



SLO4D

Joint Spatial Information Infrastructure



GEO
SLOVENIA

Spatial
Information
Hub



The Green Slovenian Location Framework (SLO4D) was created on the basis of the Strategic Plan for Digitalization of Spatial Information and Environment at the Ministry of the Environment and Spatial Planning (eMOP). SLO4D includes those eMOP activities that will be financed from the Recovery and Resilience Plan (RRP) and the Climate Fund.

The key goal of the SLO4D project is to digitally interconnect areas included in the project: spaces, environment, real estate, water and nature, so as to enable better and smarter management of natural resources.

Key results expected from this project by 2026:

- Link the key spatial and environmental digital data infrastructure in order to connect key processes and databases in the area of spaces, environment, water and nature;
- Create digital data and services and enable access to them;
- Establish the necessary environment for spatial and other services;
- Set up the fourth component of the National Coordinate System¹ as a basis for digitalization and provide the missing digital data for the national spatial and environmental data infrastructure.

¹ The fourth component of the national coordinate system is "time", which enables monitoring of specific locations over time.



PROJECT TITLE

Joint Spatial Information Infrastructure within the Green Slovenian Location Framework project - planning, establishing and management

CLIENT

Republic of Slovenia, Ministry of Natural Resources and Spatial Planning
Surveying and Mapping Authority of the Republic of Slovenia, Zemljemerska ulica 12, 1000 Ljubljana

PARTICIPATING INSTITUTIONS

- Ministry of Natural Resources and Spatial Planning, Directorate for Spatial Planning and Construction
- Ministry of Natural Resources and Spatial Planning, Water Directorate
- Slovenian Water Agency
- Ministry of the Environment, Climate and Energy, Environment Directorate
- Slovenian Environment Agency

PARTICIPATING TEAM

- Geoinformation Project Group

PROJECT IMPLEMENTATION YEAR
2023

Creating connections for the future of spaces: building joint infrastructure

“ If you want to go far, go together. ”

African proverb

Dear readers

Spatial information is becoming extremely important in today's digital world, but to further increase its impact and facilitate its development, it is vital to connect and set up a joint digital infrastructure. Establishing links between different institutions and data sources is crucial to improve process efficiency and quality as well as provide spatial information. Such shared infrastructure will moreover allow us to better manage, plan and make decisions at all levels.

I would like to invite you to join a dynamic community building an environment to enable sustainable growth and development, and foster dialogue between different stakeholders – from scientists to decision makers, citizens and developers. Regardless of your role, we can co-create and build the future together. We will exchange ideas, knowledge and experience, design innovative solutions and create an environment that will benefit all. Join us in building a better working, living and leisure environment.

Only by working together can we ensure the spatial future that we hope for, both for ourselves and for the generations to come.

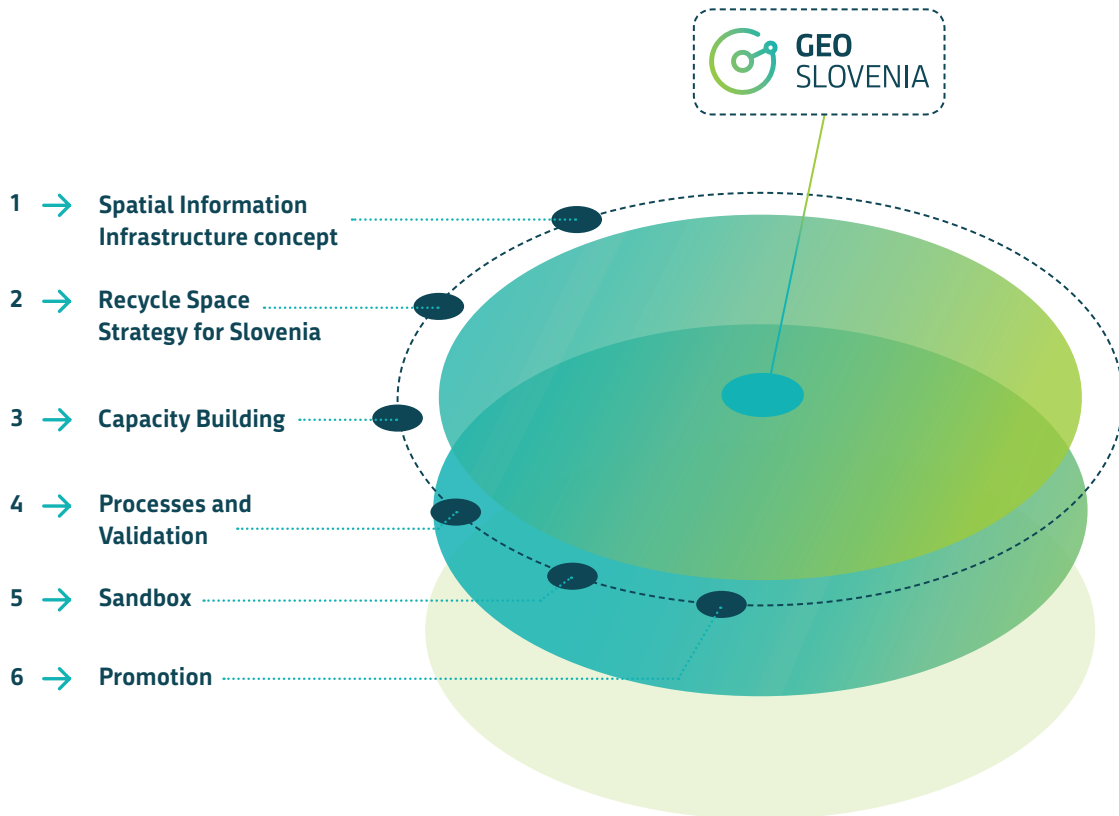
Matej Sotlar, MSc
project manager

“GEO Slovenia” is the abbreviated title of the “Joint Spatial Information Infrastructure” project, itself part of the Green Slovenian Location Framework project.

Project activities are aimed at achieving the following goals listed in the Green Slovenian Location Framework project:

- **Connect key spatial and environmental digital data infrastructure;**
- **Create and enable access to digital data and services;**
- **Increase the number of and improve the ways of using digital data and services;**
- **Provide missing digital data and establish the fourth component of the national coordinate system.**

The Joint Spatial Information Infrastructure project is being implemented in 2023. It includes six key pillars.





The main activities within the project's framework that aim to result in a complete and fully functional national Spatial Information Infrastructure are:

- Inspecting, amending or remodeling key business processes in the areas of real estate, spaces, environment and water with the aim to identify connections and interdependencies.
- Establishing a general process model and identifying all the points at which individual processes meet as well as determining interdependencies in processes, data, applications and services. Discovered deficiencies will be included in the action plan for carrying out the necessary activities to ensure final connectivity.
- Identifying the common building blocks required by individual departments in order to set up information systems at data generation and sharing levels. These common building blocks mainly consist of IT solutions, but other common building blocks that define standards, code lists, knowledge bases, and user assistance, are just as important.
- Carrying out a proof-of-concept for these jointly determined common building blocks; verifying, appropriately describing and evaluating these blocks, as well as including them in the action plan for necessary tasks for the final setting up of the Joint Spatial Information Infrastructure.
- A proof-of-concept web portal will be set up, with the ability to display joint infrastructure data; modern technologies for providing spatial data will be tested (spatial data monitoring, virtual reality, digital twins).
- Establishing a system for validating databases and information solutions with the aim of ensuring compliance with the Joint Spatial Information Infrastructure.

The joint infrastructure is not synonymous only with IT solutions or **equipment**. It is much more than that.

It also includes **processes, agreements, organization, standards** and, above all, **people**.

- In accordance with the project's findings in the area of processes and common building blocks, a strategy and an action plan for the Slovenian Spatial Information Infrastructure will be created. These will be based on the international standard for the development of an Integrated Geospatial Information Framework (IGIF), and will take into account all aspects of administering and maintaining this type of infrastructure – managerial, technological and support – the human aspect.
- As a demonstration of the useful value of thusly connected spatial information infrastructure, a strategic plan for Recycle Space Slovenia – RSS will be drafted. It will be based on the principles of reusing and recycling land and serve as the basis for the implementation of measures and commitments adopted by the Republic of Slovenia for carrying out a green and digital transition and adopting a responsible attitude towards the natural and built environment. Mechanisms for implementing measures for circular land use management and the concept of sustainable financing will be presented as a prerequisite for the realization of the set goals.
- An appropriate environment will be established for capacity building of all stakeholders participating in setting up the Joint Spatial Information Infrastructure and drafting of a strategic plan for Recycle Space Slovenia.
- Adequate information will be provided to the internal and external professional public and, at the end of the project, its results and their importance will be suitably presented to the general public.



Spatial Information Infrastructure concept



Spatial Information Infrastructure

Slovenia has already completed the initial phase of its Spatial Information Infrastructure development, as it started activities in this area with the incorporation of the EU INSPIRE Directive into Slovenian law.

One of the main goals of the project is setting up the Joint Spatial Information Infrastructure, itself a logical continuation and an upgrade of our past efforts. This aim is consistent with global trends, as all advanced geoinformation societies, including Slovenia, today face the challenges of "where to go after INSPIRE²" alongside horizontal integration of dispersed databases and information systems.

The importance of this topic has also been recognised by the United Nations, which concluded that in order to achieve goals set by the 2030 Agenda for Sustainable Development, it is necessary to provide the spatial

information infrastructure with solid foundations. That is why the UN introduced its Integrated Geospatial Information Framework (IGIF), which serves as a structured guideline for setting up or upgrading existing spatial data infrastructure in individual countries. IGIF includes nine strategic pathways that address all aspects of maintaining such infrastructure, including managerial, technological and human aspects.

Information generated as a result of other project pillars together with IGIF will serve as the basis for the creation of the Spatial Information Infrastructure strategy and its implementation in the form of an action plan.

² INSPIRE is the abbreviation for Infrastructure for Spatial Information in the European Community. It is part of Directive 2007/2/EC of the European Parliament and of the Council establishing an Infrastructure for Spatial Information in the European Community.



Recycle Space Slovenia



Circular Spatial Management Strategy Plan

The goals of the Slovenian Development Strategy 2030 include setting up sustainable management of natural resources, which must be achieved by ensuring a quality living environment alongside responsible and efficient land management with an emphasis on the reuse of functionally degraded areas.

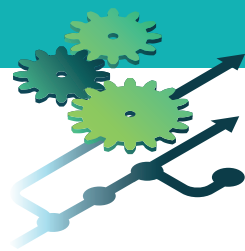
In accordance with European guidelines, defined in the Circular Economy Action Plan, Slovenia recognized circular economy as a strategic development priority.

Reusing areas must serve as the focal point for all activities related to spaces, including spatial planning and land development measures and construction. In Slovenia, it is crucial to create conditions that will allow residential, leisure and working areas to be acquired preferentially through reusing existing buildings and land, rather than through the

construction of new buildings and additional urbanization. Support for reusing spaces must be ensured by appropriate measures in the area of spatial planning, organization, financing and economics.

As part of this project pillar, steps and activities will be undertaken in accordance with the technical documentation for the transition from the already completed and functioning Spatial Information Infrastructure system towards efficient spatial management. The transition will be supported by an activity plan and a financial mechanism that will enable the continuous implementation of the strategy for circular land use management.

Processes and Validation



Modelling processes in the context of digital transformation of space and environment

The Green Slovenian Location Framework is a complex project involving the directorates and bodies at the Ministry of Natural Resources and Spatial Planning and the Ministry of Environment, Climate and Energy, each with its specific projects. Project activities vary according to needs and cover a wide range of tasks, including collecting and upgrading databases and setting up or upgrading information systems.

In order to establish a uniform and efficient Spatial Information Infrastructure, it is necessary to ensure coordinated and comprehensive planning. This should not be left to individual departments; the acquisition of data and setting up/upgrading of information systems should be carried out in accordance with a jointly agreed model of horizontal integration, itself the strategic goal of the Joint Spatial Information Infrastructure. As part of this pillar, a general process model

of real estate, spaces, environment and water will be established. The meeting points between individual processes will be identified and the tasks that must be performed in order for the horizontal integration of the individual processes to fully function will be described. Of course, this does not solely involve information tasks. It is necessary to establish an environment of cooperation, which will include mutual agreements, exchange of data internally as well as with external partners (Ministry of Digital Transformation), platforms for cooperation and training and, last but not least, appropriate legal bases, if these have not yet been established.

Based on the agreed joint infrastructure rules and standards, tools will be created to validate databases and applications, which will enable horizontal integration, with the aim of connecting processes and transmitting data.

Sandbox



User experience and data usage demonstrations for decision makers and end users

ICT developments and the increase in data transmission capacities have ushered in a revolution in managing related processes, showcasing results and simulating decision-making. However, optimal connectivity requires adequate infrastructure, including network services and technologies.

As part of the Green Slovenian Location Framework project, numerous digital databases and IT solutions will be established using widely diverging technologies. It is important to set up common building blocks to enable horizontal integration. Technological platforms and spatial information building blocks are an important part of the Joint Spatial Information Infrastructure and will support the processes in the fields of real estate, spaces, nature, environment and water.

Due to the great importance and complexity of the joint infrastructure,

setting it up will be planned through the process of checking and evaluating solutions in a “sandbox”. The sandbox represents different environments in which ideas, standards, advanced technologies, content products and technical platforms are tested, which will enable achieving the goals of the eMOP digitalization strategic plan and creating advanced user experiences for eMOP application solutions. For this purpose, a prototype web portal will also be established to demonstrate modern spatial data processing and display technologies.

Of course, the sandbox is not only about technological common building blocks that ensure interconnection and display of data. The second aspect of these common building blocks is organizational and supportive, e.g. creating a knowledge base, providing user assistance and promoting the use of the spatial information infrastructure.



Capacity Building



In the rapidly changing world, formal education no longer suffices. Lifelong learning and competence building, also known as capacity building, are essential.

This is a key concept for the Joint Spatial Information Infrastructure project, which includes dedicated resources for ongoing, targeted training of experts and executives.

Today, the limiting factor in the design, development and management of infrastructure for spatial information and related geospatial activities is mainly human capacity and competence. The goal of this project and the activities of its capacity building pillar aim to alleviate or even eliminate this pressing issue.

The priority for this pillar is to strengthen knowledge and a unified understanding within the geoinformation community in Slovenia. At the same time, tools must be created that will be accessible to all users of spatial data via the GEO Slovenia web portal.

Promotion



The Ministry of Natural Resources and Spatial Planning has carried out a series of acclaimed projects, which are not only important for the Slovenian society, but can also be ranked among the most successful digitization and digital transformation projects in Europe.

Although these projects achieved their goals professionally, information on project activities and promotion of results were often neglected. The Joint Spatial Information Infrastructure project sees promotion as an independent activity and provides for adequate resources with the aim to raise awareness among the general population about the results of the project and – even more so – the ways of using the data and services that will be available in the joint Spatial Information Infrastructure. For this purpose, the GEO Slovenia web portal and other digital channels for providing information will be created. This will build on the activities that were started with the systematic informing of the public as part of the eProstor project.



<https://www.gov.si/en/state-authorities/bodies-within-ministries/surveying-and-mapping-authority/greenslo.gu@gov.si>



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THE RECOVERY
AND RESILIENCE
PLAN



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MINISTRY OF NATURAL RESOURCES AND SPATIAL PLANNING
SURVEYING AND MAPPING AUTHORITY OF THE REPUBLIC OF SLOVENIA



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