

Collaborative Ecosystems for Land Administration

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Every community wants to have...

Sustainable land use

Secure land rights

Affordable housing

Fair & Equitable Taxes

Reliable Services

**These goals require collaboration –
our data and technology
must be able to collaborate too.**



A person wearing a white short-sleeved shirt and blue trousers is holding a thick stack of papers or a ledger. Their right hand is on the left side of the stack, and their left hand is on the right side, holding a pen. The background is a blurred outdoor setting with dry ground and some greenery.

Land Administration Challenges

Informal Land Ownership

Widespread informal land ownership complicates legal recognition and creates obstacles for effective land administration and dispute resolution.

Inefficient Workflows

Reliance on manual, paper-based workflows delays record management and hinders accuracy and timely access to land information.

Resource and Data Limitations

Limited budgets, incomplete data, and isolated data systems reduce the effectiveness of land administration and planning.

Corruption and Digital Gaps

Corruption and lack of digital tools and skilled personnel further stall reforms and modernization efforts in land administration.

GIS Implementation Patterns Are Evolving

Increasingly Deployed as Enterprise Technology

Cadastral Mapping Project

Mapping and Spatial Analysis



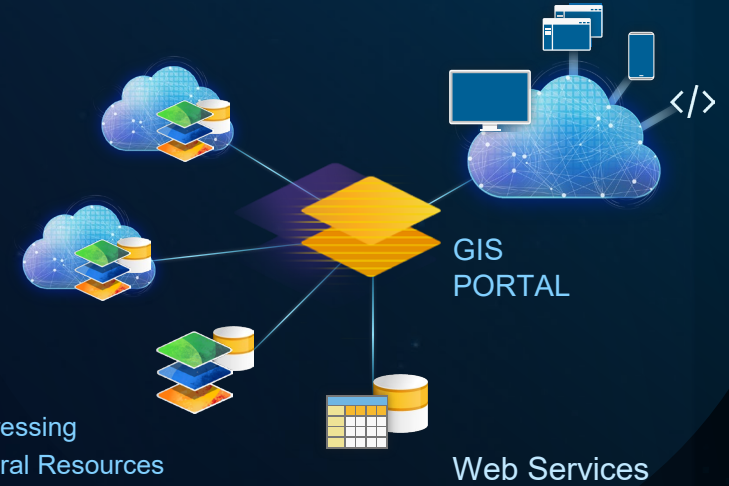
Enterprise Land Information System

Applications & Analytic Workflows



Integrated Geospatial Infrastructure

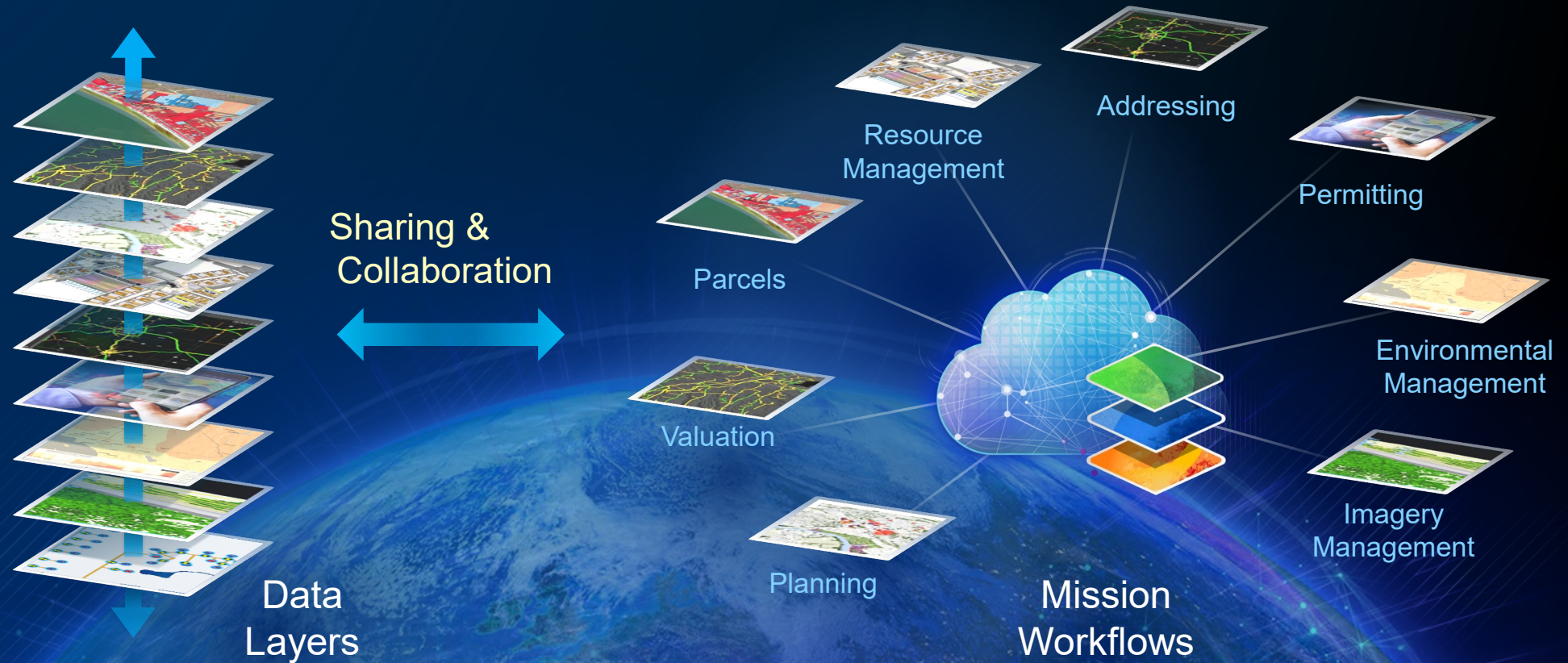
System of Systems



Addressing
Natural Resources
Land Use Planning
Valuation
Permitting
...

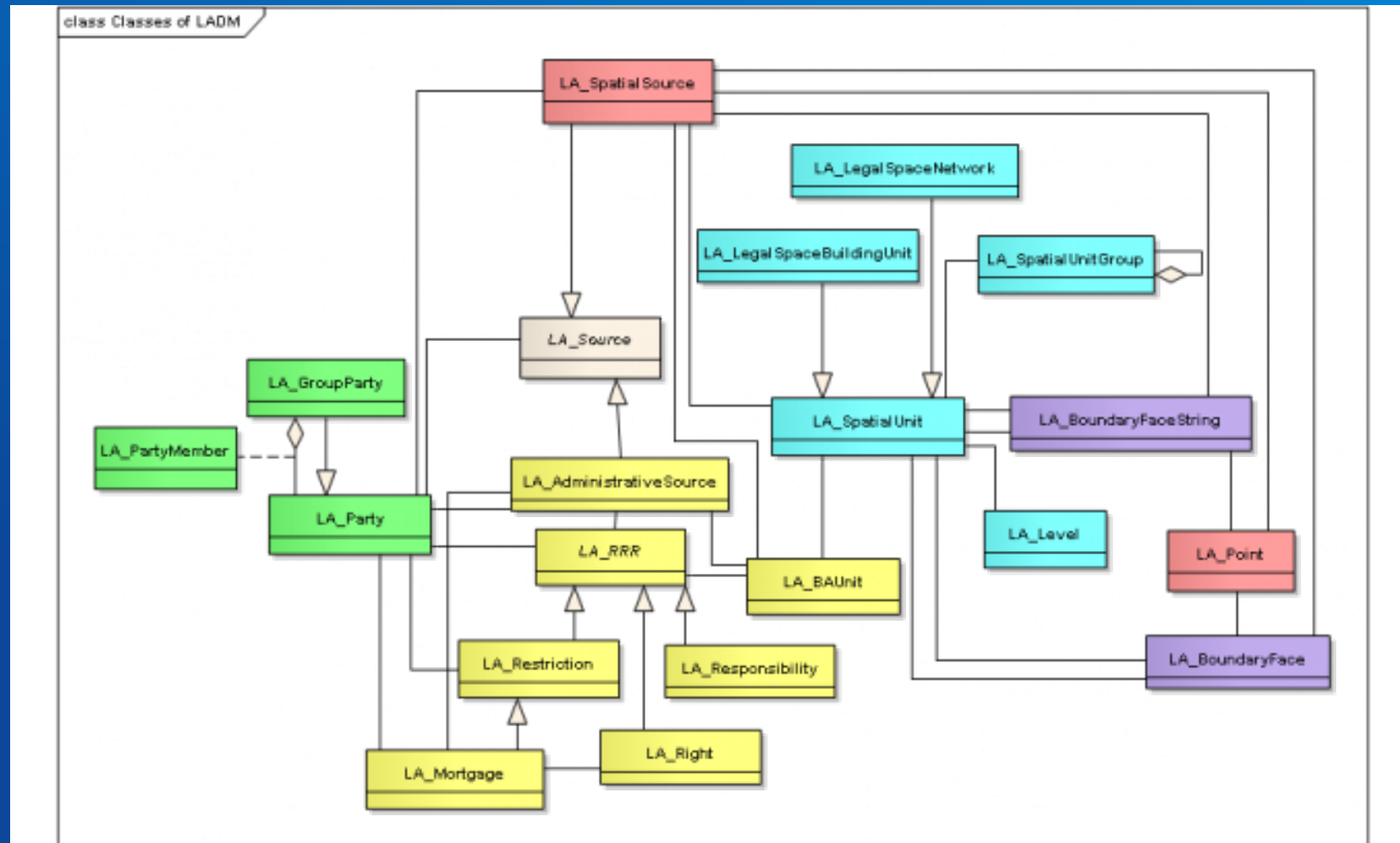
GIS

Integrates Content and Missions



Land Administration Domain Model

...a common language



Benefits



Inform policy making



Improve planning and
prioritization of public
investments



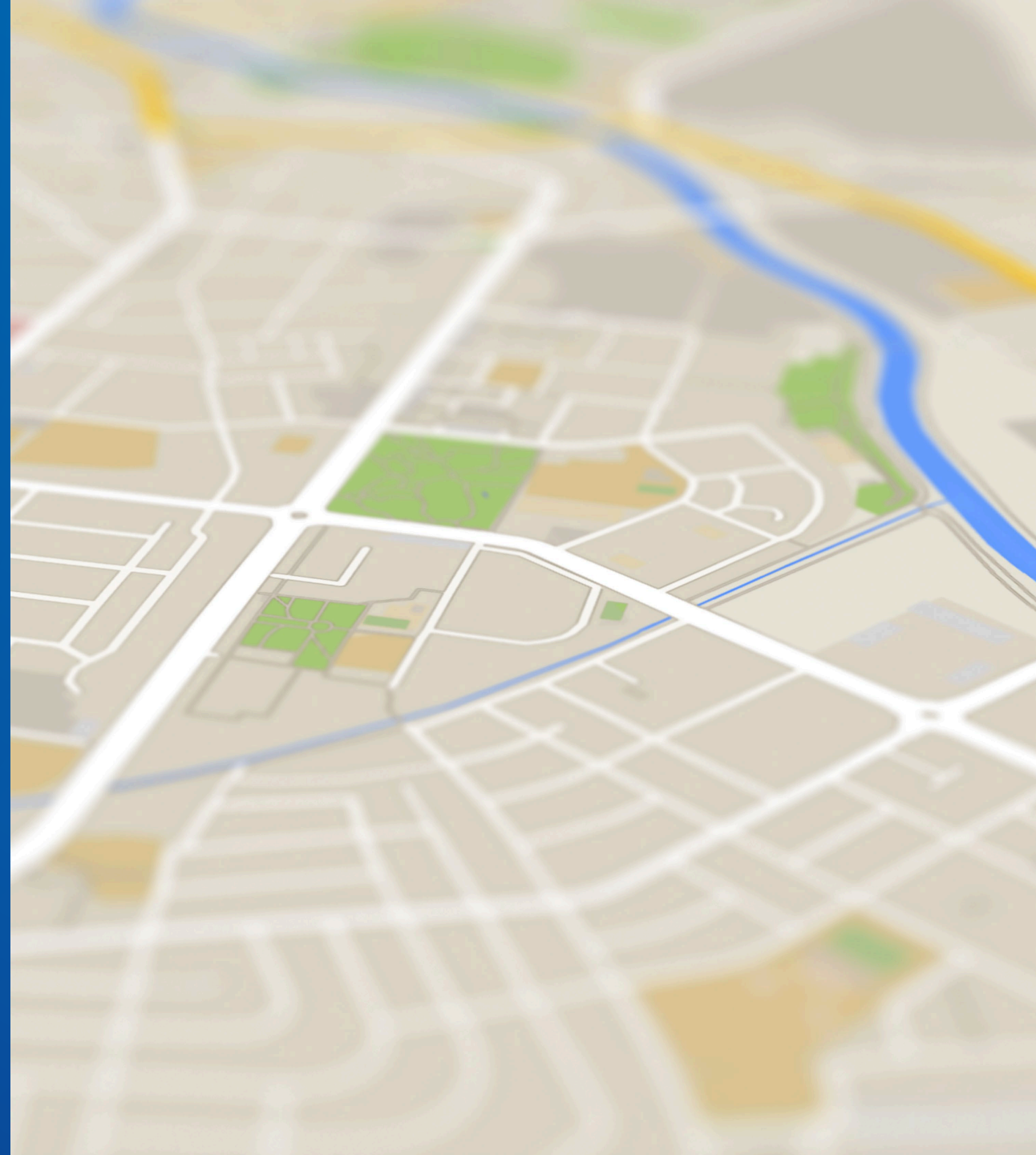
Eliminate duplicate
efforts in data
collection and
management



Reduce costs of
maintaining separate
map systems and land
information



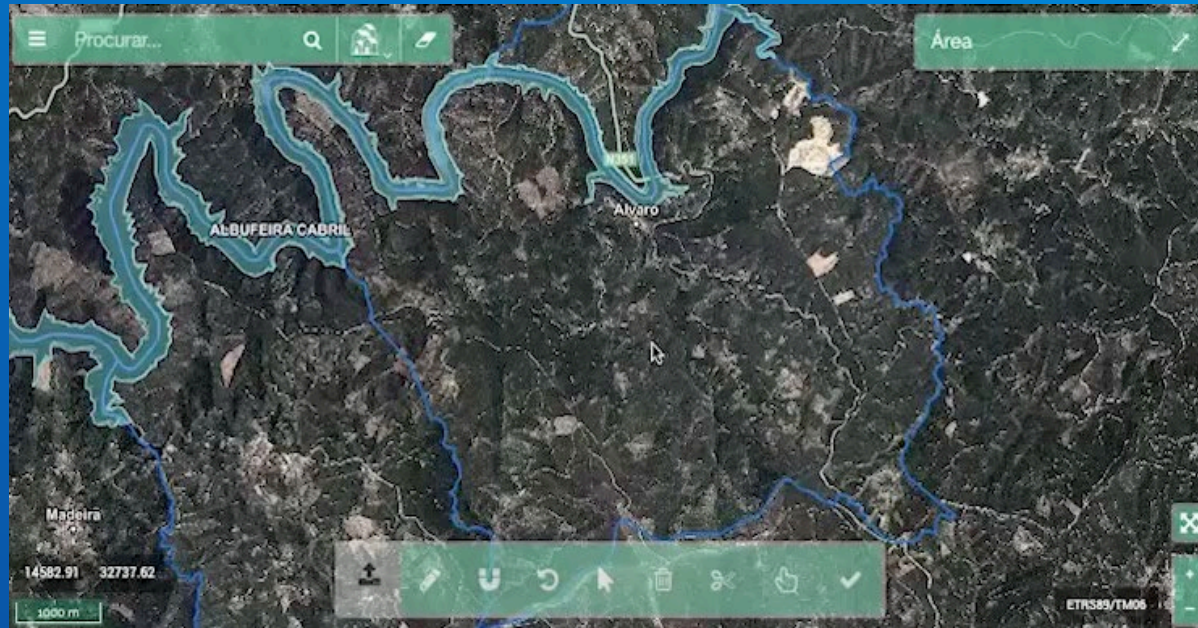
More efficient delivery
of geo-information and
services





Estrutura de Missão para a Expansão do
Sistema de Informação Cadastral Simplificado





Balcão Único do Prédio / One-Stop Shop

BUPI, as a **technological platform**, allows owners to identify their **properties**, either in person, with the help of qualified technicians from municipalities, or directly, through a mobile app or website – bupi.gov.pt.

Follows the international model Fit-for-Purpose Cadaster

A Data Sharing Platform

Types of Data



DGT

Orthophotomaps
Toponymy



AT

Asset
database



IRN

Land registry
database



ICNF

Forests
Natural Parks
Common Land



Municipalities

Toponymy
Road and hydrographic
network
Public domain goods



IFAP

Land plots



PT Space

Satellite images



Large
Landowners
FlorestGal



GNR

Local
information

...

Among other layers:
OpenStreetMap, ...

New features:
Pre-registration form under development

Que prédio quer georeferenciar?

Distrito
Selecione o Distrito

Concelho
Selecione o Concelho

Freguesia
Selecione a Freguesia

Natureza da Matriz
Selecione a Natureza da Matriz

Nº Artigo Matricial
Ex: 12345

PESQUISAR

Apoio Linha Aplicacional: 21 798 55 75 | Linha Infraestruturas: 21 318 90 95 | Linha Jurídica: VOIP 721203 / 21 798 55 26 | E-mail: bupi@irn.mj.pt

A minha área de trabalho

Georeferenciação
Aqui pode iniciar o processo de Representação Gráfica Georeferenciada

INICIAR PROCEDIMENTO

Os meus processos recentes

Nº DE PROCESSO DA RRG	ESTADO
525252	Aguarda análise
525252	Aguarda análise
525252	Aguarda análise
525252	Aguarda análise

CONSULTAR

Os meus esboços recentes

ESTADO	Nº DO ESBOÇO	DATA DE CRIAÇÃO	CONCELHO
0	160708	07/05/2021	Pampilhosa da Serra
0	160708	07/05/2021	Pampilhosa da Serra
0	160708	07/05/2021	Pampilhosa da Serra
0	160708	07/05/2021	Pampilhosa da Serra

CONSULTAR

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Informação do prédio

Nº Descrição
1704

Área (m²)
80000

Distrito
Castelo Branco

Concelho
Vila de Rei

Freguesia
Vila de Rei

Rua/Lugar do Prédio
Ribeiro do Prado

Código Postal
0000-00

Localidade
Ribeiro do Prado

Matrizes

Nº MATRICIAL	DISTRITO	CONCELHO	FREGUESIA	NATUREZA
2	Castelo Branco	Vila de Rei	Vila de Rei	Rústico
2	Castelo Branco	Vila de Rei	Vila de Rei	Rústico

RETROCEDER **INICIAR NOVO PROCEDIMENTO RRG**

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eBUPi Approach and Methodology

STRONG INTERINSTITUTIONAL ENGAGEMENT AND COLLABORATION

- Central and Local Government
- Inter-institutional protocols



USER CENTRIC DESIGN

- Visited counters and properties;
- Simulated the purchase of a rustic property;
- Interviewed land holders, employees, local associations;
- Tested communication approaches;
- Monitored the customer service at BUPi counters



AN INNOVATIVE PLATFORM USING GIS

- Made available different sources of information
- Citizens identify their lands remotely, in a declarative way
- Using georeferenced descriptions
- Validated by qualified technicians at the municipalities



TRAINING

- Several training cycles (250h ; 60 people /cycle)
- Shared experiences, problems and best practices



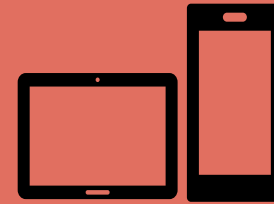
GIS Platform

Azure cloud-based

Viewer



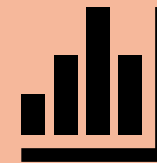
Mobile App



GeoBUPi



Geoprocessing



Dashboards

Innovative Technologies

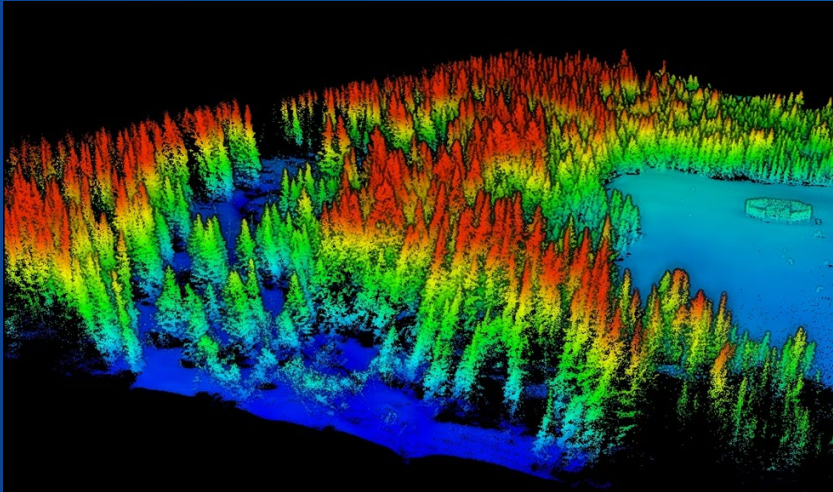
That generate more understanding about the territory



High resolution satellite imagery



Automatic polygon generation

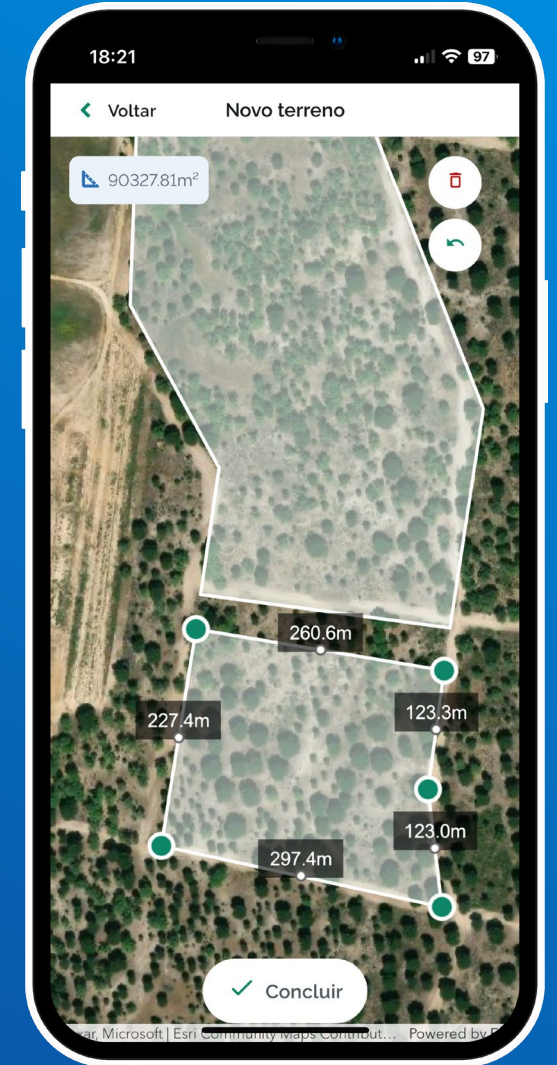


LiDAR for DEMs

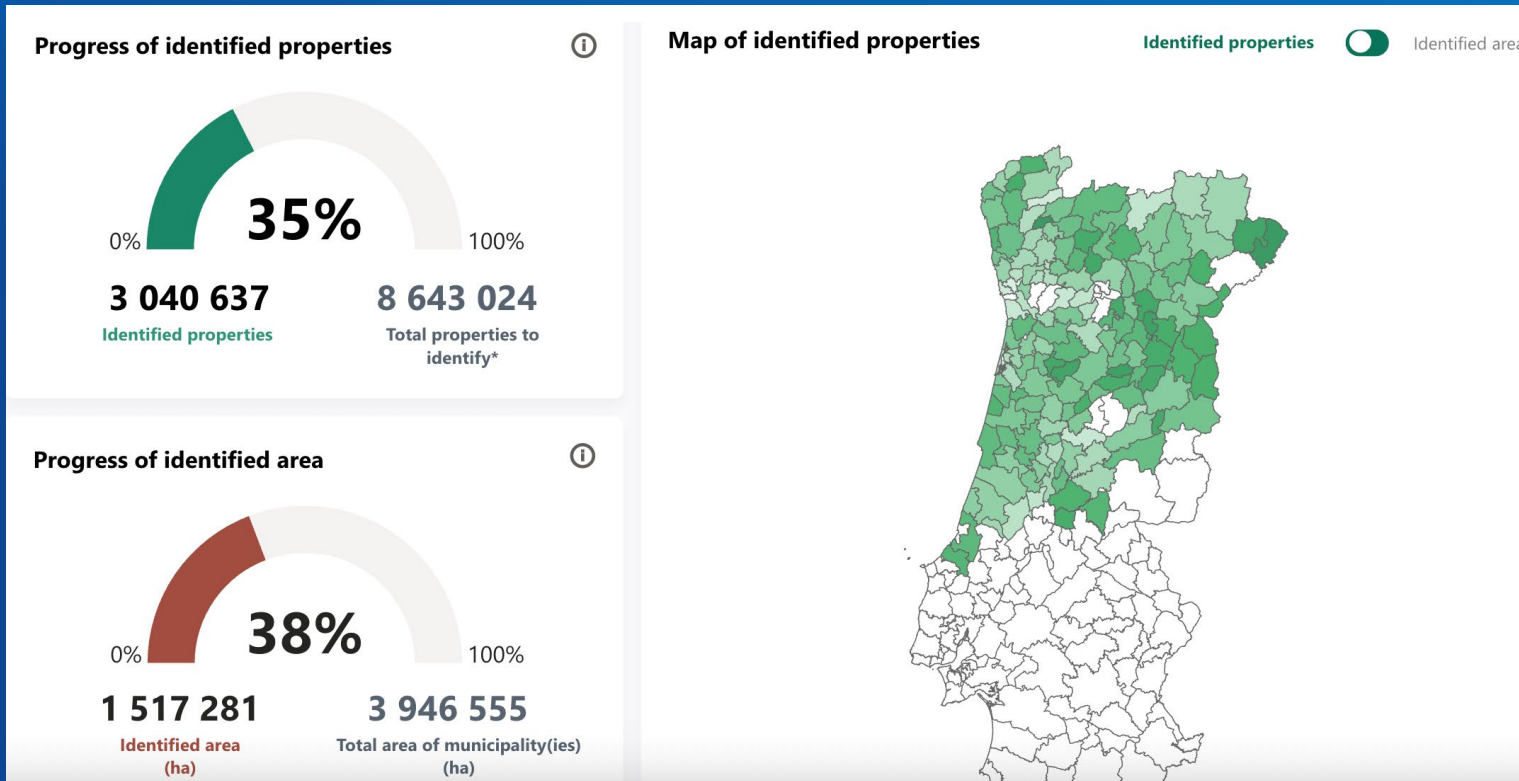


Change detection (ML, DL, OBIA)

mobile apps



Results



- **+ 3 million** properties mapped and registered
- Covering over **1.5 million HA**
- More than **470k** citizens impacted
- eBUPI app downloaded over **160k** times

Enabling knowledge & solutions

Through the **reuse** of
shared authoritative data.



Communities



Easy-to-use
tools



Curated
data



Solve problems

