Mobile Presence Analytics
for improved Citizens' Safety and Quality of Life

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Presence Analytics

- Analytics (Google-like), only for the real world

- Makes use of the MAC Identities

- Statistical information extracted from 1.000's of subscribers; no individual profiling takes place

- No compromise in privacy & consent by users is not required

Population Density

- Animated Heatmap presenting geo-distribution of users

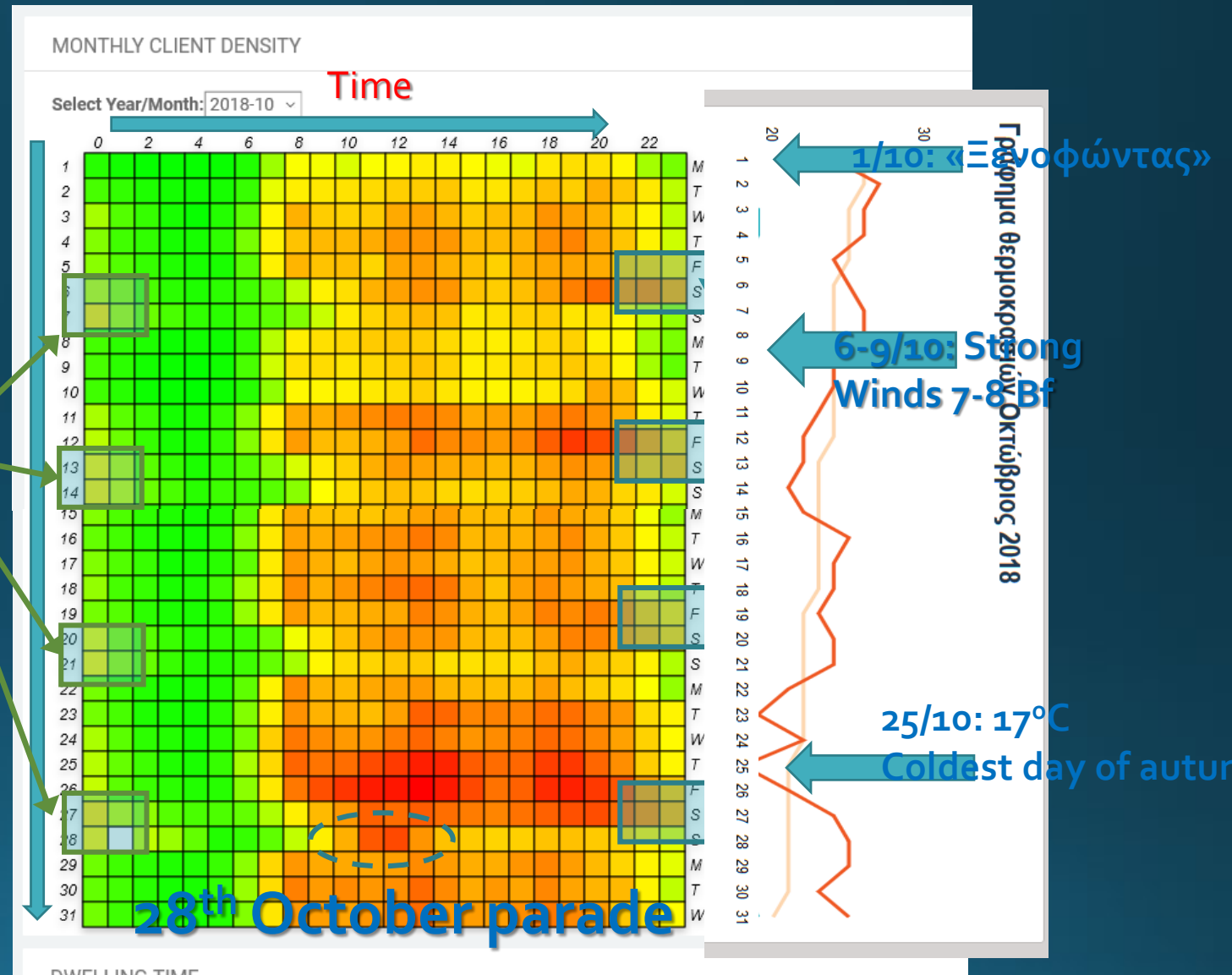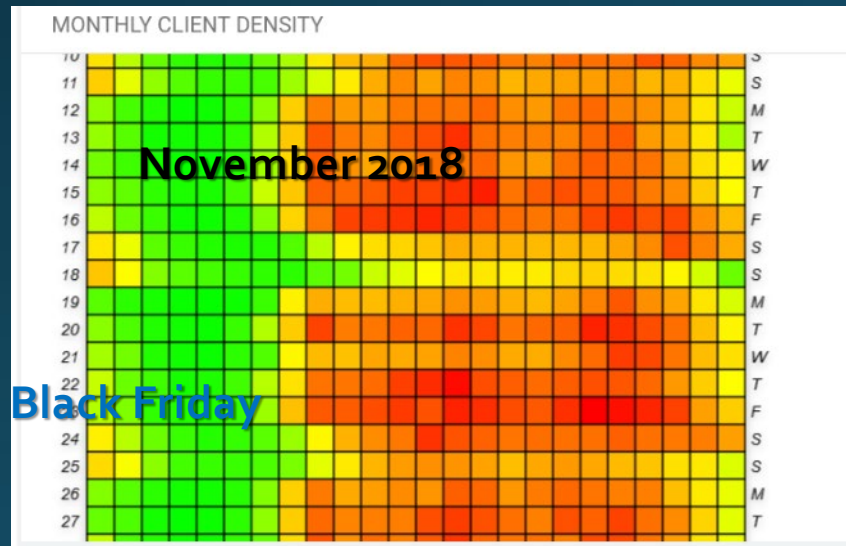- Captures the movement of population during the day

11:00-11:30

13:00-13:30
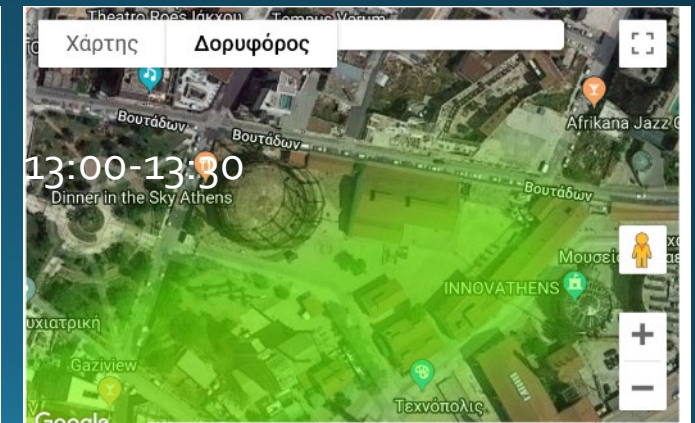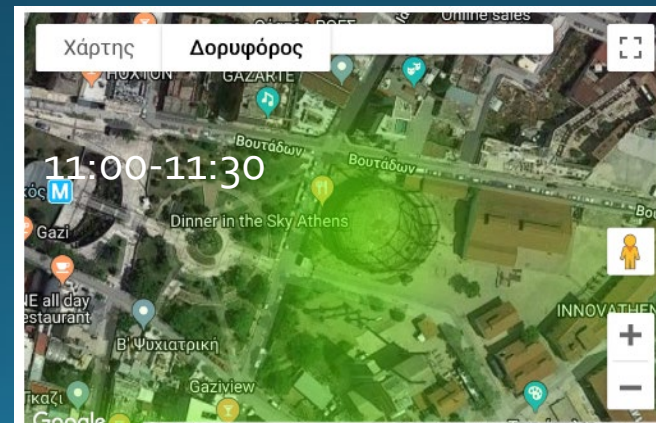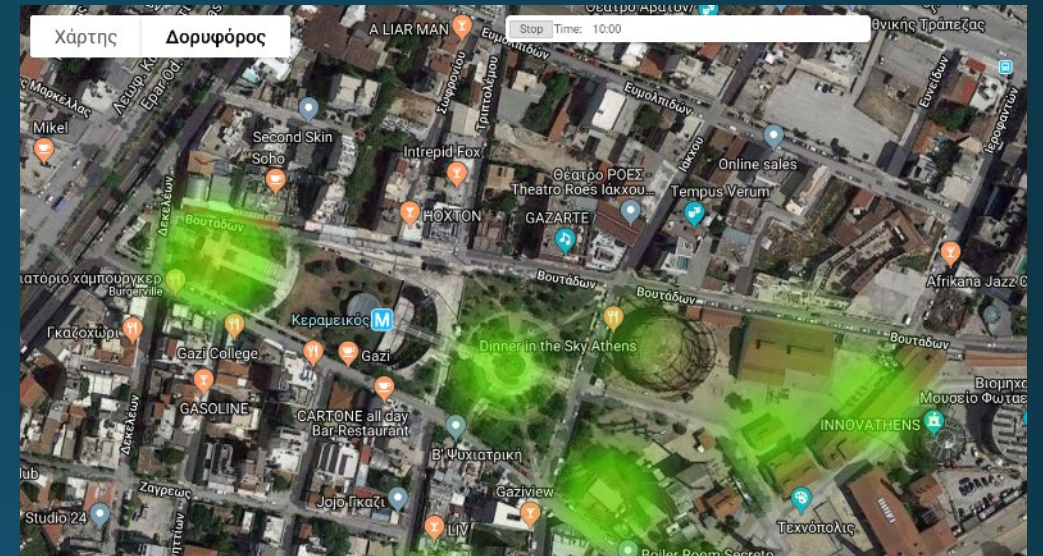
Visitors' Patterns Insights

- Useful trending tool

- And conclusions drawing

Weekend ... Entertainment until late for some people

MONTHLY CLIENT DENSITY
November 2018
Black Friday

MONTHLY CLIENT DENSITY
Select Year/Month: 2018-10
Time
Date (October)

28th October parade

DWELLING TIME

Γράφημα θερμοκρασιών Οκτώβριος 2018
1/10: «Ξενοφώντας»
6-9/10: Strong Winds 7-8 Bf
25/10: 17ºC Coldest day of autumn
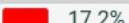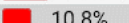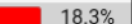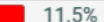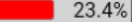
Returning Visitors

- Unique visitors
- Returning visitors
  - Daily
  - Weekly
  - Monthly basis
- Insight into commercial value, identify hotspots

RECURRING CLIENTS

Number of Visits (per client)	Visits	% of visits	Recurring Clients	% of clients
1	875	23.1%	875	43.8%
2	1500	39.6%	750	37.5%
3	699	18.5%	233	11.7%
4	300	7.9%	75	3.8%
5	185	4.9%	37	1.9%
6	78	2.1%	13	0.6%
7	28	0.7%	4	0.2%
8	40	1.1%	5	0.2%
9	9	0.2%	1	0.0%
10-30	73	1.9%	6	0.3%
31-90	0	0.0%	0	0.0%
91-0	0	0.0%	0	0.0%

Number of Visits (per client)	Visits	% of visits	Recurring Clients	% of clients
1	2186	3.3%	2186	14.3%
2	8484	12.9%	4242	27.8%
3	7857	11.9%	2619	17.2%
4	6620	10.0%	1655	10.8%
5	5860	8.9%	1172	7.7%
6	4752	7.2%	792	5.2%
7	4291	6.5%	613	4.0%
8	3360	5.1%	420	2.8%
9	2556	3.9%	284	1.9%
10-30	17242	26.1%	1211	7.9%
31-90	2760	4.2%	67	0.4%
91-0	0	0.0%	0	0.0%

Number of Visits (per client)	Visits	% of visits	Recurring Clients	% of clients
1	2934	1.0%	2934	9.1%
2	11748	3.9%	5874	18.3%
3	11082	3.6%	3694	11.5%
4	11000	3.6%	2750	8.6%
5	10995	3.6%	2199	6.8%
6	10716	3.5%	1786	5.6%
7	9464	3.1%	1352	4.2%
8	9816	3.2%	1227	3.8%
9	8991	3.0%	999	3.1%
10-30	124050	40.8%	7525	23.4%
31-90	74284	24.4%	1625	5.1%
91-381	19171	6.3%	152	0.5%

Marketing Insights

Identifying "hotspots"
- Which areas are most popular
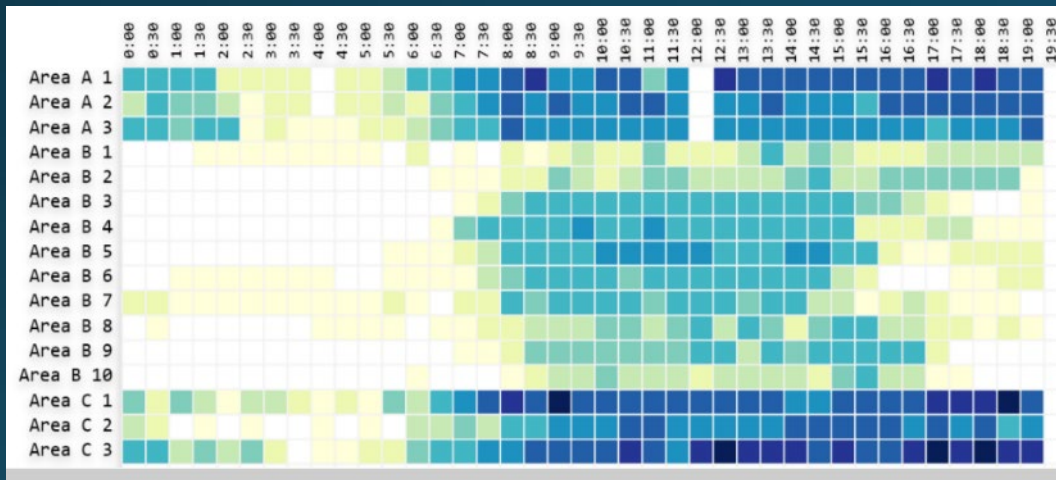
Dwell Time
- Per area of interest
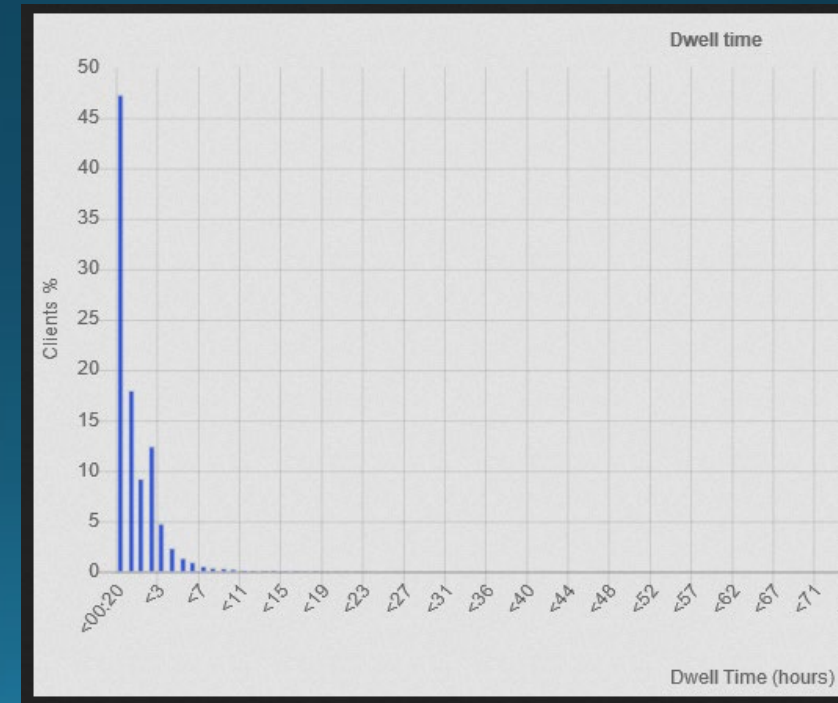
Identifying City Dynamics
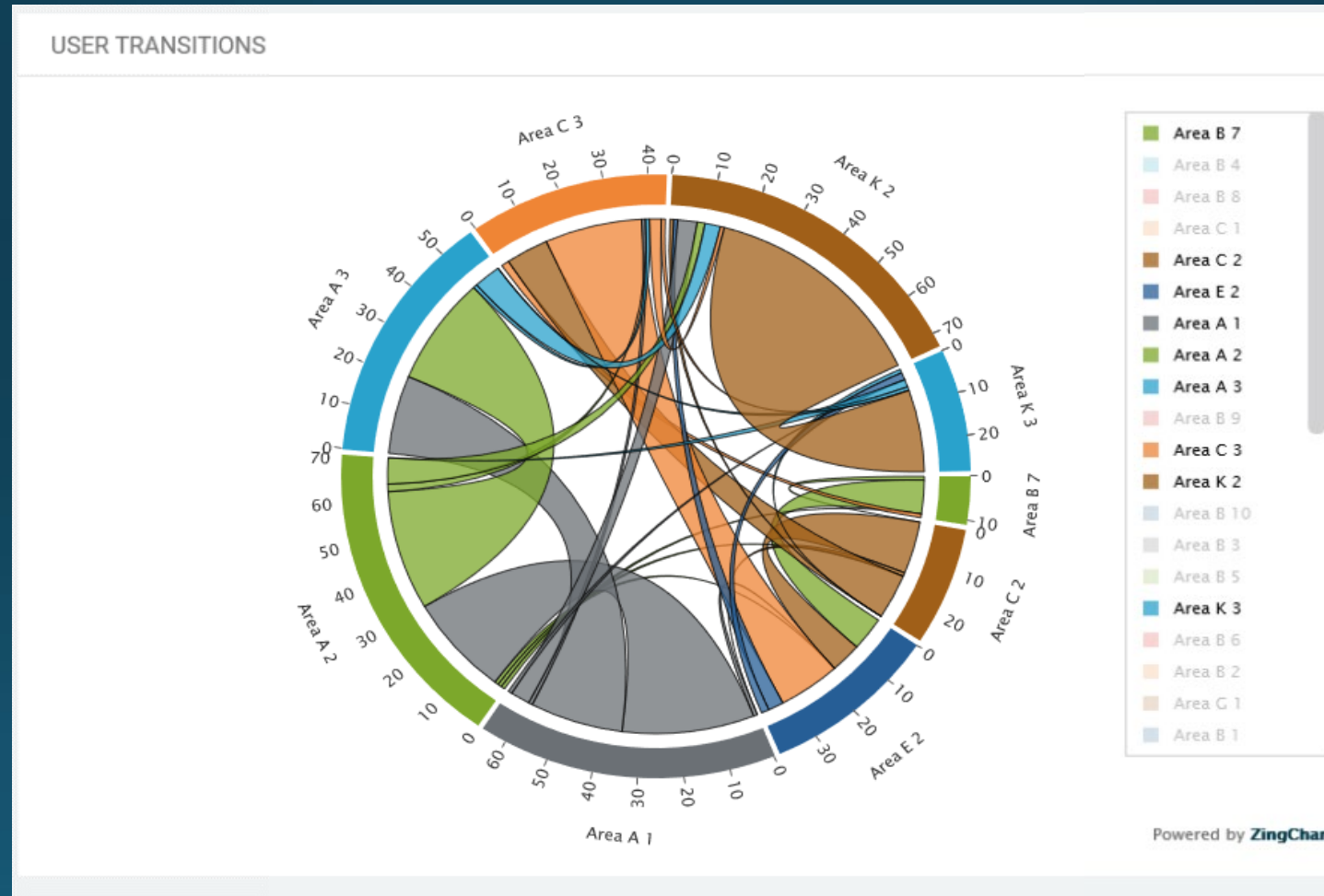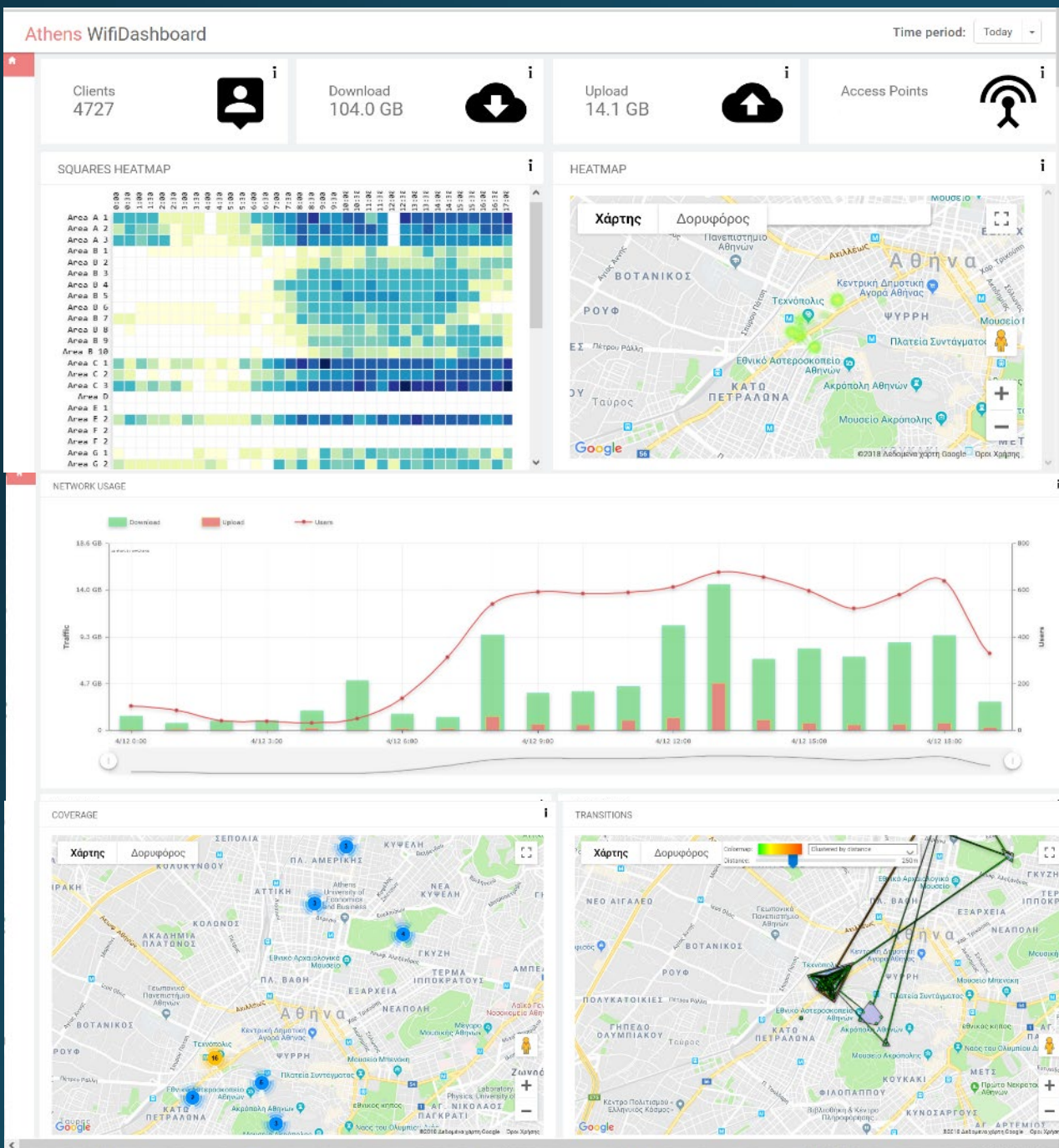
Composing a City Dashboard

- Fully anonymized population density trends
- Actionable Insight
- Rule-based Decision Support
- Identification of incidents / abnormal events

Application in Smart City Security
Early Warning Zones

- Knowing that someone should not be in the vicinity of a Critical Infrastructure
- Requires whitelisting the personnel
- Issues alerts when potential intrusion detected
- Establishing Early Warning Zones
- Fusing with camera data
- Privacy issues are not inhibiting in the case of safety/security

Application for Safe Evacuation (Stadia)

Initial conditions (how many spectators are in their seats, in the corridors)

Assessment of the progress of evacuation, e.g.

- 25% still in their seats

- 50% are in the exit corridor
  - of which 20% are stationary in the last 5 mins

- 25% exited already

Privacy - GDPR

Solution respects the citizens' private sphere:

- MAC address are personal data
- Art. 22 GDPR "Automated individual decision-making, including profiling" prohibits use for individual profiling

However

- MAC data are (pseudo) - anonymized
- Statistical processing, no individual recommendations made (no "profiling")

Concluding…

Valuable tool for city planning, hotspot identification: URBAN ANALYTICS

Builds on existing infrastructure, works with standards SNMP protocol

Doesn't require the active user involvement
- No need to download application, sign consent forms
- …still respects the users' privacy

Contact

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