# Innovative cloud platform for the Urban Security
## The Turin Big Data Analysis Lab and IoT team

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**Torino**

# What is it?

This new cloud platform takes the Forensis Lab services to all the Police Departments of the metropolitan area of Turin.

Report returns

Local Policeman upload the digital evidence

Cloud platform Forensics Tools

Forensics specialist analyze the digital evidence

# What does it allow to do?

- File sharing

- Basic forensics analysis

- Advanced forensics analysis

# The B.D.A. Lab

Turin is the only Italian City having a BIG DATA ANALYSIS LAB inside its structure and City employed analysts

Open to institutional collaboration with the students of Turin's universities (UNITO and POLITO)

B.D.A. Lab agreement with I.E.D. for «social media» communication

The BDA Lab was built with the most innovative technologies and integrated with A.I.

The B.D.A. Lab represents innovation TECHNOLOGYCAL AND ORGANIZATIONAL and a RESOURCE for Turin.

The structural collaboration between the Management Department and B.D.A. Lab can scale up on many themes which may interest the Municipality.

# Abstract of «ATP» project by BDALab

On April 23rd 2019 the City of Turin - Big Data Analysis Lab (RIT Local Police) and the Department of Management signed a collaboration agreement.

The **Chamber of Commerce** has shown great interest in collaborating with the City of Turin - Big data Analysis Lab on the issues of **tackling fraud and protecting on-line brands, exchanging data, cyber-security training, improving the safety of tourists** and exploiting Torino's BDA Lab for **real-time analysis.**

For the ATP, a project of the City and the Chamber of Commerce is in progress, the only one of its kind in Italy, aimed at real-time integration of Big Data from multiple sources: sensors and WiFi hotspots, social media analysis, anonymized mobile SIM cards' data, economic data (provided by Hotels , B&Bs, Airbnb accommodation). This system will allow a real-time governance tool for major events. It will support decision and policy makers for developing incoming tourism.

The BDA Lab will host a **"first level master's degree in Cultural Tourism"** in collaboration with the Università di Torino CPS.

An innovative project is in progress between the **BDA Lab** of the City and **Mastercard** for the Data Analysis of major events and tourism with real-time interaction of both IoT data and social media analysis of the City and the economic and anonymized data provided by Mastercard.

Technologies and analysts are City resources  (from RIT - Big Data Analysis Lab, Security Department) in collaboration with Mayor's Cabinet, collaboration with interested partners.

# City of Turin – Big Data Analysis Lab
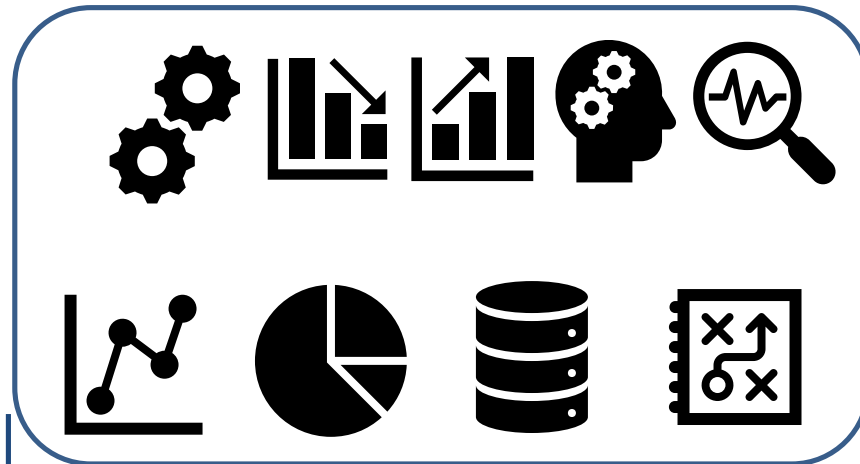
| ON CLOUD SERVICES |
| --- |
| COMPUTING POWER (powerful virtual machines) |
| 1 IoT PLATFORM for multiple sources (VDS, other sensors, etc) |
| 1 ENHANCED PLATFORM for Analytic tools |
| 1 A.I. PLATFORM for Social Media Analysis |
| 1 PLATFORM for anonimized mobile SIMs' data |
| 2 IoT dedicated PLATFORMS (beacon and Wi-Fi scanning) |

**DASHBOARD AND KPIs ON TOURISM**

**BIG DATA ANALYSIS SUPPORTING DECISION MAKING**

# City of Turin – Big Data Analysis Lab
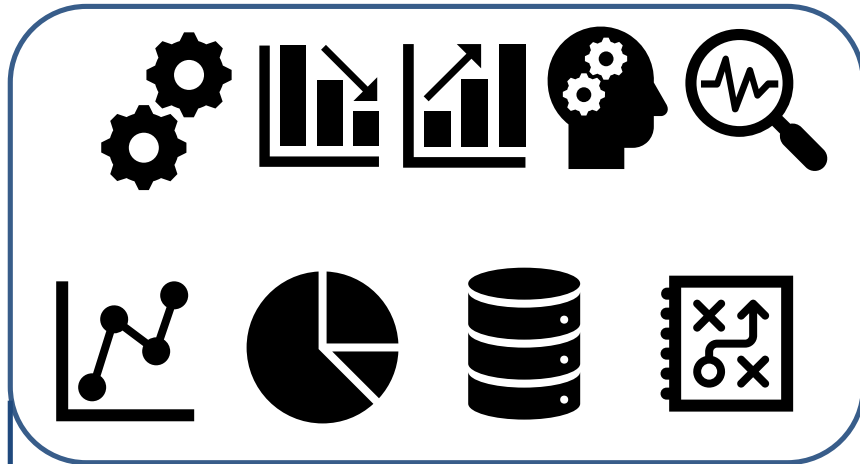
**POSSIBILITY TO ACQUIRE ALL USEFUL OPEN DATA SETS**

**POSSIBILITY TO GET LIVE DATA FROM MULTIPLE DATA SETS (CITY, MUSEUMS, HOTELS, CHAMBER OF COMMERCE)**

**POSSIBILITY TO INTEGRATE DATA FROM IOT SENSORS**

**POSSIBILITY TO SET INDICATORS**

**POSSIBILITY OF MAPPING PHENOMENA**

**POSSIBILITY OF REAL-TIME ANALYSIS OF INTEGRATED DATASETS**

**CREATION OF APIs (software connectors) in PYTHON to import several datasets**

**POSSIBILITY OF MEASURING THE IMPACTS OF ACTIONS ON THE CHOSEN ISSUES**

## CHAMBER OF COMMERCE

## CITY OF TURIN - BIG DATA ANALYSIS LAB



## THE PROPOSAL

A Framework Agreement (and / or a protocol) aimed at fighting on-line frauds enhancing brands' protection, data exchange, cybersecurity training, improving the safety of tourists. Sharing of the City's BDA Lab, between the Chamber of Commerce and the City of Turin - BDA Local Police, for creating an ecosystem of collaboration and data exchange with a focus on local tourism.
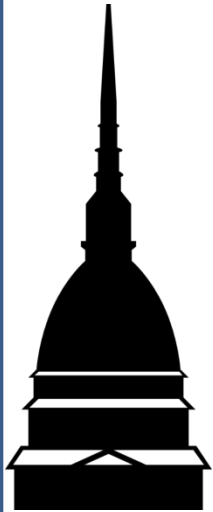
It is not an observatory but a Big Data Analysis Platform that receives data (datasets) and gives back analyzes, infographics, real time indicators, etc

Project funding to maintain and expand the data and analysis ecosystem for all partners (i.e. specific calls, EU projects, partner funds, etc)

|

**PURPOSES OF COLLABORATION**

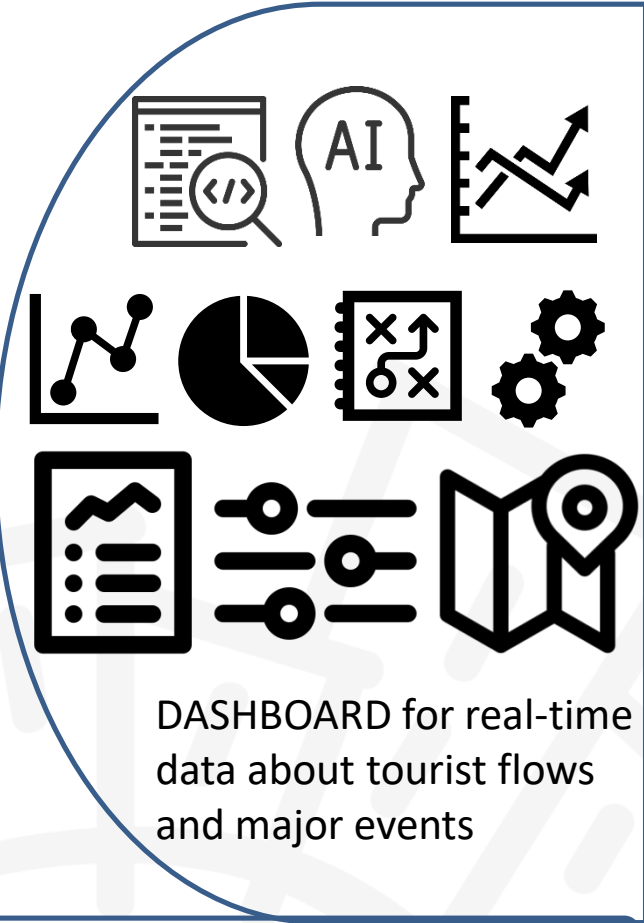CITY of TURIN

CHAMBER of COMMERCE

**1** **Acquisition of real-time data from hotels, B&Bs, Airbnb**

**2** **Acquisition of real-time data from sensors, WI-FI hotspots both public and private (i.e. hotels)**

**3** **Acquisition of real-time data from museums, cultural and historical venues, streets**

DASHBOARD for real-time data about tourist flows and major events

**CITY OF TURIN & CHAMBER of COMMERCE – B.D.A. Lab – Collaboration on Tourism**

# CITY OF TURIN- BIG DATA ANALYSIS LAB – PARTNERSHIP WITH MASTERCARD

**X-Border
Spend Insights
Insights on international tourists purchasing**:
• **Who** does visit Turin? Where are they from? (i.e.: origins)
• **When?** (i.e. season)
• **What** do they buy? (i.e.: shopping categories)
• **Benchmark** with other smart cities
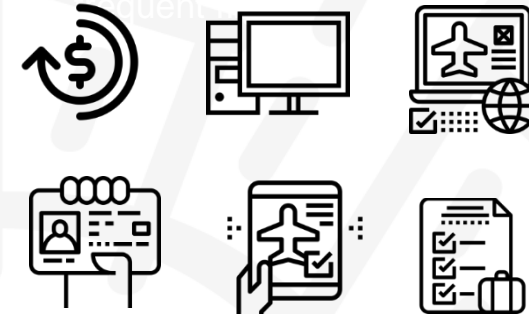
**Value Measurement Area**

• KPIs on purchases
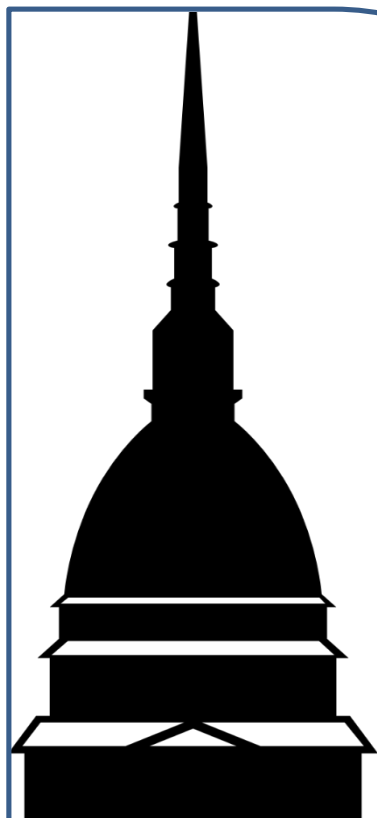• KPIs on visitors and mobility

**Search & Booking Tourism Insights**

Data from reservations and flight search divided in 3 dashboards:
• **Search** on travel platforms
• **Ticketing**
• **Flights**, overall capacity / most

**City of Turin's objectives**

**1** To acquire more insights on inbound tourism also during specific events

**2** To drive the development of open markets and public areas

**3** To identify urban areas having greater potential of urban development

Shopping habits of international card-holders

Analisys of economy at neighborhoods' level

Money trend during major events (i.e. Salone del Libro)

**Focus su X-Border Spend Insights**

**Top 5 origins – Monthly trend money spent**

# Top categories Cross border

Shopping

Hotels and accomodations

Cash payments

Food

Travel

**Insights on incoming tourism**

**Most frequent countries of origin**

**Where are the visitors from?**

**When do they visit Turin?**

**Seasonality per country of origin**

## Insights on incoming tourism

### % cross-border shopping vs other Smart Cities

| *+5%* | *+ 10%* | *-8%* | *+12%* | *+20%* |
|-------|---------|-------|--------|--------|
| London | Amsterdam | Berlin | Munich | Torino |

**TORINO**

**BDA**

## Money comparison spent per area (indexed/absolute values)

- Total spent
- # total transactions
- # total account
- Average per account
- Average Ticket
- Average visitors' frequence

### Money spent in Turin
Area layer
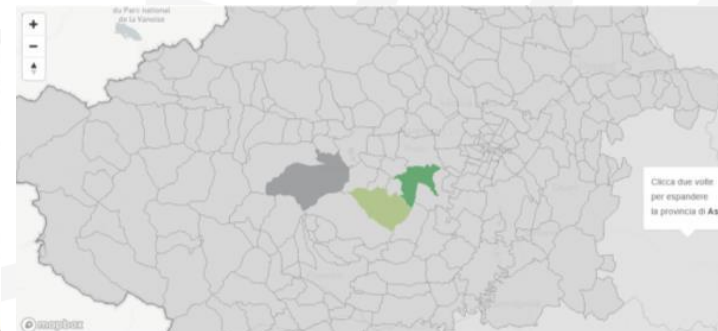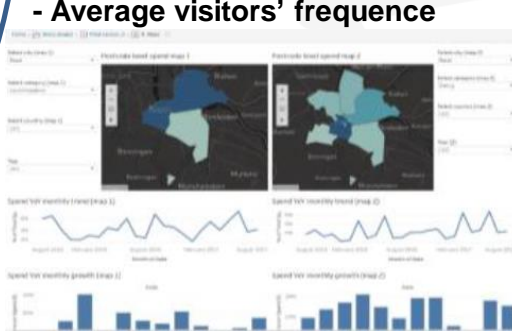
**Insights on incoming tourism**

**Top brand*/categories per country of origin** (% total spent)

**What do they buy?**

Top brands (per country of origin)

RUSSIA

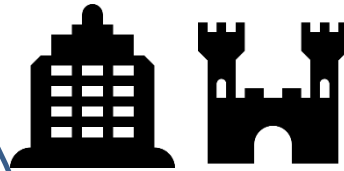| laRinascente | EATALY alti cibi | PRADA MILANO | Cartier | Hilton |
|---|---|---|---|---|
| 45 % | 19 % | 14 % | 12 % | 10 % |

# CITY OF TURIN - BIG DATA ANALYSIS LAB – IoT & TOURISM

**BDA Lab has installed sensors in MUSEUS, SQUARES, HISTORICAL PLACES in Turin in order to analyze data on incoming tourism**
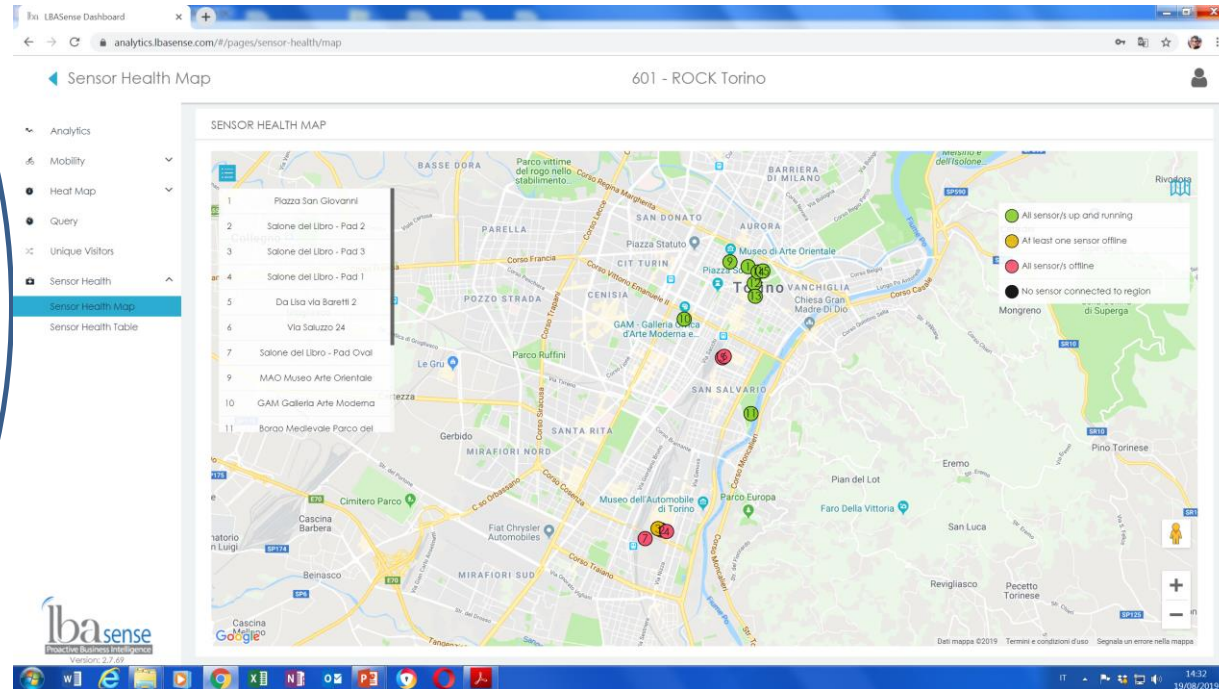
**BDA can anonimously outline the routes and habits of tourists in Turin and perform social media analysis on how tourists do perceive the City**

**BDA has placed sensors (beacons and detection of people / tourists) using Wi-Fi data**
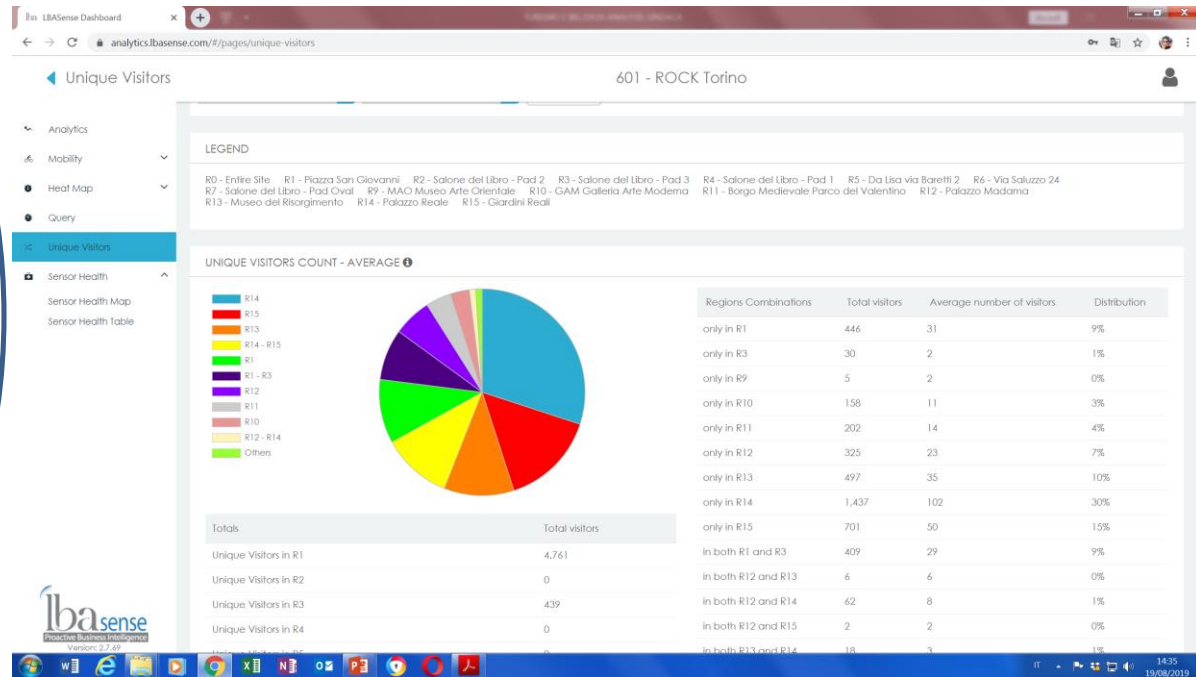
# CITY BDA SENSOR'S MAPS
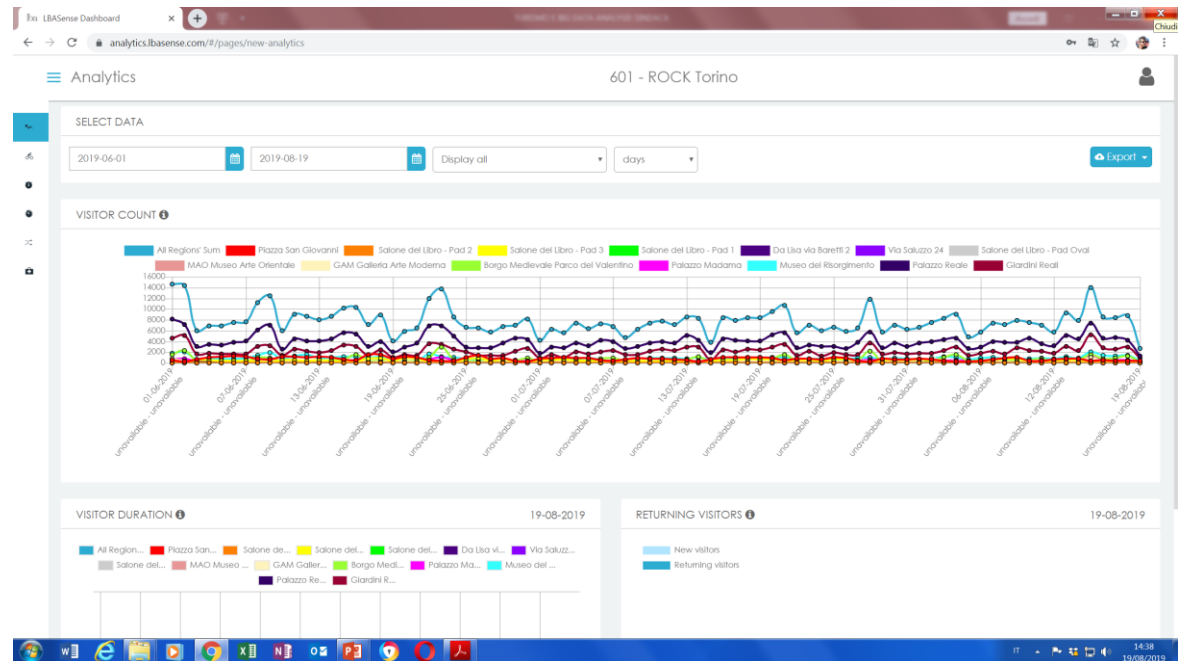


Geopositioning of sensors on Turin's map

CITY BDA ANALYTICS - UNIQUE VISITORS COUNT - AVERAGE

Analysis of «unique» visitors (first time in Turin) in different City places and museums

CITY BDA ANALYTICS – ALL REGIONS COUNT - AVERAGE

Real time analysis of tourists visiting City's
sensorized places

The **BDA Lab** was established with the resolution of the Council n.2018 20806519/04 of Dec 11th 2018 «Framework Agreement with Politecnico» and is open to students. The multidisciplinary team is composed of 10 analysts: 3 from R.I.T. Local Police (where the Lab is hosted) 4 from University of Turin and 3 from Polytechnic of Turin (curricular intenships, undergraduates, PhDs).

# Thank's for your attention

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