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ITMO University
&
BioTope Project

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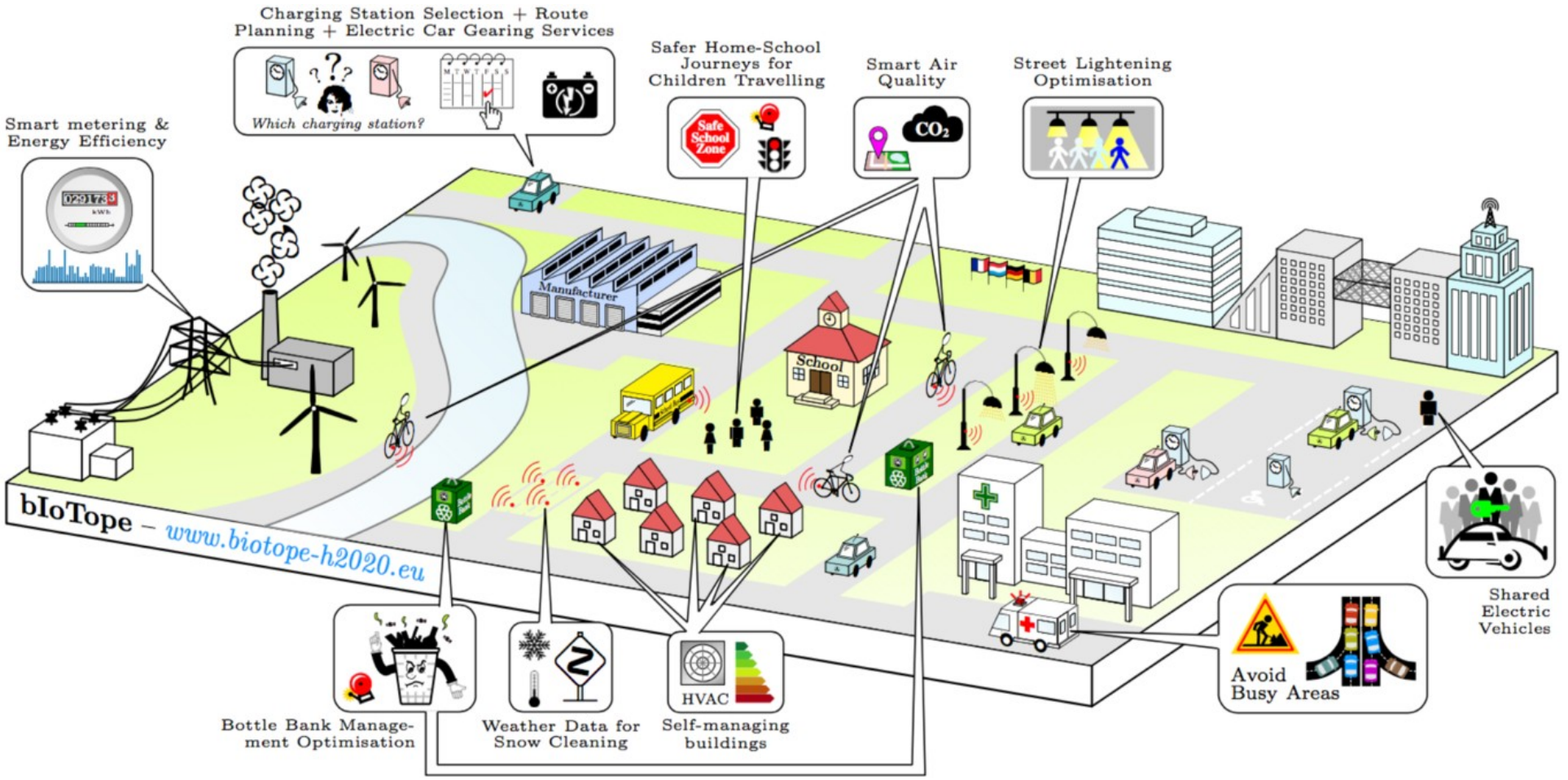
bIoTope – building an IoT OPen innovation Ecosystem for connected smart objects

http://www.biotope-project.eu



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BioTope Objectives & Standards

More then 20 partners from 10 countries.

The key objectives of the bIoTope project include the following:

- Provide the necessary standardised Open APIs to enable interoperability between today's vertical IoT silos
- Enable new forms of co-creation of services ranging from simple data collection and processing, to intelligent, situation aware and self-adaptive support of everyday work and life
- Establish a robust IoT framework for security, privacy & trust that facilitates the responsible access and ownership of data
- Develop large-scale pilots in smart cities to provide proofs-of-concept of bIoTope enabled SoS ecosystems
- Maintain, grow and sustain the socio-technical and business models of bIoTope ecosystems by establishing a governance roadmap for ecosystem evolution

Standards for IoT and Technology Innovations:
bIoTope technologies enable the publication, consumption and composition of heterogeneous information sources and services from across multiple systems (OpenIoT, FIWARE, city dashboards…). Full advantage is taken of recent IoT standards, notably the O-MI (Open Messaging Interface) and O-DF (Open Data Format) standards , while an "Everything as a Service" design enables rapid development of new IoT systems and reduced development costs.

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ITMO projects requirements

This research is funded by the Ministry of Education and Science of the Russian Federation under the Grant Agreement **RFMEFI58716X0031.**

System for dynamic status monitoring and management of waste management for city/district administrations and other users.

The architecture of the prototype of a solid waste collection system based on IoT technologies should establish the relationship between the following system components:

- Cloud system of decision support and management system for waste export;
- Web application for organizations-carriers;
- Web application for government agencies;
- Mobile application for drivers;
- Mobile application for workers of housing and communal services;
- Web application for citizens.

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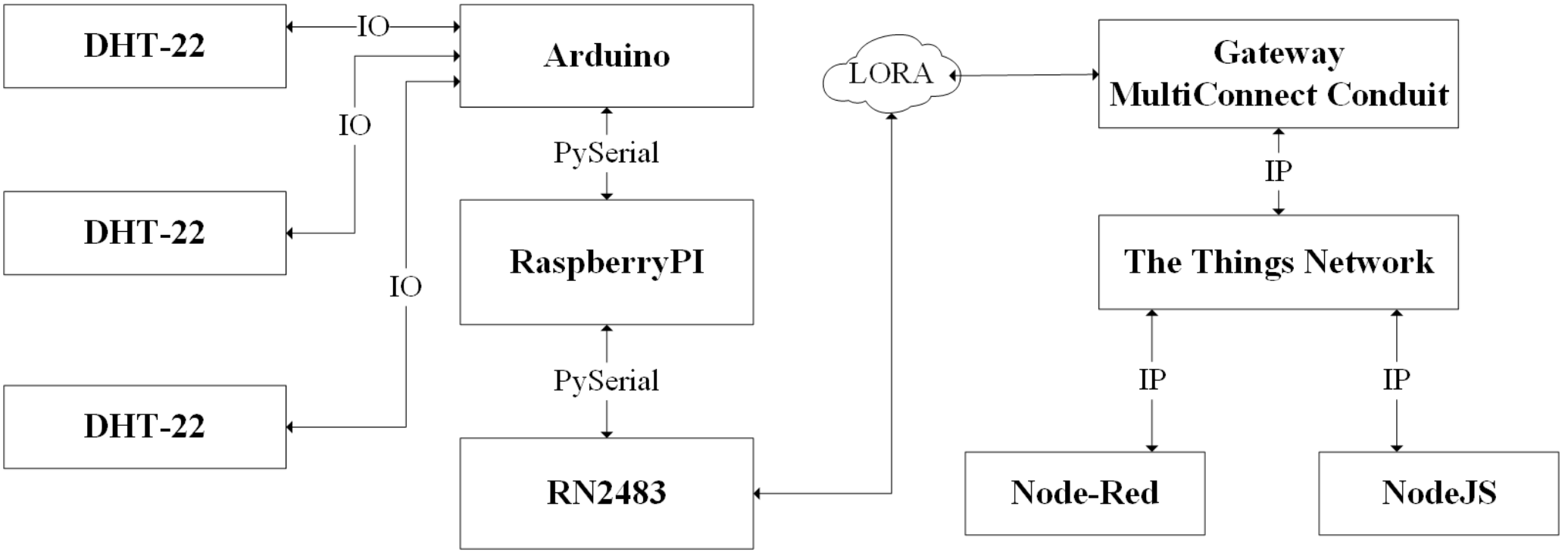
Smart Garbage Bin (SGB)

Used garbage containers should be equipped with fullness level sensors, RFID tags, air pollution sensors, means for collecting data from these sensors for their transmission over wireless communication channels.



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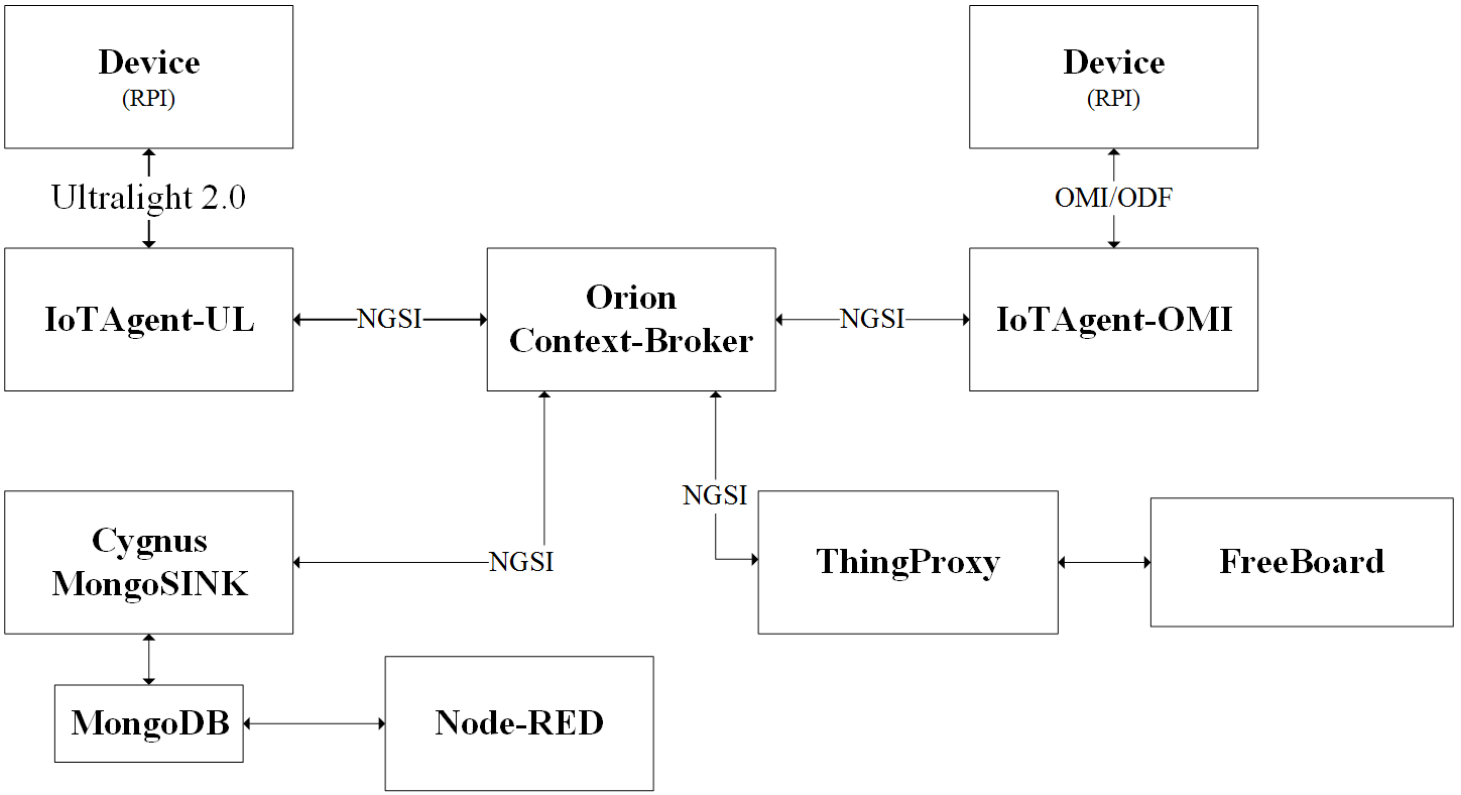
Software

The software created as a result of the project must satisfy:
- Open Source Software criteria and LGPL 3.0 standards.
- Open Data standards and Open API (application program interface).
- compatible with the software created within the framework of the research project bIoTope framework program of the European Union "Horizon 2020".



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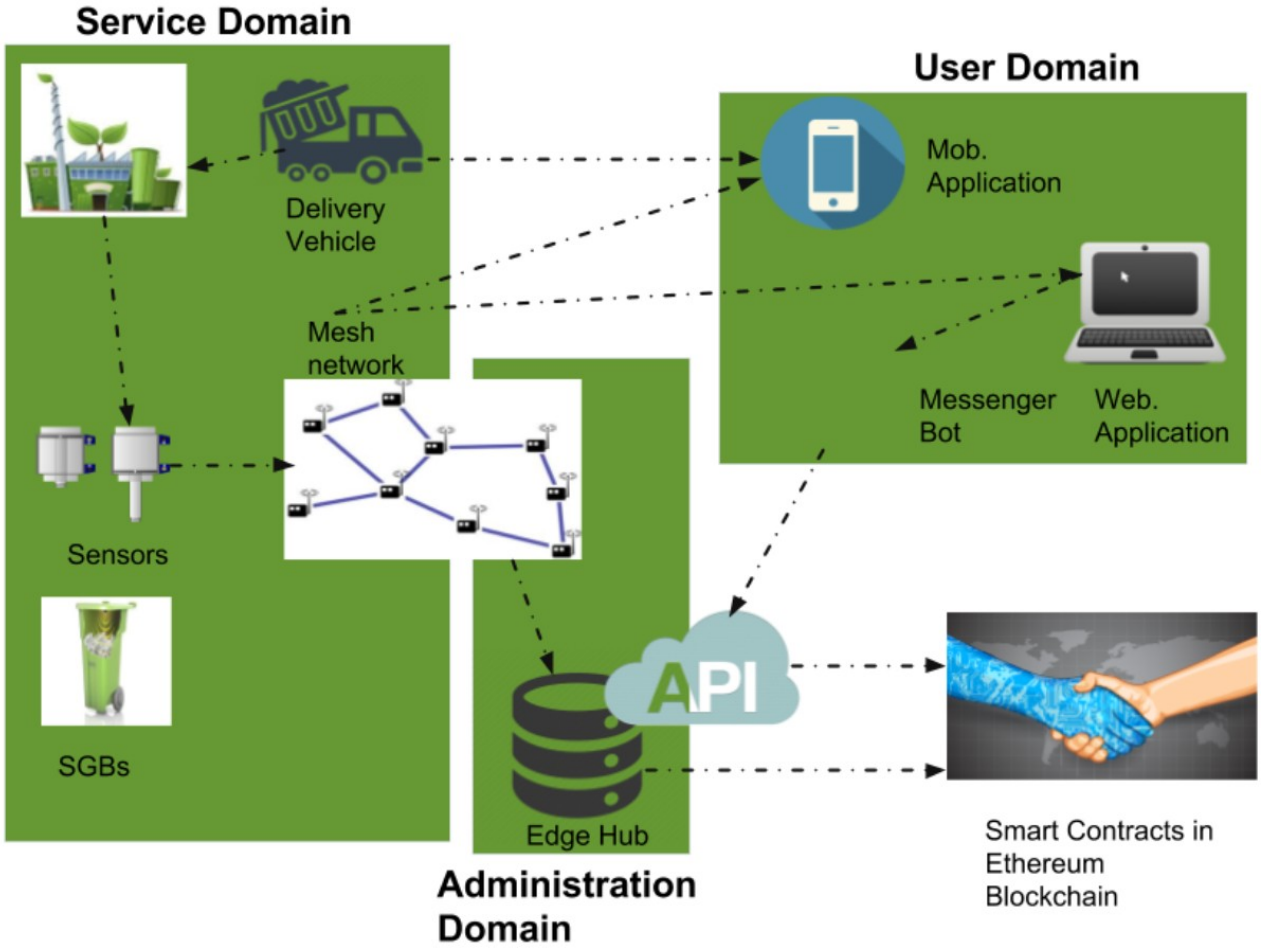
Smart City

The test data used in the works should correspond to the standard data of a modern metropolis with a population of more than one million people.



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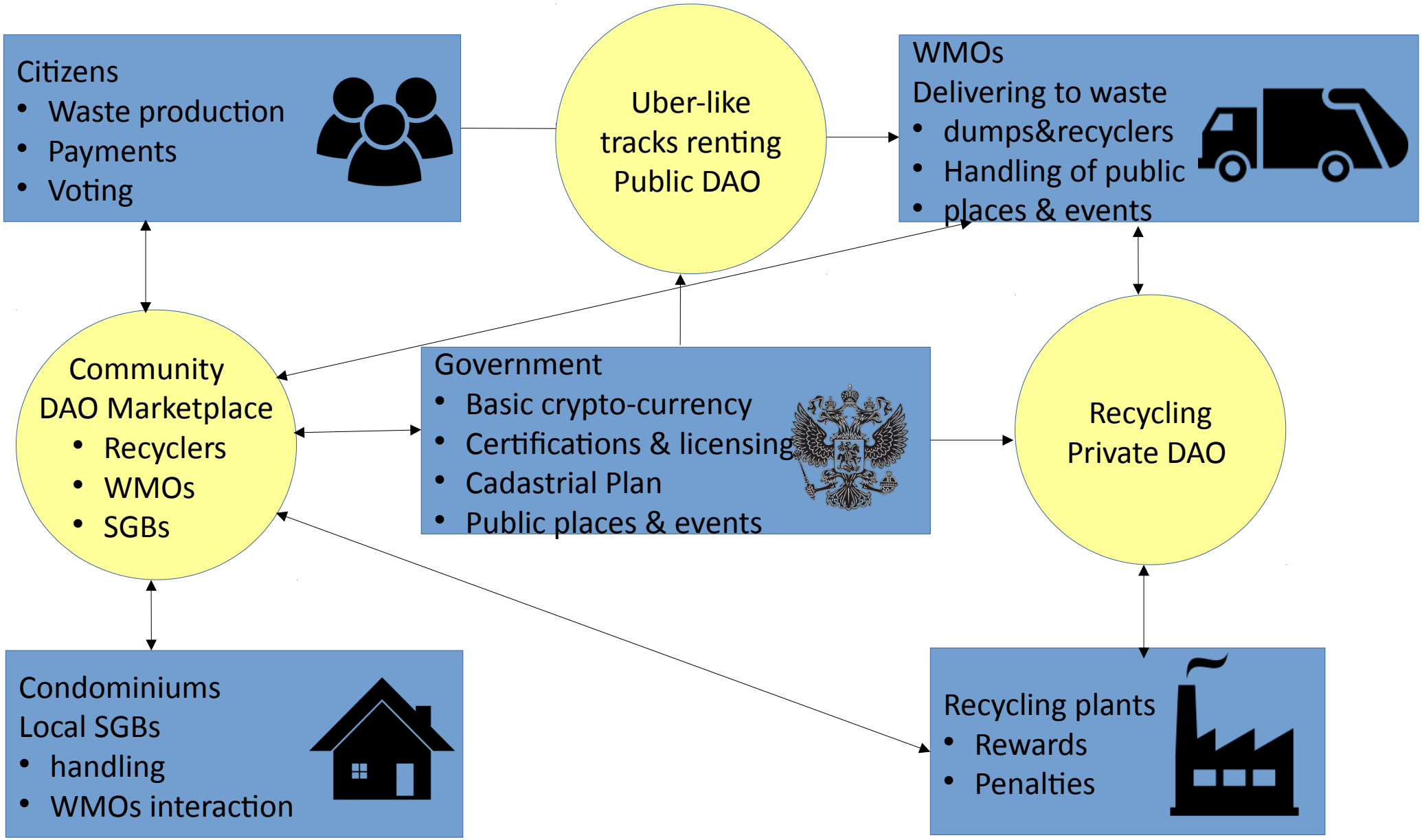
Blockchain & Smart Contracts



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R&D support:

- EU HORIZON 2020 bIoTope project
- Ministry of Education and Science of the Russian Federation under the Grant Agreement **RFMEFI58716X0031**
- Erasmus Mundus Joint Master Degree (EMJMD) in Pervasive Computing and Communications for Sustainable Development (PERCCOM)

Resources:

- http://sdn.ifmo.ru/waste-management-system
- https://github.com/itmo-swm