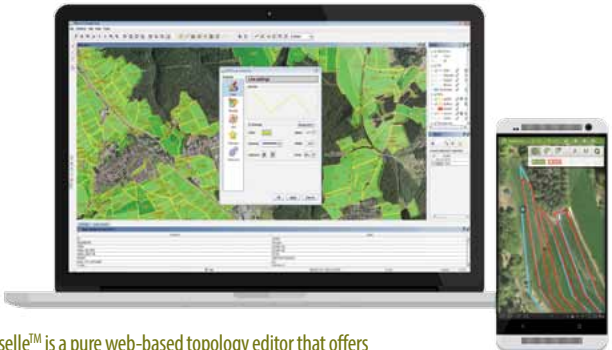




# GIS solutions for Integrated Administration and Control System (IACS)

Geographic information system (GIS) technology is used throughout the agricultural industry to manage resources, increase yields, reduce input costs, predict outcomes and improve business practices. It is an essential part of an Integrated Administration and Control System (IACS) implementation. We have developed a number of integrated applications for administration and control for this industry, such as Farm Registry, LPIS and On-the-spot controls. Most of our solutions are based on **Giselle™** – our state of the art framework for efficient spatial data management and editing on desktop or thin client applications. This framework also provides facilities for rapid in-field data capture using mobile devices.



Giselle™ is a pure web-based topology editor that offers GIS functionalities for distributed systems.

## LAND CADASTRE

Land Cadastre aims to digitize cadastre plans in order to maximize the efficiency of land administration procedures and assure the best quality. It places all scanned cadastral plans (and linked deeds) into a geographic context and has full support for topological relations to neighbors and abutments.

A Heavy-duty GIS topology editor is included, perfectly suitable for management of private and state owned land, supporting case management, distributed topology editing, orthorectification of land survey plans, etc.

## LAND PARCEL IDENTIFICATION SYSTEM

An innovative and powerful set of Java-based tools for editing the graphical and descriptive information on usage of agricultural land are combined into an internet-based system, which covers all aspects of the Land Parcel Identification System (LPIS). This system and especially its database are among the most important parts of IACS software solutions, allowing accurate calculation of area-based payments as well as a means to control farmers' applications and resolve disputes.

Sinergise's LPIS consists of a client-server based desktop application for editing graphical and descriptive information on agricultural land usage, a web-based GIS 3D viewer for public use and a support and monitoring module for improvement of quality and efficiency of the operators' work.



3D viewer combines aerial photography with a Digital Elevation Model or Digital Terrain and is augmented with various data layers, such as land use information.

## FARM REGISTRY

Farm Registry is a web-based application which includes basic data about farms and farm holders. It is an umbrella application for all systems related to IACS - LPIS, the data of Registry of common pastures, evidences of hop, olives, fruits, grapes and wine producers, etc.

FARM ID	OWNER NAME	CADASTRAL NAME	MUNICIPALITY	STATUS	OPEN	VALUATOR	CERTIFICATE	FILE	IMAGES
10000017	SA SA		Polgona	open					
10000018	MATJAZDNE BANOV		Polgona	valued					
10000041	SA AZ		Polgona	valued					
10000042			Polgona	open					
10000048	SA		Polgona	open					
10000091	FRANCIK BRANOV	BRANOV CERKVA	Polgona	open					
10000092	RAJCOVIC ZRNOVA	ZRNOVA RAJCOVIC	Slava Polja	open					
10000093	RAJCOVIC ZRNOVA	ZRNOVA RAJCOVIC	Slava Polja	open					
10000094	SA SA		Polgona	open					
10000095	SA SA		Polgona	open					

Farm management system, which includes the basic data about farms and farm holders.

## CONTROLS

### Visual Controls

Application for visual control allows for quick and efficient change control of LPIS parcels. Changes are related either to remarks from a farm holder (LPIS Update) or to change of reference spatial layers - orthophoto or similar.

System supports efficient work processes of the operators. One can use two synchronized map screens, each displaying different spatial layers. In that way the changes are as clear as possible. Process is based on task lists - the operator moves from one task to another, focusing on one parcel at a time and deciding whether to approve the parcel or not.

### On-the-spot Controls

On-the-spot controls allow for gathering of additional data such as georeferenced field photos and detailed GPS measurements on site. These may then be used to adjust LPIS parcels as well as for future reference. A tool for efficient semi-automatic updating is provided which eliminates much manual work.

### Animal Controls

Controls are developed for checking parcels as well as animals. Each parcel has its own animals assigned to it and the controller can perform on-the-spot check to inspect them. Application enables adding, removing and also replacing existing animals with replacements. For a better view of the animal list a special color legend is applied to different animals for the users' convenience.

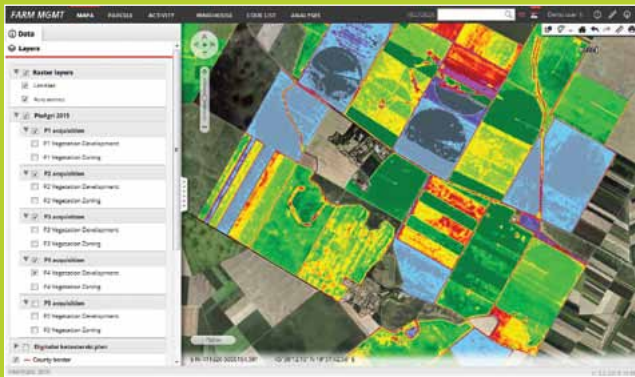


Controls applications.

# Agriculture monitoring based on continuous satellite imagery

Satellite imagery is revolutionising agriculture and can help European farmers and public authorities take land monitoring to a new level. Service-oriented satellite imagery infrastructure takes care of all the complexity of handling a satellite imagery archive and makes it available for end-users via easy-to-integrate web services.

Our approach combines cloud-based GIS technologies, parallel processing and fully automated procedures. **On-the-fly processing and visualization make it possible to build new products (e.g. vegetation indices - NDVI and similar) in a matter of minutes.**



The NDVI provides quantitative information on the health of the crop in the field. The green colored zones have the most robust and volume of vegetation while the yellow and red zones represent less vegetation. This information can be used to make management decisions on the application of inputs like fertilizer and fungicide.

The results of land monitoring bring significant added value to agriculture, such as using the data to determine all sorts of changes in vegetation, or assessing the impact of a specific measure or project on pesticide use or irrigation.

With us you can start using this earth-observation data as a cost-efficient way of gathering necessary agricultural monitoring information.

## ABOUT SINERGISE

Sinergise is an IT company focused on the development of large-scale GIS applications. Our core business is supporting governments from across the world efficiently manage their agricultural and land administrative processes. Our solutions are being used by hundreds of thousands of users requiring cutting-edge technology for the effective distribution and management of spatial data.

Our R&D department is working on improving not just the technical means of data distribution but also on the applicability of earth-observation techniques in the process. We cooperate with several research projects focused on automatic satellite imagery processing, change detection, agriculture monitoring, disaster response and more.

With Sinergise, it is not just about the software, it is also about field knowledge and effort to do whatever is needed for a project to be successful. The growing number of satisfied clients testifies to the quality of our integrated approach.

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Sinergise's clients accross Europe:



# TURNKEY GIS FOR AGRICULTURE