

kadaster



Cadastrals in the European Data Space *responsible and value driven data sharing*

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Introduction

- The impact of European Data and AI policies on cadastres
A brief introduction to data spaces
- Europe setting the scene
Digital rights, digital and data strategies, AI
- Impact on cadastre and land registries
Experience and lessons learned in AI
- Added value of sharing cadastral land administration data
Examples
- Focus points for the future



European Digital Rights and Principles



People at the centre

Digital technologies should **protect people's rights, support democracy, and ensure that all digital players act responsibly and safely**. The EU promotes these values across the world.



Freedom of choice

People should benefit from a **fair online environment, be safe from illegal and harmful content**, and be empowered when they interact with new and evolving technologies like artificial intelligence.



Safety and security

The digital environment should be **safe and secure**. All users, from childhood to old age, should be empowered and protected.



Solidarity and inclusion

Technology should **unite, not divide, people**. Everyone should have access to the internet, to digital skills, to digital public services and to fair working conditions.



Participation

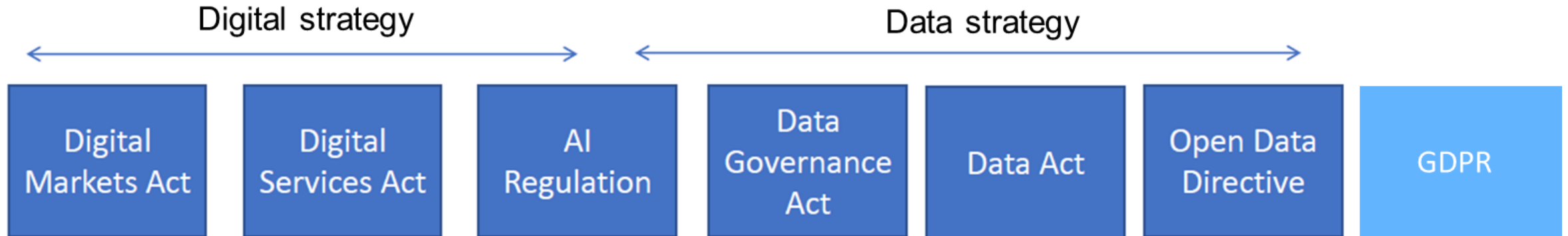
Citizens should be able to **engage in the democratic process** at all levels and have **control over their own data**.



Sustainability

Digital devices should support **sustainability** and the **green transition**. People need to know about the environmental impact and energy consumption of their devices.

Rules of the Game: Europe has set the scene



Data sharing between public and private organisations and their data sources should become possible in the concept of data spaces

Policies focus on joint value creation through data use: Focus on *impact*
Towards a common European data space



European (data) agenda

Digital strategy

Data strategy



AI in the cadastral domain

ODD HVD: cadastral parcel

Policies

Focus on implementation and use
No new regulations and directives

DGA, DA Implementation

EDIB: coordination national practices and policies
European Data Innovation Board
DSSC: technical implementation
Data Spaces Support Centre
JTC25 (CEN) standardization
Standardisation in the area of data management, dataspace, cloud and edge



Overall policy framework towards 2032 for the public sector in the Netherlands

INTER-ADMINISTRATIVE DATA STRATEGY

WHY

Society improves when the government responsibly utilizes data in carrying out its tasks

FINISH LINE

As government, we harness the full potential of data for societal challenges, both within and across domains, in an ambitious manner that inspires trust

PILLARS

WHAT IS ALLOWED?

Provide comfort and certainty in data usage



WHAT IS FEASIBLE?

Enable seamless data sharing by the government



WHAT HELPS?

Support the transformation to harness the potential of data



WHAT INSPIRES?

Inspire each other on data issues in practice



HOW

We implement this strategy inter-administratively with a practice-oriented team and shared values: in cooperation, openly, with trust and respect



European re-use of data: Open Maps for Europe

Cadastral Parcels, Buildings, Addresses are elements of the European High Value Datasets. Working towards an Open Cadastral Map

The screenshot displays the EuroGeographics web application interface. On the left, a cadastral map shows parcels and buildings in red outlines. A vertical toolbar on the left side includes navigation and tool icons, with the 'Identify Feature' icon highlighted by a red box. On the right, an 'Identify Feature' panel displays metadata for a selected parcel. The metadata includes:

- cadastral_cadastralparcel.fid-5276166_188710ca51d_-25d9**
- gmLid**: CP.1391346202
- localid**: CP.1391346202
- namespace**: CZ-00026712-CUZK_CP
- label**: 192
- nationalcadastralreference**: 790389-192
- areavalue**: 5559.0
- areavalue uom**: m2
- beginlifespanversion**: 2022-05-20T07:16:20Z
- administrativeunit_href**: http://services.cuzk.cz/wfs/inspire-eu-wfs.asp?service=WFS&VERSION=2.0.0&request=GetFeature&storedQuery_Lid=um:ogc:def:query:OGC-WFS:GetFeatureByLid&id=AU.531995
- administrativeunit_title**: Zaječov
- zoning_href**: http://services.cuzk.cz/wfs/inspire-cp-wfs.asp?service=WFS&VERSION=2.0.0&request=GetFeature&storedQuery_Lid=um:ogc:def:query:OGC-WFS:GetFeatureByLid&id=CZ.790389
- zoning_title**: Zaječov
- cadastral_cadastralzoning.fid-56e7899b_18871752e48_-4cbc**

At the bottom of the panel is a 'Back to top' button. The map area includes a copyright notice: 'Copyright © 2023 EuroGeographics www.eurogeographics.org'. The EuroGeographics logo is visible in the top left of the map area and bottom right of the panel.



Use of artificial intelligence (AI)

Extraction of essential elements from deeds

- Buyer
- Seller
- Identification of property elements (parcel, house)
- Legal facts

The screenshot displays the Kadaster TIA-stuk / vertoetsen interface. The left pane shows the deed text, and the right pane shows the object details.

Deed Text (Left Pane):

De verschenen personen, handelend als gemeld, verklaarden:
KOOP
 Verkoper en koper hebben op vijf oktober tweeduizend eenentwintig een koopovereenkomst gesloten met betrekking tot het hierna te vermelden registergoed.
 Van de koopovereenkomst blijkt uit een onderhandse akte die hierna wordt aangeduid met "de koopovereenkomst".
LEVERING
 Ter uitvoering van de koopovereenkomst levert verkoper hierbij aan koper, die hierbij aanvaardt:
OMSCHRIJVING REGISTERGOED
 de eigendom van het perceel grond met woning en verdere aanhorigheden gelegen te **5424 CS Nijmegen, beekseweg 3**, kadastraal bekend gemeente **Hatert, sectie C, nummer 54** ter grootte van een are en achtenzestig centiare (1 a 68 ca), hierna te noemen: "het verkochte".
KOOPPRIJS
 De koopprijs van het verkochte is: **vijfhonderdviervijftigduizend euro (€ 54.000,00)**.
WOONPLAATSKEUZE
 Terzake van de uitvoering van deze overeenkomst, waaronder tevens dient te worden begrepen de inschrijving in de openbare registers, alsmede voor de fiscale

Object Details (Right Pane):

Object wijzigen

Object type: Perceel

Kadastrale aanduiding: Hatert C

Kadastrale grootte: 1 68

Omschrijving: de eigendom van het perceel grond met woning en verdere aanhorigheden gelegen te 5424 CS Nijmegen, beekseweg 3, kadastraal bekend gemeente Hatert, Sectie C, nummer 54 ter grootte van een are en achtenzestig centiare (1 a 68ca).

Soort grens en grootte:

Adres 1

Postcode/huisnummer: 5424CS 3

Straatnaam/woonplaats: Beekseweg Nijmegen

Buttons: +voeg adres toe, Importeer adressen

Footer: Onroerende Zaken Hyp4 : 46969/177 01-11-2021 09:00



Use of artificial intelligence (AI); Lessons learned

Transparency is important; publish what you do and how you do it
Public Algorithm directory: *Algoritmes.overheid.nl*

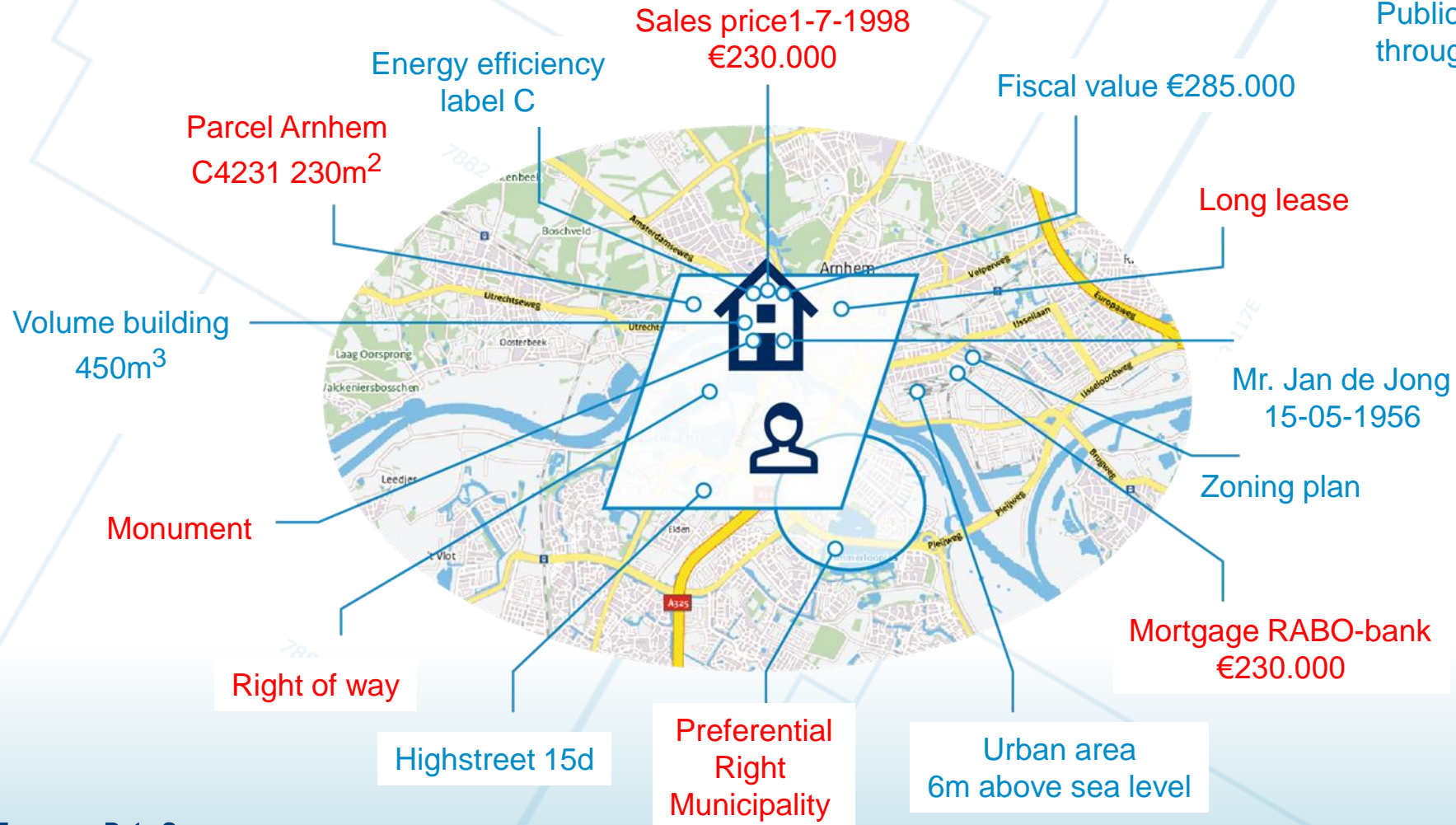
Start with application of AI in your primary processes
(extracting data from deeds; rebuilding the cadastral map)



A wealth of accessible information on real-estate

Cadastral Data

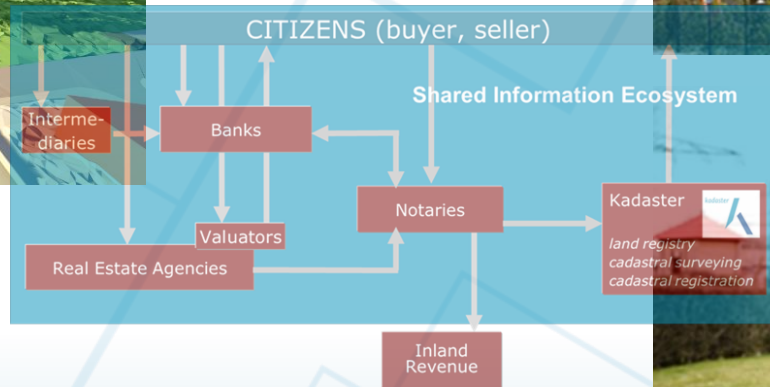
Public Data provided through Kadaster





Data sharing

Facing challenges in energy transition

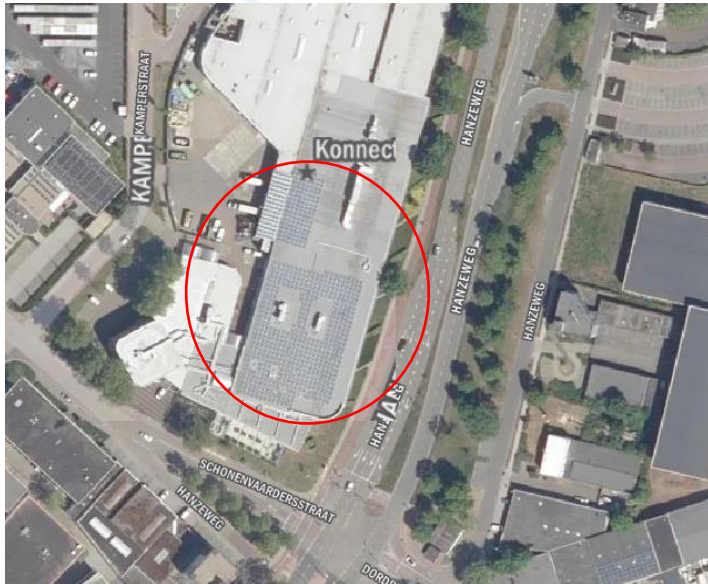


How do we incorporate additional information?
Facilities impact value, (use) rights, mortgaging

Example: Securing property rights of solar panels on rooftops

Regions strive to achieve 50% ownership on the large-scale renewable energy production in the local community (by citizens, cooperatives and businesses)

This Local Energy Initiative generates its own renewable energy with solar panels on the roof of a school or a piece of land nearby.



situation

- (D) **VÓORWAARDEN OPSTALRECHT**
6 **Inhoud van het recht**
6.1 Het Opstalrecht geeft Opstaller het recht om op het Dak, op casu quo in het Gebouw en op casu quo in de Onroerende Zaak de Opstallen aan te brengen, in eigendom te hebben en te houden, te gebruiken, te onderhouden, te herstellen en zo nodig te vervangen.
- 7 **Opstallen**
7.1 De Opstallen bestaan uit een fotovoltaïsche installatie bestaande onder meer uit zonnepanelen die zonlicht omzetten in elektriciteit met bijbehorend(e) omvormers, bekabeling, leidingen, draagstructuren, digitale kilowattuurtellerters, zekeringen, schakel- en meetbord en monitoringsinstallatie, aansluiting op de telefoonlijn of internetaansluiting, EAN-aansluiting (voor zover door Opstaller aangebracht conform artikel 7.3), alsmede alle andere zaken en constructies die met het voorgaande verband houden met bijbehorende voorzieningen en werken. Het al dan niet kwalificeren van de Opstallen als roerende zaken doet aan de bepalingen van deze akte niets af.
- 7.2 Tot de Opstallen behoren geen zaken die op basis van de wet eigendom zijn van de betreffende netbeheerder.
- 7.3 Opstaller is gerechtigd van de bestaande EAN-aansluiting op de Onroerende Zaak gebruik te maken voor de levering van elektriciteit aan het openbare elektranet. Eigenaar is aldus gehouden een dergelijk gebruik te dulden en de betreffende EAN-aansluiting in stand te houden. Opstaller heeft daarnaast te allen tijde de bevoegdheid voor eigen rekening de Opstallen aan te sluiten op het openbare elektranet en is als zodanig ook bevoegd een eigen (additionele) EAN-aansluiting op de Onroerende Zaak casu quo in het Gebouw aan te brengen.
- 7.4 De locatie van de Opstallen alsmede, voor zover van toepassing, de optionele locatie van de eigen (additionele) EAN-aansluiting zijn schetsmatig weergegeven op de plattegrond/tekening die als Bijlage 1 aan deze akte is gehecht.

Deed: Land register

RECHTEN

1 Eigendom belast met Opstalrecht Nutsvoorzieningen (zie 1.1)		
Soort recht	Eigendom (recht van)	
Afkomstig uit stuk	Hyp4 1945/36 Zwolle	
Naam gerechtigde	Rechtspersoonlijkheid Bezittende Lichaam Regionale Sociale Werkplaats Deventer En Omstreken	
Postadres	Schonenvaardersstraat 18009 7418 CC DEVENTER	
Statutaire zetel	DEVENTER	
1.1 Opstalrecht Nutsvoorzieningen		
Afkomstig uit stuk	Hyp4 69039/68	Ingeschreven op 15-09-2016 om 11:54
Naam gerechtigde	Deventer Energie Coöperatie U.A.	
Adres	Nieuwe Markt 23 7411 PB DEVENTER	
Statutaire zetel	DEVENTER	

Cadastral registration

Shared properties (the solar panels on rooftops) are registered by means of right of superficies

Example: Energy transition

Energy transition requires 50.000 additional transformer stations:
Choosing the best place for new transformer substations



Provide insight in suitable locations: e.g. preferably next to existing stations;
on public properties; not conflicting with existing use or coverage

Increasing spatial and legal demands for solar power

*What are suitable locations for solar fields and
Where are they already located?*

Based on various spatial characteristics, clusters of properties can be selected that are suitable for the construction of solar fields.



A few facts on solar fields in the Netherlands:

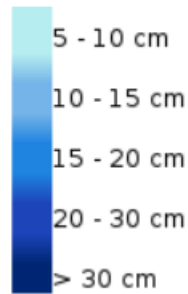
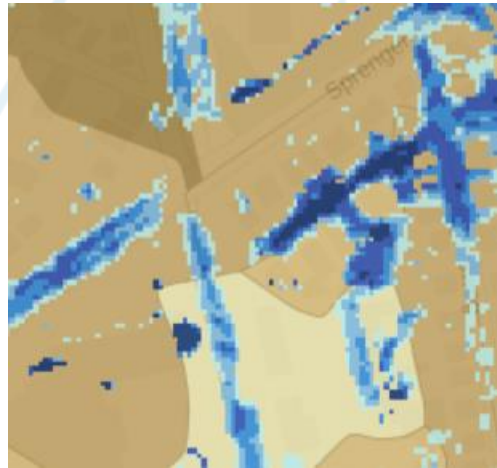
- Often next to highways and railways (44%);
- Mostly on former agricultural land;
- 19% (smaller ones) in built up areas;
- 75% freehold, 25% long lease and/or right of superficies

Leads to spatial planning issues
but also to tensions in the land market



Example: climate change and the built environment

Risk: Excessive Downpours



Risk: Foundation damage due to weak soil and groundwater lowering



Parties involved:

Land market (value)

Banks: mortgages

Insurance companies:
insurance premiums

Building industry
(prevention, recovery)

Utilities

Emergency services

Residents and users

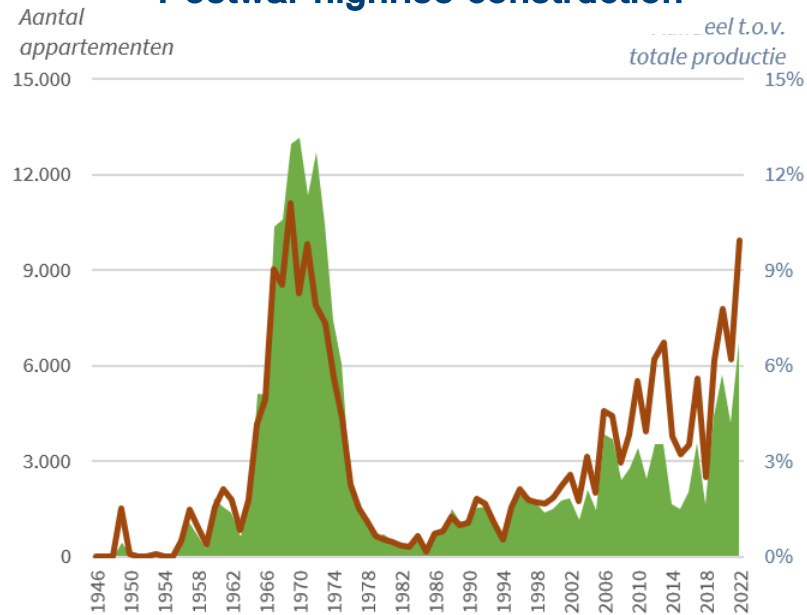




Analysis of apartments in High Rise Buildings



Postwar highrise construction



Key registers used:

- Cadastre
- Buildings and Addresses
- Land Register (AI)

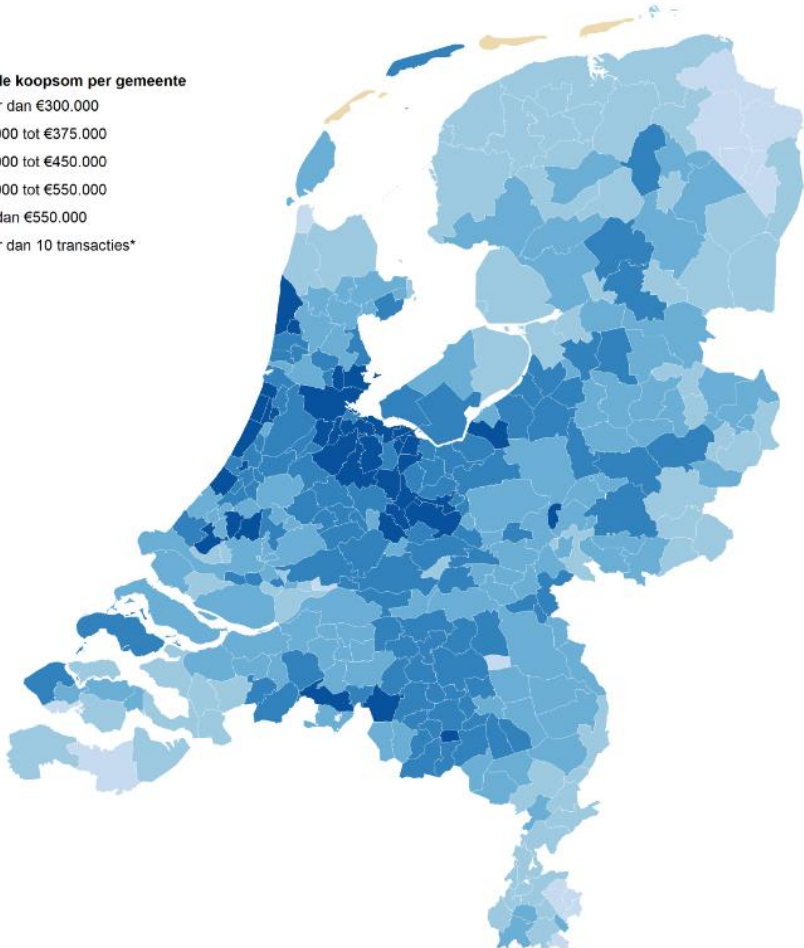
Source: Old versus new: high-rise buildings mapped in the Netherlands
<https://www.platform31.nl/artikelen/oud-versus-nieuw-hoogbouw-in-nederland-in-kaart-gebracht/>



Cadastre/LR as monitor of housing market (I)

Average sales price per municipality 2024 Q2

Gemiddelde koopsom per gemeente

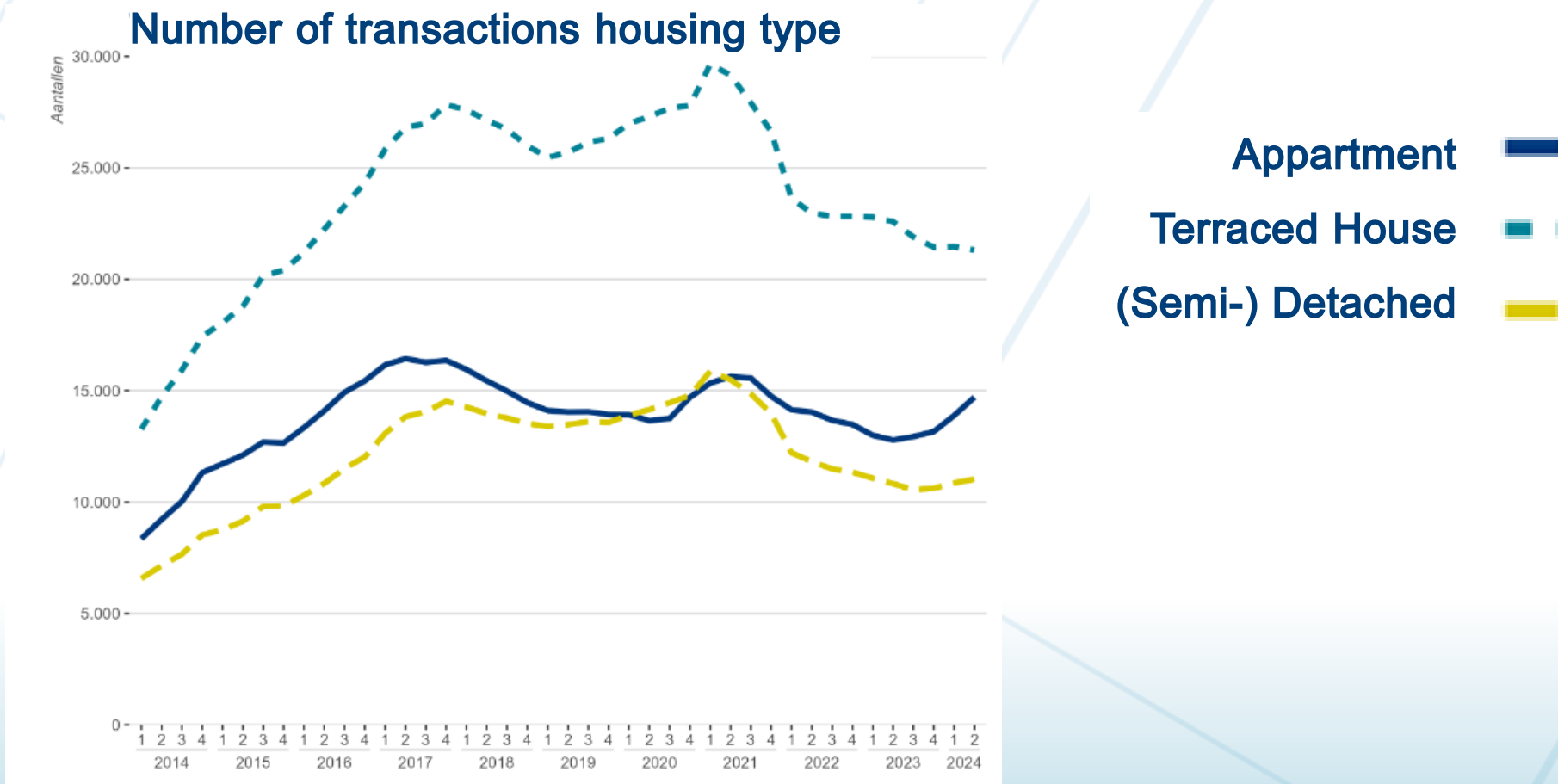


Monitors:

- transactions by investors
- transactions by age groups
- transactions by property type
- price index properties



Cadastre/LR as monitor of housing market (II)





Cadastral/Land Registry-data in other domains

Findable

OK

Accessible

API's, Data at the source

cadastral parcels HVD (open); LR: open access

Interoperable

Semantics, Currency

Re-usable

Partly

Metadata

Semantic Interoperability

European Data Policies

data governance act, data act, open data directive



Concluding observations

- A solid, connected (spatial/LR) data foundation is an ideal starting point
- Cadastre/Land register data is an essential component for addressing land and property related issues
- Effective land use relies on a combined information from various sources as it concerns cross sector issues.
- Cadastre/LR data are useful in the analysis, design and creation phase of land related issues as well in monitoring changes.

Living the pledge: joint value creation through responsible data use