Improvement of Land Administration
Data and Services

Measures to meet customer requirements

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Content

- Drivers for change
- New requirements for land administration data
- A new approach for market transparency
- Use of AI algorithms for improvement of cadastre
- Conclusions
Paradigm Shift

European requirements (PSI, EU Data Strategy)
Changing customer needs

New national legislation (OZG)
Environmental aspects (land cover, land use...)

Digitization
Disruptive Technologies
Legal Framework

- EU Directive on Open Data and the Re-use of Public Sector Information
- German Law on Improvement of Online Access to Administrative Services – OZG (2017)
Core Requirements for Land Administration Data

- Open data
- Updating mechanisms
- Quality improvement
- Distribution of data and algorithms through portals and platforms
- Easy use of geodata on mobile devices
- Appropriate API’s
- E-Government, Interoperability
- Market Transparency
Example Market Transparency

- Transparent data and mathematical models
- Real-time availability instead of (long) update-cycles
- Easy to handle on mobile devices
- Participation in data acquisition and model development
- Agile development for new thematic and spatial submarkets
- Certification of data sources and models by officials
- ...

3D Vector Tiles
BORIS Mobile

Portal

Value Zones

Property price index

Questionnaire
Valuation Map (Vector Tiles)

Source: LGLN
Mobile Application
Statistics

Übersicht über die Immobilienumsätze in Niedersachsen

<table>
<thead>
<tr>
<th>Stadt/Landkreis</th>
<th>Gesamtumsatz</th>
<th>unbebaute Bauflächen</th>
<th>bebaut Grundstücke</th>
<th>Wohnungs- u. Teileigentum</th>
<th>Land- u. forstw. Flächen</th>
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<td>14.262</td>
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Quelle: LGLN
Editor for Crowdsourcing

Source: LGLN
Artificial Intelligence and Cadastre Pilot Project/Proof of Concept

- Improvement of completeness of the real estate map through recognition/extraction of buildings from aerial photographs
- Determination of location (coordinates) and footprints of buildings/constructions
- Application of neuronal networks (CNN) + Agile development methods
- Improvement of accuracy of data in areas with still old cadastre data
End-to-end Pipeline

1 Building detection

2 Segmentation

3 Calculation of shift vectors

Source: LGLN
Project Phases

Phase I: Proof of concept

Phase II: Extension of building detection to the total area of Lower Saxony, Web interface

Phase III: Calculation of shift vectors

Phase IV: Homogenisation component integrated into the end-to-end pipeline
Consequences

- Digitisation as well as new legal and customer requirements for official geodata mean a paradigm shift.
- Change management is necessary.
- Mix of different professional skills and profiles is needed.
- Capacity building is a critical success factor.
The Bottom Line

Demand for official geospatial reference data is there
Adjustment of organisation and business processes is necessary to manage digitisation
Flexible development approach furthers sustainability of the organisation
International cooperation is very useful
Thank you very much for your attention!