DEVELOPING A TECHNOLOGY FOR PREPARATION, STORAGE AND MANAGEMENT OF SPATIAL THREE-DIMENSIONAL (3D) DATA NECESSARY FOR EFFECTIVE IMPLEMENTATION OF ECONOMIC DEVELOPMENT PROJECTS

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VALSTYBĖS ĮMONĖ
REGISTRŲ CENTRAS

STATE ENTERPRISE CENTRE OF REGISTERS (SECR)

Established on 8 July 1997 by the Government.

The SECR is a keeper of base state registers of the Republic of Lithuania providing services related to the data thereof.

1997

REAL PROPERTY CADASTRE AND REGISTER

2004

REGISTER OF LEGAL ENTITIES

2004

ADDRESS REGISTER

2014

POPULATION REGISTER

OTHER INFORMATION SYSTEMS AND E-SERVICES

The SECR creates information systems and e-services for other state and municipality institutions:

iPasas.lt — TAPATYBĖS NUSTATYMAS INTERNETE

is used to identify a person and to connect to the SECR services at **www.registrucentras.lt** or to services of other state institutions;

NETSVEP

Enables preparation of property transactions using modern electronic means and working directly with the Real Property Register central databank.

JAREP IS

INFORMATION SYSTEM OF LEGAL ENTITIES PARTICIPANTS JADIS

BAILIFFS' INFORMATION SYSTEM (BIS)

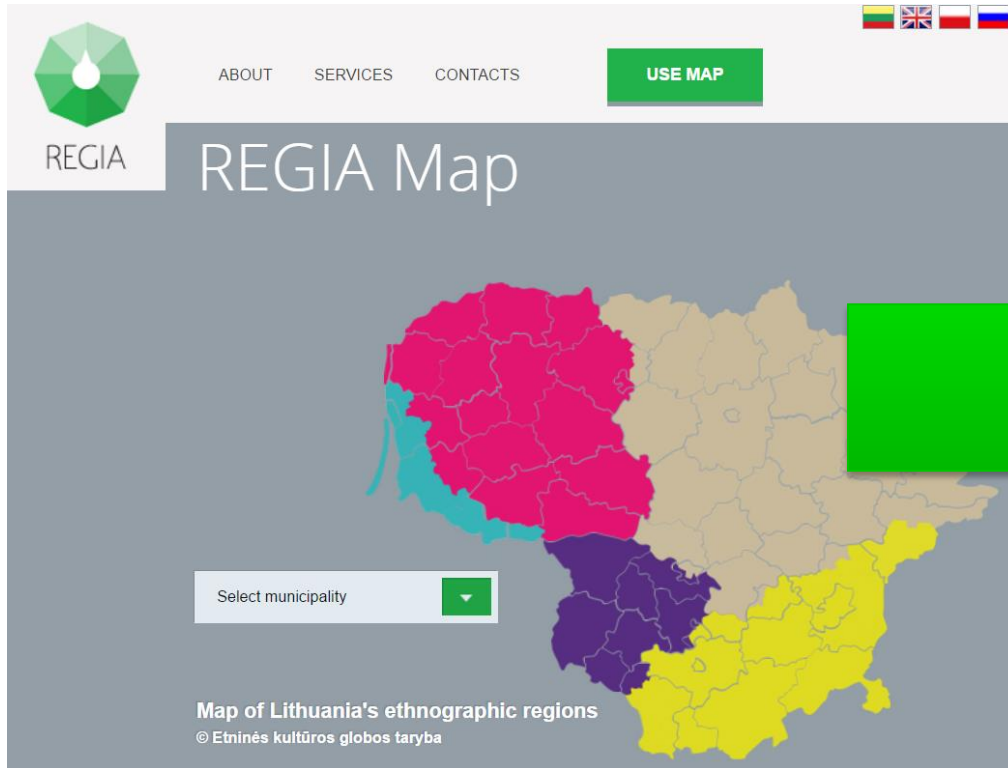**CASH RESTRICTIONS INFORMATION SYSTEM (PLAIS)**

E-HEALTH

REGIA

E-SURVEYOR

... etc.

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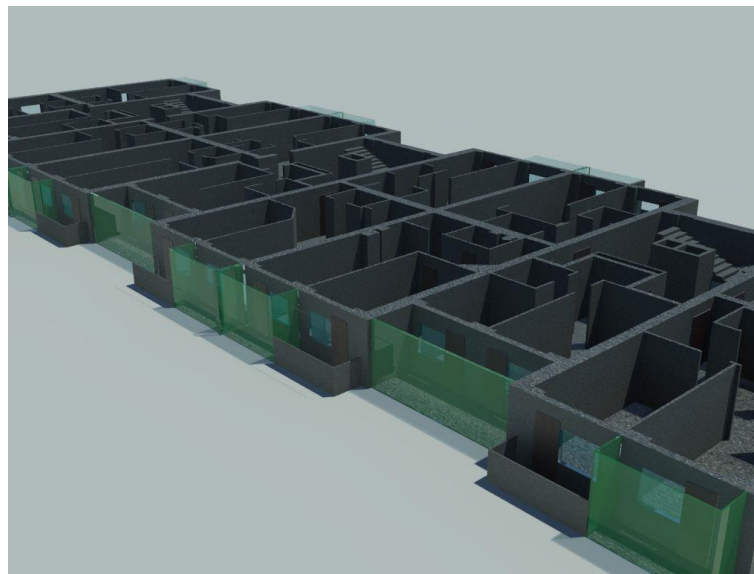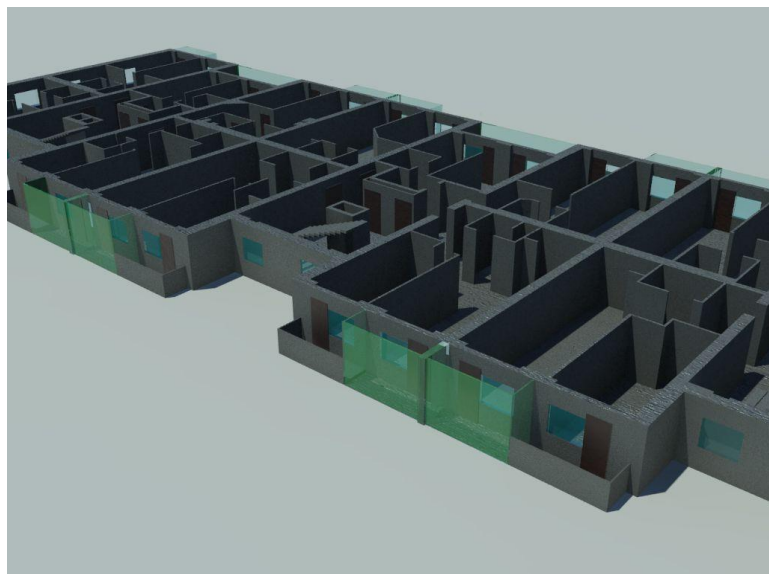# Future technological development plans

Open Data

BIG data

Spatial analysis

3D

Imagery

Internet of things

Real time data

Etc.

FIRST ATTEMPTS TO CREATE 3D MODELS FOR MAIN BUILDINGS IN 2013 - 2015

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FIRST ATTEMPTS TO CREATE 3D MODELS FOR MAIN BUILDINGS IN 2013 – 2015

Low LoD – formation of simple 3D model of the building. Extracts from the Real Property Register, building addresses, photos, etc. can be added.
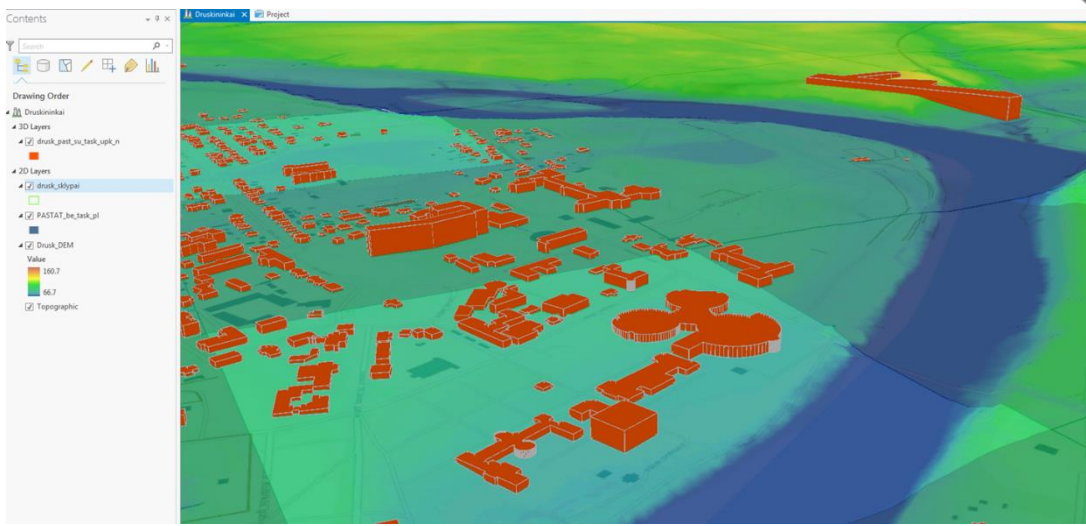
ATTEMPTS TO LAUNCH 4D MSIP PROJECT IN 2016 (failed)

Multidimensional 4D map and spatial information platform (4D MSIP)

Idea failed at the stage of preparation
of the application (for EUREKA funding)

Druskininkai 4D SIP demo map

PRE-COMMERCIAL PROCUREMENT (2016...)

The conception of PCP

Pre commercial procurement (PCP) is an approach to procuring R&D services having an objective to create innovative product.

Mandatory requirements

Innovative product → Not on a market → R&D are compulsory

PROJECT SELECTION PROCEDURES

Projects will be selected subject to planning of State projects

Selection process:

- ✓ Invitation to submit a project proposal.
- ✓ Submission of project proposals (2016-08).
- ✓ Evaluation of project proposals.
- ✓ Recommendations of the Innovative Economy Council (2017-01).
- ✓ Making an indicative list of State projects(2017-08).
- ✓ Approval of the list of State projects (2017-08).
- ✓ Information to applicants.
- ✓ Submission of application to the implementing body (LVPA) (2017-09).
- ✓ Evaluation of applications.
- ✓ Signing of financing agreements (2018-05).
- ✓ Pre - Commertial tendering (2018-07 to 2019-01)

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THE PROJECT GOAL

The Project goal is

to develop a pilot version of the technology for preparation, storage and management of **spatial 3D data** necessary for effective implementation of economic development projects. The developed Technology would enable the integration of the Real Property Cadastre and other geographic information systems and the 3D representation of their data.

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Main tasks

1. Create **automated model / methodology for the conversion of the two-dimensional real estate cadastral data** into the tree-dimensional models.

2. It must also **ensure the integration of 3D over ground object models with land surface**.

3. Create **3D models of underground structures** (stored in the Real Property Cadaster and municipal databases) and **integrate them into the common 3D model**.

4. Create **3D data viewer concept**: data visualization, user interface and user experience.

5. Proposed Technology should allow **transferring 3D models with lower level of details into the models with higher level of details.**

6. The Technology must **be able to integrate the building information models** created during the BIM process.

7. The Technology must allow **dynamic representation of the history of spatial data changes.**

8. **Possible 3D data analysis and other 3D model application tools should be identified and proposed**. Some of them should be implemented for demo purposes (examples: visual pollution, shadow analysis, etc.)

9. When developing the methodology, **the following tools and technologies must be evaluated** (but not limited to the list provided): existing GIS data, geodetic and cadastral measurements, ortho-photographic images, laser scanning, aerophotogrammetry and ground-based photogrammetry methods, etc.

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Planned usage

- **citizens** (when taking part in the state governance, when dealing with real property investments, planning trips and travelling, searching for various information, etc.);

- **all representatives of the government (municipality) institutions** in their work using spatial data for decision making

- **business representatives** investors, professionals from various fields such as architects and designers, land managers, monument protection specialists and urban planners, developers and contractors for roads and their facilities (viaducts), to the companies maintaining buildings, engineering networks, real estate brokers, property valuers, surveyors agents, etc.).

The **State Enterprise Centre of Registers** will use the developed technology for integrating the spatial data stored in the Real Property Register, other registers and information systems, for creating 3D models for the entire territory of Lithuania and for publishing in REGIA.

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Pre-commercial procurement stages, planned duration (of each stage of the pre-commercial procurement) and maximum number of financed tenderers:

The pre-procurement procedure shall consist of **3 stages**. At the end of each stage, the tenderers compete and their number shall be reduced after each stage in order to select those tenderers whose tender mostly corresponds to the Technical Specification of the pre-commercial procurement.

Total duration of the pre-commercial procurement stages shall be **25 months**:

Stage	Duration*	Maximum number of financed tenderers
Stage I (concept development)	5 months	4
Stage II (prototype development)	12 months	3
Stage III (pilot production)	8 months	2

* The duration of each stage includes 4 weeks for the evaluation of respective stage results (tenders). The Contracting Authority shall have the right to extend duration.

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Stage I

Designing of spatial data integration concept

At the end of the first stage, all tenderers shall submit their developed technology concepts. Experts will evaluate them, select three from four concepts developed during the first stage, and announce three as the best ones.

Stage II

Development of technology prototype and test product

Three bidding suppliers at the second stage will develop a technology prototype.

Test product will be created on the basis of the technology prototype - spatial 3D test data will be integrated for a defined area, and a methodology for preparing, storing and managing of such data will be developed. During this stage, a full system check will be performed.

At the end of the second stage, three bidding suppliers will submit the technology prototypes and the test products developed. Two of the prototypes and test products developed by the bidding suppliers will be evaluated and selected by experts as the best ones.

Stage III

Creating a service for publication of the test product (spatial 3D data) in REGIA.

The test products developed during the second stage of the project (integrated spatial 3D data of the defined area) will be published on the Internet by using REGIA. To this end, a service for publishing a test product in the REGIA will be developed during the third stage. Test products developed for the defined territory will be presented to potential users. The public (potential users) will be informed of the new product within the REGIA platform itself and during the workshops.

used from https://youtu.be/Wa_WF061Wig

THANK YOU FOR YOUR ATTENTION!