Urban Traffic Monitoring through Crowdsourcing

The Kalamaria Pilot

SUITS-TfWM Conference
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Dr. Fotis K. Liotopoulos, (SBOING)

European Platform on Sustainable Urban Mobility Plans

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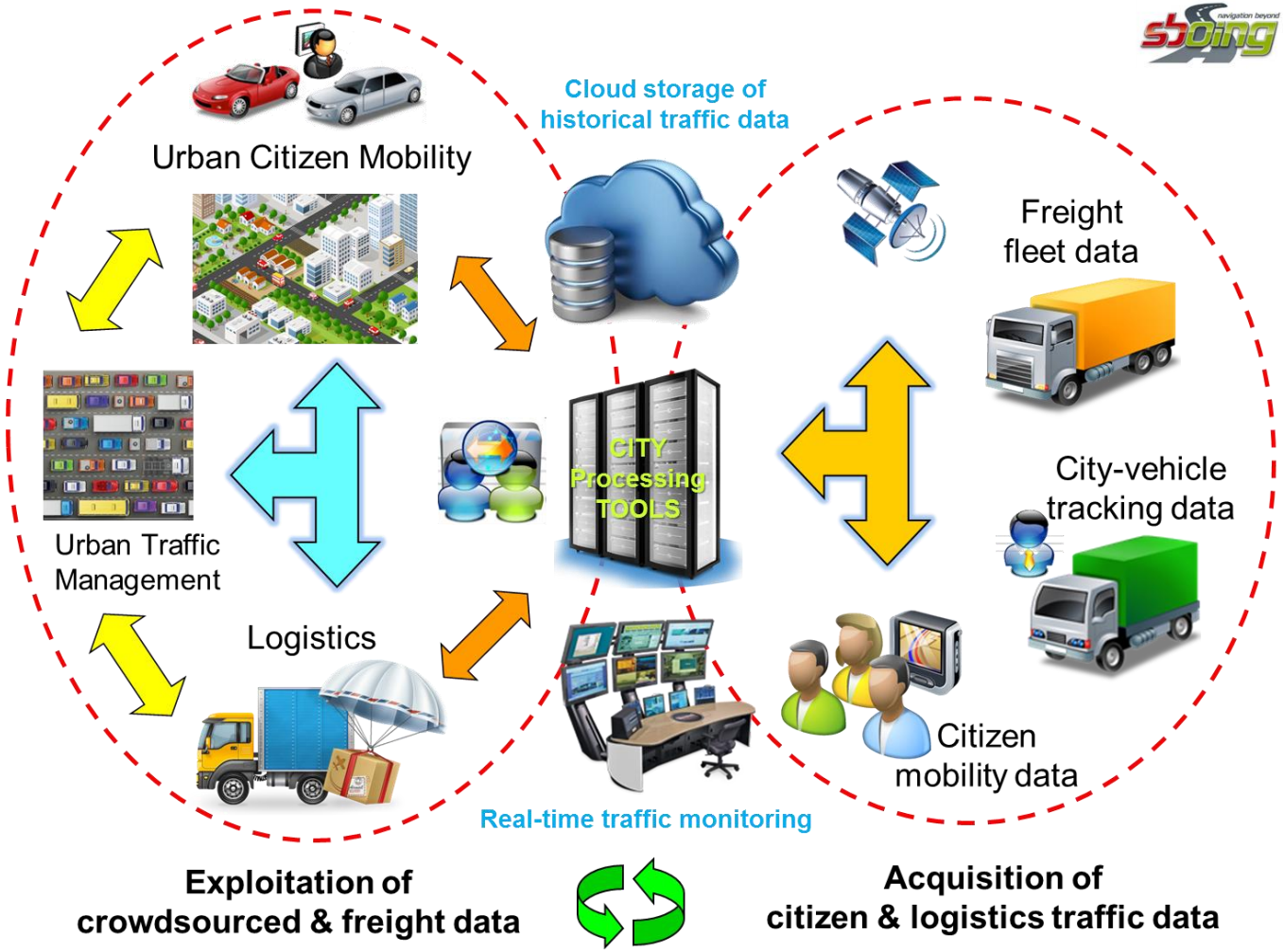
SUITS Crowdsourcing Model for Local Authorities

- Integrating Citizen Mobility data & Logistics data



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Data Collection & Visualization Tools

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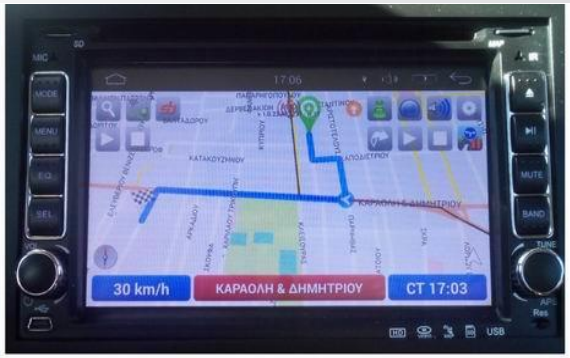
Data Collection & Visualization Tools (by SBOING)

1. sbCarNavi®: Android app for crowdsourced traffic data collection
2. sbUTracker: An advanced GNSS+INS urban vehicle tracker (h/w)
3. MyPolisLive.net: A web platform for urban traffic monitoring and fleet management

Demo: Pilot in Kalamaria, with 50-100 vehicles (3-4 mo.)

sbCarNavi®:

Android app for crowdsourced traffic data collection



sbCarNavi®:
A GPS navigation app for Android multimedia consoles

Offline navigation and traffic data collection (*trace recording*)

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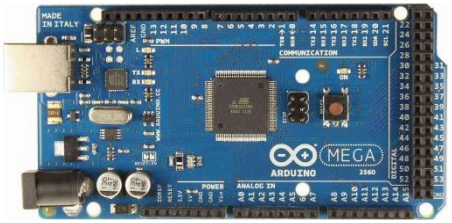
sbUTracker:
A vehicle tracking device for Urban Mobility Monitoring



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Arduino Mega256 (16MHz) microcontroller: 256KB flash, 16 analog / 54 digital I/O pins, 8KB SRAM, 4KB EEPROM

Multi-GNSS + INS receiver

GSM / GPRS module

+

+

=

Bluetooth module

IoT / M2M SIM

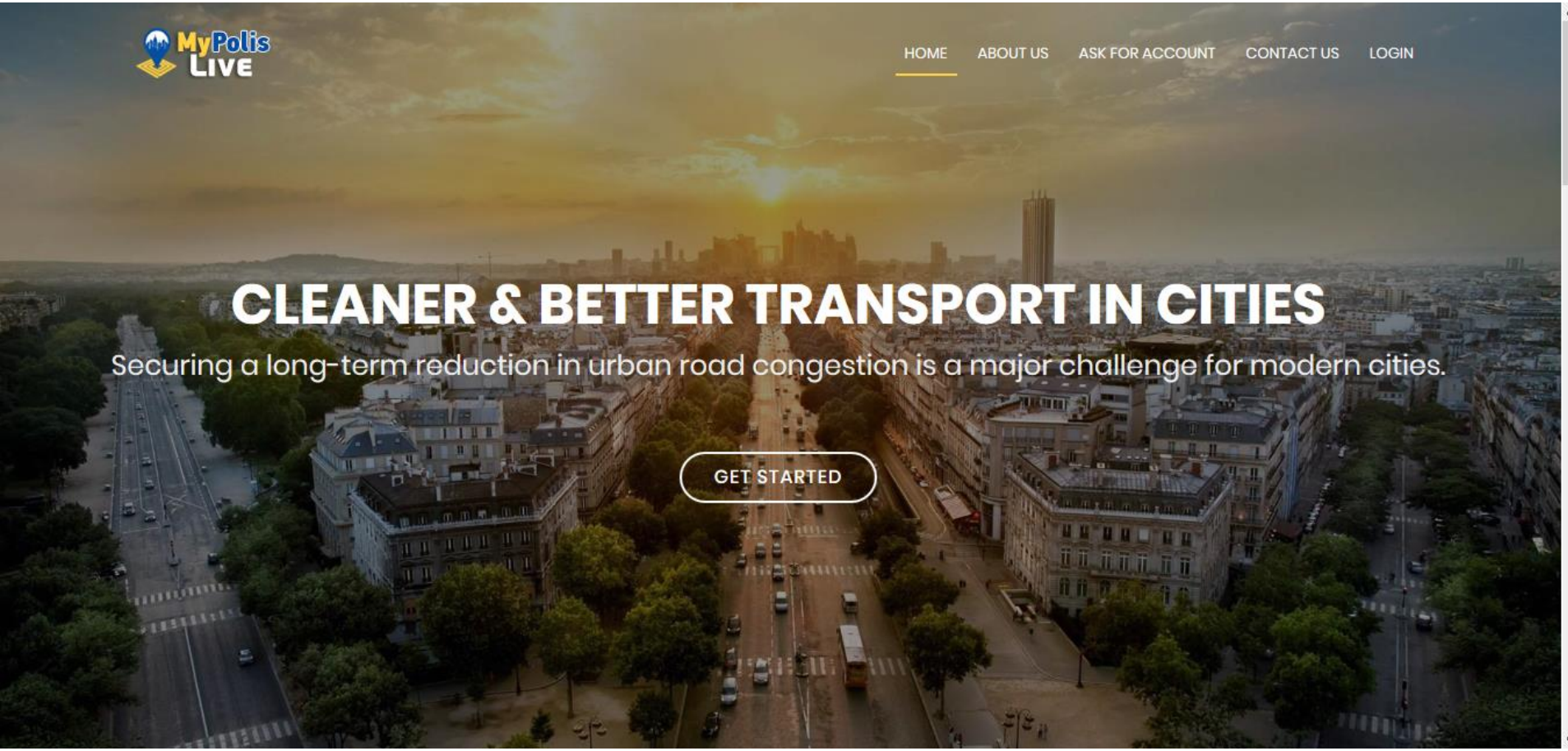
CIVITAS / SUITS Urban Tracker

= … our own, customizable and enhanced Urban TRACKER solution (**sbUTracker®**)

Urban Mobility Tracking Pilot in Kalamaria (Greece)

- **50-100 vehicles with commercial GPS trackers**
  - Selected a commercial GPS tracker: TK103B
  - Cost: ~50 euro/unit
- **Pilot Management**
  - Participating users were invited by public invitation, (first-come-first-served)
  - Special invitation to user groups with preference to TAXI companies.
  - Participants get the tracker for **free**, if they contribute traffic data in the area of Kalamaria (*incentivization*).
  - They pick up the tracker after they sign a consent form
  - Coordinated with the City (Kalamaria).
- **IoT / M2M SIM cards (cellular providers)**
  - Tried to reduce the communications cost, to make it a viable “tool”.

MyPolisLive.net:
A Platform for Urban Mobility Monitoring



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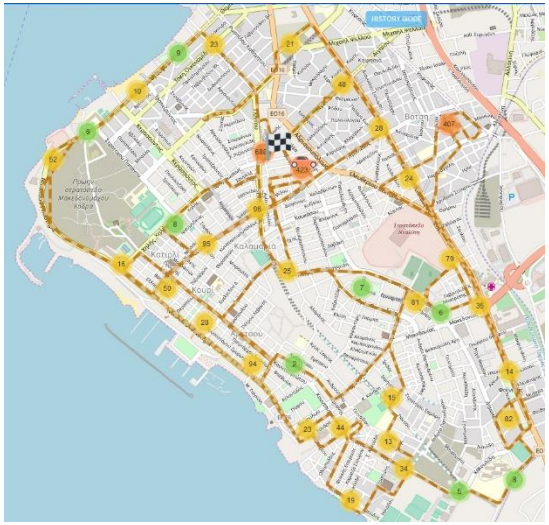
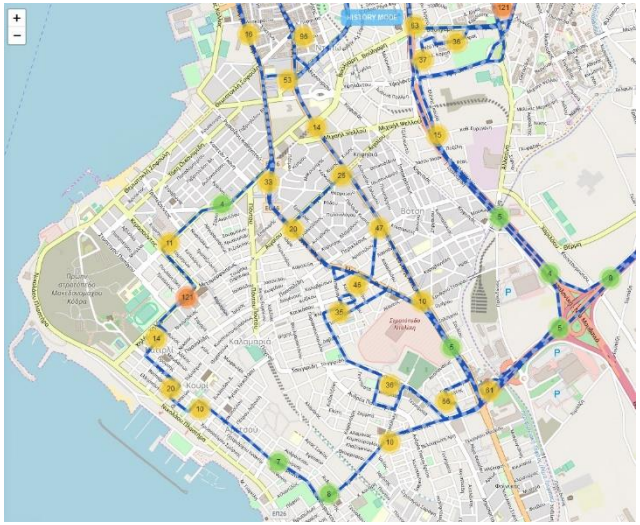
MyPolisLive.net:
Vehicle / Fleet Tracking (1)

24-hour traces

Citizen vehicle

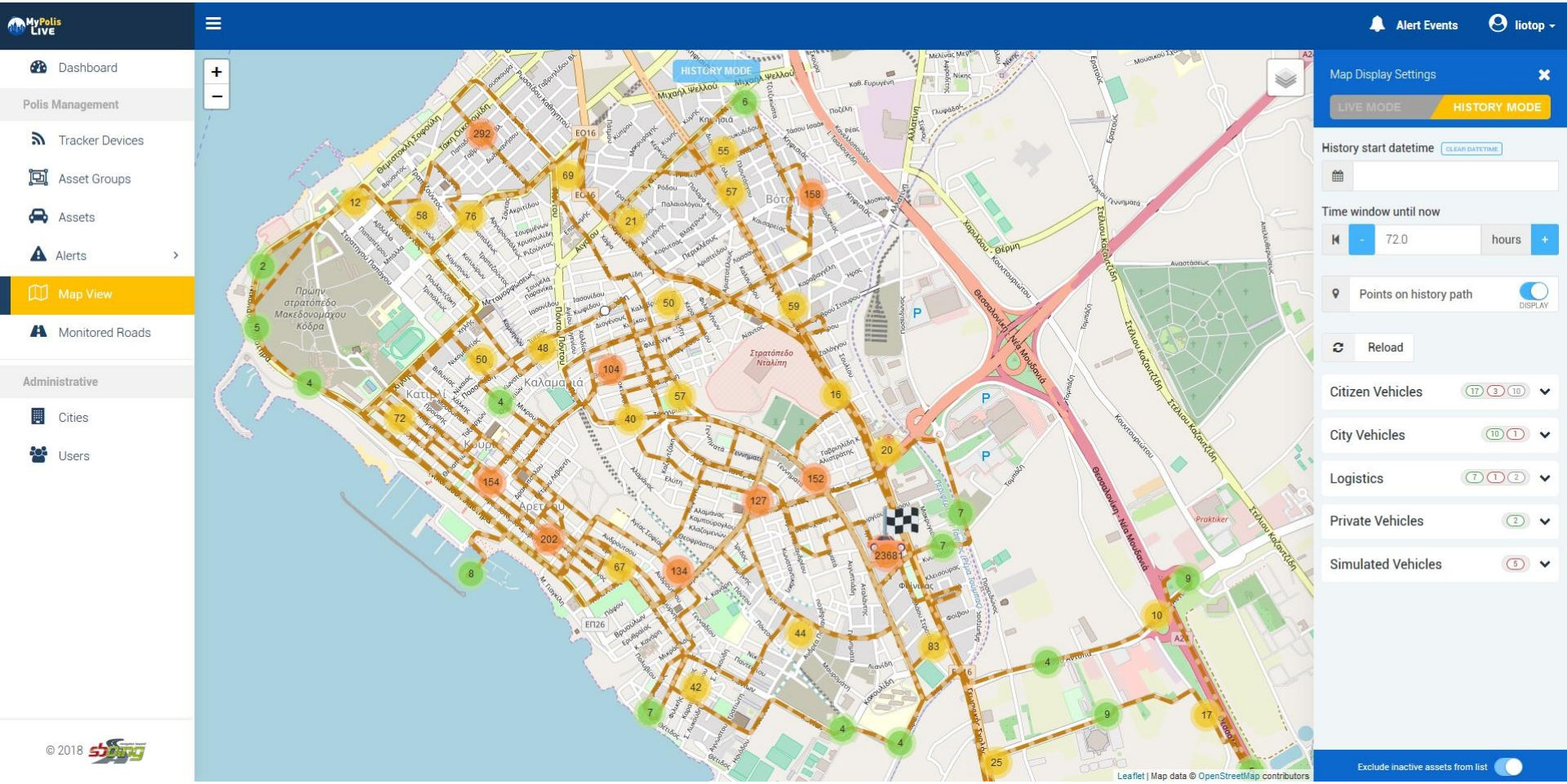


City vehicle

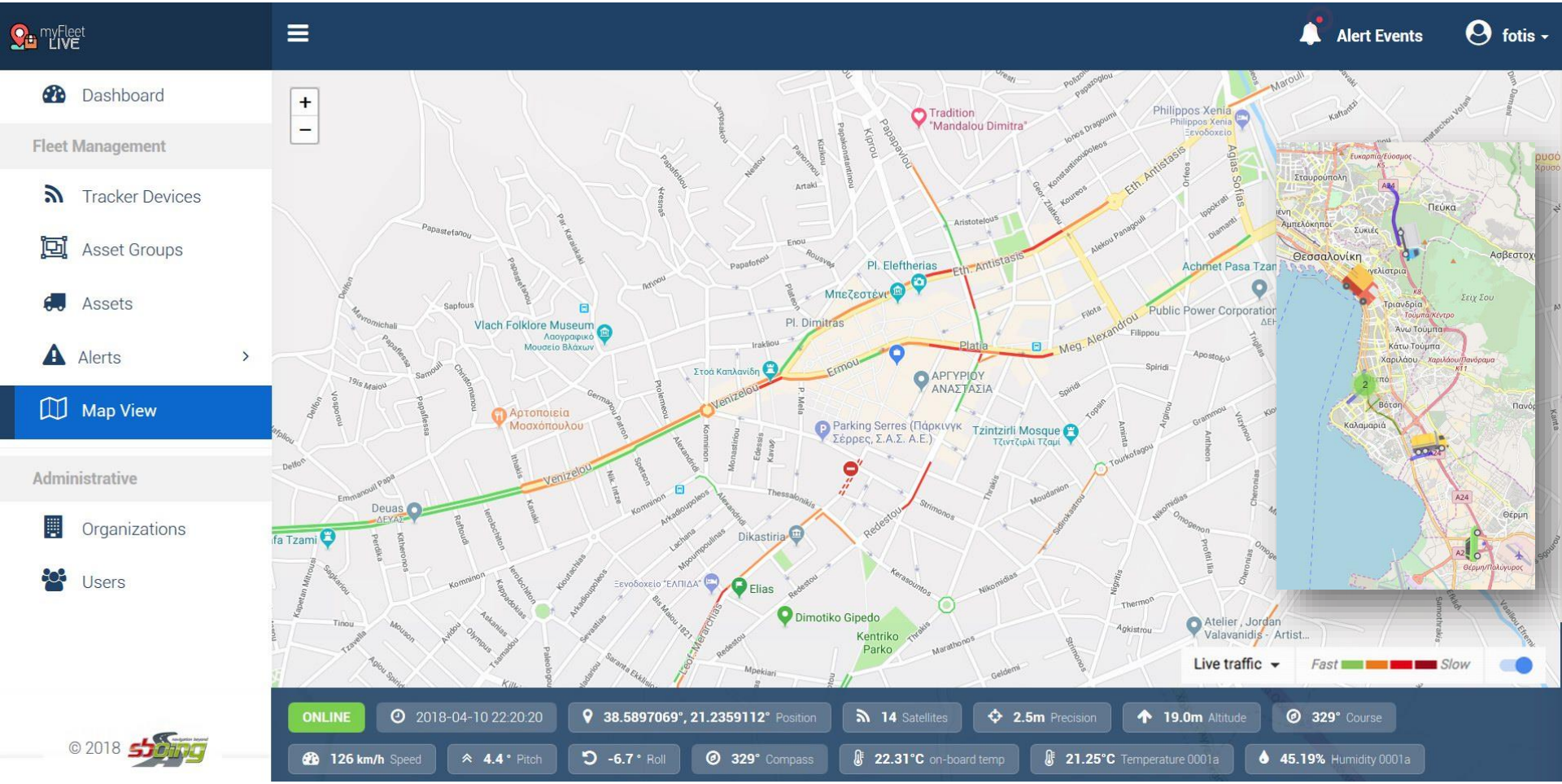


Taxi

MyPolisLive.net:
Vehicle / Fleet Tracking (2)

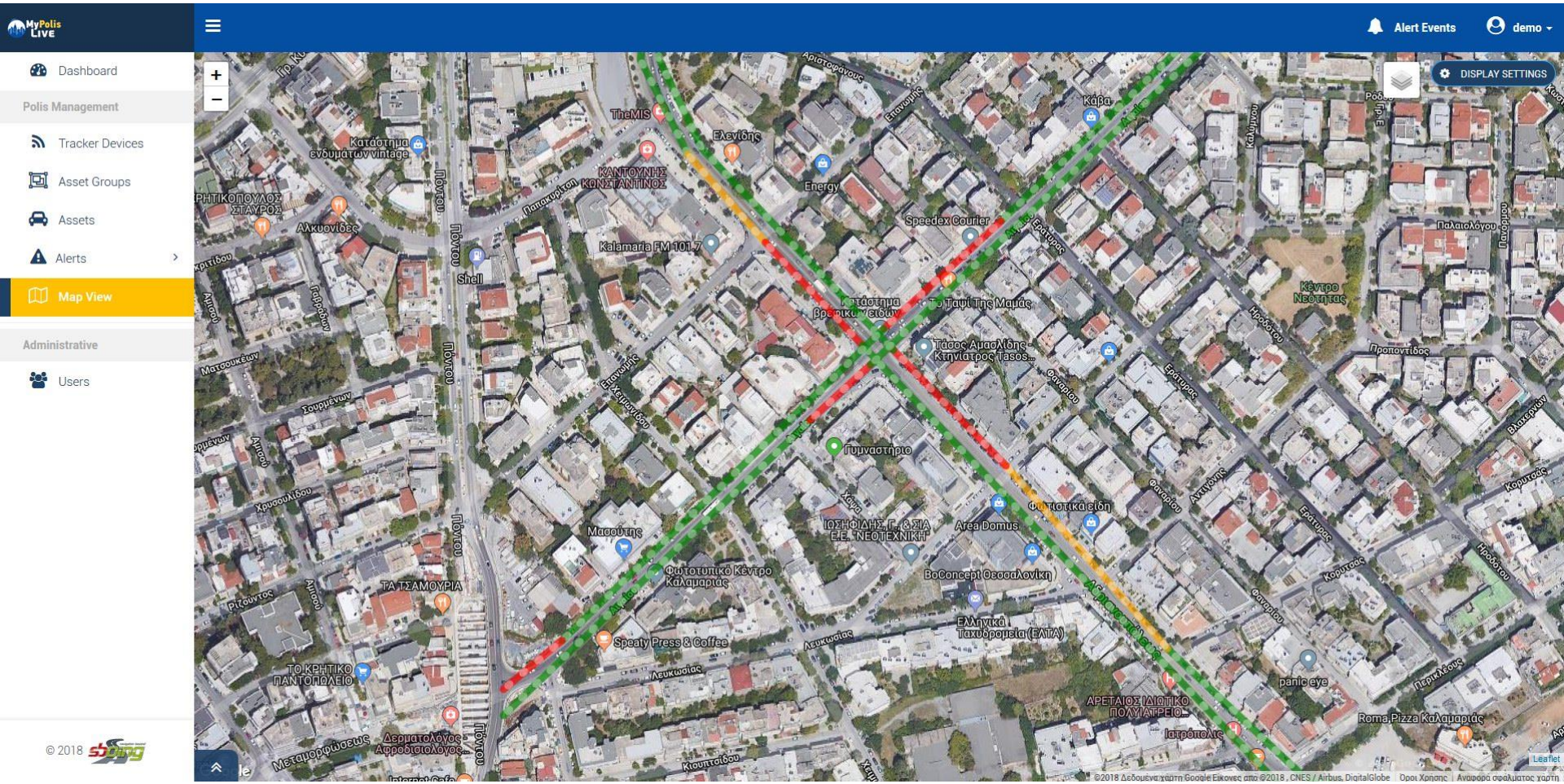


MyPolisLive.net:
Urban Traffic Monitoring (1)



MyPolisLive.net:

Urban Traffic Monitoring (2)



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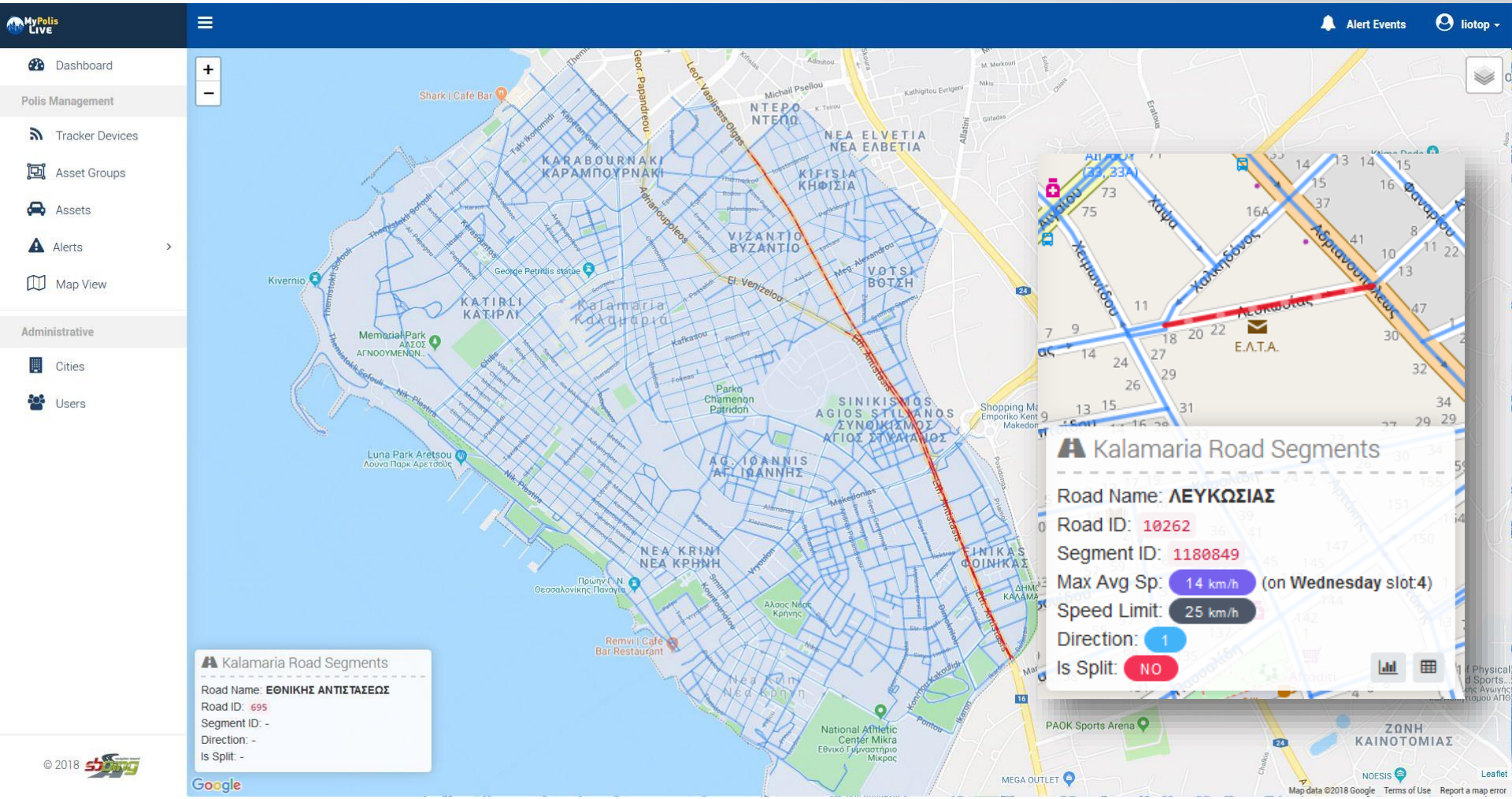
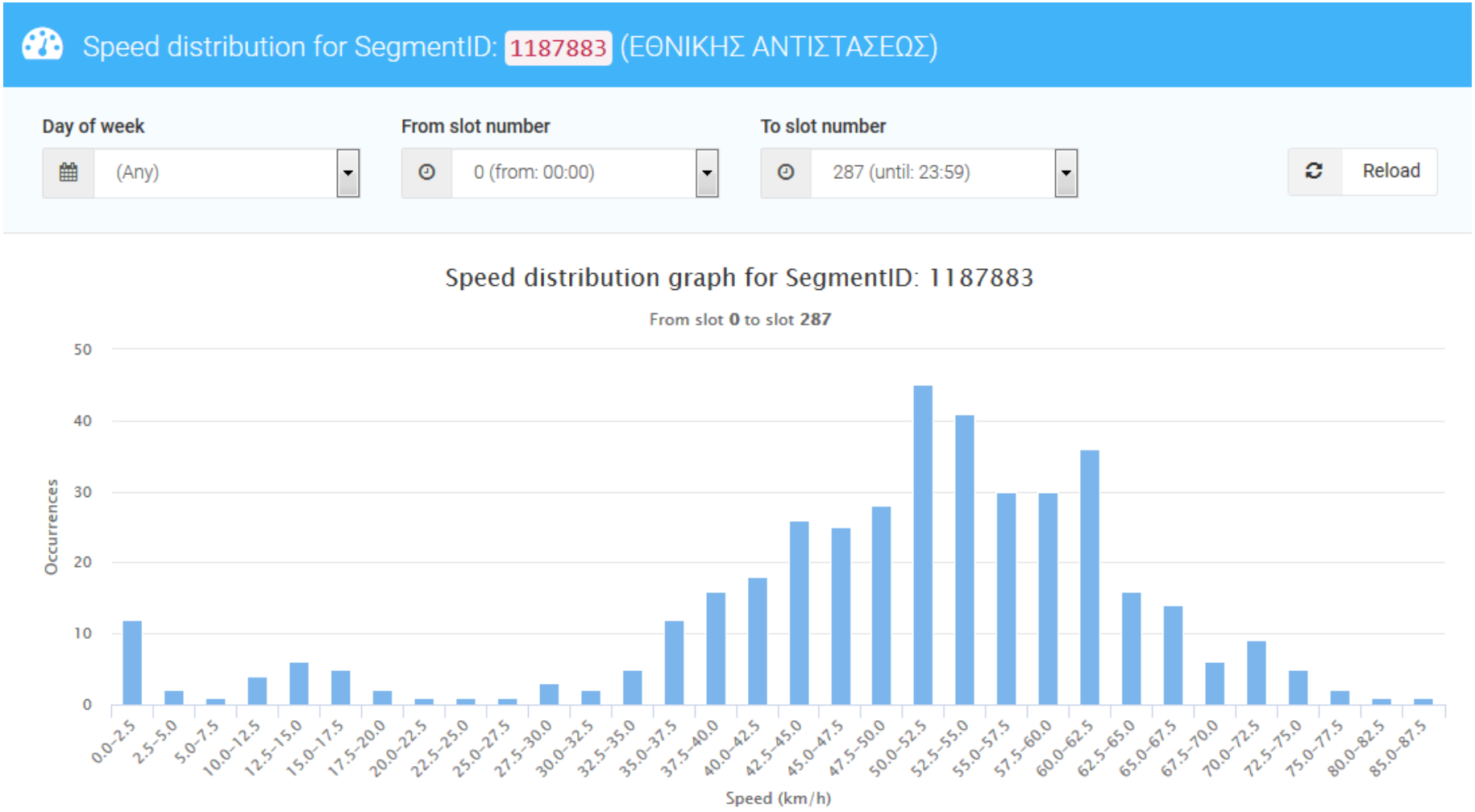
MyPolisLive.net:

Monitoring the entire City's road network



MyPolisLive.net:

Traffic intensity information per road segment



Conclusions

- Cities need their **own traffic data**:
  - Data ownership may yield profit!
  - Can be processed in several ways and produce a variety of useful results
  - More accurate and useful than traffic data provided by cellular operators
  - More rich and powerful than data provided from 3rd parties (Google, etc.)
- **Decision making** may be assisted by crowdsourced data for:
  - Urban traffic management and optimization
  - Improving citizen mobility
  - Optimizing urban freight logistics (efficient & timely distribution of freight in urban areas)
- Must provide **incentives** so that people adopt the concept of vehicle tracking!
  - ✓ Collaborate with **taxis** and **logistics** and offer them benefits for offering their tracking data
  - ✓ Promote the concept of crowdsourcing to **citizens** and offer them benefits, too.

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Thank you!

Dr. Fotis K. Liotopoulos

liotop@sboing.net

SBOING

K. Karamanli 124, Diavata, Thessaloniki, Greece.

info@sboing.net

http://www.sboing.net

http://www.suits-project.eu

http://www.civitas.eu

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