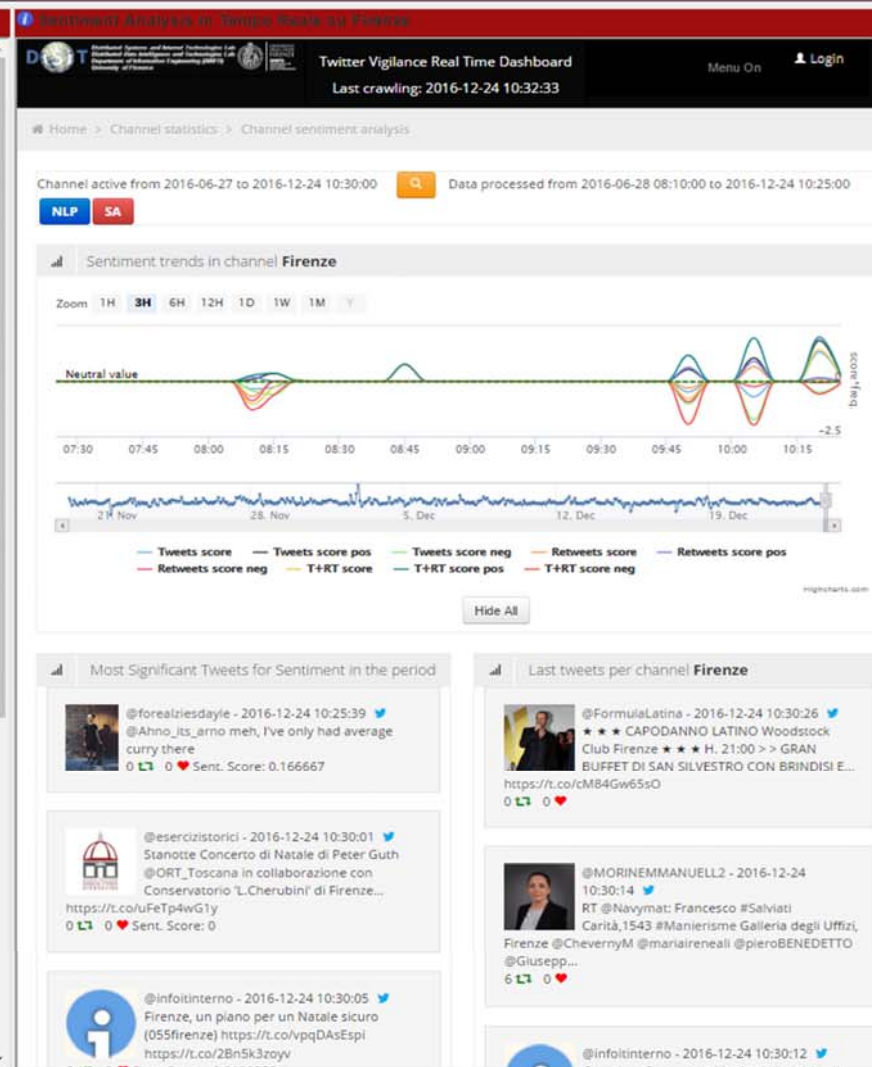
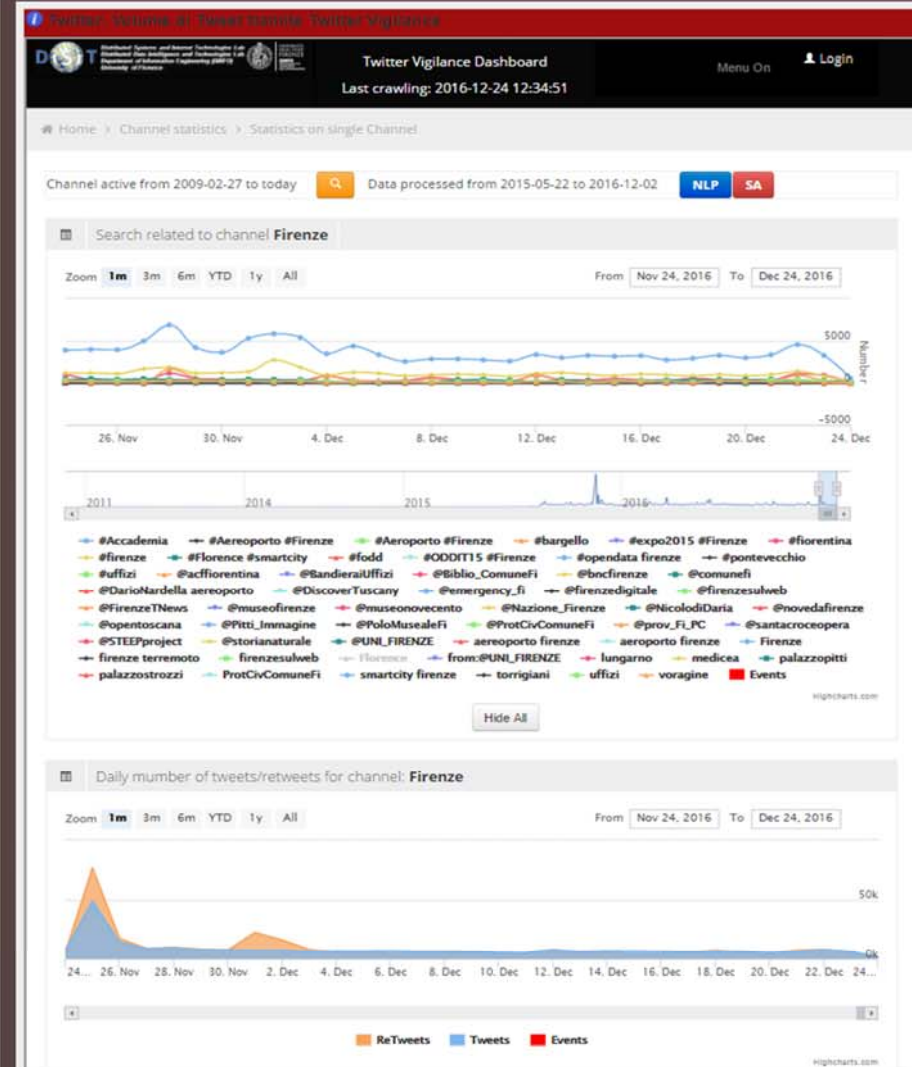


UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

DINFO  
DIPARTIMENTO DI  
INFORMATICA  
E TECNOLOGIE  
DELL'INFORMAZIONE

DISIT  
DIPARTIMENTO DI  
SISTEMI  
E TECNOLOGIE  
DELL'INFORMAZIONE

Sat 24 Dec @ 10:37:57



We suggest to use  
Chrome browser  
for better  
experience



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

DINFO  
DIPARTIMENTO DI  
INFORMATICA  
E TECNOLOGIE  
DELL'INFORMAZIONE

DISIT  
DIPARTIMENTO DI  
SISTEMI  
E TECNOLOGIE  
DELL'INFORMAZIONE

# Florence data overview

A table based overview over city main data

Wed 18 Jan @ 19:19:10

Air Quality Index <span>39a</span>						Weather stations <span>39a</span>							Citizens satisfaction index <span>39a</span>				
Substances / Quarters	OZN▼	PM2▼	PM10▼	CO2▼	NO2▼	Data / Station	Wind speed (km/h)▼	Direction	Temperature (°C)▼	Humidity (%)▼	Rain today (mm)▼	Pressure (mbar)	Criteria / Services	Quality (%)▼	Cost (%)▼	Availability time (%)▼	Emergency handling (%)▼
Q1	120	41	165	36	4	Sesto Fiorentino	50	N	12	32	0	922	Water	92	67	95	42
Q2	33	25	66	123	45	Livorno	65	NE	10	37	0	876	Public transportation	36	29	27	31
Q3	225	153	342	193	217	Grosseto	78	E	4	22	0	1022	Public safety	77	64	58	62
Q4	174	221	87	122	93	Vada	42	S	6	0	34	895	Roads management	28	42	27	25
Q5	79	87	23	27	65	Follonica	102	N	7.2	23	0	913	Healthcare	72	64	23	56
						Giglio	97	O	3	19	0	957	Welfare	43	51	38	36
													Public administration	58	16	18	22

0 --> 4

4 --> 10

10 --> 20

20 --> 25

25 --> 30

30 --> 50

Tourists flow <span>39a</span>				Florence events 2017 overview <span>39a</span>						
Categories / Vehicle	Total arrivals	Overnights	Day trippers	Fields / Categories	Free	Paid	Winter	Spring	Summer	Autumn
Airplane	56	36	20	Classical music, opera, ballet	7	23	6	10	4	10
Train	122	81	41	Exhibitions	4	16	3	7	6	4
Car	215	133	82	Guided tours	60	140	15	100	50	35
Bus	157	110	47	Film festival	0	0	0	0	0	0
Cruise	0	0	0	Markets, fairs	7	7	2	6	2	4
Boat	0	0	0	Readings, conferences	35	15	10	22	9	9
				Contemporary music	30	42	8	25	30	9
Total	550	360	190	Sport	20	192	55	104	27	26

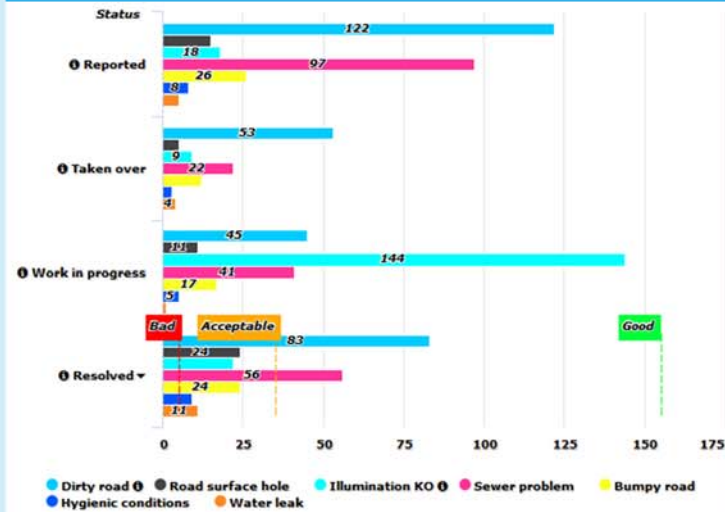
# Smart City Data Overview

Sperimentale

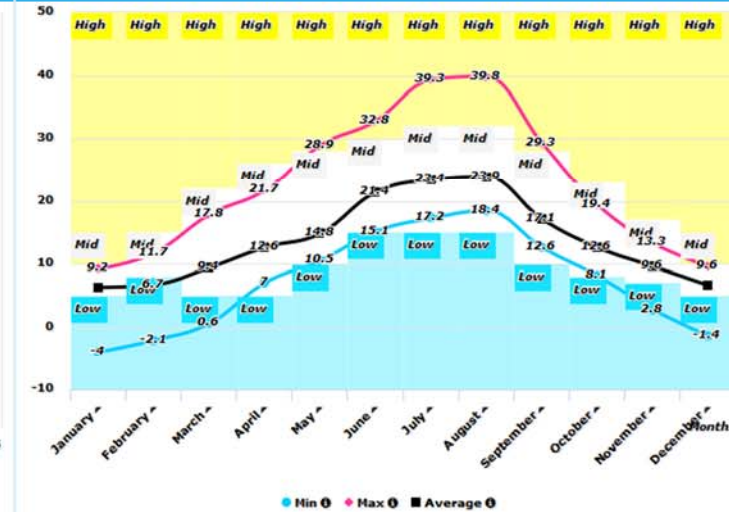


Thu 16 Mar @ 02:23:38

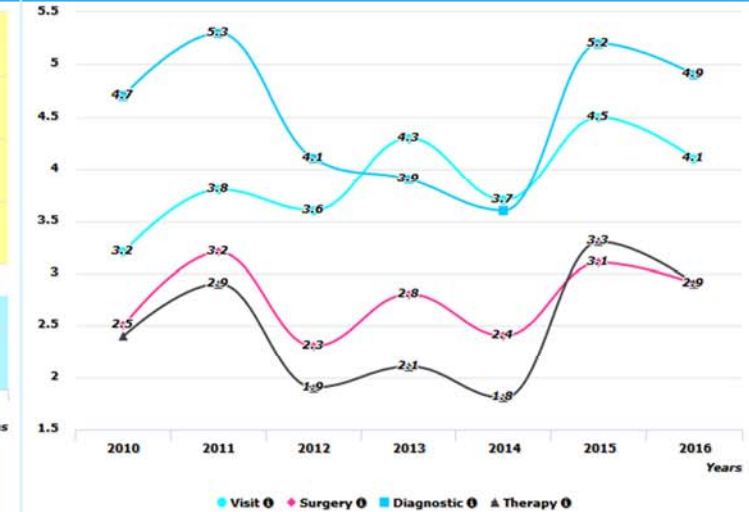
Urban faults - Horizontal bar series



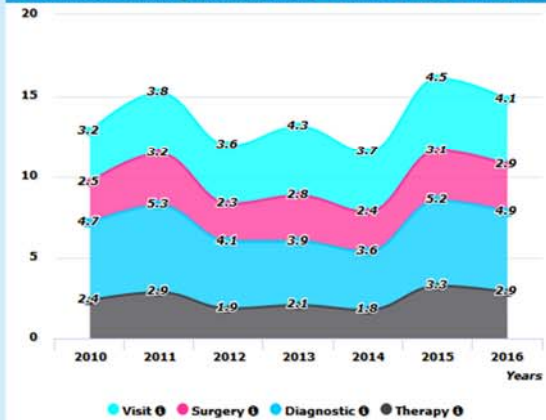
2016 Temperature statistics - Curved line series



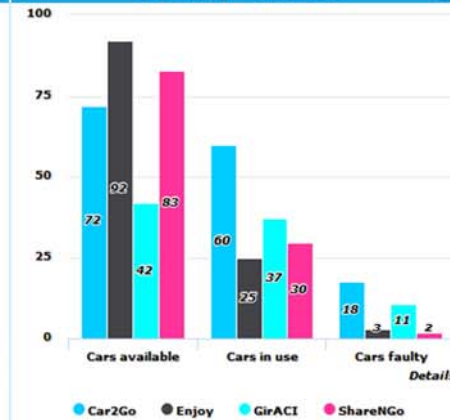
Healthcare waiting times (months) - Curved lines



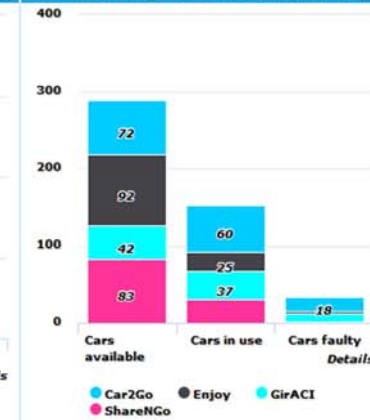
Healthcare waiting times (months) - Stacked curved area



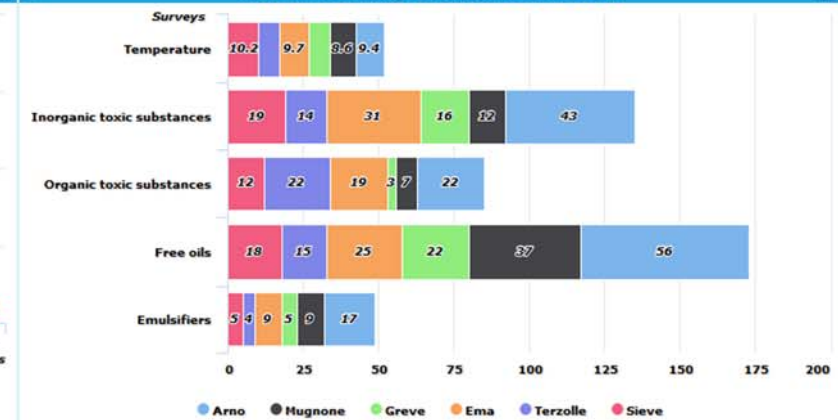
Car sharing - Vertical bars



Car sharing - Vertical stacked bars



Rivers water analysis - Horizontal stacked bars



# Smart City Data Overview 2

Sperimentale



Thu 16 Mar @ 02:24:52

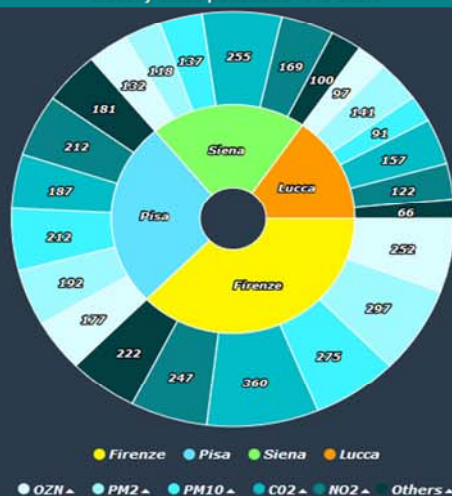
Tuscany cities pollution - Radar Series

99m



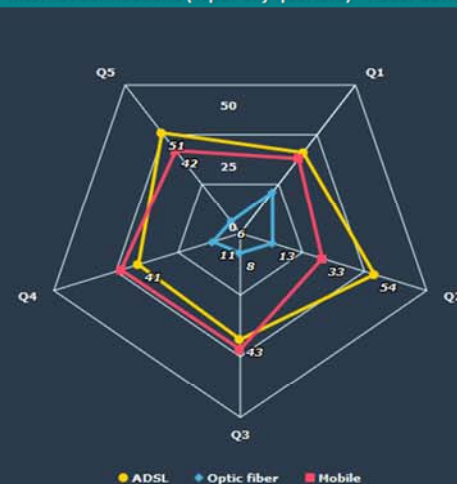
Tuscany cities pollutions - Pie chart

55s



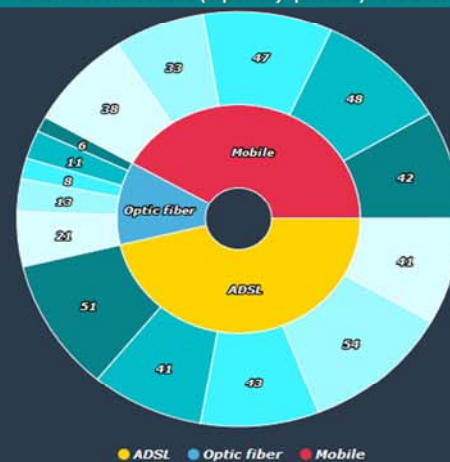
Internet connections (% per city quarters) - Radar series

55s



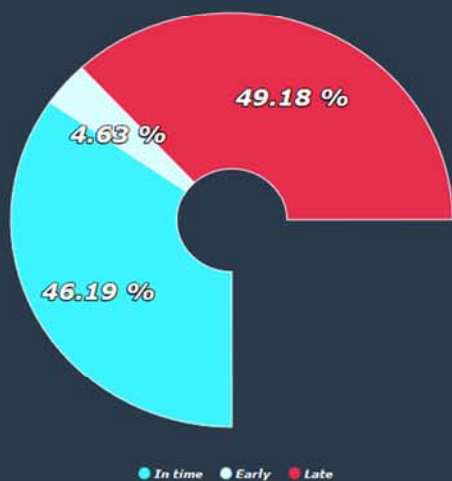
Internet connections (% per city quarters) - Pie chart

55s



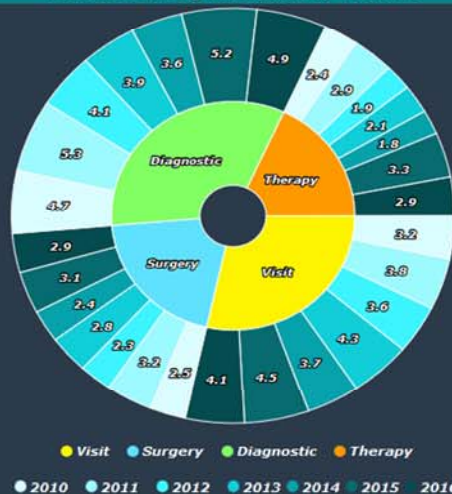
Bus state lines (%) - Pie chart

55s



Healthcare waiting times (months) - Pie chart

55s



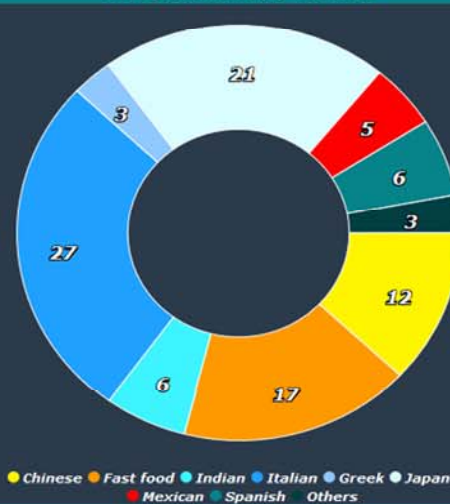
Healthcare waiting times (months) - Radar series

55s

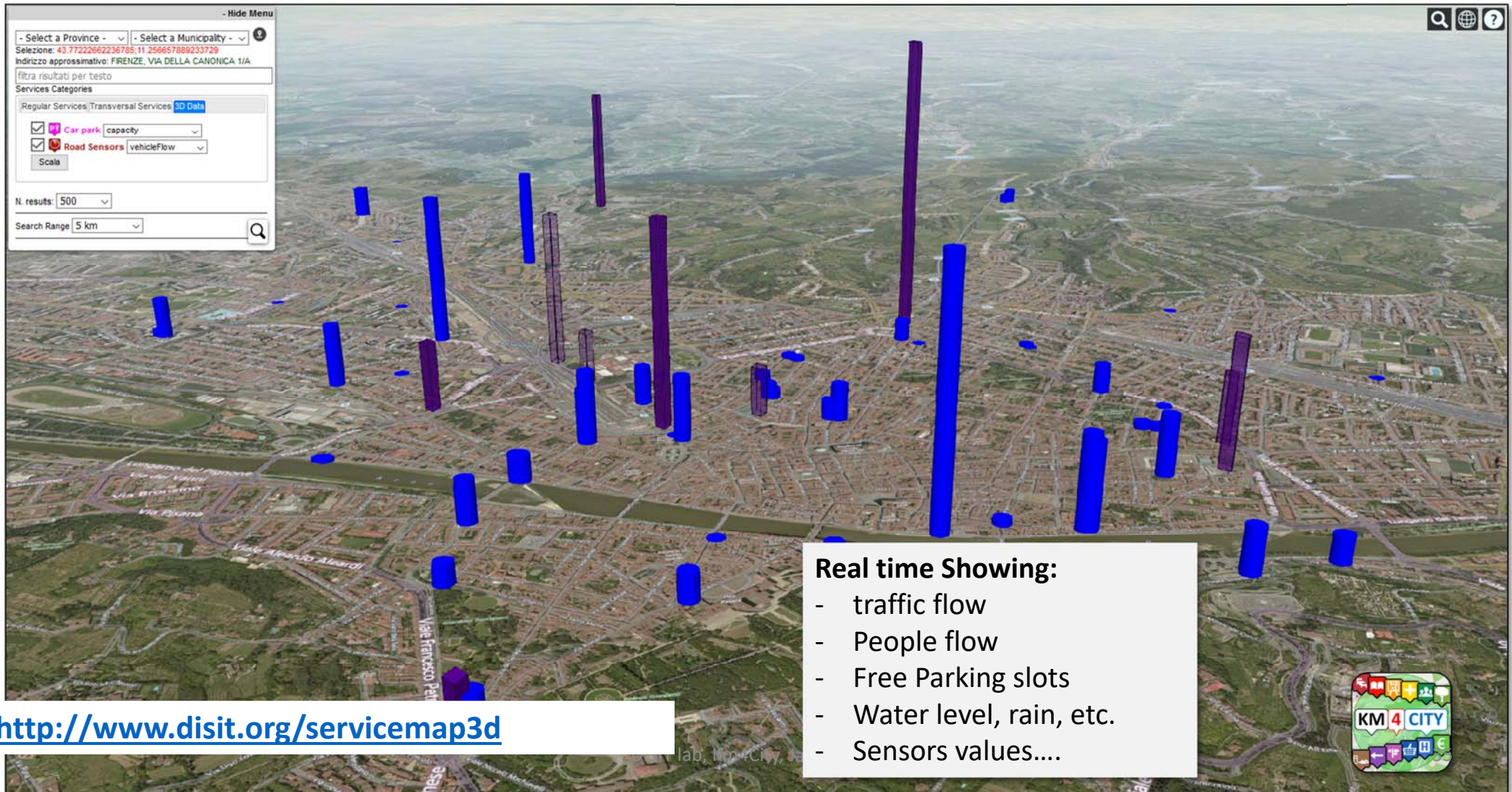


Food preferences (%) - PieChart

55s



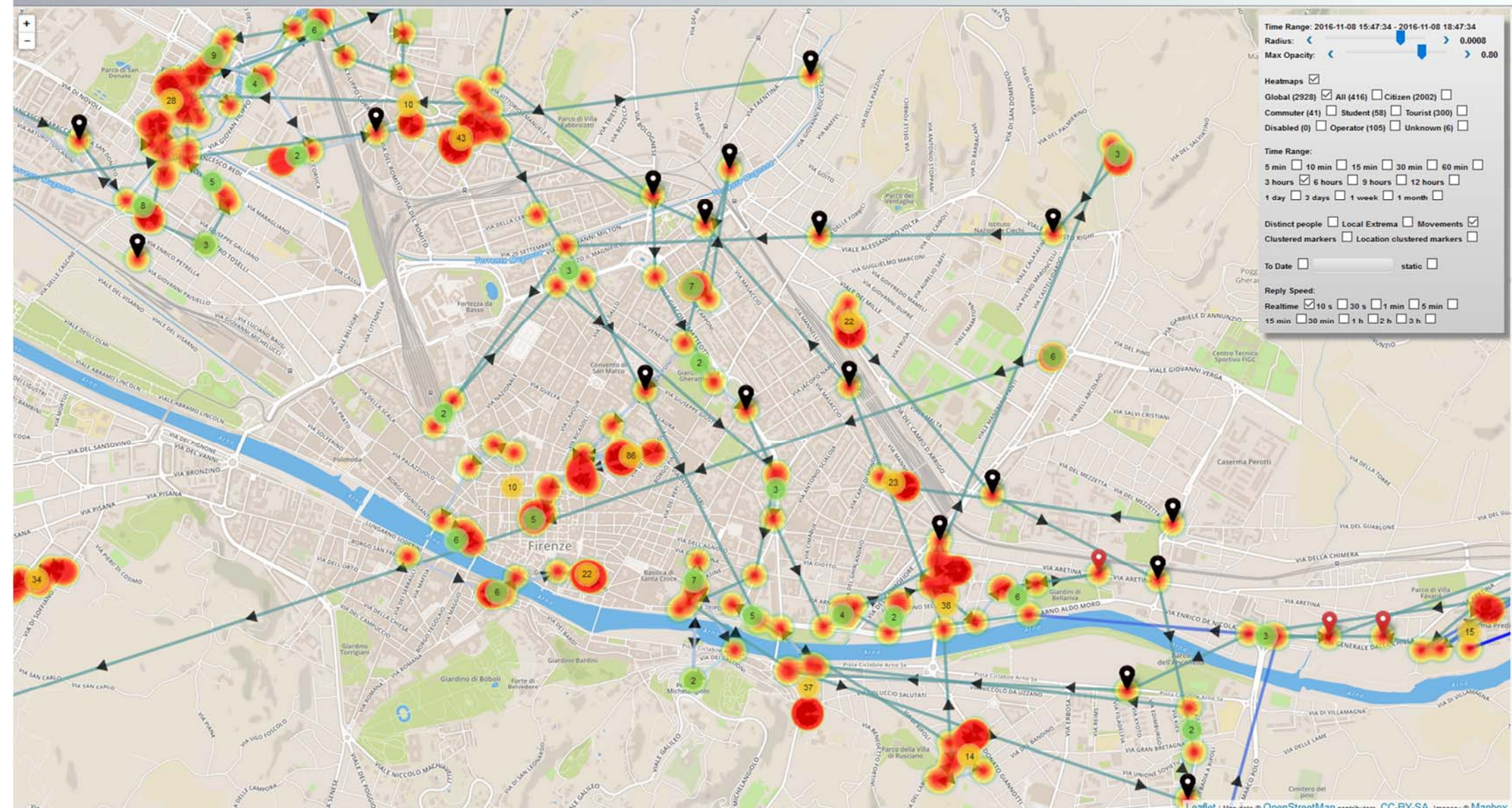
# RealTime Values 3D

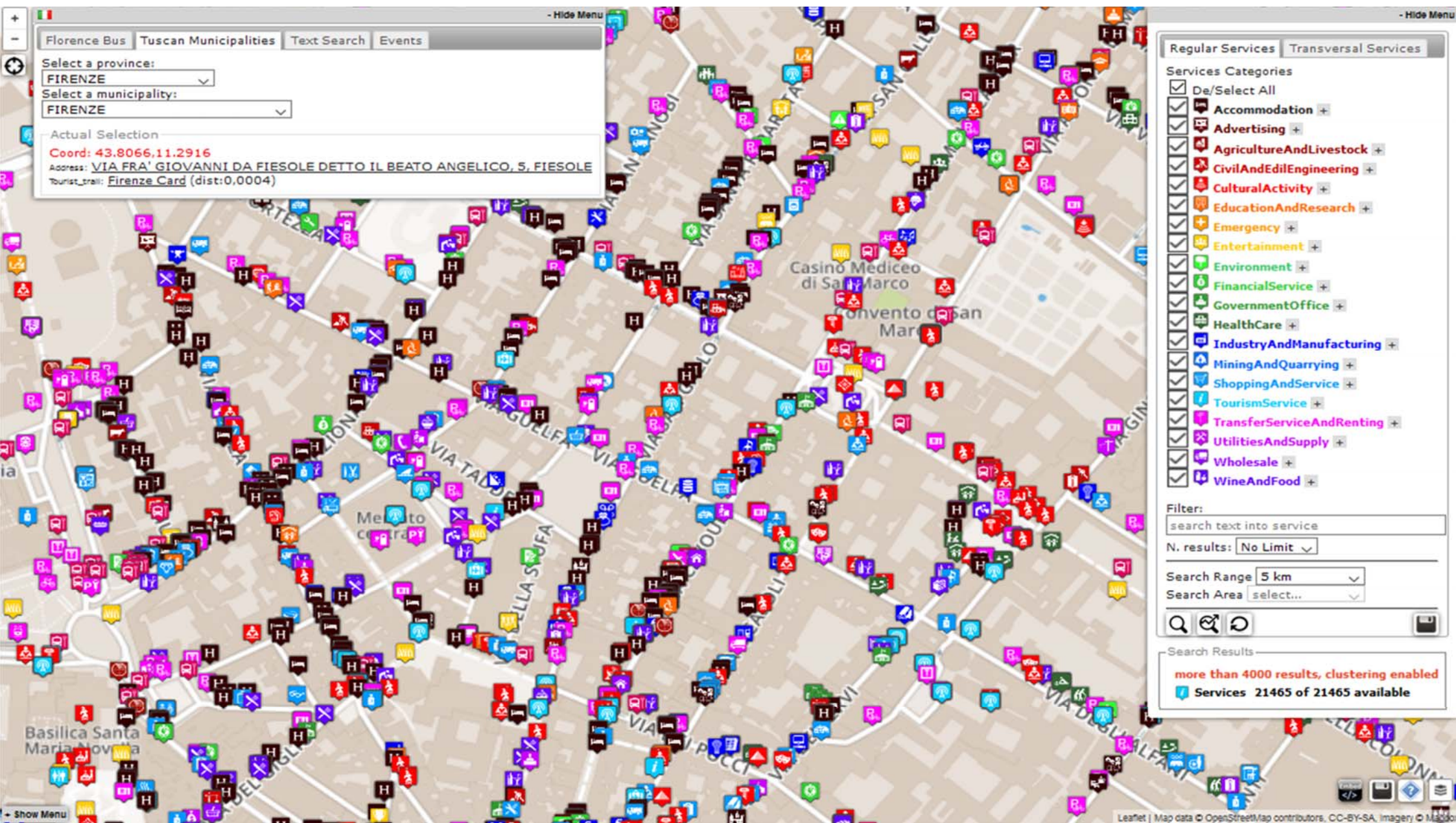


## Real time Showing:

- traffic flow
- People flow
- Free Parking slots
- Water level, rain, etc.
- Sensors values....

<http://www.disit.org/service3d>





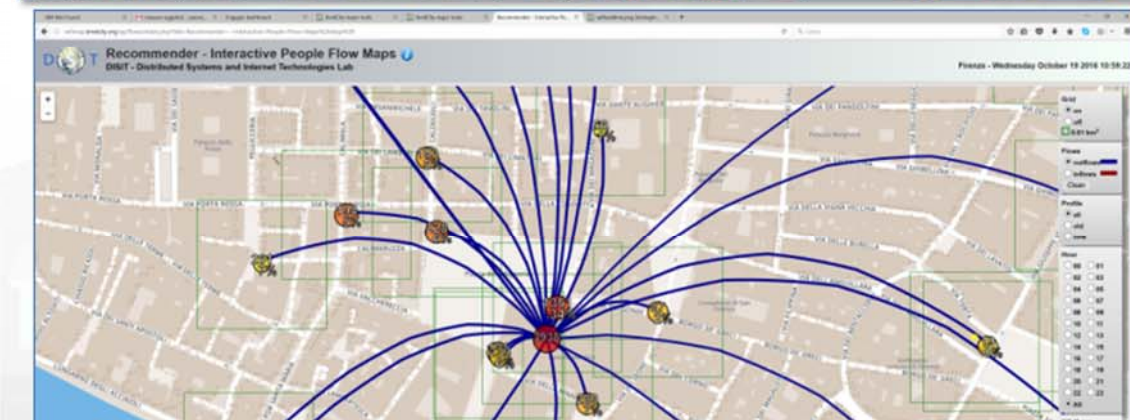
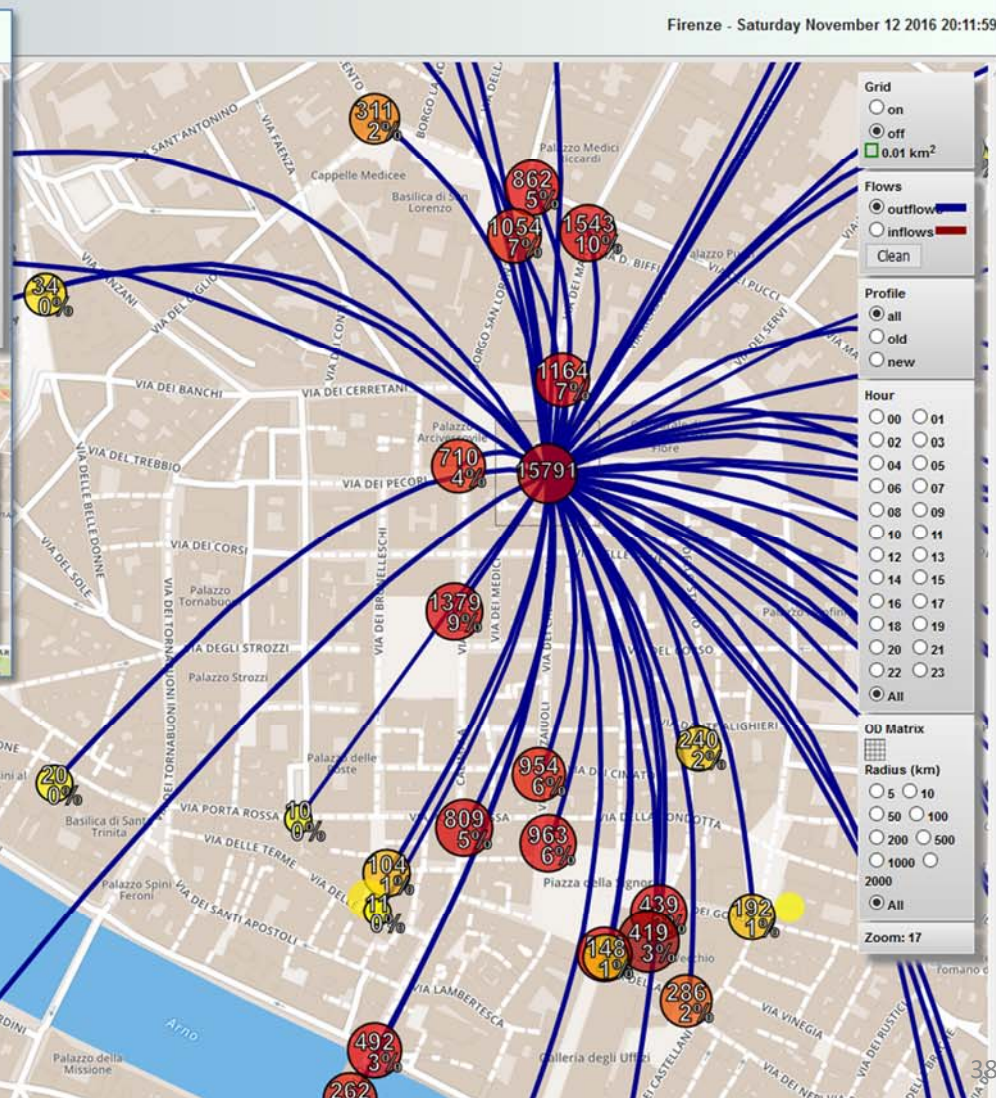
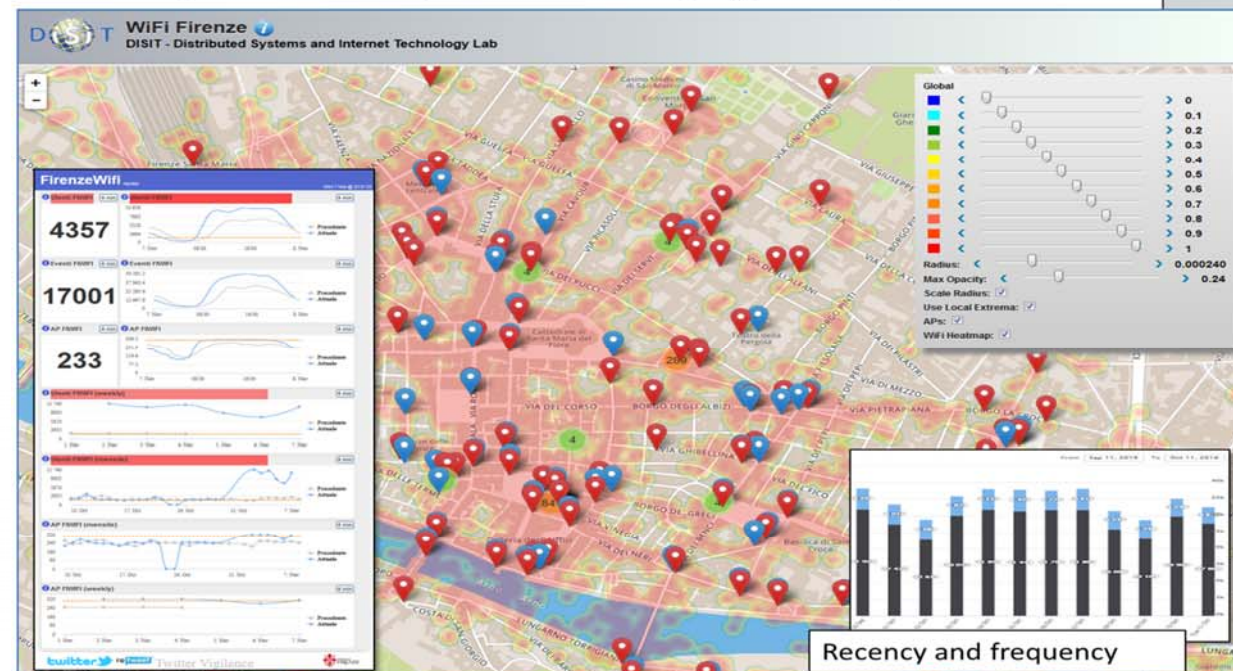


UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

**DINFO**  
DIPARTIMENTO DI  
INGEGNERIA  
DELL'INFORMAZIONE

**DISIT**  
DISTRIBUTED SYSTEMS  
AND INTERNET  
TECHNOLOGIES LAB  
<http://www.disit.org>

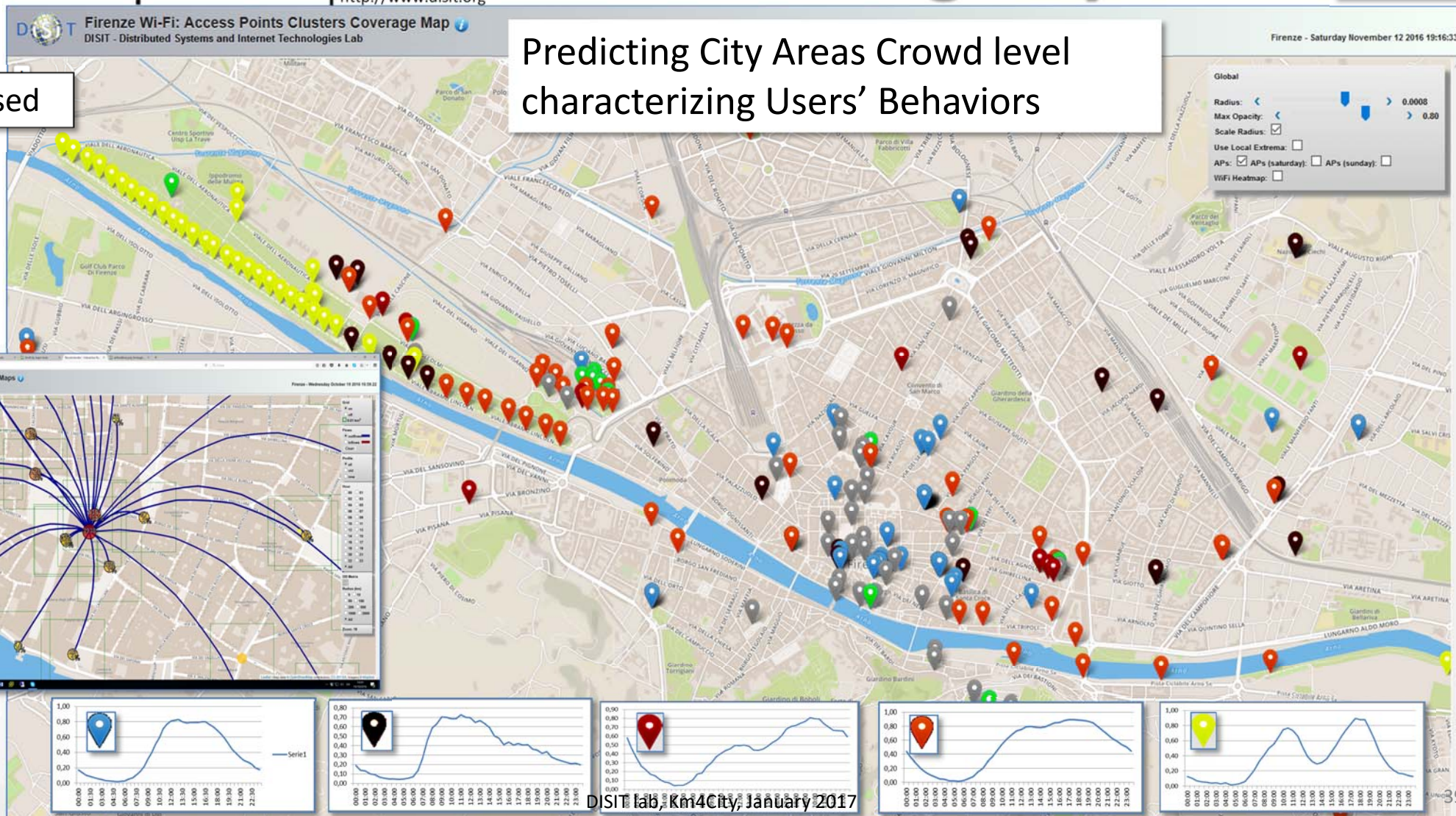
# Wi-Fi OD estimation.



# Characterizing City Areas

Wi-Fi based

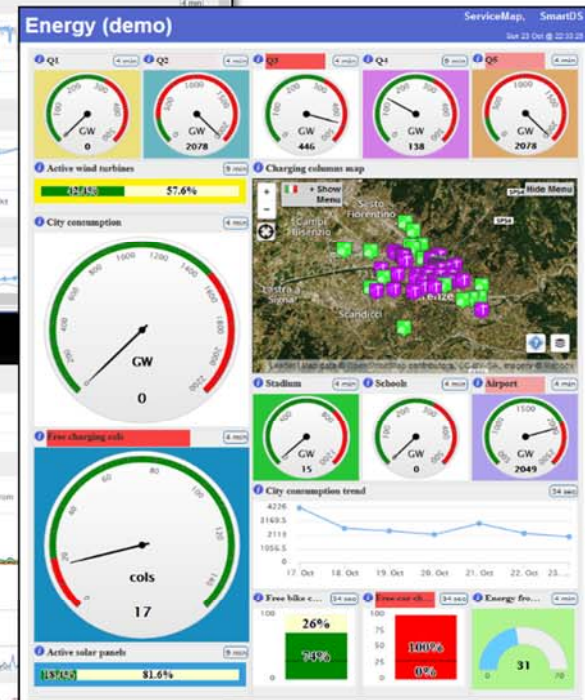
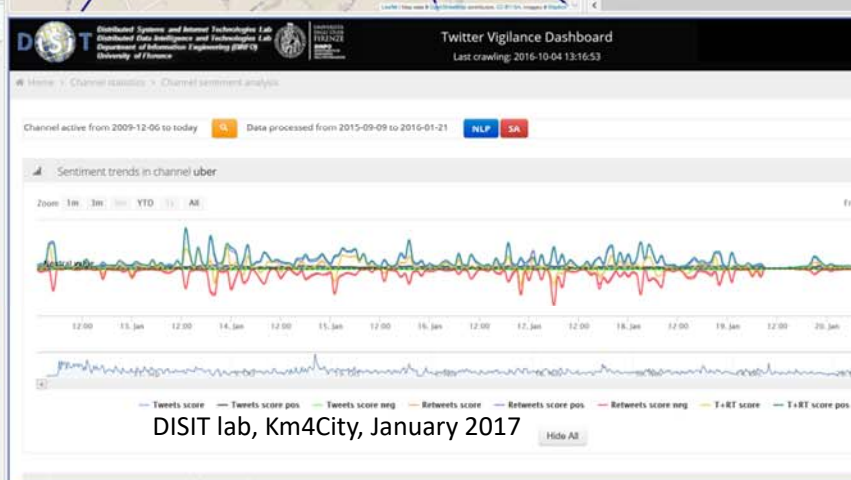
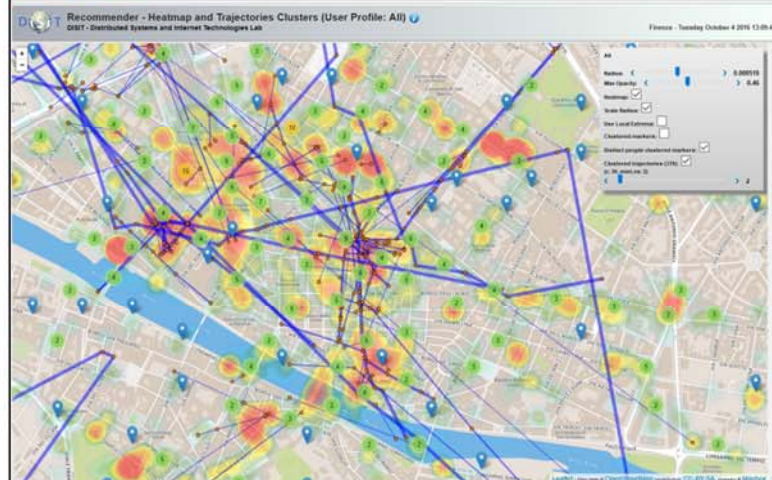
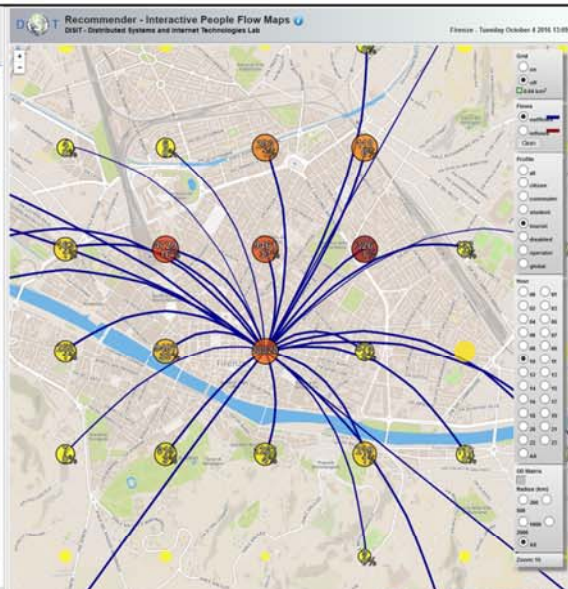
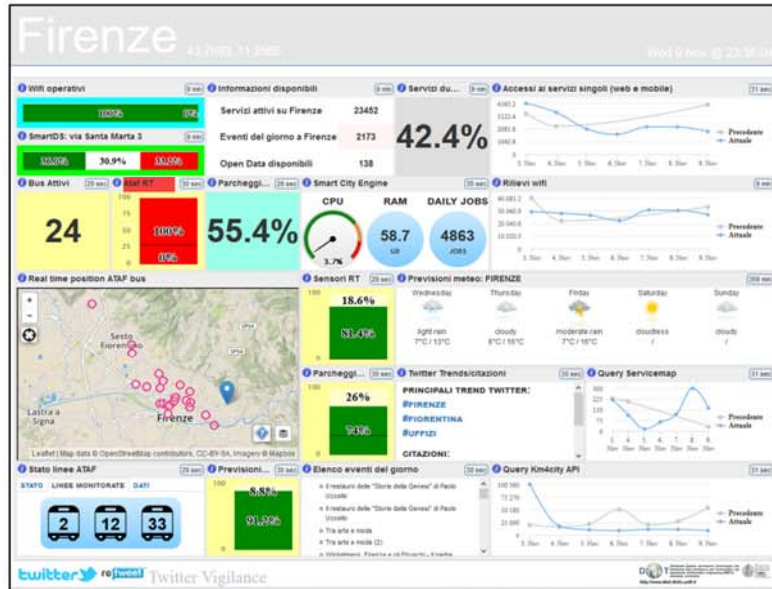
Predicting City Areas Crowd level  
characterizing Users' Behaviors



# Smart City Dashboard



Horizon 2020  
European Union Funding  
for Research & Innovation



DISIT lab, Km4City, January 2017



Horizon 2020  
European Union Funding  
for Research & Innovation



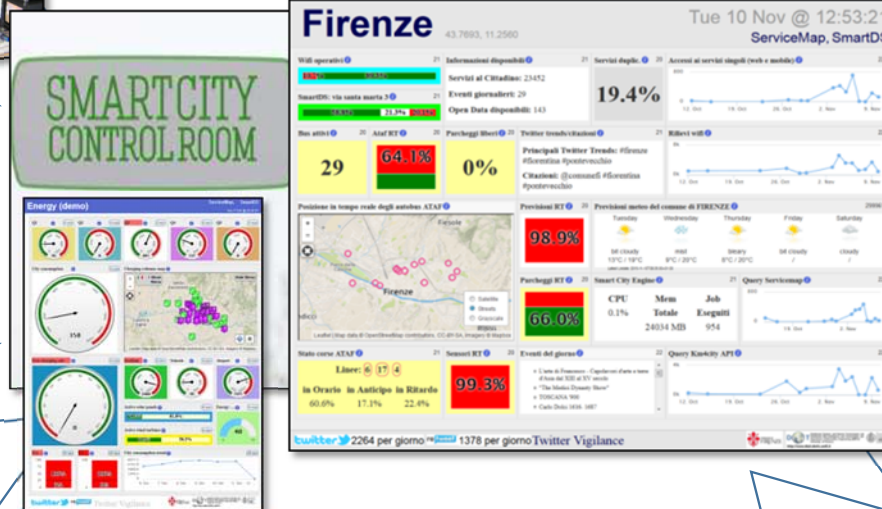
Transport  
systems,  
Mobility, Parking



Shops,  
services,  
operators



Sensors, IOT  
Cameras, ..



Public services,  
Govern, Events



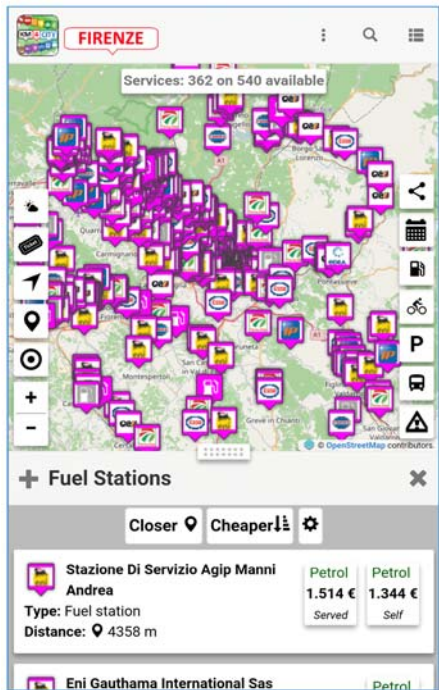
Environment,  
Water, energy



Social Media,  
WiFi, Network

# Dashboards

DISIT lab, Km4City, January 2017



## Real Time Busses in Florence (Embedded view via [Service Map](#))



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

**DINFO**  
DIPARTIMENTO DI  
INFORMAZIONE  
DELL'INFORMAZIONE

**DISIT**  
DISTRIBUTED SYSTEMS  
AND INTELLECTUAL  
TECHNOLOGIES LAB

