



**Land Quality and Land Use Information  
- in the European Union -**

26-27 May, 2011 Keszthely, Hungary

# **ECONOMIC LAND EVALUATION – A NOVEL APPROACH**

**István Szűcs**

**Mária Fekete-Farkas**

**Sergey A. Vinogradov**

**Zsuzsanna Tóth-Naár**

**Zsolt Balyi**

---

**Szent István University, Gödöllő**

In the framework of research and  
development program No.  
4/015/2004 “Land quality, land value  
and sustainable land use in  
conditions of European Union”



## Brief content of the presentation

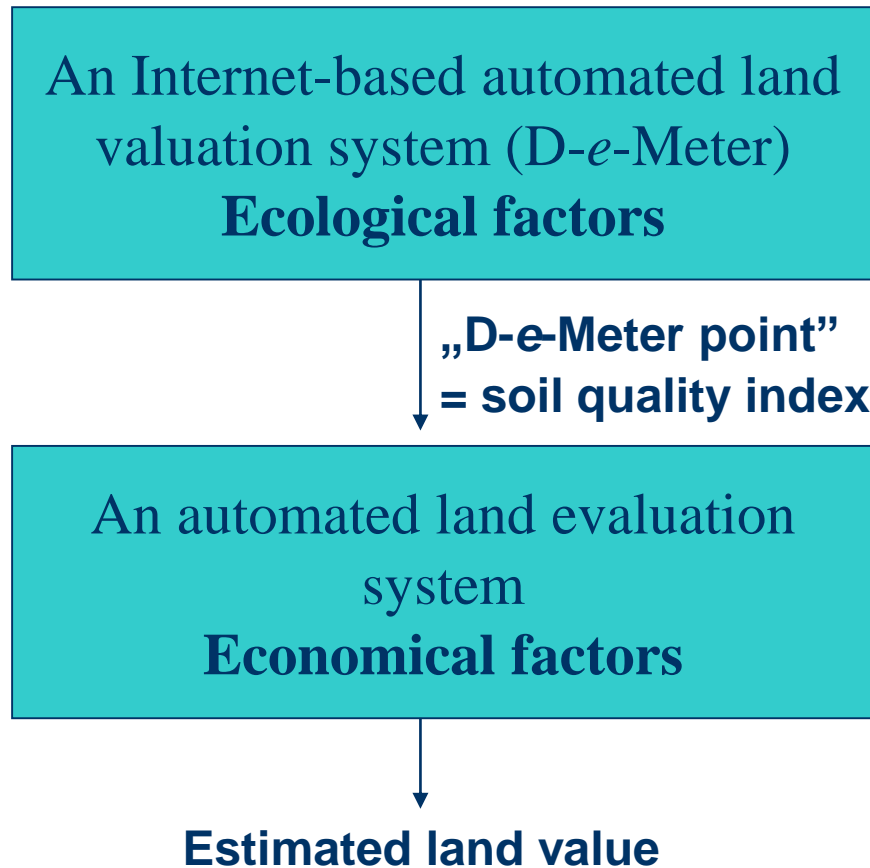
- Importance of the topic
- Introducing the D-*e*-Meter research program
- Description of D-*e*-Meter land valuation system
- Description of new methodology of land evaluation

## Importance of the land evaluation

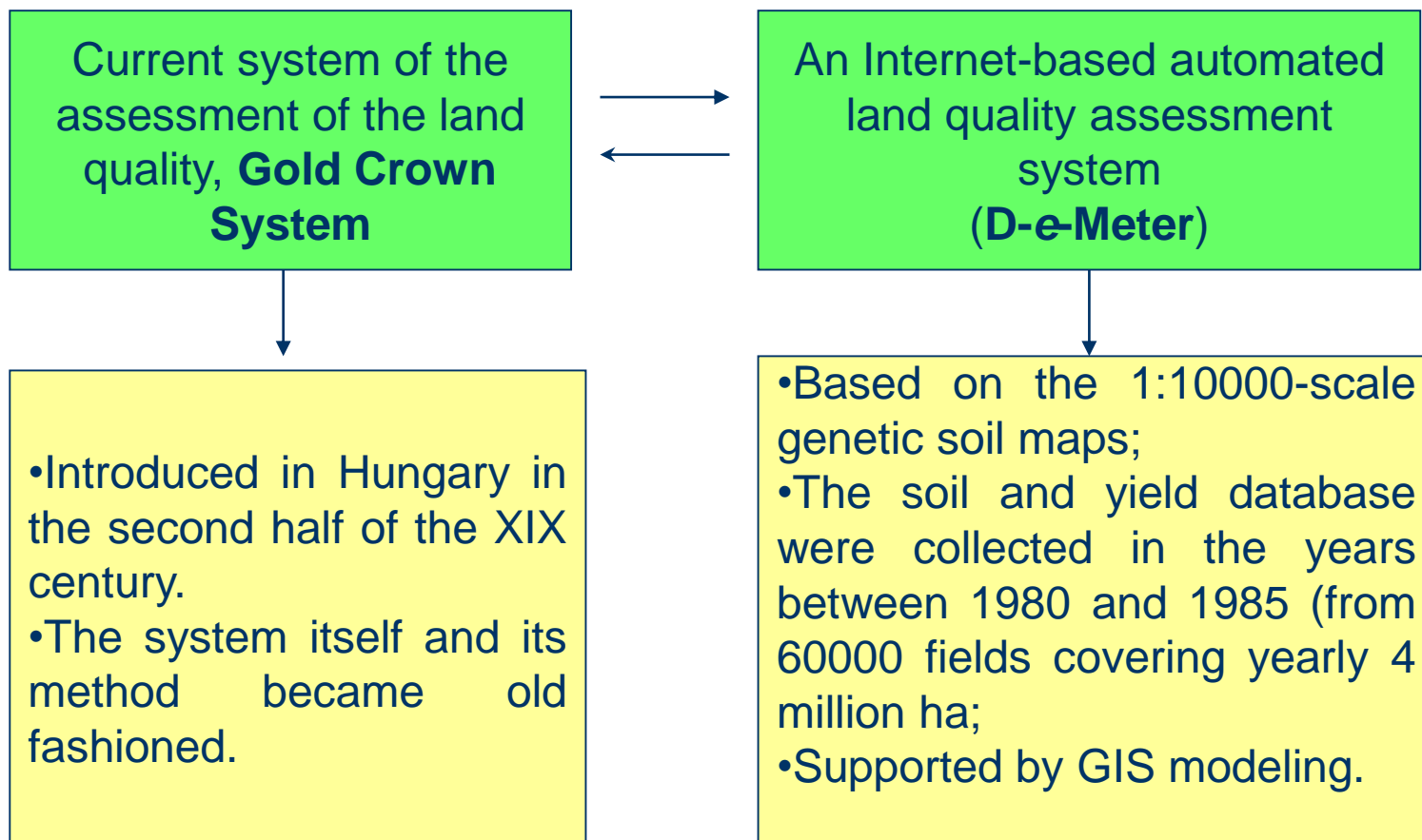
Land economic evaluation has to serve different objectives simultaneously :

- optimization of distribution of land use;
- land acquisition;
- land mortgage;
- land taxation, etc.

## An automated complex model for the land evaluation



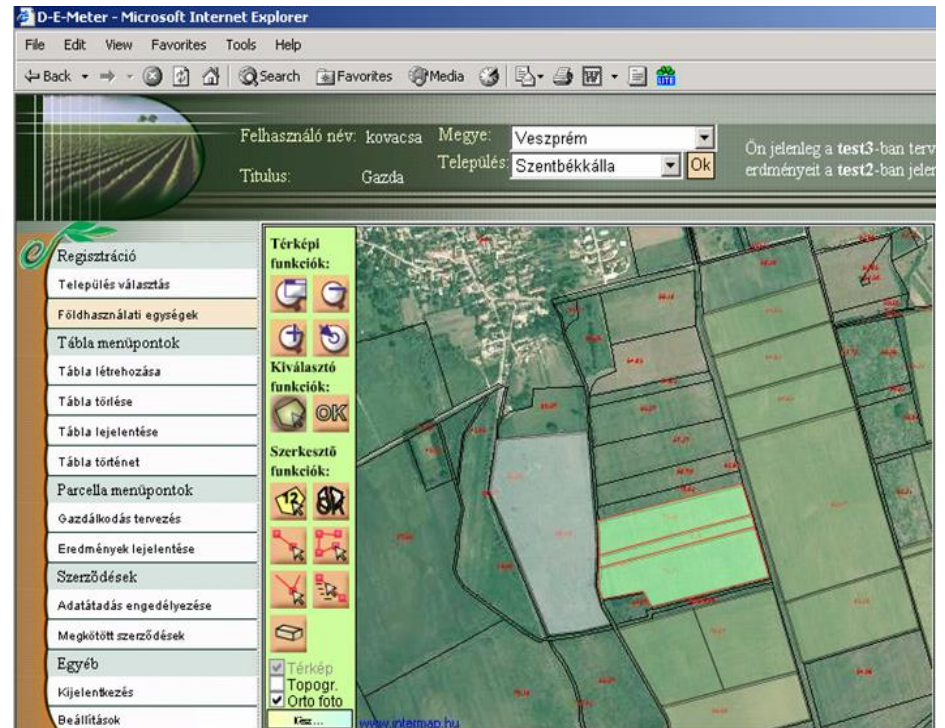
## D-e-Meter land valuation system



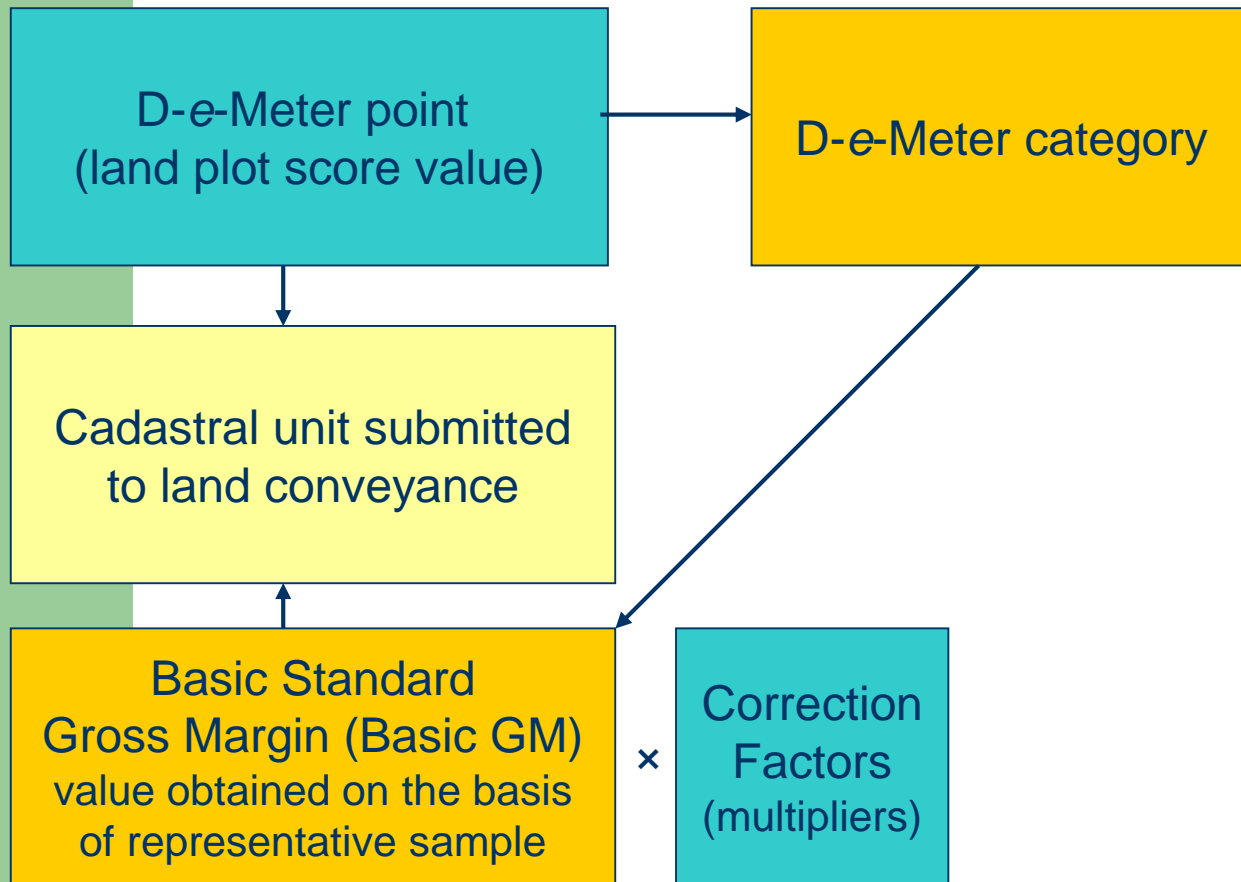
# The land valuation process in the D-e-Meter system

Five calculation modules:

1. Water regime factor
2. Soil evaluation factor
3. Nutriments factor
4. Relief factor
5. Previous vegetable



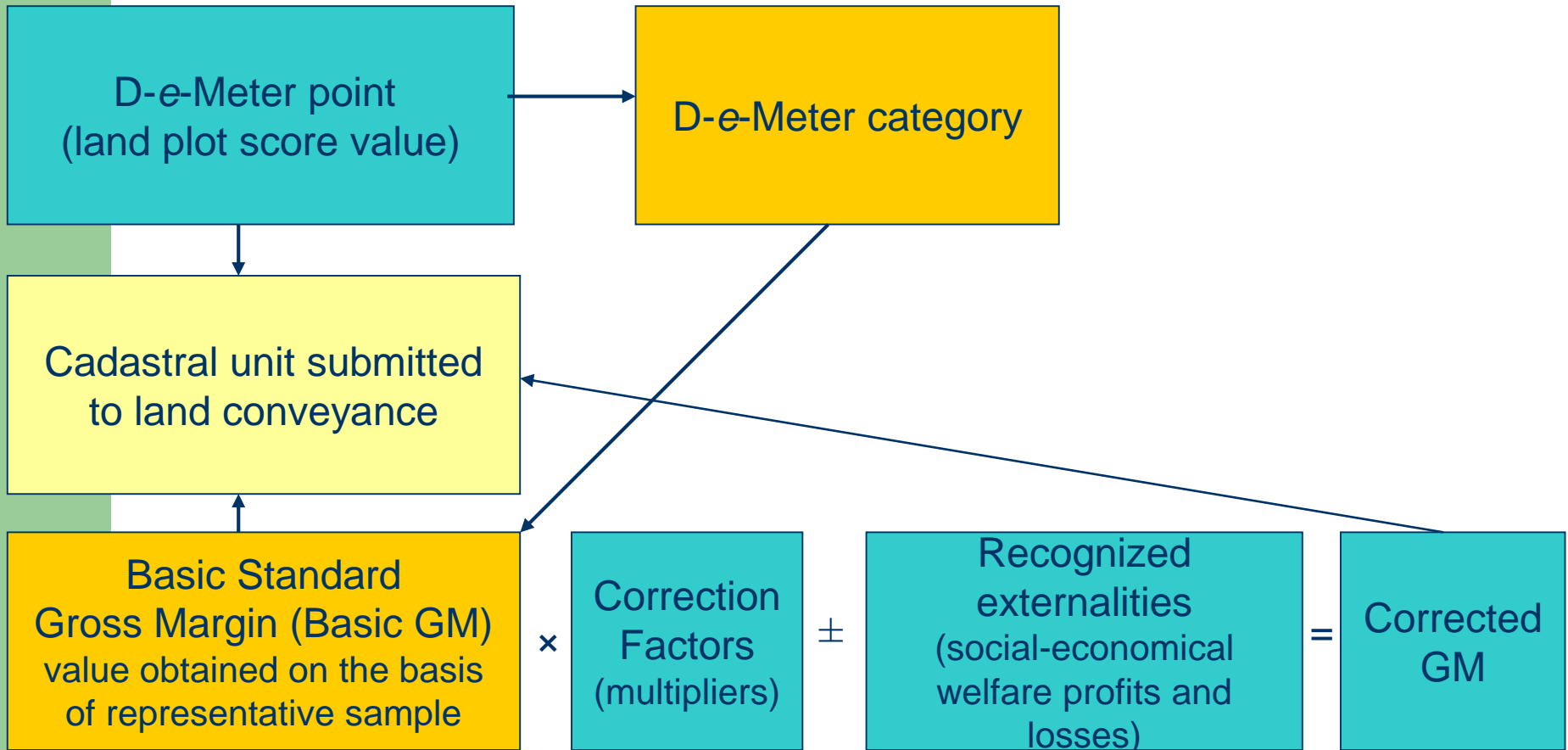
# Incorporation of D-e-Meter system and the economic evaluation into a unified system







# Incorporation of D-e-Meter system and the economic evaluation into a unified system



# Estimating land value

**Main formula:**

$$\text{Land value} = \frac{\text{Land rent}}{\text{Interest rate}}$$

Economic land value

× real interest rate =

Land rent

$$\gamma = \frac{\text{Land rent}}{\text{Corrected GM}}$$

≈

Average market land price (excluding extreme values)

Cadastral unit

Corrected GM

Land market data

Land-value monitoring:  
Land market value ↔ estimated land value  
significant difference →  
γ, basic SGM correction

Estimated land rent

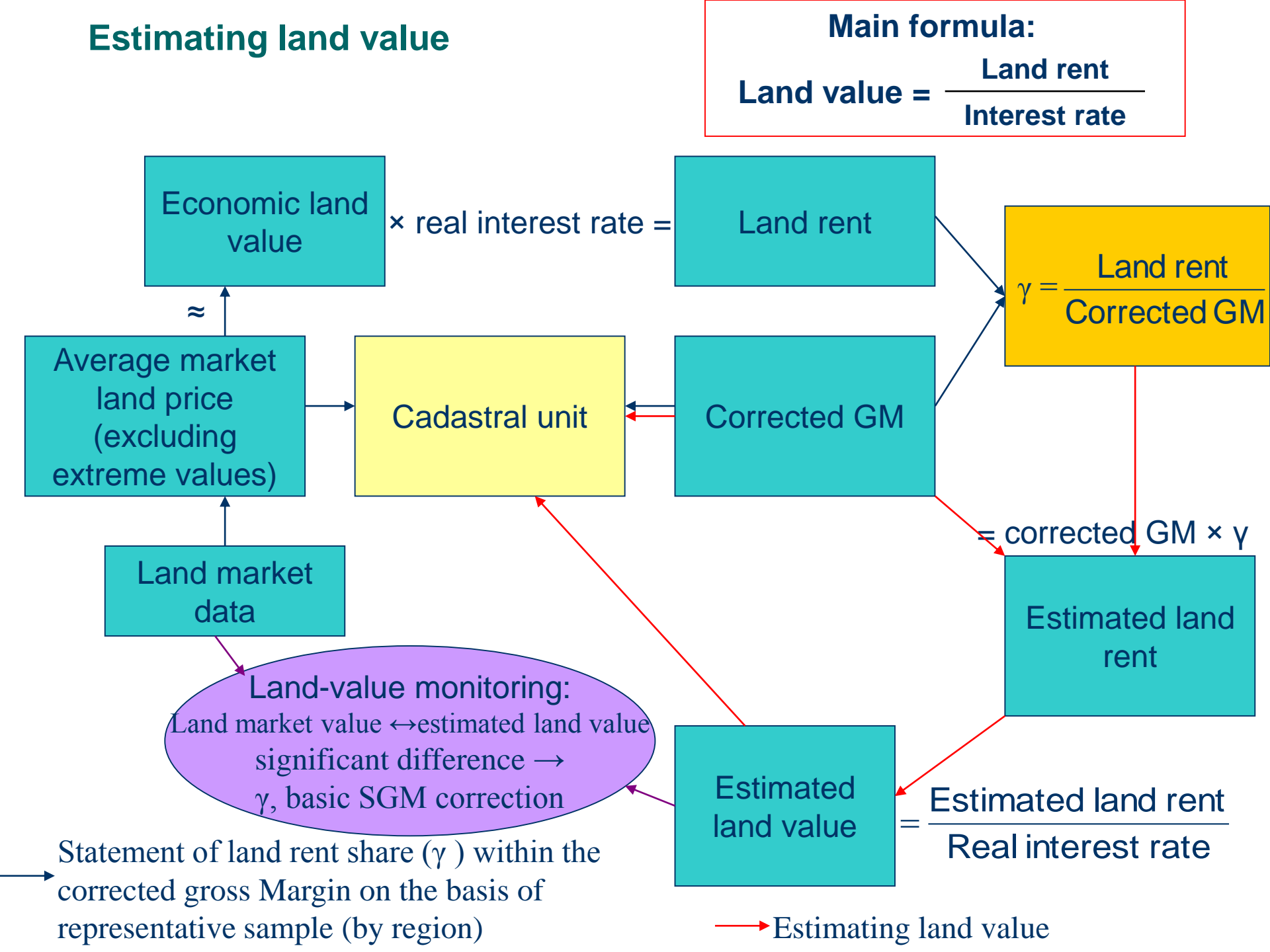
= corrected GM × γ

Estimated land value

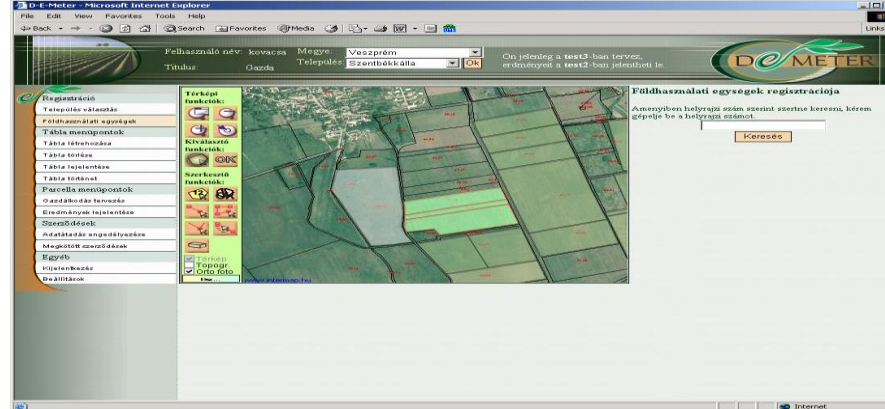
$$= \frac{\text{Estimated land rent}}{\text{Real interest rate}}$$

Statement of land rent share (γ) within the corrected gross Margin on the basis of representative sample (by region)

→ Estimating land value



## System output




1.	2.	3.	4.	5.	6.	7.	8.	9.
Cadastral unit	D-e-Meter index	Basic GM, EUR/ha	Corrected GM, EUR/ha	Corrected D-e-Meter index	Estimated land rent, EUR/ha	Estimated land value, EUR/ha	Market land value, EUR/ha	Gold Crown value



**D-e-Meter index correction:**

$$\text{D-e-Meter index} * \frac{\text{Corrected GM}}{\text{Basic SGM}}$$



*Thank you for you attention !*