TURN-KEY SYSTEMS
for Land Administration

LAND ADMINISTRATION BUSINESS DRIVERS

To get the full investment and productivity value of their land, states need to implement systems that will result in:

- Increased efficiency, transparency and sustainability of land allocation (state and private).
- Enhanced land property security through land registry improvement.
- Improved availability of land information for investors.
- Reduced time and cost to obtain zoning and construction permits and improved regulatory compliance through institutional compliance and 'one stop shop' approach.
- Reduction of land transaction costs.

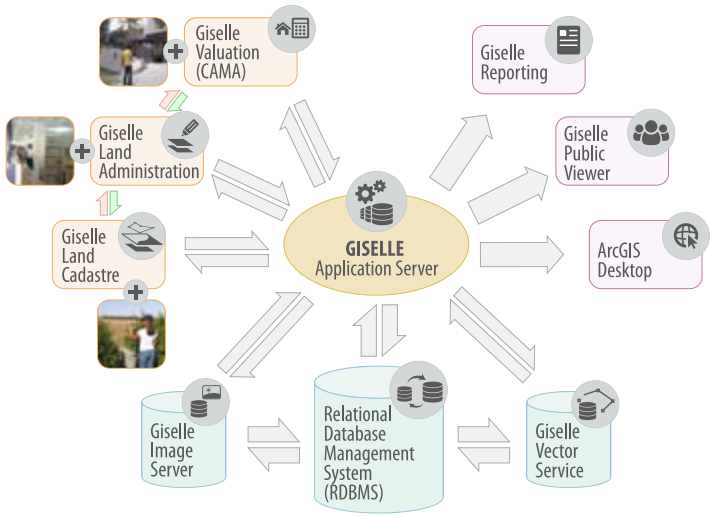
SINERGISE PHILOSOPHY AND APPROACH

In delivery, as well as effective easy-to-use and intuitive software, we fully recognize the importance of business change, knowledge transfer and role-based training. We always seek to focus on the best business process requirements and ensure the optimum integration overall. We firmly believe that our extensive track record and delivery experience in national cadastral solutions in several countries makes us an ideal development and implementation partner for any organization.
In delivery, we always seek a close working, iterative and collaborative approach with all beneficiaries and stakeholders of the project.

SINERGISE

LAND ADMINISTRATION SUITE

Over several years, with much success, Sinergise has developed and deployed just those types of systems, based on its unique and effective Giselle Framework. All modules are described in the scheme below.



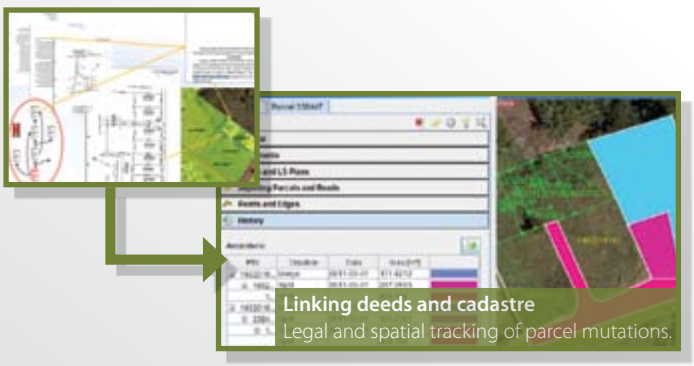
DEEDS AND DOCUMENT MANAGEMENT

Deeds are scanned and uploaded immediately on submission. Efficient Optical Character Recognition (OCR) permits accurate and efficient indexing. Title deeds, survey plans and any submitted document can then be retrieved by name, date, type combinations.

CADASTRAL EDITING AND MAINTENANCE

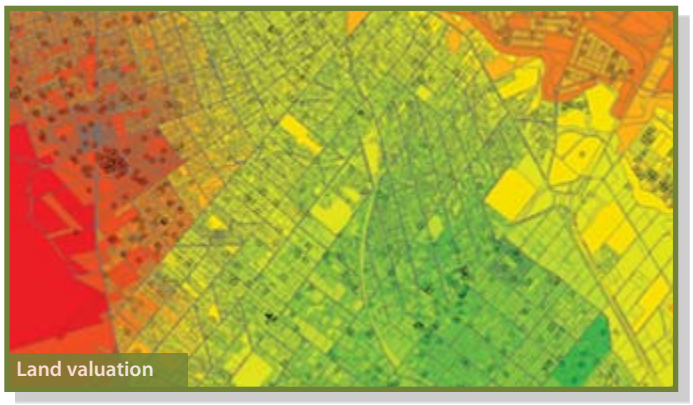
A digital Cadastre Map system must be up-to-date, effective and accurate, yet easy to use in order to help users to carry out their tasks more efficiently and simply. The Giselle Cadastre suite supports a complete model, with topology calculated immediately on the fly. Business rules can be set to ensure no anomalies occur in the database model. Further:

- Full parcel history (provenance and mutations) is maintained.
- Multiple coordinate conversion is supported
- Every point, line, parcel has quality indicator flags, permitting informative precision – based styling, facilitating systematic improvement as necessary
- CoGo measurements are supported


Linking deeds and cadastre
Legal and spatial tracking of parcel mutations.

LAND VALUATION

Live scanning capture of title deeds and the location of the sale through the cadastral update, presents the opportunity for near real-time property sales monitoring. Rapid increases or decreases in value can be examined. Sinergise have used national property sales data for generation of CAMA models, and their update and recalculation where necessary to reflect the actual Market Value.


Land valuation

BUILDING VALUATION/PROPERTY TAX

Sinergise have supported several systems with building mapping and assessment; provide the opportunity for a comprehensive, equitable Annual Property Tax based on combined land and building property values.

International standards for building definition are supported as well as several property models, including houses, apartments and condominiums.

Sinergise have supported the national online publication and contestation of valuation rolls.

Cities with hundreds of thousands of properties are supported with live services, including facilities for bar-coded billing, collection and receipting.

OTHER REVENUE SOURCES

Several other Municipal revenue tax sources are supported, Including:

- Service Levy
- Hotel/Guest House Levy
- Billboard and Telecom Tower fees
- Building permits
- License fees
- Car parking

SUPPORT FOR DATA COLLECTION AND UPDATE

As well as real-time operation, the Giselle suite offers efficient techniques, systems and workflows to permit back capture of archived material:

- Document scanning and OCR.
- Survey plan digitisation and geo-rectification.
- In-field data collection, using GPS and cameras/PDA.

ASSET MANAGEMENT

The combination of modules and associated hardware render themselves to efficient fixed and floating asset management.

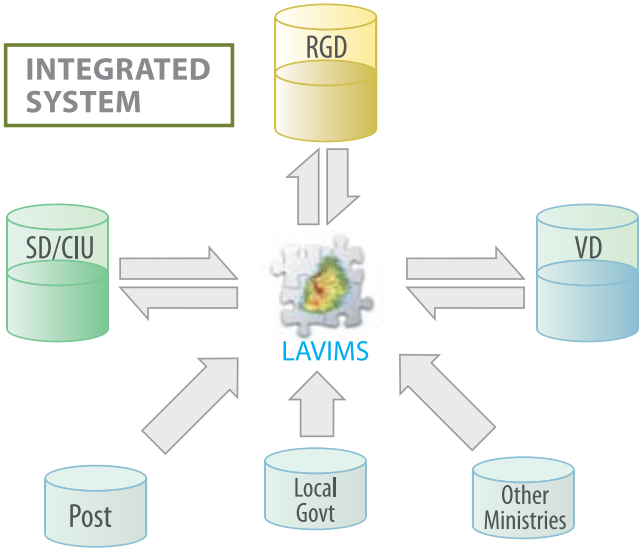
SUPPORT FOR REVENUE COLLECTION

The mobile Android devices used effectively for data collection can also assist in in-field collection of revenue (e.g. property tax, market fees, etc.). Receipt printing (by thermal) is possible. The mobile devices reconcile the payments taken against the receipting provided.

Receipt printing

SUPPORTING NSDI THROUGH SPATIAL AND INFORMATION SERVICES (IN/OUT)

The web-based, role-based system facilitates the inter-working of different users from different departments, effectively sharing each other's spatial (and other) data, in a way envisioned by the NSDI concept. Workflows have been implemented to create work lists for certain users in a chain of production (even across different departments, Ministries or architecture).



SOLUTION OVERVIEW

Sinergise offers a GIS Solution which is easy to use, platform-independent and utilizes graphical user interfaces and relational databases. Its fully web-enabled modular design and flexibility facilitate enhancements and integration with new or existing third party systems such as accounting and customs.

The system captures the data at the point of data creation ensuring that the property and collection data is consistent and conducive for better decision-making within the organization.

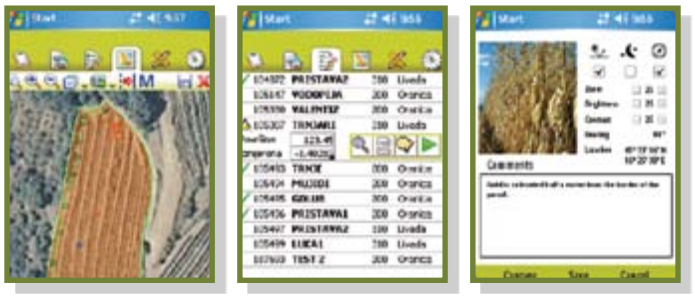
It allows the viewing of property tax data based on the roles to citizen, revenue inspectors and the decision makers leading to transparency and efficiency in collections

The system integrates with an existing tax system for validation and exchange of information, support for use of appropriate imagery tools such as Arc GIS online etc., support for internet mapping, support for geo-processing, support for large scale databases and support for GPS and client devices e.g., personal computers, laptops, tablets, and mobile devices. Holistic solution based on the latest internationally-recognized land models (LADM)

The system can be distributed across organizations in different parts of the country with multi-thread security protection. All systems are role-bases access, and additional security is provided through encryption and certification of generated documentation.

All of our solutions are based on Giselle – our framework for efficient spatial data management and editing. This provides the facility for rapid infield data capture using mobile devices. Equipped with GPS receivers, embedded digital cameras, along with the latest aerial photography and/or satellite images, the field staff can record such things as property extent, status and condition. All field information and the digitized cadastre can be linked to scanned official documentation such as title deeds or certificates of ownership.

The infield applications assure rapid information flow, flexibility, accuracy and proper course of the process, which greatly reduces the effort, time and number of errors.



EVOLUTIONARY DEVELOPMENTS

The ease in effective use of these modules, combined with the move towards decentralization and local devolution, is leading to their application to support urban planning and local revenue collection. The critical data layers and GIS functionality can then be used effectively to support a large number of other applications and business uses. With decentralization comes a need for local revenue generation, and these are probably highest from property rates and business licenses, although current collection rates are very low because of:

- Lack of knowledge of people and places.
- Inadequate data on all economic activities in the district.
- Misclassification of properties and business and inappropriate tax assessment basis.
- Lack of realistic means of assessing the revenue potentials due to lack of accurate data.
- Lack of reliable billing, tracking and collection methods.
- Laborious and time consuming business licensing and permit acquisitions therefore deter small scale business operators.

The GIS/IT technologies embodied in Giselle and implemented by Sinergise have become effective tools for the administration and management all over the world. They provide the framework for all forms of spatial data storage, data retrieval, and analysis, display, reporting and modeling. Since GIS combines data on land use, population, property, taxpayers and so on, they form an integrated model that aids in decision making and can be adapted to other data models.

OTHER PRODUCTS

Agriculture Turn-key systems (IACS)

Sinergise has developed and supports several IACS-related systems in several European countries. The system includes in-field mobile data capture.

General Purpose GIS

During the development of turn-key systems, we created some tools that can be used as independent products. They support processor intensive procedures, such as image processing and topology checking. Sinergise also offers a completely web-based GIS editing client, Geopedia, which has evolved into a countrywide crowd-sourcing GIS system.

Web-based GIS Editor

A pure HTML/JavaScript GIS editor is beneficial when it is used by a large number of users, who are not willing (or not capable) to install thick client applications, and when a Java applet is in the way. Sinergise's web-based GIS editor merges smoothly into all standard web browsers: Firefox, Internet Explorer, Safari, Chrome, etc. Advanced JavaScript and AJAX are used to provide the best user experience.

Image Server

The Giselle Image Server is the ideal solution for efficient distribution of ortophotography. The architecture consists of one central image server, many clients, and an optional local image server, one for each LAN of clients. The local image server instantly caches images and the central server ensures that the data are consistent and always up to date.

TopoCheck – Topology Checking

TopoCheck is an easy to use, powerful, cross-platform, fast and accurate utility tool for validation of spatial datasets, along with their attributes and metadata. This makes TopoCheck a perfect tool for use by data administrators, especially in organizations which are responsible for creation, management, distribution and use of large and important spatial datasets.

ABOUT US

Sinergise is an IT company building and managing large turn-key information systems especially in the field of real-estate administration and agriculture. We specialize in advanced applications for distributed GIS editing. Sinergise started in 2003 as a GIS division of the company Cosylab. We took technologies initially developed for transmitting massive amounts of data through particle accelerators and adapted them for use in GIS applications, which require serving gigabytes of data from a central location to a large number of concurrent users. This has resulted in the development of applications for managing land in Slovenia, Croatia, Macedonia, UK, Mauritius, Tanzania and parts of Nigeria.

REFERENCES

With Sinergise, it is not just about software, it is about knowledge and our client-focused, results-driven culture which leads to our commitment to do whatever it takes for a project to be successful. The growing number of satisfied customers testifies to the quality of our integrated approach.

Slovenia: Government Ministries, Authorities and Agencies of Surveying and Mapping; Environment and Spatial Planning; Agriculture, Forestry and Food; Agency for Agricultural Markets and Rural Development; Veterinary Agency; Phytosanitary Administration; Forestry Service

Croatia: Ministry of Agriculture, Forestry and Rural Development

Macedonia: Ministry of Agriculture, Forestry and Water Economy

United Kingdom: Star-Apic, Astrium-Infoterra, Department of Environment, Food and Rural Affairs

Mauritius – Ministry of Housing and Land

Tanzania - Prime Minister's Office, Regional and Local Government

Nigeria – Osun State

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