



**Polish your skills
the smart future of IoT**



"the Internet of Things"

is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.





IoT Solutions



01 | Street Lighting Management Solution

Benefits:

- ✓ **Reduce energy consumption:** reduce electricity costs by 40–60 % (on/off, dimming).
- ✓ **Reduce maintenance cost**
- ✓ **Make citizens feel safer**
- ✓ **Monitor and analyze performance of lighting systems** detailed electrical parameters, advanced analytic report tools
- ✓ **Maintenance scheduling**



Orange Smart City
Street light remote management

First Smart City project in Moldova, in partnership with Hincesti City Hall

- 62 LoRa Controllers for street lamps
- 4 transforming distribution points
- LaRaWAN Gateway
- LoRa Network Server
- Business Application with Web & mobile interface
- 15 connected streets

The infographic features a stylized map of a city street grid with various icons representing the smart city components. The Orange logo is in the top left corner.

02 | Smart Metering solution

Benefits:

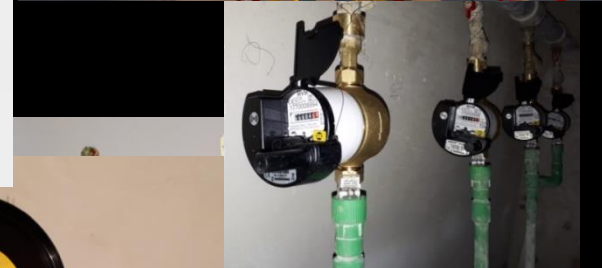
- ✓ **Reduce logistic costs** - remote reading of utility meters using LoRa technology
- ✓ **Reliable & Efficient** – battery life ~10Y
- ✓ **Leak Detection**
- ✓ **Billing integration**
- ✓ **Reduce human error rate**
- ✓ **Reduced Estimated Bills (share quota)**

Orange Smart Grid
Tailored water utility reading system

Building a Smart Water distribution network in partnership with
APA CANAL S.A. Chisinau
and **Meddalena, Italy**

SMART WATER
Meters Solution

- 97 Residential Water meters reading equipment and LoRa controller
- 5 Water Meters for B2B
- LaRaWAN Gateway
- LoRa Network Server
- Business Application with SCADA integration
- 1 apartment building, 5 B2B offices with underground installation
- Operational costs decrease
- Reliable water distribution services
- Real-time monitoring and data consumption reading





greencitylab

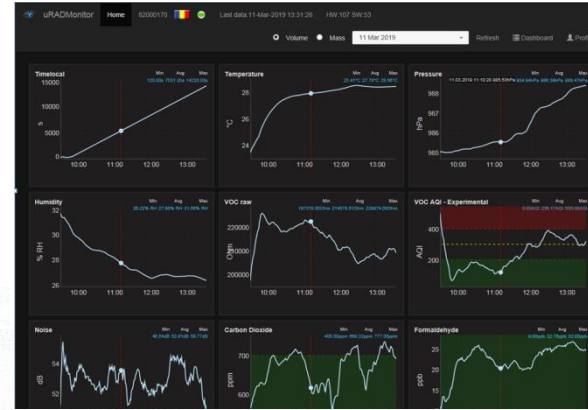
environment monitoring solution



- Temperature
- Pressure
- Humidity
- PM1.0
- PM2.5
- PM10
- VOC
- Noise level
- Ozone
- Carbon
- Monoxide
- Sulphur Dioxide
- Nitrogen Dioxide

5 monitoring stations for the most 5 crowded CHISINAU city places

public online Dashboard with Quality Control KPIs ...



04 | Smart Waste Management Solution



Inefficient collections



Overflowing bins



Lack of information



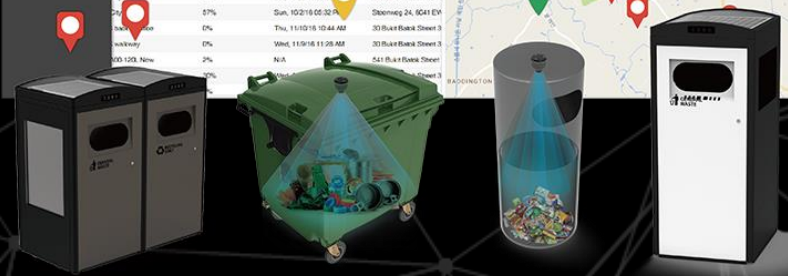
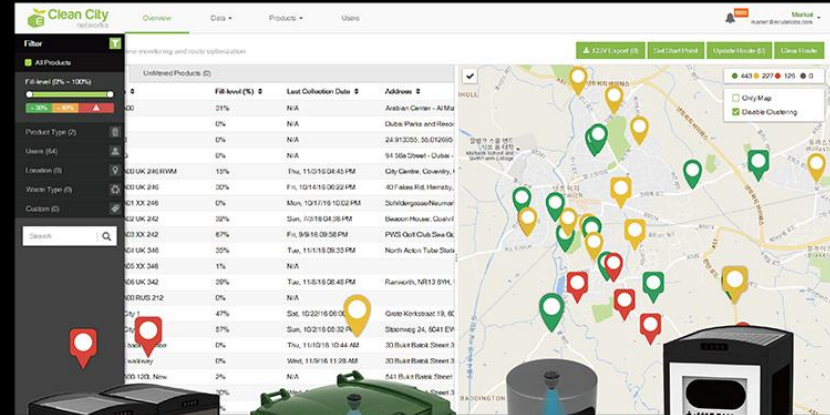
High emissions



Insects and vermin

Benefits:

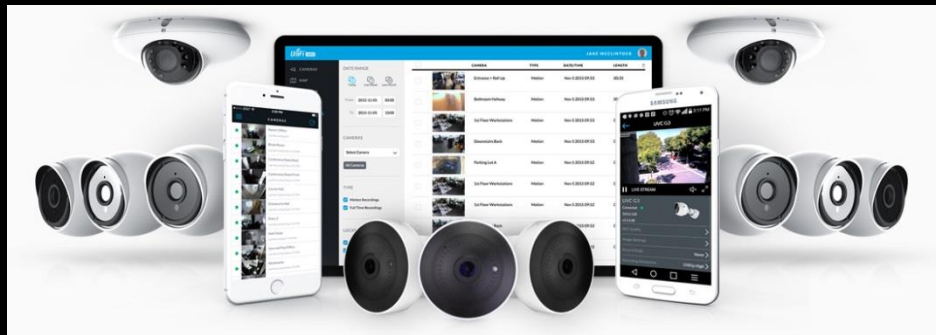
- ✓ **Reduce logistic costs:** (up to 40%) in fuel and overall waste collection costs.
- ✓ **Be easy to use:** the sensors are easy to mount in the bin and require minimum maintenance.
- ✓ **Be fully automated:** not affect the usual work processes.
- ✓ **Help environment protection:** preventing pollution of the environment.



05 | Videosurveillance solution

Benefits:

- ✓ Physical protection of data collected in specialized data-room
- ✓ Real-time monitoring and faulty alerting
- ✓ Instant/remote access to video recordings and equipment
- ✓ Monitoring platform with extended functionalities
- ✓ The possibility of integration, practically of any type of video monitoring cameras
- ✓ Reduced investments in the implementation of the video monitoring solution



Applications & benefits:

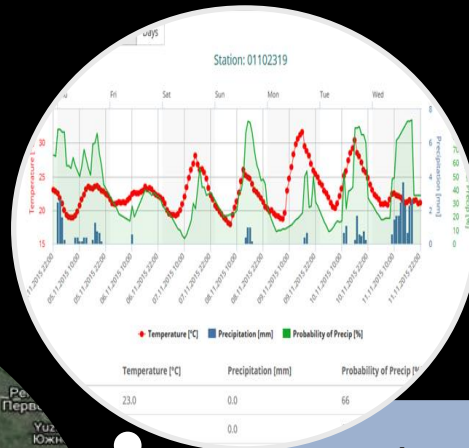
- ✓ Parking access control
- ✓ Access of authorized cars (tag, plate number, etc.)
- ✓ Parking place manager (free / occupied, # places available)
- ✓ Parking guide
- ✓ **Reduce pollution:** each search for a parking spot impact of 1.3 kilograms of CO² emissions.



07 | Smart Agro

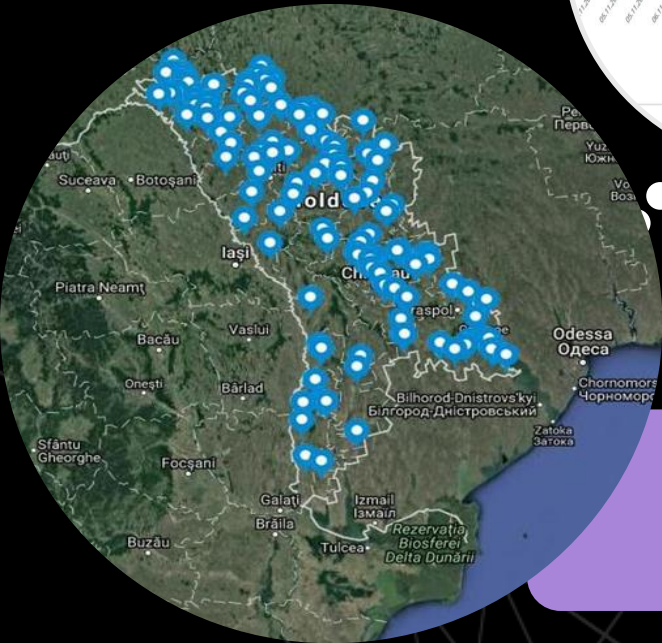


Afacerea ta cu Orange
va da roadă bună



share of data from
existing stations
infrastructure

national presence with 140
meteo stations



METOS

- Modificarea vitezei
- Modificarea temperaturii
- Modificarea umidității
- Modificarea presiunii
- Modificarea direcției vântului
- Modificarea cantității de precipitații
- Modificarea nivelului de apă
- Modificarea nivelului de umiditate
- Modificarea nivelului de iluminare
- Modificarea nivelului de radiație solară
- Modificarea nivelului de radiație ultravioletă
- Modificarea nivelului de radiație infraroșie
- Modificarea nivelului de radiație gamma
- Modificarea nivelului de radiație beta
- Modificarea nivelului de radiație alfa
- Modificarea nivelului de radiație cosmică
- Modificarea nivelului de radiație de fond
- Modificarea nivelului de radiație de suprafață
- Modificarea nivelului de radiație de aer liber
- Modificarea nivelului de radiație de sol
- Modificarea nivelului de radiație de apă
- Modificarea nivelului de radiație de vegetație
- Modificarea nivelului de radiație de animale
- Modificarea nivelului de radiație de oameni
- Modificarea nivelului de radiație de obiecte
- Modificarea nivelului de radiație de construcții
- Modificarea nivelului de radiație de echipamente
- Modificarea nivelului de radiație de vehicule
- Modificarea nivelului de radiație de avioane
- Modificarea nivelului de radiație de nave
- Modificarea nivelului de radiație de rachete
- Modificarea nivelului de radiație de sateliți
- Modificarea nivelului de radiație de spațiu
- Modificarea nivelului de radiație de univers

Pessi
INSTRUMENTS

Live Objects Discovery

...build & test

Application Developers



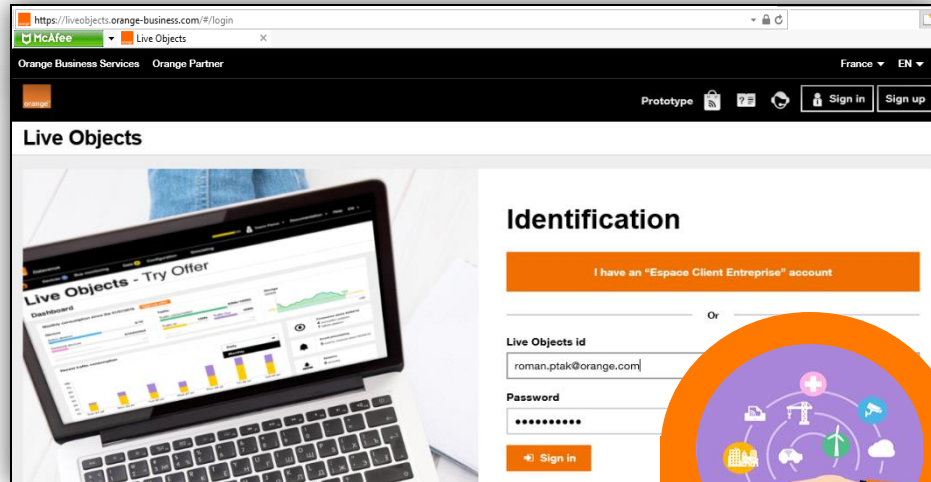
- Main drivers of value in new IoT world
- Key to building our ecosystem
- eg software developers, solutions providers

IoT Systems Integrators & Service Providers



- Integrators and Service Providers looking to add IoT platform and connectivity into their solutions

Go to <https://liveobjects.orange-business.com/>



Moldova IoT Community
is...Orange

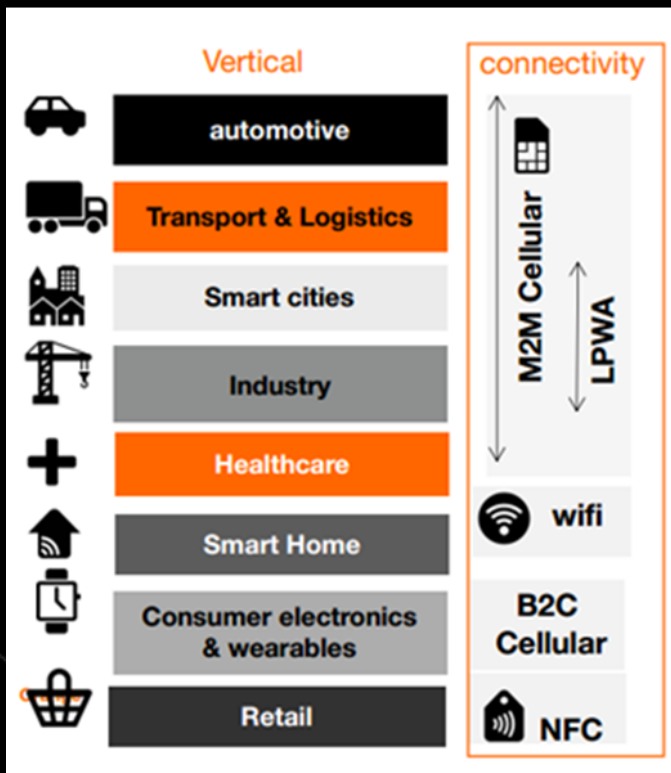


Live Objects

- Device connectivity
- Device management
- Data Management
- Application management
- Security
- Visualisation

09 | Orange Moldova capabilities

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4G

99.30% of territory 3G coverage
89.40% of territory with 4G

3G

98.40% of population 3G coverage
96.90% of population with 4G

FO & TV

Fixed network presence in all cities
with fixed internet, voice & TV

5G

NB-IoT

LTE-M

IoT Expert profile



a complete range



of customized IoT services*

1- Select & develop (objects)



- Smart objects (personal/ home, entertainment)
- Connectivity module and sensors
- Module and objects testing expertise



2 – Connect (relevant connectivity)



- Mobile (2G, 3G, 4G), Wi-Fi, FO
- LoRa, SigFox, NB IoT (LPWA)
- W-Mbus, ZigBee, Bluetooth
- Local Gateways



3- Manage (data mgt platform on premises or SaaS)



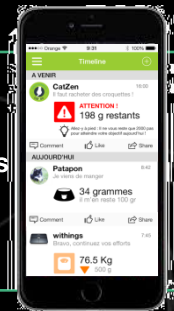
- data collection, storage
- Events and notifications processing
- telecontrol functions



4 - Control (Intégration)



- Mobile app
- Business app./Dashboards
- integration with ERP/CRMs/BI integration



11 | Skills development vs. IoT industry trends

orange™

- A. is expected that by 2025 the number of smart devices will increase to **41.6 billion** . For comparison, in 2016 there were only 6.4 billion
- B. set up proper infrastructure for the next generation of IoT devices with a heavy load of **79.4 ZB data** (1ZB=1bln. of TB) → 5G/LTE-M
- C. the world of IoT with a **huge variety of sensors and data collectors** integrated vs. the most **bandwidth-heavy applications** of IoT (video surveillance → live feeds)
- D. the **infrastructure** to be ready **to save all this data**
- E. isn't only a huge improvement over the next six years – it's a very real force of nature that **will redefine how we live our daily lives.**
- F. Market will looking for people to deploy and manage networks, integrate devices and soft, soft dev., IoT testers (device monitoring and soft/app. testing), to run cloud infrastructure, **business and IoT solutions architects**





Thank you