GŁÓWNY URZĄD GEODEZJI I KARTOGRAFII

Good practice proposals

Marcin Grudzień

15th MIG meeting

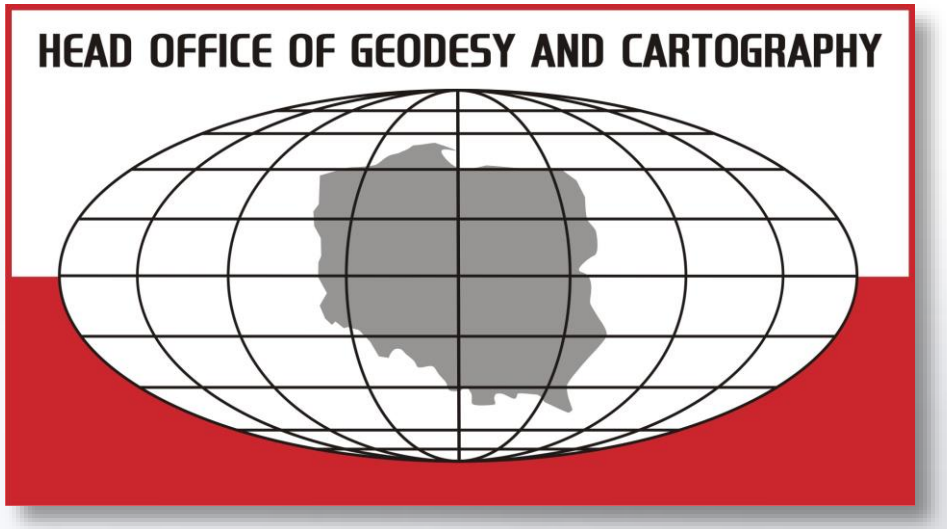
31st March 2022

Agenda

- Making spatial data downloadable via WMS services
- Building one access point to dispersed data sources

Who are we?

- The Head Office of Geodesy and Cartography (GUGiK) is Polish National Mapping and Cadastral Authority
- The Head of GUGiK is the Surveyor General of Poland (SGoP) who is also the Head of the Polish Geodetic and Cartographic Service
- SGoP coordinates INSPIRE implementation in Poland
- SGoP is directly responsible for the harmonisation of datasets for 15 INSPIRE themes



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Good practice proposal – Making spatial data downloadable via WMS services

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Description of the GP

- INSPIRE framework defines different types of network services responsible mainly for providing spatial data to the users. The most popular are:
  - view services that allow the users to display the data and
  - download services that allow downloading copies of the spatial datasets
- In general, out of these two, view services seem to be less complex
  - from a user perspective
    - more supporting client applications
    - fewer compatibility issues
  - from a data provider perspective
    - easier to set up
- Therefore, it is to be a good practice to make spatial data downloadable via view services as a supplement to standard download services.

Intendent outcome

Users via WMS services (or, to be more specific, via GetFeatureInfo response) should have access to:

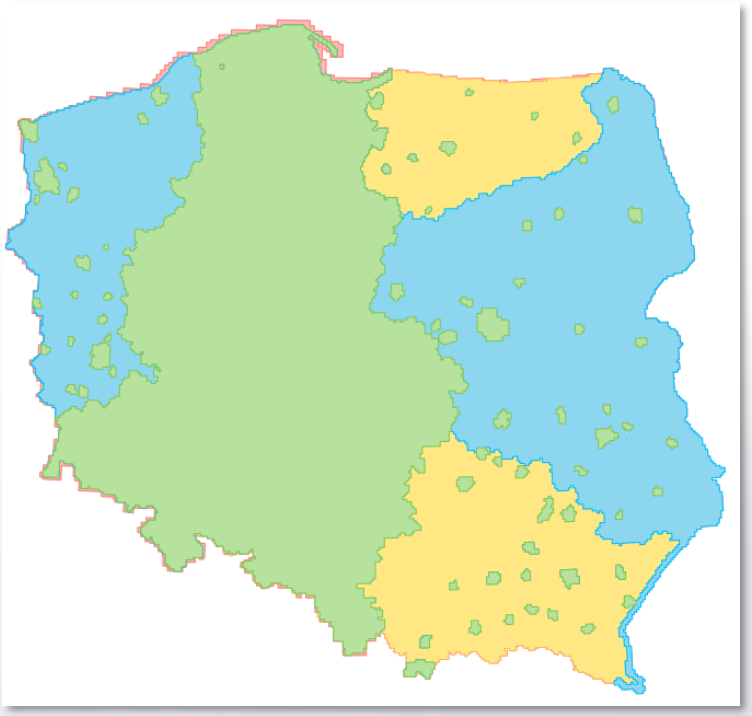
- basic metadata describing spatial datasets or their subset
- link (URL) to download the dataset or its subset

This is achieved by publishing index maps with customised GetFeatureInfo responses.

Evidence of implementation (1)

WMS services published in Poland allows to download:

- orthoimagery
  - based on currency https://mapy.geoportal.gov.pl/wss/service/PZGIK/ORTO/WMS/SkorowidzeWgAktualnosci
  - based on pixel size https://mapy.geoportal.gov.pl/wss/service/PZGIK/ORTO/WMS/SkorowidzeWgRozdzielczosci
  - true ortho https://mapy.geoportal.gov.pl/wss/service/PZGIK/ORTO/WMS/SkorowidzePrawdziwejOrtofotomapy
- digital elevation model (DEM)
  - KRON86 elevation system https://mapy.geoportal.gov.pl/wss/service/PZGIK/NMT/WMS/SkorowidzeUladKRON86
  - EVRF2007 elevation system https://mapy.geoportal.gov.pl/wss/service/PZGIK/NMT/WMS/SkorowidzeUkladVRF2007
- digital terrain model (DTM)
  - KRON86 elevation system https://mapy.geoportal.gov.pl/wss/service/PZGIK/NMPT/WMS/SkorowidzeUkladKRON86
  - EVRF2007 elevation system https://mapy.geoportal.gov.pl/wss/service/PZGIK/NMPT/WMS/SkorowidzeUkladEVRF2007
- LIDAR data
  - KRON86 elevation system https://mapy.geoportal.gov.pl/wss/service/PZGIK/DanePomNMT/WMS/SkorowidzeUkladKRON86
  - EVRF2007 elevation system https://mapy.geoportal.gov.pl/wss/service/PZGIK/DanePomNMT/WMS/SkorowidzeUkladEVRF2007
- land register annual sheet
  - 2021 https://mapy.geoportal.gov.pl/wss/service/PZGIK/EGIB/WMS/KrajoweZestawienieZbiorcze2021
  - 2020 https://mapy.geoportal.gov.pl/wss/service/PZGIK/EGIB/WMS/KrajoweZestawienieZbiorcze
- topography
  - general geographic database (250k) https://integracja.gugik.gov.pl/cgi-bin/BDOO
  - topographic database (10k) https://integracja.gugik.gov.pl/cgi-bin/PobieranieBDOT10k
  - 3D buildings models https://integracja.gugik.gov.pl/cgi-bin/ModeleBudynkow3D
  - typhiological maps https://mapy.geoportal.gov.pl/wss/service/PZGIK/mapy/WMS/SkorowidzMapTyflologicznych
- geodetic network points
  - basic https://integracja.gugik.gov.pl/cgi-bin/PodstawowaOsnowaGeodezyjna
  - archived catalogue https://mapy.geoportal.gov.pl/wss/service/PZGIK/Osnowy/WMS/Archiwalne_kartoteki
- photogrammetric data
  - photogrammetric control points https://mapy.geoportal.gov.pl/wss/service/PZGIK/ZDJ/WMS/Fotopunkty
  - aerotriangulation https://mapy.geoportal.gov.pl/wss/service/PZGIK/ZDJ/WMS/Aerotriangulacja
  - mosaic lines https://mapy.geoportal.gov.pl/wss/service/PZGIK/ZDJ/WMS/Aerotriangulacja
  - intensity images https://mapy.geoportal.gov.pl/wss/service/PZGIK/OI/WMS/SkorowidzeObrazowIntensywnosci
- register of geographical names https://mapy.geoportal.gov.pl/wss/service/PZGIK/OI/WMS/SkorowidzeObrazowIntensywnosci
- register of administrative units and address https://integracja.gugik.gov.pl/cgi-bin/PanstwowyRejestrGranic



Evidence of implementation (2)

Sources of data:

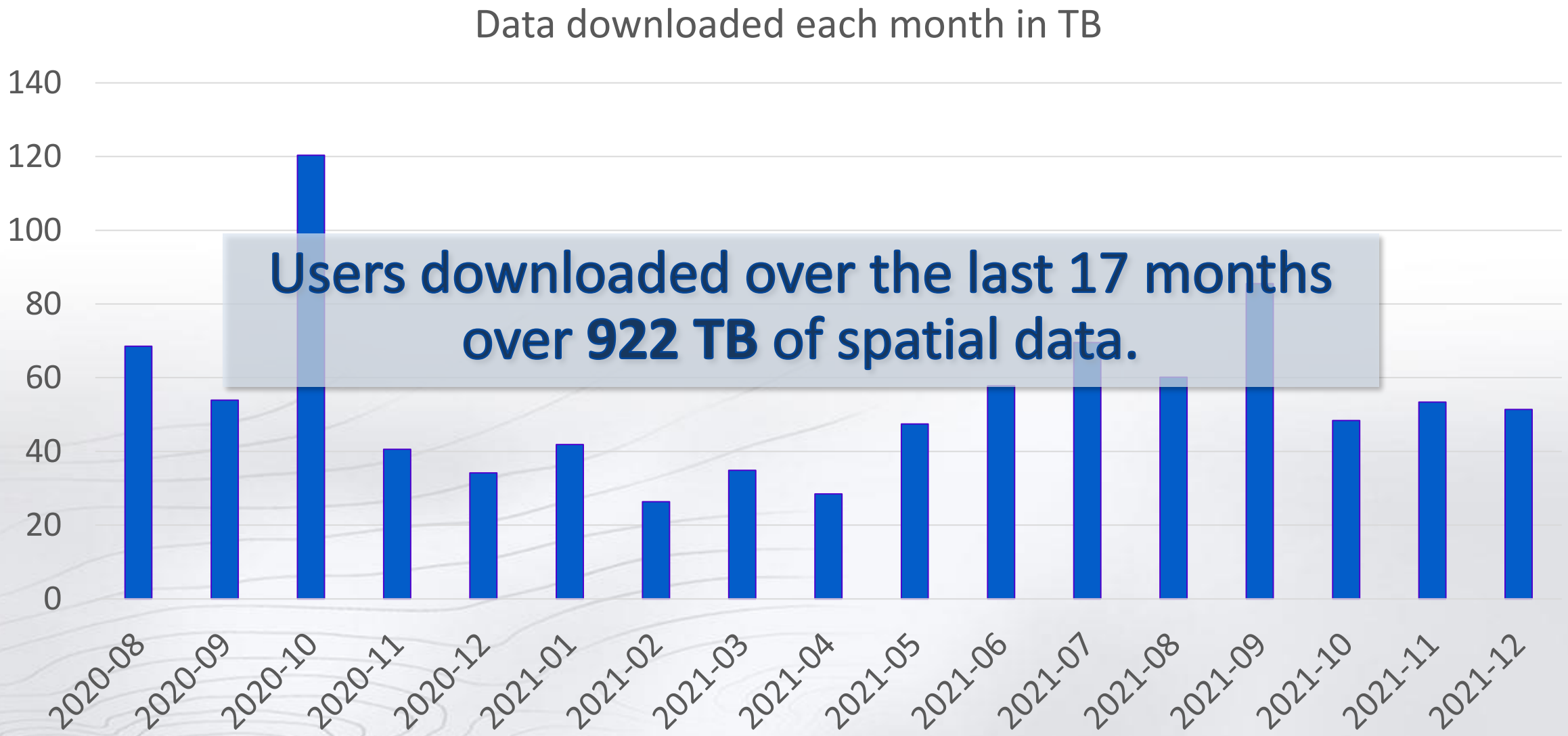
- Majority of published data sets comes from GUGiK e.g. orthoimagery
- However there are many exceptions
  - Topographic Database (10k) is maintained at regional (voivodship) level by 16 Voivodship Marshals
  - Administrative units are derived based on data supplied by 380 counties
  - Addresses are captured and maintained at local (gmina) level by 2477 communes

Evidence of implementation (3)

INSPIRE themes covered

- Addresses
- Administrative units
- Coordinate reference systems
- Geographical names
- Hydrography
- Protected sites
- Transport networks
- Elevation
- Orthoimagery
- Area management / restriction / regulation zones & reporting units
- Land cover
- Buildings
- Land use
- Production and industrial facilities
- Utility and governmental services

Evidence of implementation (4)



Users downloaded over the last 17 months over 922 TB of spatial data.

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Description of the GP (1)

- Datasets maintained at a local level independently by different municipalities often:
  - Are very similar: have the same content, data model, structure, portrayal etc.
  - Have different spatial extend limited by boundaries of municipalities

- A good example is cadastral data in Poland that is maintained by 380 counties (powiaty)
  - Counties maintain the cadastral datasets in the same national data model
  - Each county maintains a cadastral dataset limited spatially to its boundaries
  - Each county is obliged by law to publish network services providing dataset the county maintains
  - This results in 380 WMS services published by counties providing cadastral datasets

Description of the GP (2)

Let's create a proxy, collective service that integrates local services

Originator and author of collective services is Professor Waldemar Izdebski

Benefits

One endpoint for a particular dataset (e.g. cadastre) for the entire country

- It saves user's time – the user doesn't have to search for endpoints of view services published by different counties
- It hides the complexity of the SDI implementation – from the user perspective, integrated service provides access to one seamless dataset

Evidence of implementation (1)

There are the following integrating WMS services available:

- KIEG – cadastral data (cadastral parcels and buildings) https://integracja.gugik.gov.pl/cgi-bin/KrajowaIntegracjaEwidencjiGruntow
- KIUT – utility infrastructure data (electricity, water, telecommunication, sewers, gas and other networks) https://integracja.gugik.gov.pl/cgi-bin/KrajowaIntegracjaUzbrojeniaTerenu
- KIBDOT – large scale topographic data (containing the location of fences, trees, curbs, etc.) https://integracja.gugik.gov.pl/cgi-bin/KrajowaIntegracjaBazDanychObiektowTopograficznych
- KIMP – local development plans https://mapy.geoportal.gov.pl/wss/ext/KrajowaIntegracjaMiejscowychPlanowZagospodarowaniaPrzestrzennego
- KISKZP – local land use study https://mapy.geoportal.gov.pl/wss/ext/KrajowaIntegracjaStudiumKierunkowZagospodarowaniaPrzestrzennego

Evidence of implementation (2)

Number of integrated local services

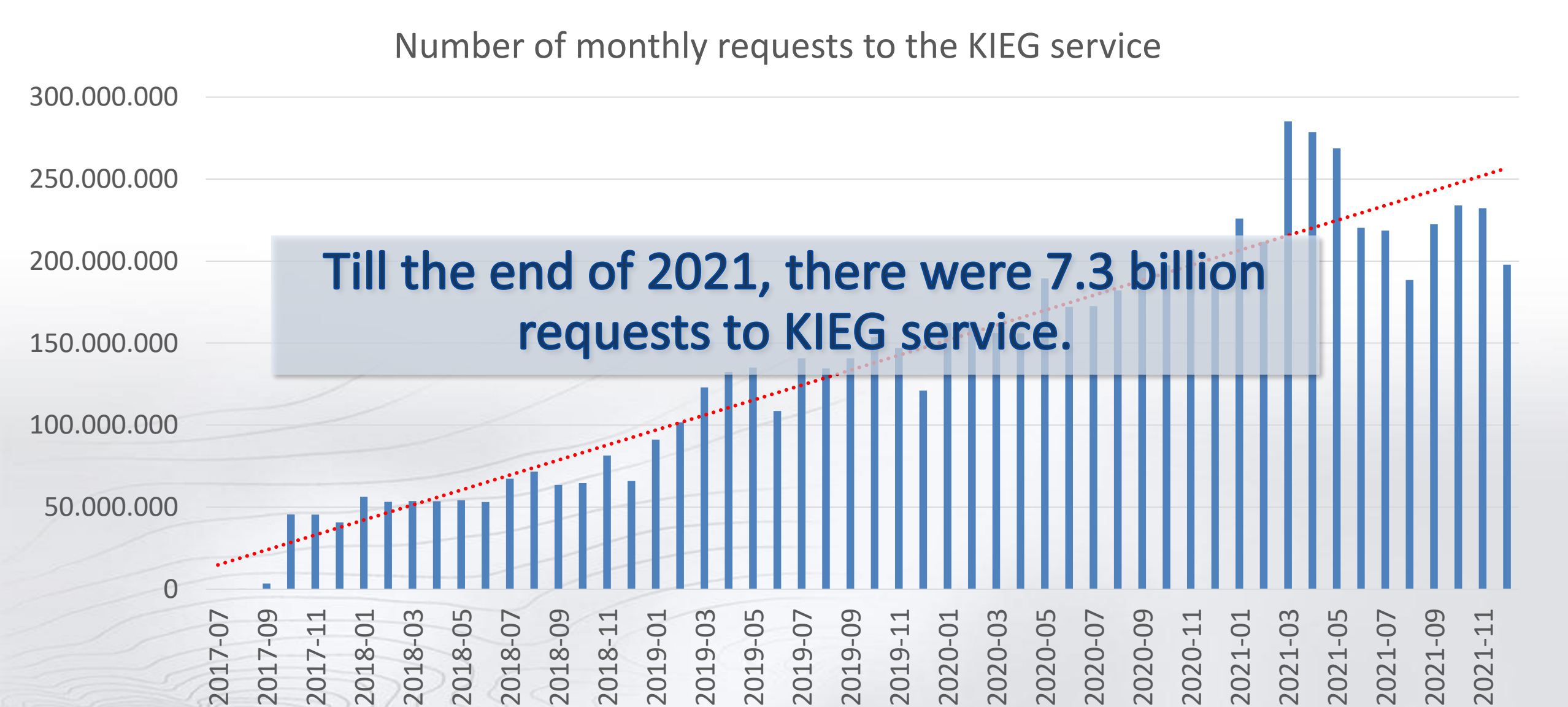
- KIEG – 380 counties
- KIUT – 380 counties
- KIBDOT – 126 counties
- KIMP – 1564 communes
- KISKZP – 1052 communes

Evidence of implementation (3)

INSPIRE themes covered

- Administrative units
- Cadastral parcels
- Hydrography
- Transport networks
- Elevation
- Land cover
- Buildings
- Land use
- Soil
- Utility and governmental services

Evidence of implementation (4)

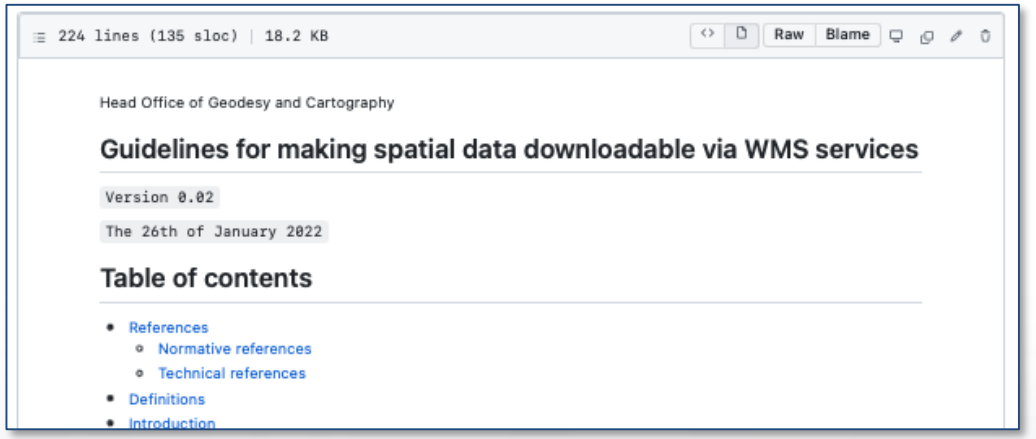


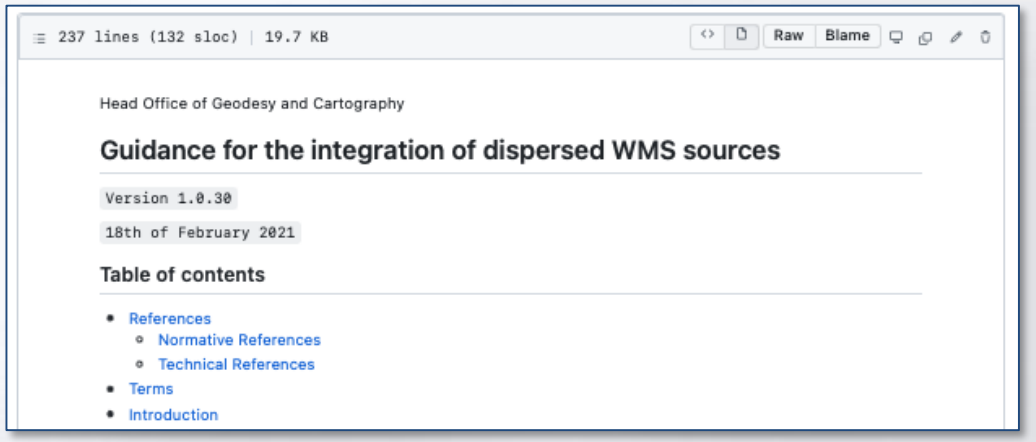
Till the end of 2021, there were 7.3 billion requests to KIEG service.

More information

More information you can find on the JRC GitHub repository:

- Data downloadable via WMS https://github.com/INSPIRE-MIF/gp-data-download-wms
- Single access point to dispersed data sources https://github.com/INSPIRE-MIF/gp-single-access-point





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Thank you for your attention.

Questions?

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