

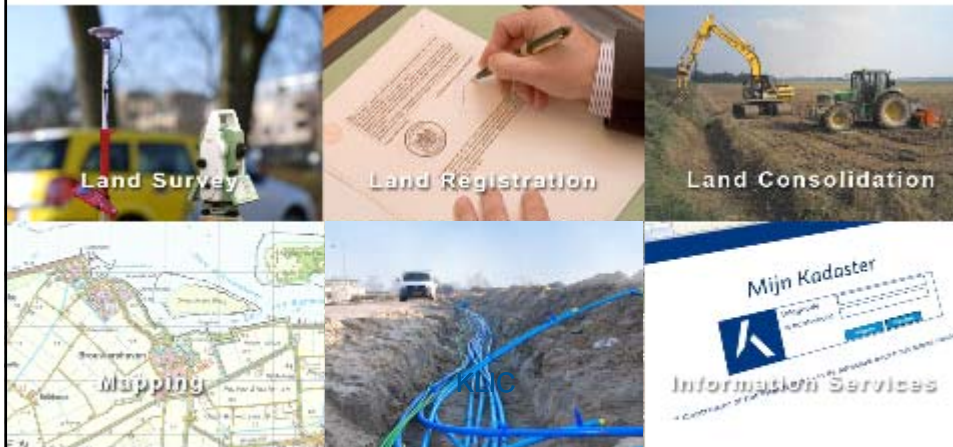
## Co-writers

- Rob Vaandrager Kadaster
- Gert Meijerink Unisys
- Jakub Zavrel Textkernel

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TS 2H FIG Australia OCR and Text Recognition

## The Netherlands Kadaster



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Know your limitation

erfdienstbaarheden

Extraction servitudes  
from deeds

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This slide features a blue geometric logo in the top left corner with the Dutch text 'erfdienstbaarheden' below it. The main content is a photograph of a dirt path through a green field with a fence on the left and houses in the background. The text 'Extraction servitudes from deeds' is overlaid on the left side of the image.

Know your limitation

erfdienstbaarheden

Extraction servitudes  
from deeds

- Can I pass through here?
- Do I allow people on my path?

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This slide is identical to Slide 1 but includes a blue speech bubble on the right side of the path. The speech bubble contains two questions: '•Can I pass through here?' and '•Do I allow people on my path?'.



## Erfdienstbaarheden: Servitudes

onder beynaling dat: ...  
g. ten laete van het bij deze verkochte en te  
ve van het aan verkoper verlijvend geselde  
landstreek bekend genaamt Birkland deelde II  
tot gebruik en ten nutte van het aan verkoper  
landstreek bekend genaamt Birkland deelde II  
negen en vier en zestig maniere van deze en  
dame landstreek ten reed, pad en weeliding in  
weg over de thans bestaende weg en op de min  
te het bij deze verkochte niet zal belast en  
van onderhoud vande weg het oet hak man te p  
de wye godes van den waterloop, als voor  
voor wat betreft het verkochte parcellen.  
De comparanten uit I en II verklaarden te  
verkoop en koop te hebben aangegeven tegen een  
standard guinea (£ 300.-), welke kooppen te o  
belde noodnigheid, verklaarde reede van te  
te hebben ontvangen en laatste gemaakte deede  
te kinturen en voorts op de volgende deede  
I. De koper kan het door hem gekochte op het  
aan gebruik en genot.

- A servitude is a restriction on a real estate object through which the serving yard on behalf of the ruling yard is burdened. For example "Right of way".
- Aim of the project scanning deeds and updating and making available the servitudes in the cadastral registration.
- Some 15.000.000 deeds from 1950 screened for
  - existence of servitudes and
  - bringing data in the cadastral registration

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## Business case

- To digitize 15 million deeds in the archives
- To extract restrictions from the deeds
- In a period of 4 years
- 20 M€ budget
- Use OCR and DTR techniques
- Benefits
  - Better service to notary
  - Centralized on line access to data

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Digitizing deeds, historic parcel maps and field sketches

## Archive of deeds



## Project approach

- Develop process for
  - scanning
  - extraction
  - retrieval
- Research potentials of OCR and text recognition
  - Last attempts failed
  - Bad quality of originals
  - Start with 1950
- POC to test solutions

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## What do we do



Search each deeds for servitudes



Digitize all deeds from 1950



Control of the found servitudes



Determine on which parcel the servitude confines

*kadaster*

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## What do we do



Search each deeds for servitudes



Digitize all deeds from 1950



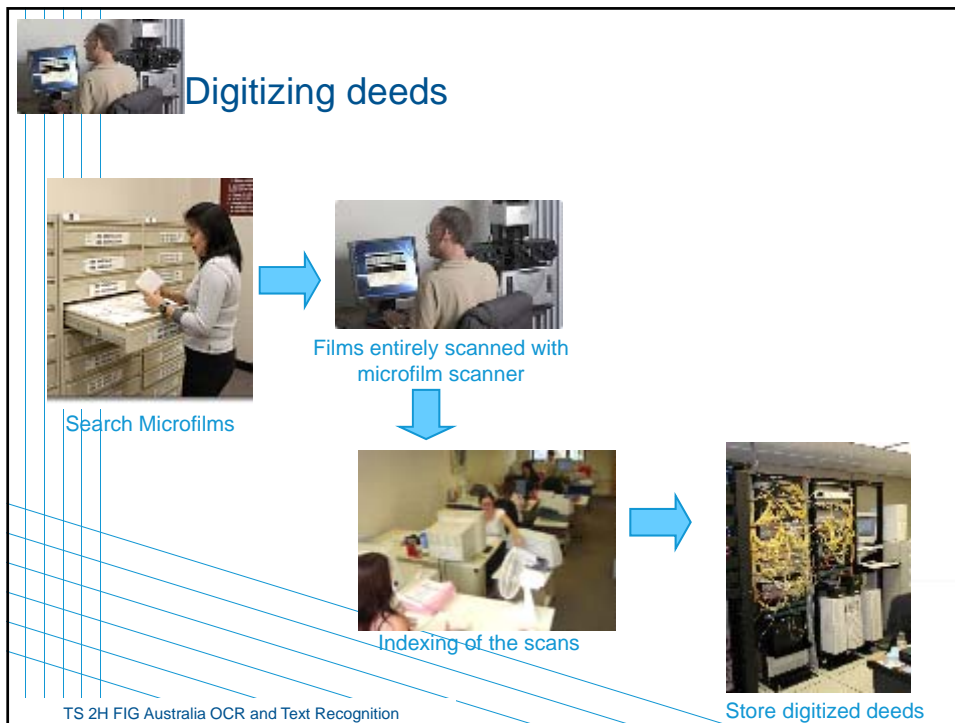
Search each deed for servitudes



Determine to which parcel the servitude confines

*kadaster*

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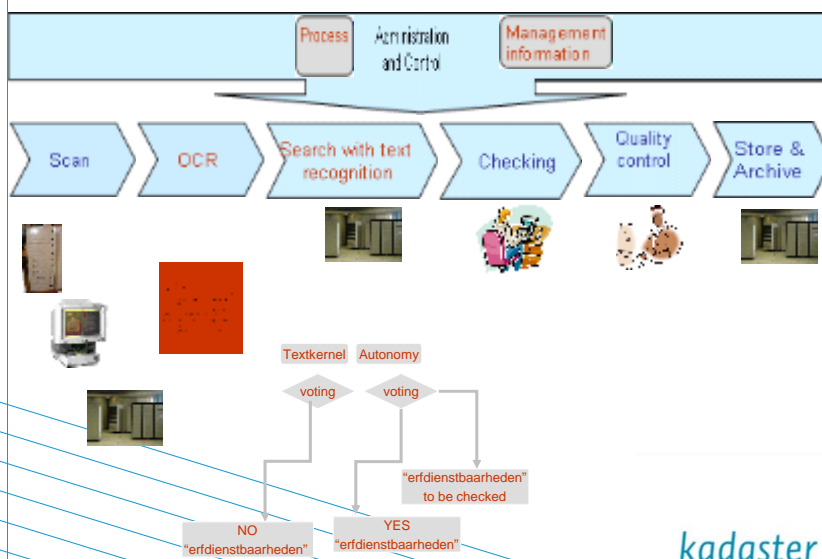
## Production line at Unisys



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## Production Street Process



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## Text recognition

- *Erfdienstbaarheid (-heden)*
- Result of OCR
- *ErTdienstbaarheden,*
  - *lijdende erTdienstbaar-*
  - *orfdionstbaarheden*
  - *et.rfdienstbaarheden,l*
  - *eredienstbuarhnden*
  - *glijdende arfdienstbaarheden,*
  - *e r f dien stbaarheden*
  - *crfdienstbaarhcdcn.*
  - *e r f dienstbaartieden*
  - *lijdende e r r*
  - *lijden d e eri'dienstbaarheden*

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## Outcome of Text Recognition Search

- 3 possible outcomes: No, Yes or maybe
- > 55% of all deeds do **not** contain "erfdienstbaarheden" (99.8% sure)
- This implies that some 9.000.000 deeds do **not** need **manual reading**.
- In deeds that require manual reading all text parts that contain "Erfdienstbaarheden" are highlighted
- Tuning AI-software to improve results



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## What do we do



Search each deed for servitudes



Digitize all deeds from 1950




Checking of the found servitudes



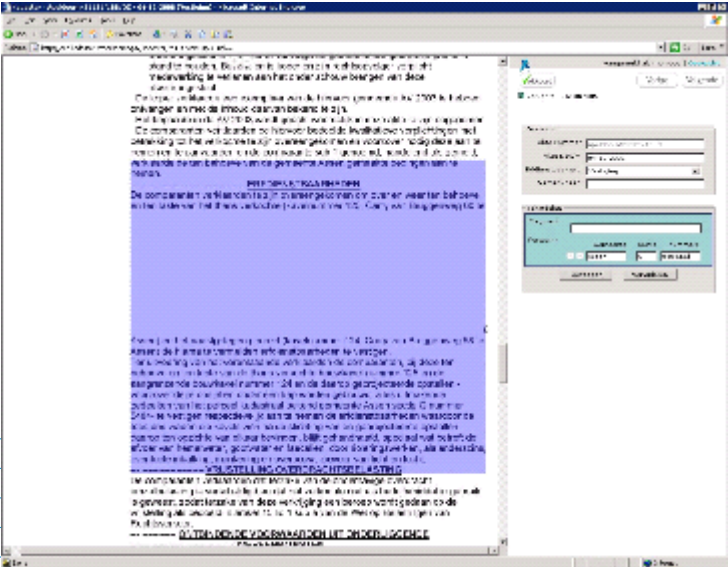
Determine to which parcel the servitude confines

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## Control of found servitudes



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## What do we do





Search each deed for servitudes



Checking of found servitudes

Alle akten vanaf 1950 digitaliseren




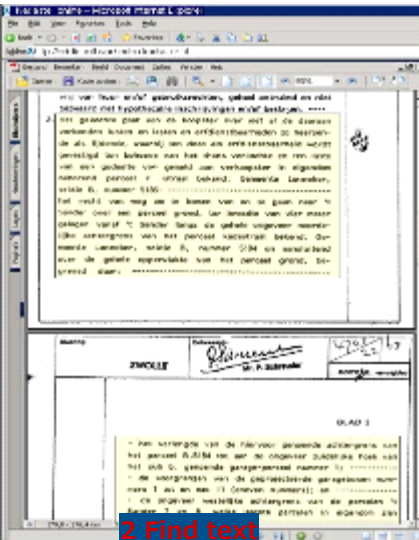
Determine to which parcel the servitude confines




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## Questions can now be answered






Find text



Find location



Search parcel

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## Project conclusions

- Project on schedule time/money
- Digital solution saves a lot of time
  - 55 % of deeds does not need to be read with certainty of 99,8%
- Textkernel screens the deed better then a human being can do
- Information on servitudes on line is great help to Kadaster-staff and notaries
- Critical Success factors
  - Innovative Business Model: use of POC's
  - Involve knowledge of private sector
  - Short lines between project teams
  - Create Win-Win situation (Partners in Business)

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