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# Territorial Management Systems

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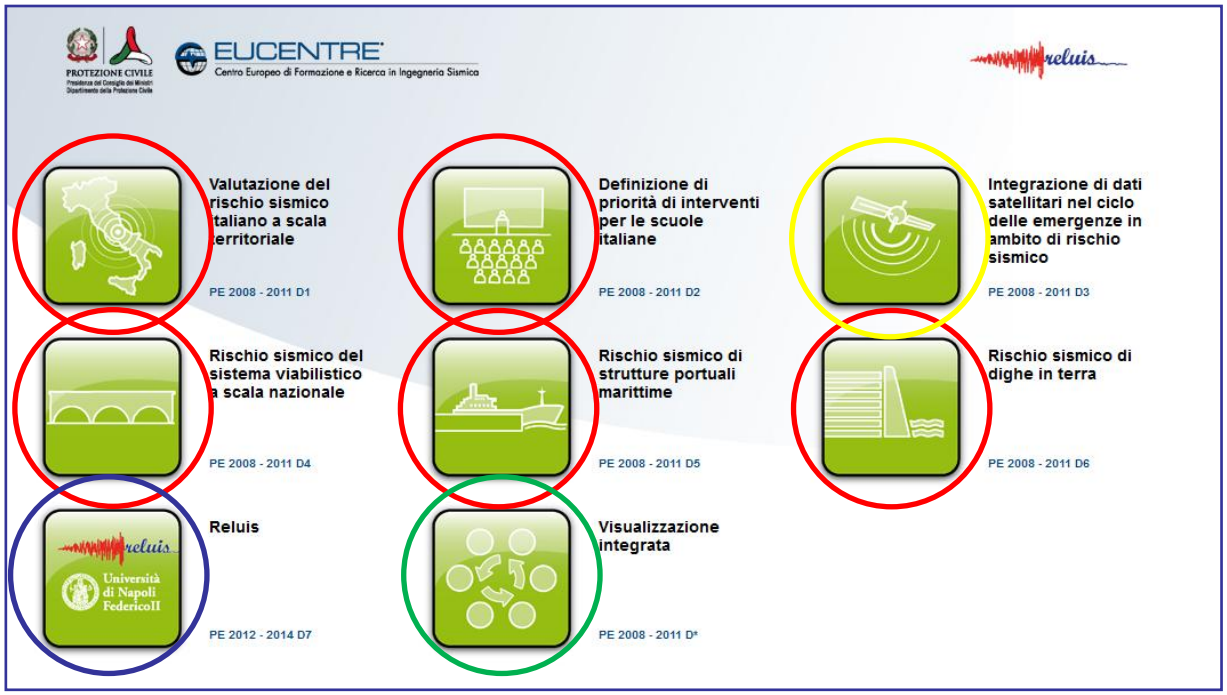
# SYSTEM COMMISSIONED BY THE ITALIAN CIVIL DEPARTMENT:

- System for the evaluation of seismic risk of structures and infrastructures
- System aimed to the technological transfer of the results of other researcher groups
- System that integrate the main functionalities of all systems aimed to the seismic risk evaluation
- System for the post-earthquake recognition through satellite images



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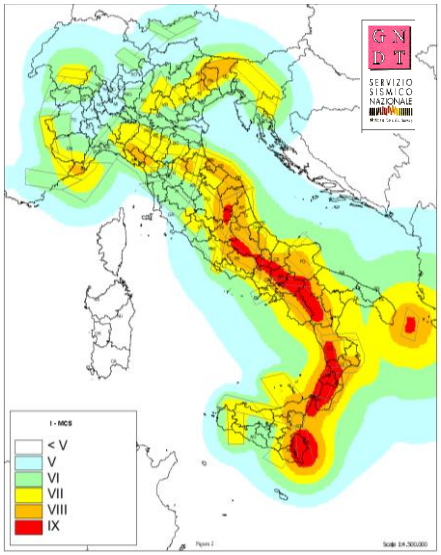
# SYSTEM COMMISSIONED BY THE ITALIAN CIVIL DEPARTMENT:

## Hazard




## Vulnerability

## Exposure

## Seismic Risk

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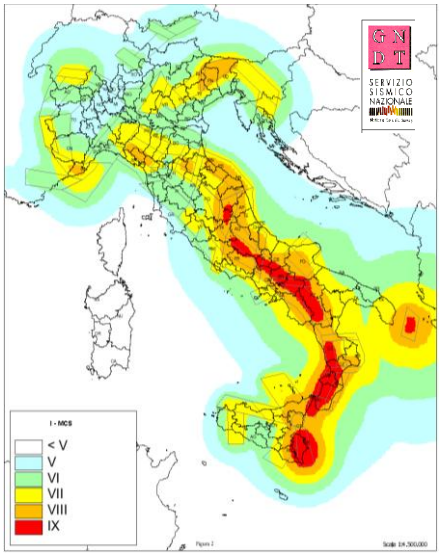
# SYSTEM COMMISSIONED BY THE ITALIAN CIVIL DEPARTMENT:

## Hazard




All systems make reference to the same seismic hazard study which has been undertaken by INGV with civil department funds and it is the reference for the italian seismic code

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# SYSTEM COMMISSIONED BY THE ITALIAN CIVIL DEPARTMENT:

For vulnerability and exposure each system has an ad hoc data base

## Vulnerability

## Exposure

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# SYSTEM COMMISSIONED BY THE ITALIAN CIVIL DEPARTMENT:

## Data base for vulnerability and exposure

Database ISTAT 2001

Data on 50.000 school buildings

Data on 17.000 bridges

Data on 178 earth dams

Data on 32 harbors

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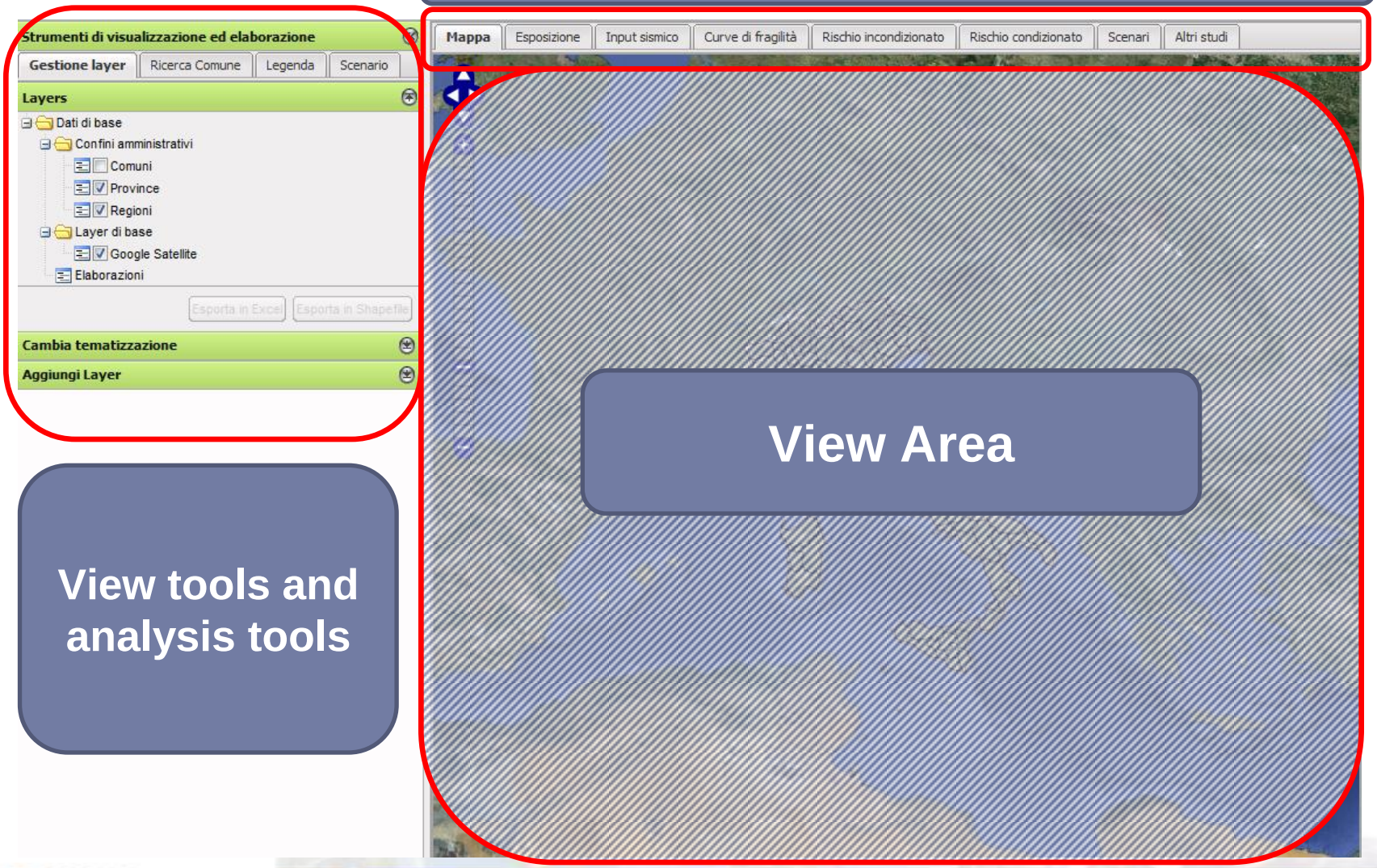
# Data tabs


Strumenti di visualizzazione ed elaborazione
Gestione layer
Ricerca Comune
Legenda
Scenario
Layers
Dati di base
Confini amministrativi
Comuni
Province
Regioni
Layer di base
Google Satellite
Elaborazioni
Esporta in Excel
Esporta in Shapefile
Cambia tematizzazione
Aggiungi Layer
Mappa
Esposizione
Input sismico
Curve di fragilità
Rischio incondizionato
Rischio condizionato
Scenari
Altri studi
View Area
View tools and analysis tools

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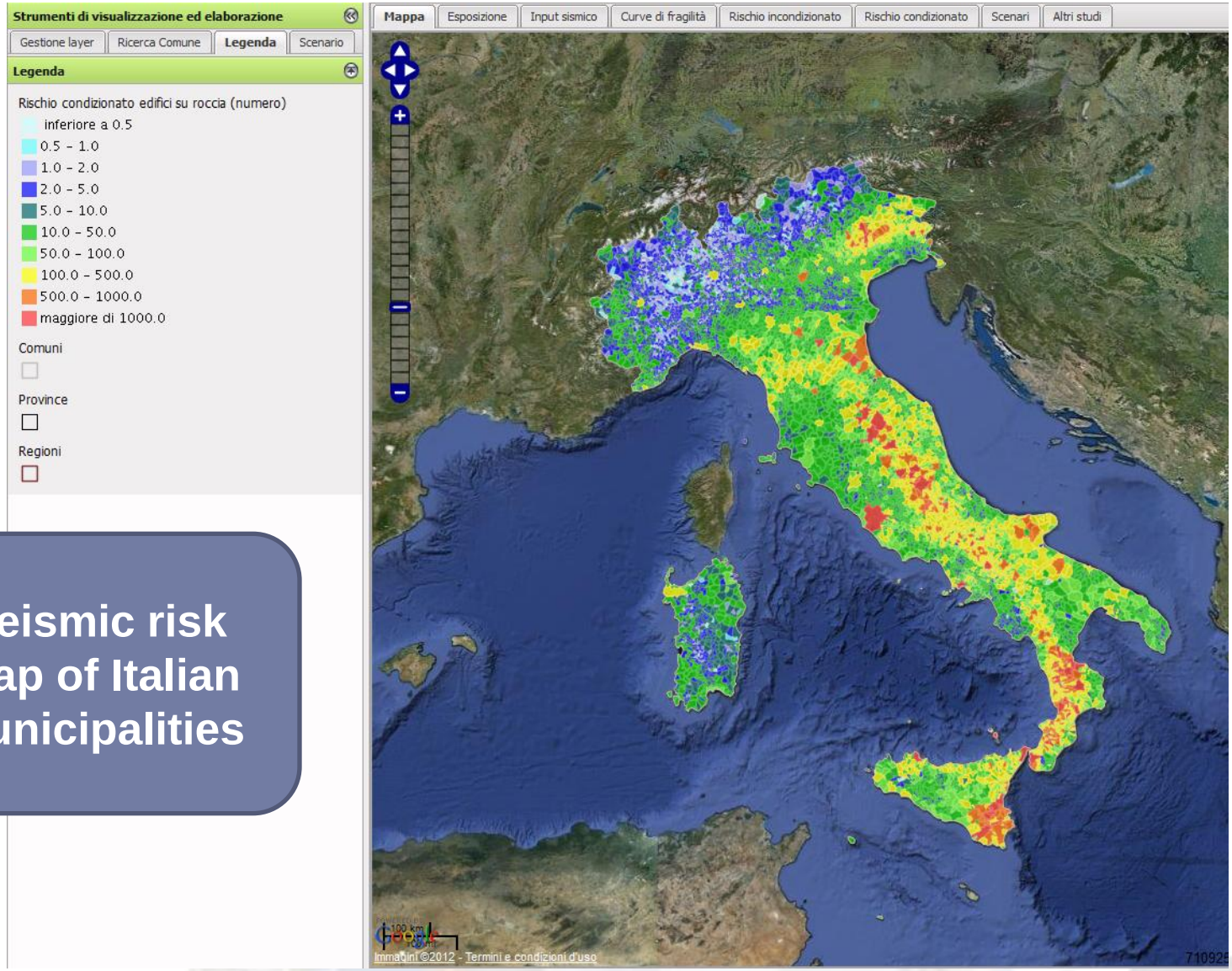


**Seismic risk map of Italian Municipalities**

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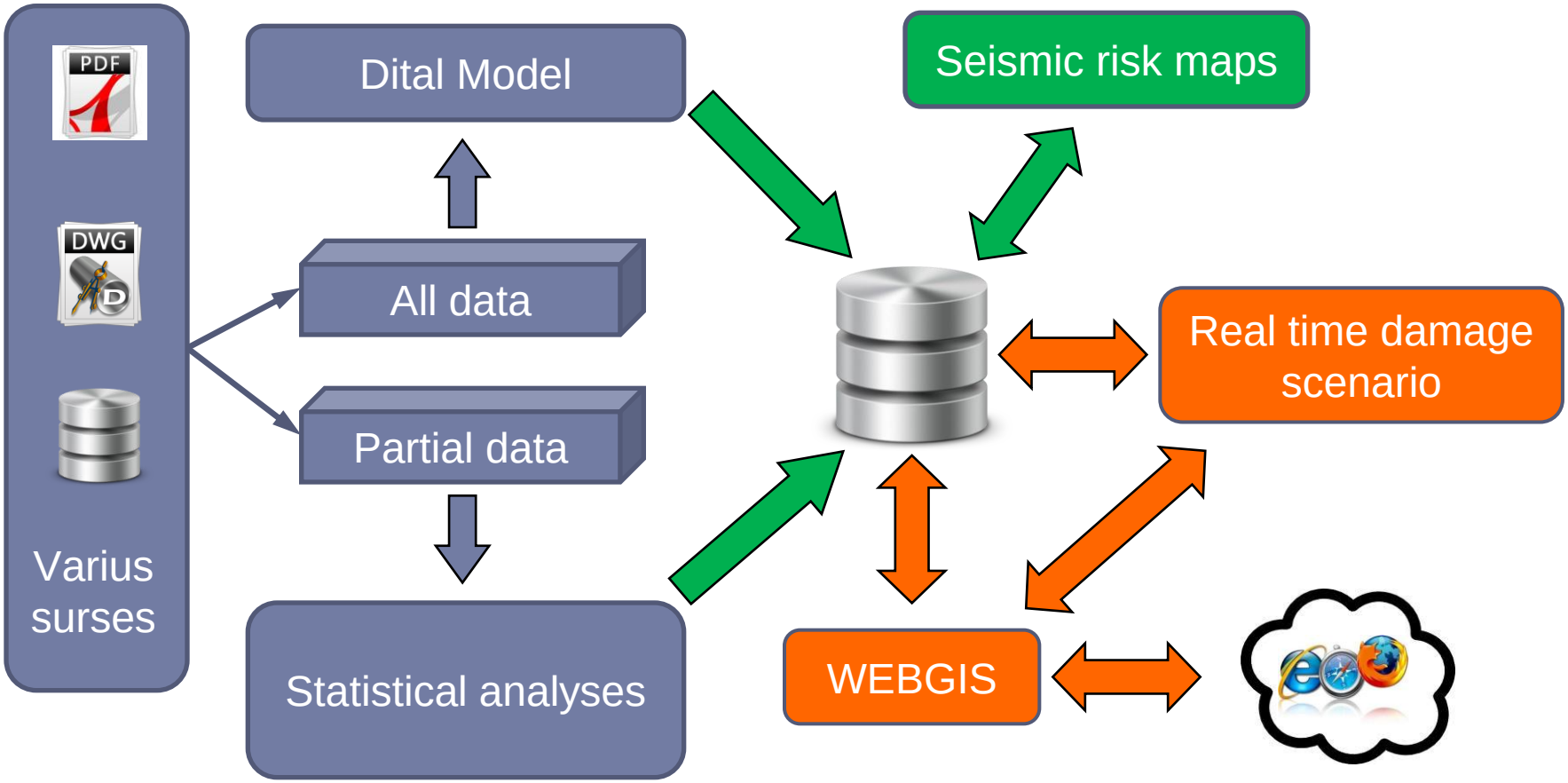
# SYSTEM COMMISSIONED BY THE ITALIAN CIVIL DEPARTMENT:

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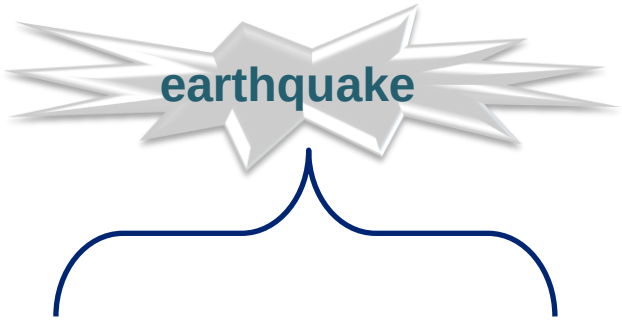
# SYSTEM COMMISSIONED BY THE ITALIAN CIVIL DEPARTMENT:

**All systems integate a tool for the real time damage scenario in case of the occurence of an earthquake**



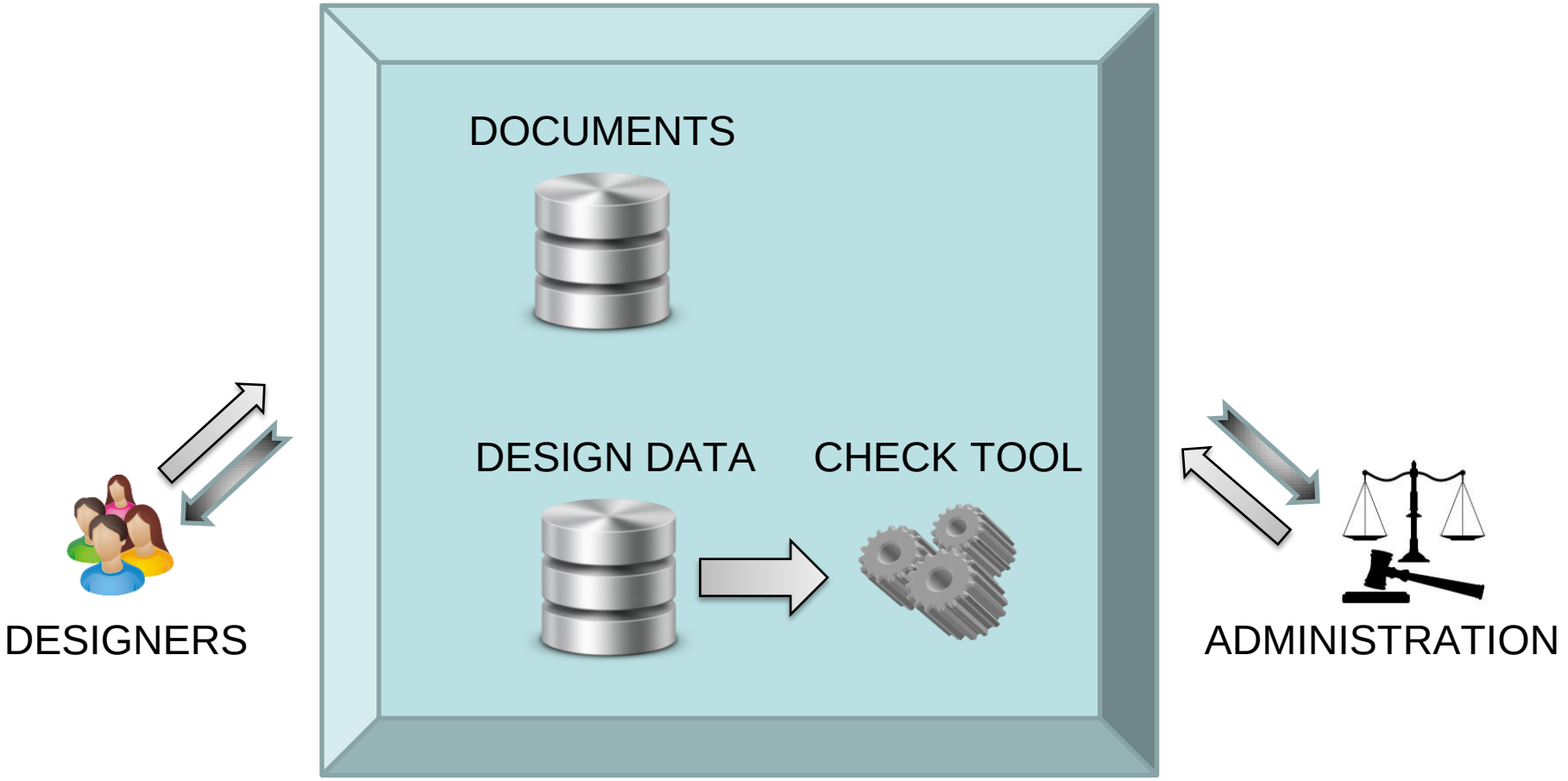

- **Shake maps**
- **Epicenter & Magnitude**
- **Fault and fault mech.**
- **Attenuation law** ⇨
  - ✓ Cauzzi e Faccioli (2008)
  - ✓ Boore and Atkinson (2008)
  - ✓ Akkar and Bommer (2010)
  - ✓ Bindi et all. (2011)

# SYSTEMS DEVELOPED FOR THE PUBBLIC ADMINISTRATIONS:

✓ **GIPE: Gestione Informatica Pratiche Edilizie – Management system for building paperwork**

✓ **Managment tool for micorzonation studies**

# Management System for Building Paperwork



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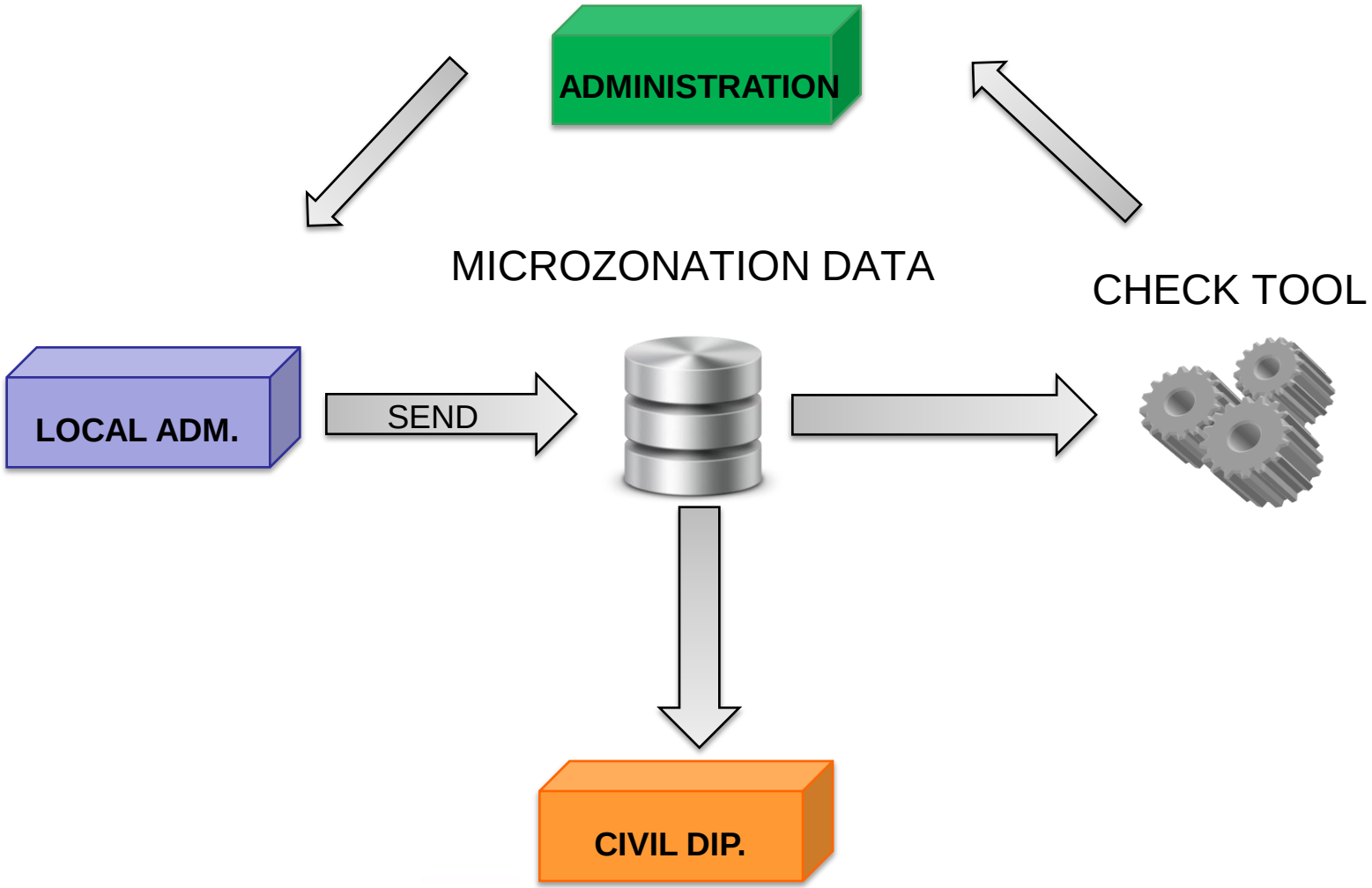
# Managment System for Microzonation Studies

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# Thanks for your attention

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