



# GWFF

GEOSPATIAL WORLD FORUM

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# Cadaastre, Land Registry and Mapping Agency of the Netherlands

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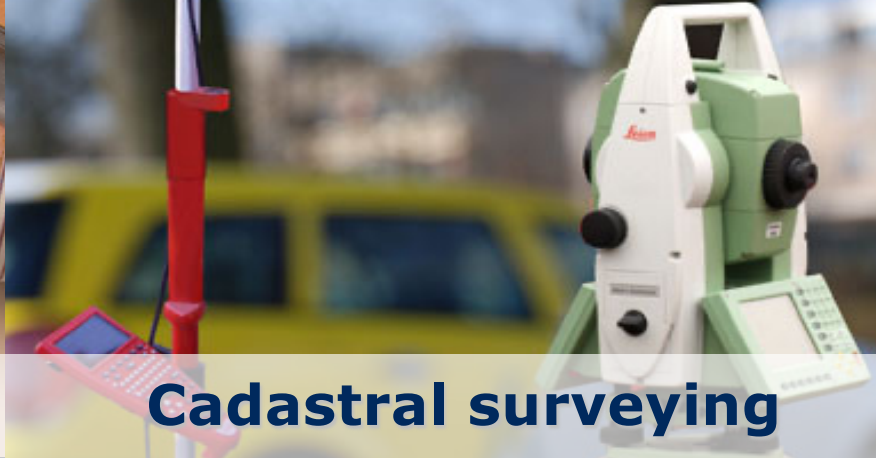
## Kadaster

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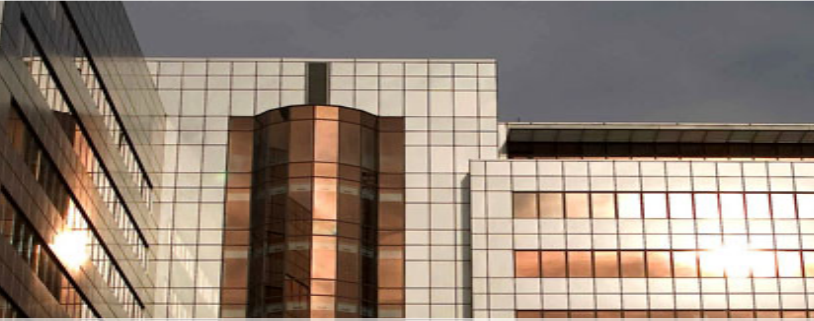
**Land registry**



**Cadastral surveying**



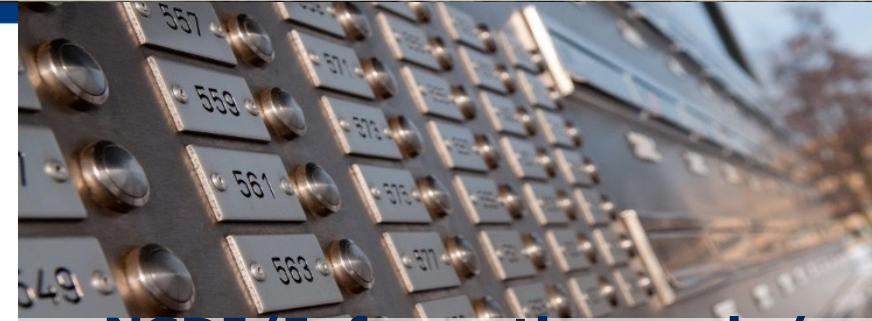
**Land consolidation**



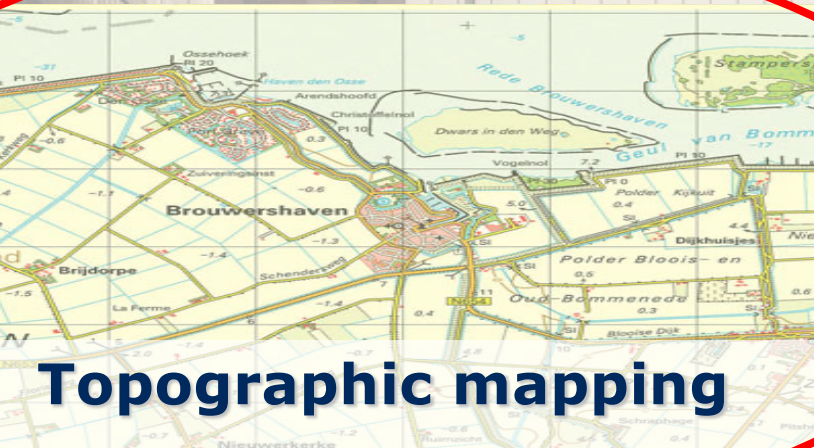
**Key registers**



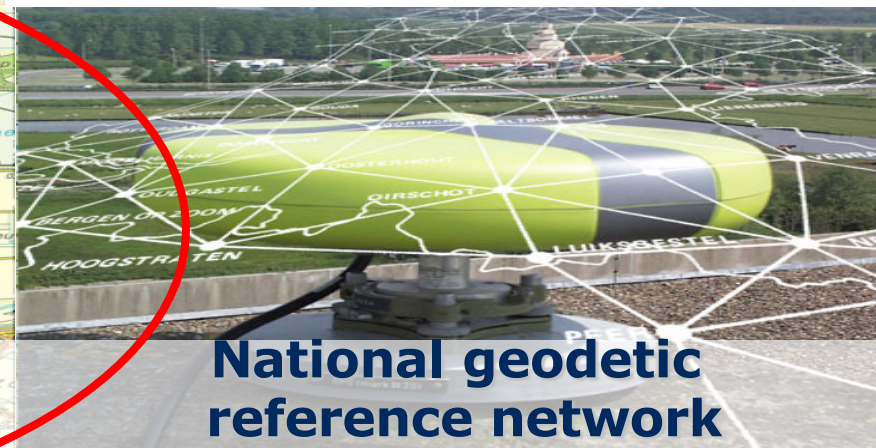
**Information Services**



**NSDI/Information node/  
E-government**



**Topographic mapping**



**National geodetic  
reference network**



**Cables & pipelines  
Information service**



# History of mapping in NL

1798: official topographical mapping of NL started (*Kraijenhoff map*)

1815: Topographical Bureau established

1850: The first topographic maps are printed

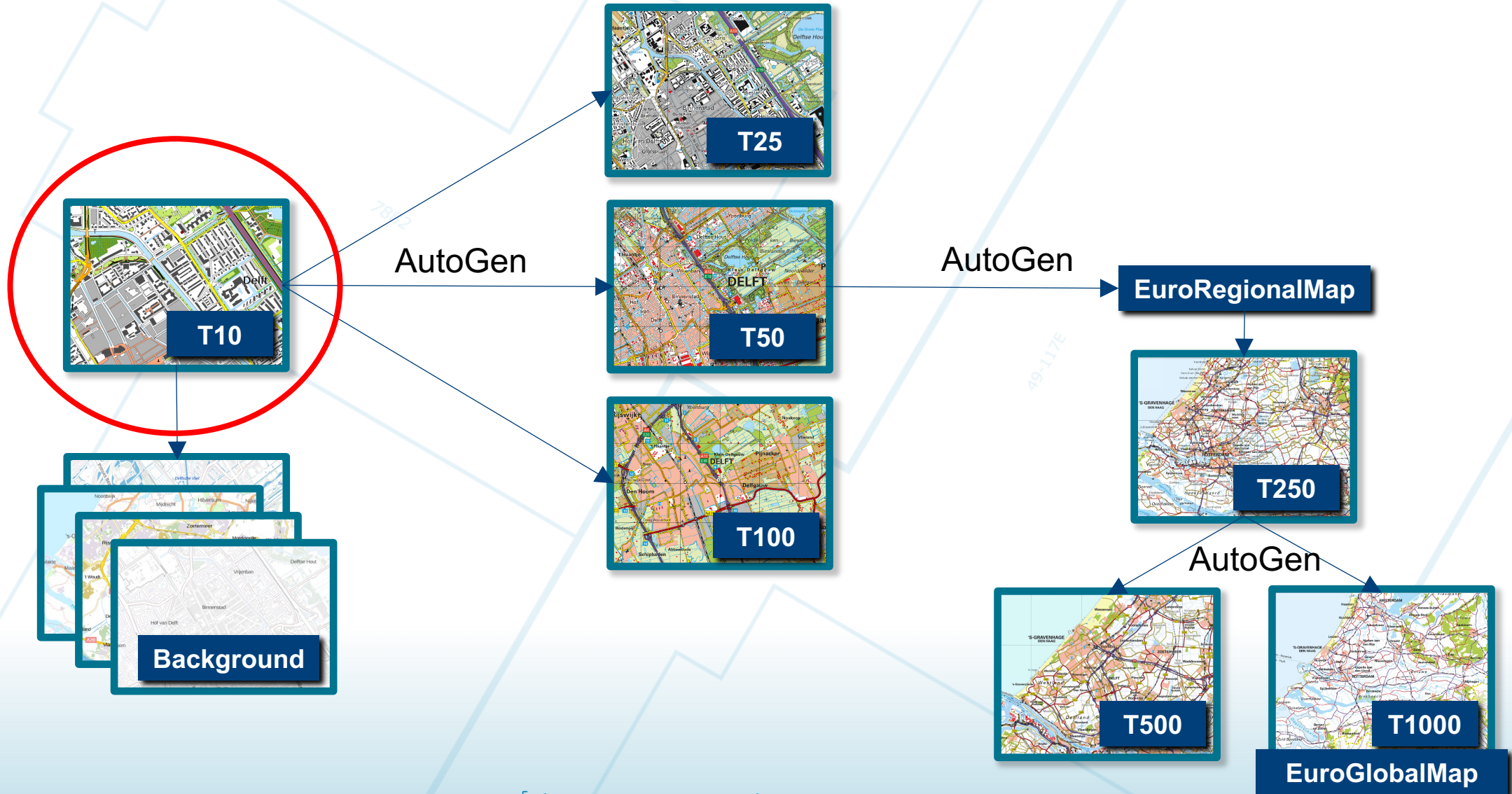


1932: Topographical Service, part of Ministry of Defence

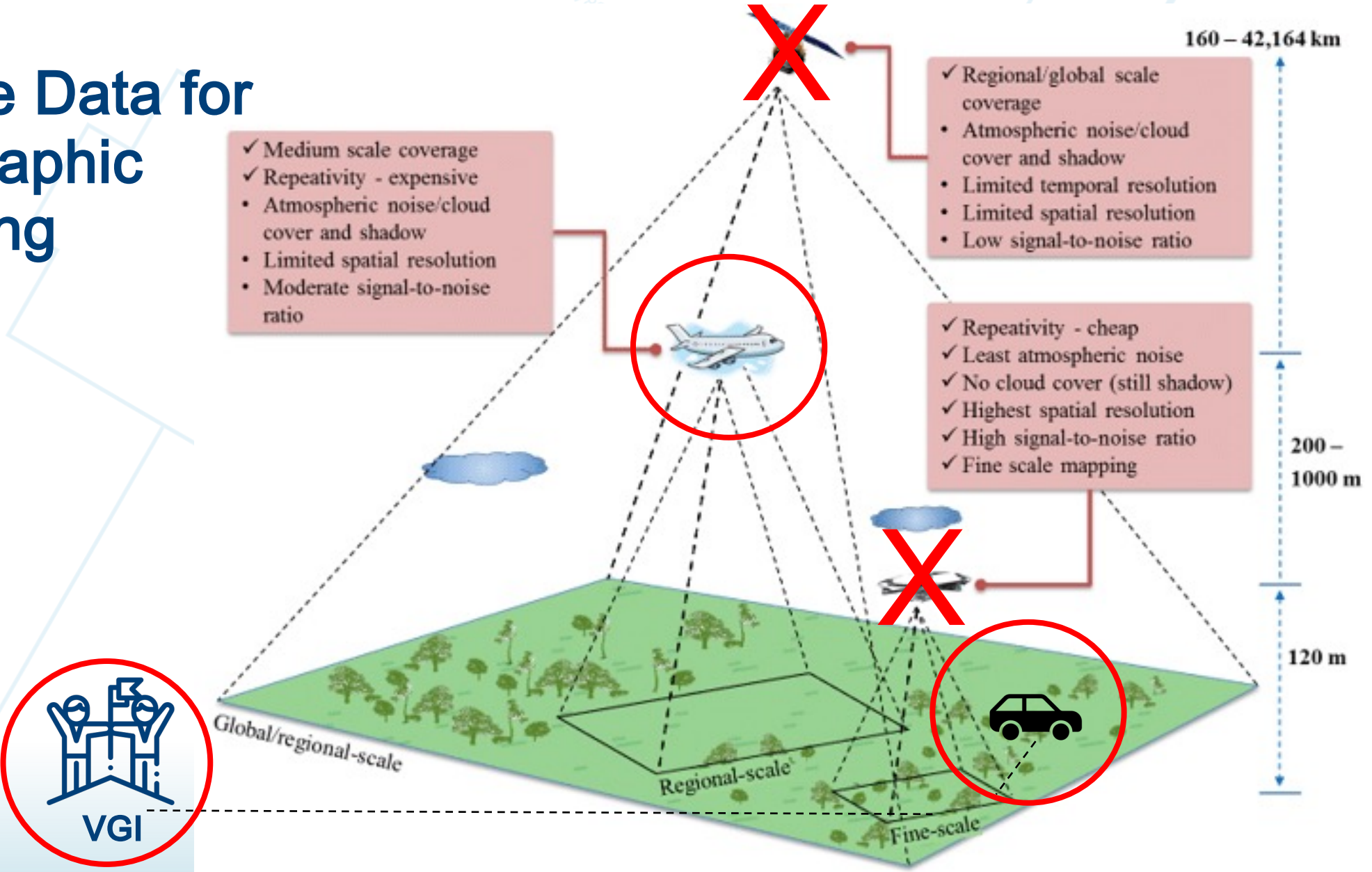
**1932: Start using aerial photography as source for topographic mapping**



# Topography – products



# Source Data for topographic mapping



Source: Banerjee and Raval, 2021

## Also other government organisations need imagery...

<b>Ministry of Internal Affairs</b>	Client
<b>Kadaster</b>	Topographic mapping
<b>National Railroad Company</b>	Asset management
<b>Ministry of Infrastructure and Water</b>	Road management
<b>Provinces</b>	Environmental planning, nature conservation
<b>Waterboards</b>	Monitoring of waterways and -levels
<b>Institute of Public Safety</b>	Disaster management
<b>Ministry of Economic Affairs and Climate</b>	Climate changes
<b>Ministry of Defence</b>	Monitoring of military areas
<b>National Police</b>	Reconstruction of crime scenes
<b>National Gas company</b>	Pipeline (re)construction
<b>State Forestry Department</b>	Monitoring of forests and national parks
<b>Netherlands Enterprise Agency</b>	Rural planning



# So why not join forces:

## Partnership imagery data (Beeldmateriaal)

- Ministry of Internal Affairs is client
- Joint procurement of aerial imagery
- Financed by partners
- 2 x per year new photo's
- Contract period 2 to 3 years
- Kadaster participates since 2012
- Jointly executed by Kadaster and Water Board House
- Data collection awarded to a number of private companies
- Responsibilities Kadaster:
  - Quality control
  - Storage
  - Data management
  - Distribution

### Partners

**Ministry of Internal Affairs**

**Water boards**

**Kadaster**

**National Road Authority**

**Provinces**

**National Railroad Company**

**Institute of Physical Safety**

**Ministry of Economic Affairs and Climate**

**Ministry of Defence**

**National Police**

**National Gas Company**

**State Forestry Department**

**Netherlands Enterprise Agency**

# Contract renewed every 2 – 3 years

	BM1	BM2	BM3	BM4	BM5	BM6?
<b>Resolution</b>	10 cm	10 cm	10 cm	4 - 10 cm	7,5 cm	...
	25 cm	25 cm	25 cm (open data)	25 cm (open data, also stereo)	25 cm (open data, also stereo)	...
<b>Year</b>	2012	2014	2016	2019	2021	2024

# Aerial Imagery

- High resolution winter photo's
  - 🏠 From mid February till mid April (trees without leaves!)
  - 🏠 7,5 cm stereo photo's
  - 🏠 8 cm ortho photo's
  - 🏠 RGB
  
- Low resolution summer photo's
  - 🏠 From May - August (crops, trees with leaves)
  - 🏠 25 cm stereo and ortho photo's
  - 🏠 RGB and Infrared
  
- CC BY 4.0 licence
- European tender to procure the imagery

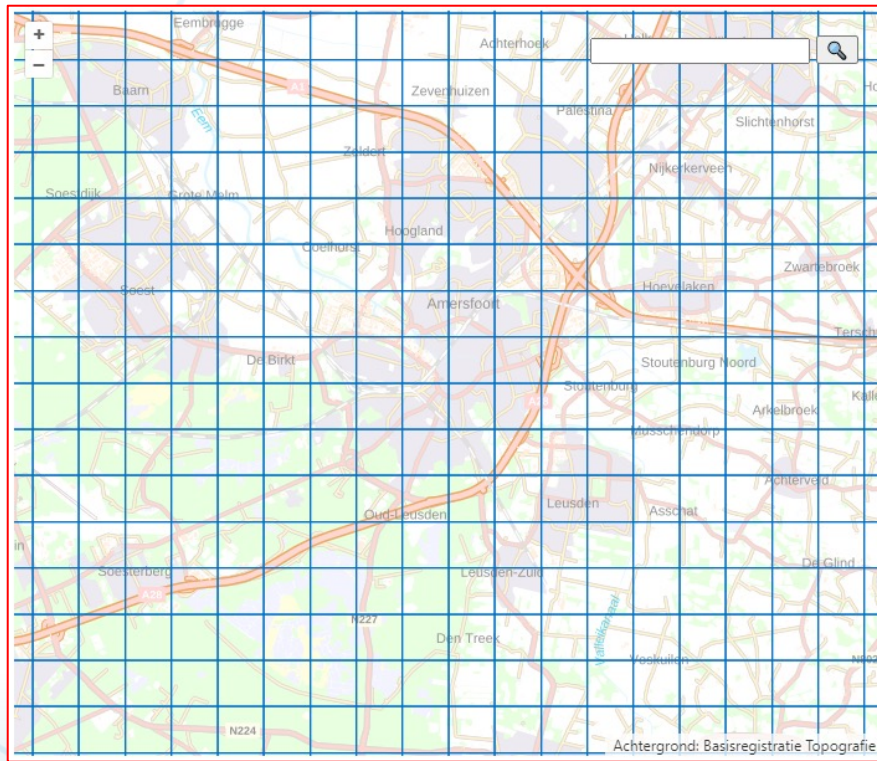
	HRL 7½ cm		LRL (25 cm)			
	RGB		RGB		CIR (IRG)	
	Stereo	Ortho	Stereo	Ortho	Stereo	Ortho
< 2016	Nee	Nee	Nee	Nee	Nee	Nee
2016	Nee	Nee	Nee	Ja	Nee	Ja
2017	Nee	Nee	Nee	Ja	Nee	Ja
2018	Nee	Nee	Nee	Ja	Nee	Ja
2019	Nee	Nee	Ja*	Ja	Ja*	Ja
2020	Nee	Nee	Ja*	Ja	Ja*	Ja
2021	Ja*	Ja	-	-	-	-
2022	Ja*	Ja	Ja*	Ja	Ja*	Ja
2023	Ja*	Ja	Ja*	Ja	Ja*	Ja
2024						

# Distribution via national geoportal PDOK.nl

The screenshot shows the PDOK.nl national geoportal interface. At the top left is the PDOK logo. Below it is a search bar labeled 'Voer locatie in' with a search icon and a close button. To the right of the search bar is the word 'Datsets'. Below the search bar is a dropdown menu labeled 'Selecteer een dataset'. The dropdown menu is open, showing a list of datasets with expand/collapse icons (+/-). The list is divided into three sections: 'Achtergrond kaarten (1/5)', 'Overige kaarten (94)', and '1 actieve dataset'. The 'Achtergrond kaarten' section includes: BGT Achtergrondkaart (1), BRT Achtergrondkaart (1/4), Luchtfoto's (2), OpenTopo Achtergrondkaart (1), and PDOK Luchtfotolabels (1). The 'Overige kaarten' section includes: Actueel Hoogtebestand Nederland (17), Administratieve Eenheden (Inspire) (2), Agrarisch Areaal Nederland (1), Basisregistratie Adressen en Gebouwen (BAG) (8), and Basisregistratie Gewaspercelen (BRP) (1). The main map area shows a map of the Netherlands with various cities and regions labeled, including Noordzee, Waddenzee, IJsselmeer, and Westerschelde. A scale bar at the bottom indicates 50 km and a scale of 1:1536000. A small box at the bottom left of the map area says '1 actieve dataset'.

Product	Servicetype	Projectie	URL
PDOK RGB 8 cm (vanaf 2021) en 25 cm (vanaf 2016)	WMS	EPSG: 28992, 3857, 4258, 4326, 25831, 25832	<a href="#">Link</a>
	WMTS	EPSG: 28992, 3857, 4258, 4326, 25831, 25832	<a href="#">Link</a>
PDOK Infrarood 25 cm (vanaf 2016)	WMS	EPSG: 28992, 3857, 4258, 4326, 25831, 25832	<a href="#">Link</a>
	WMTS	EPSG: 28992, 3857, 4258, 4326, 25831, 25832	<a href="#">Link</a>

# ...and the Water Board House



	RGB	CIR (IRG)
2016	<a href="#">.ecw</a> (112 GB), <a href="#">.ecw.xml</a> , <a href="#">.eww</a>	<a href="#">.ecw</a> (102 GB), <a href="#">.ecw.xml</a> , <a href="#">.eww</a>
2017	<a href="#">.ecw</a> (123 GB), <a href="#">.ecw.xml</a> , <a href="#">.eww</a>	<a href="#">.ecw</a> (111 GB), <a href="#">.ecw.xml</a> , <a href="#">.eww</a>
2018	<a href="#">.ecw</a> (129 GB), <a href="#">.ecw.xml</a> , <a href="#">.ecw.aux.xml</a> , <a href="#">.eww</a>	<a href="#">.ecw</a> (119 GB), <a href="#">.ecw.xml</a> , <a href="#">.ecw.aux.xml</a> , <a href="#">.eww</a>
2019	<a href="#">.ecw</a> (238 GB), <a href="#">.ecw.xml</a> , <a href="#">.aux</a> , <a href="#">.ecw.aux.xml</a>	<a href="#">.ecw</a> (220 GB), <a href="#">.ecw.xml</a> , <a href="#">.aux</a> , <a href="#">.ecw.aux.xml</a>
2020	<a href="#">.ecw</a> (181 GB), <a href="#">.ecw.aux.xml</a>	<a href="#">.ecw</a> (169 GB), <a href="#">.ecw.aux.xml</a>
2021	-	-
2022	<a href="#">.ecw</a> (254 GB), <a href="#">.ecw.aux.xml</a>	<a href="#">.ecw</a> (253 GB), <a href="#">.ecw.aux.xml</a>
2023	<a href="#">.ecw</a> (260 GB), <a href="#">.ecw.aux.xml</a>	<a href="#">.ecw</a> (258 GB), <a href="#">.ecw.aux.xml</a>
2024		



# Conclusion

## Partnership Imagery example of a national service:

- Government organisations working together, breaking down silo's
- Efficient procurement process, less redundancy
- Ecologically sustainable, less flights
- Cheaper for each partner
- Comparable source data
- Consistency over the years

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