EXUS Innovation ensures the company’s constant state-of-the-art and delivers the prototypes for the next generation of products
EXUS provides impact-driving innovative ideas in the areas of security, health, creativity and data analytics, through strong domain and coordination expertise and a network of key partners, that result in successfully implemented projects funded by European and National authorities (UK and Greece).
21 Members

- Data Science, Artificial Intelligence
- Telecommunications and Networks
- Information Technology / Software Engineering
- Embedded Systems, IoT

20 Projects

- 18 Funded by EU
- 2 Funded by UK
- 10 Coordinated by EXUS

70+ MEuros Value
INNOVATION Management

- External sources
- Virtual teams
- Virtual product roadmaps and Sprints
CORE
Expertise

Consumers
- Analytics & BI Platforms
- Web & Mobile Applications
- Enterprise Applications

Data Discovery & Analysis
- EAF

Suppliers
- Documents, Logs
- Database systems, Geolocation data
- Social Media, Sensor Streams
ANALYTICS
Framework

EAF

A set of technologies, platforms and tools is used by Engineers, data scientists and business users to store, analyze and visualize data. Big data analytics projects.

(WHAT)
(WHERE)
(WHY)
(WHO)
ANALYTICS
Framework

Technology Stack

ElasticSearch & Kibana
SPARK
HBase
HADOOP
R STUDIO
SECURITY
FINTECH
“LivingMarket has the potential to be for retail analytics what Dropbox is for cloud storage”
Secondary Customers

- Market Research & Consultants

Primary End Users

- Retailers

Primary Customers

- Banks

LivingMarket platform

- Data storage
- Anonymisation
- Analytics
- Visualisation

Reports & Visualisations

LM Analytics

Value Chain
### Prototyping dataset

<table>
<thead>
<tr>
<th><strong>Merchants</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of unique active merchants</td>
<td>79,025</td>
</tr>
<tr>
<td>Number of categories (segment) to which the merchants belong</td>
<td>29</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Customers (Account holders)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of unique customers</td>
<td>2,244,267</td>
</tr>
<tr>
<td>Number of unique Nationalities to which customer belong</td>
<td>188</td>
</tr>
<tr>
<td>Percentage of customers by Gender</td>
<td>60</td>
</tr>
<tr>
<td>Age range for largest percentage of customers</td>
<td>65+ (41%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Debit Card</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of transactions</td>
<td>4,607,680</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Credit Card</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of transactions</td>
<td>1,746,733</td>
</tr>
</tbody>
</table>
FINTECH
LIVING MARKET

Geo-localized spending
LIVING MARKET

FINTECH

Spending trends
Actionable Insights

- Customers
- Maximum spend
- Product value
- Competition
- Grow/expand
Value Proposition characteristics

Cloud deployed

Anonymization/Compliance

Big Data

Retail Analytics

All sectors
SECURITY
Managing large-scale crowd evacuations during crises
Managing large-scale crowd evacuations during crises

- Evacuation route
- Identifying
- Designating
- Sustaining
Identify, Designate and Sustain a dynamic Active Evacuation Route (AER) according to current evolving circumstances
**Security**

Full-fledged system

**Standard Operation**
- Displays stadium operational status
- Displays the Location-based Dynamic Evacuation Route (LDER) with the estimated times
- Displays incidents reported by 3rd systems and field security personnel
- Dispatches security personnel to attend incident

**In case of evacuation**
- Displays the Location-based Dynamic Evacuation Route (LDER) with the estimated times
- Issues evacuation commands
- Receives alerts by FRs
- Receives alerts by spectators
- Depicts progress of evacuation process

**Planning phase**
- Modeling of the facility, indication and storage of evacuation routes

**Simulation phase**
- System used to build scenarios, train security agents

**In real-time**
- Connects to CCTV, Wi-Fi Scanner for counting audience population
- Interfaces to BMS & Fire Safety, Access Control (Turnstiles, RFID/NFC)
- Continuously calculates the Location-based Dynamic Evacuation Route (LDER)
- Controls Active signs and actuators
- Raises Alerts from intelligent correlation of sensor data and social media inspection
- Sends personalized messages to spectators and security personnel

**Standard Operation**
- Reports incidents to COP
- Communication mean between security personnel & Crisis Managers

**In case of evacuation**
- Transmits alerts to COP

**Spectators Application – TRL7**
- For spectators & visitors

**Mobile based communication & dispatch mechanism Application**
- For field security Personnel & First Responders (FRs)

**BlueTooth (BLE) Beacons (COTS)**
- Beacons placed at seating areas and evacuation routes to ensure indoor positioning (No GPS)

**Resilient Wi-Fi Infrastructure (COTS)**
- Local Communication Network

**Wi-Fi Scanner or other people counting technology (COTS)**
- For counting people

**Active Signs and Actuators (COTS)**
- For depicting the LDER within the facility

**Standard operation**
- Location-based info
- Safety features of stadium
- Offers game specific content

**In case of evacuation**
- Offers personalized evacuation route
- Transmits alerts to COP
- Request for assistance
SECURITY

Technological State-of-the-Art

- IoT
- Computer vision analytics
- Crowd simulation
- RFIDs
- BLEs
HEALTHCARE
Data analytics for reducing avoidable readmissions in the National Healthcare System
HEALTHCARE

£12,500,000,000
A&E Admissions for 2013

£2,400,000,000
19% readmissions
Key aspects of the system

- Analysis of real admitted patient data
- Risk prediction model
- Decision Support System
- Simple to use software application for Hospital staff, involving all necessary stakeholders and existing NHS instruments
206,692 emergency admissions between 2007 - 2014
17,553 of those were 30-day Readmissions (8%)

£1,880,000 average annual cost (at £250 a day, 3 day avg. stay)
HEALTHCARE

AVERAGE SAVINGS PER YEAR

£862k (10%)

AVERAGE SAVINGS PER DAY

£2,362 (10%)
Web-based platform
Trends visualization
CREATIVITY
CREATIVITY

MAGELLAN

A codeless platform for the intuitive creation of multi-participant location-based experiences.
CREATIVITY

MAGELLAN

Value Proposition
characteristics
CREATIVITY

MAGELLAN

Indicative concept art
CREATIVITY

MAGELLAN

Indicative applications

Customer engagement: novel ways to reach large audiences

Human Resources: Team-building in corporate events

Cultural Heritage: Interactive site visits

Art: Music festivals audience engagement

Education: Train personnel
EMERGING
Technologies of interest

BLOCKCHAIN

ARTIFICIAL INTELLIGENCE
Do

- Be Extrovert but selective
- Scan thoroughly
- Create your technology “stamp”
- Lead
- Deliver excellence

Avoid

- Only working with “friends”
- Doing “everything”
- Exclusive Dependencies
- Delivering the minimum

Lessons Learnt
Wars

- Capability Building at almost zero cost
- Sustainable technological advantage
- Potential new market pathways
- New alliances

Growth
THANK YOU