Automated parcel boundary design can be used as the final step in land reallocation design.

**Goals:**
- Improve quality by consistent use of rules
- Improve quality by iterating design
- Reduce cost by faster design

_Freek Rosman / Delinea / 7 May 2011_
Summary (2)

2 implementations for automated parcel boundary design:

1. TRANSFER, for Dutch Cadastre
   - Status: currently being tested
   - Projects in autumn 2012
   - Proprietary software, Dutch

2. R-APP, general Reallocation Application
   - Due out for release July 2012 (v1.0)
   - Automated parcel boundary in v2.0
   - Will be available through www.r-app.eu

Land consolidation

- Land reallocation is just one part of LC

Focus on information system:
- Project based Land Information System
- Functionality for creating a reallocation
  - Algorithm for calculating reallocation
    - Result: Value allocation plan
  - Geometric editing for creating parcel boundaries
    - Result: Reallocation plan
Types of project areas

General
- Project area is first-time land reallocation
- Farms buildings are not in reallocation area
- Improvement of size and shape

Projects in NL
- Land reallocation has been carried out in the past
- Improvement by enlarging home parcel
- Improvement by concentrating field parcels

Parcel boundary design

- Is it possible to automate the design of parcel boundaries
- 2011: let’s implement this idea
- Two types of automated design
  1. Guided automated land division
  2. Stepwise combination in existing topography
Starting point

- Parcel boundaries existing situation
- Blockparts
  - parcel grouping by infrastructure
- Owner preferences (interview)
- Value allocation plan
  - List of allocated values/areas in blockparts
  - Map of boundaries to be protected

Design of parcel boundaries

- Make a list of blockparts in order of processing
- For each blockpart: allocate any fixed allocations
- Make a list of allocation tasks to perform:
  - Fixed parcels to be enlarged
  - Field parcels to be created
  - Calculate priority of tasks
- After processing of tasks: adapt value allocation plan if needed
R-app

- Supports all needed data and activities to do reallocation
  - Importing, checking, editing
  - Support for interviews
  - Value allocation plan (v1.0)
  - Parcel boundary design (v2.0)
- In English; translatable

R-app

- Example: interview support
Principle of design support

- Primary design axis
- Distance to village
- Design order
- Access to road

Stepwise combination

TRANSFER
Main conclusions

- Is is possible to automate the process (but much more refinement is necessary)
- Linear decision chain was not enough, a tree structure has been implemented to explore alternative solutions
- Some user interaction needed for better solutions