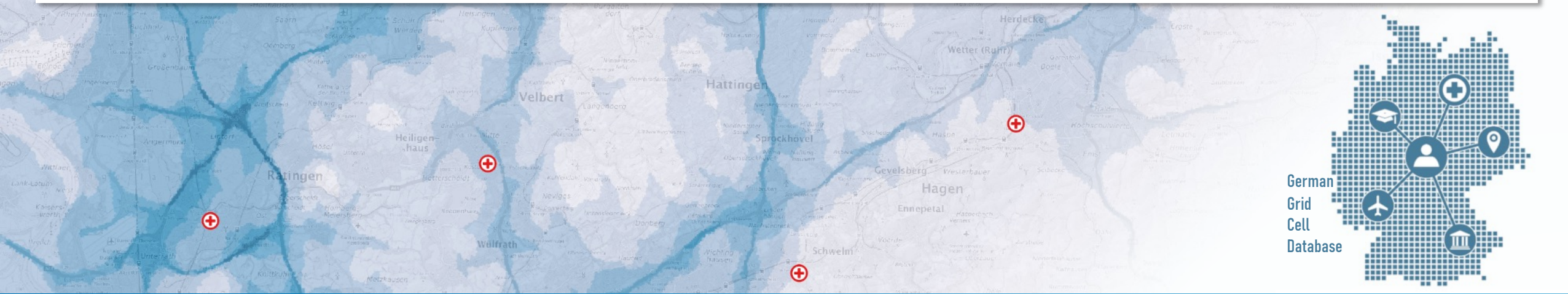




Federal Agency for
Cartography and Geodesy



German
Grid
Cell
Database



German Grid Cell Database: From Spatial to Statistics

Benjamin Würzler, Federal Agency for Cartography and Geodesy (BKG)

eurostat 

German Grid Cell Database

Project Duration: February 2021 – January 2023

Involved Organisations:

- Federal Statistical Office (Destatis),
- Johann Heinrich von Thünen Institute (Thünen),
- Federal Agency for Cartography and Geodesy (BKG)

Project Grant: EU-Grant (ESTAT-2020-PA8-S-E-GEOS)




**Project management/lead and
main stakeholder**



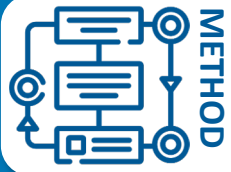

Scientific support and advice



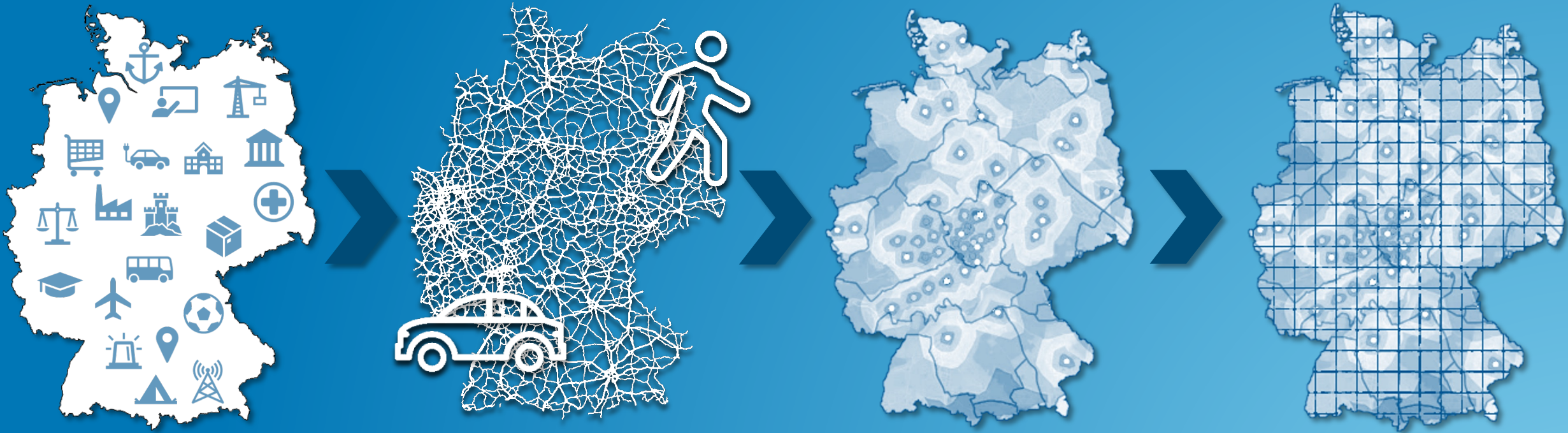

Software development

Project Goals

- Developing an operative method for the generation, processing and maintenance of accessibility areas from given Points of Interest (POI)
- Establish and install a suitable permanent IT infrastructure at Destatis and BKG



Determining accessibility areas helps to answer:
“Who can reach what, where, and how in what time?”



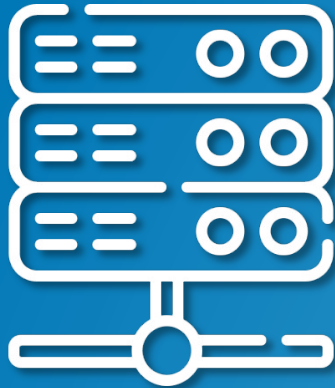


Technical implementation



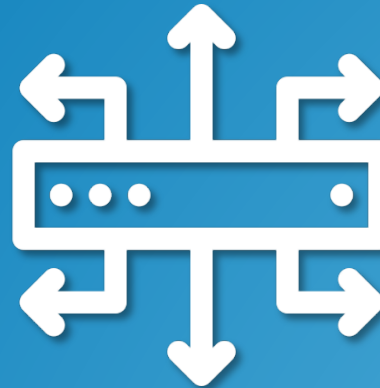
Input data

- *.csv-file with x (longitude) and y (latitude) coordinates
- Up to 100.000 POI



Management server

- Django Backend with [celery] task queue
- Administration and synchronisation



Routing server

- Uses the routing service RoutingPlus
- Graphs are made from OpenStreetMap



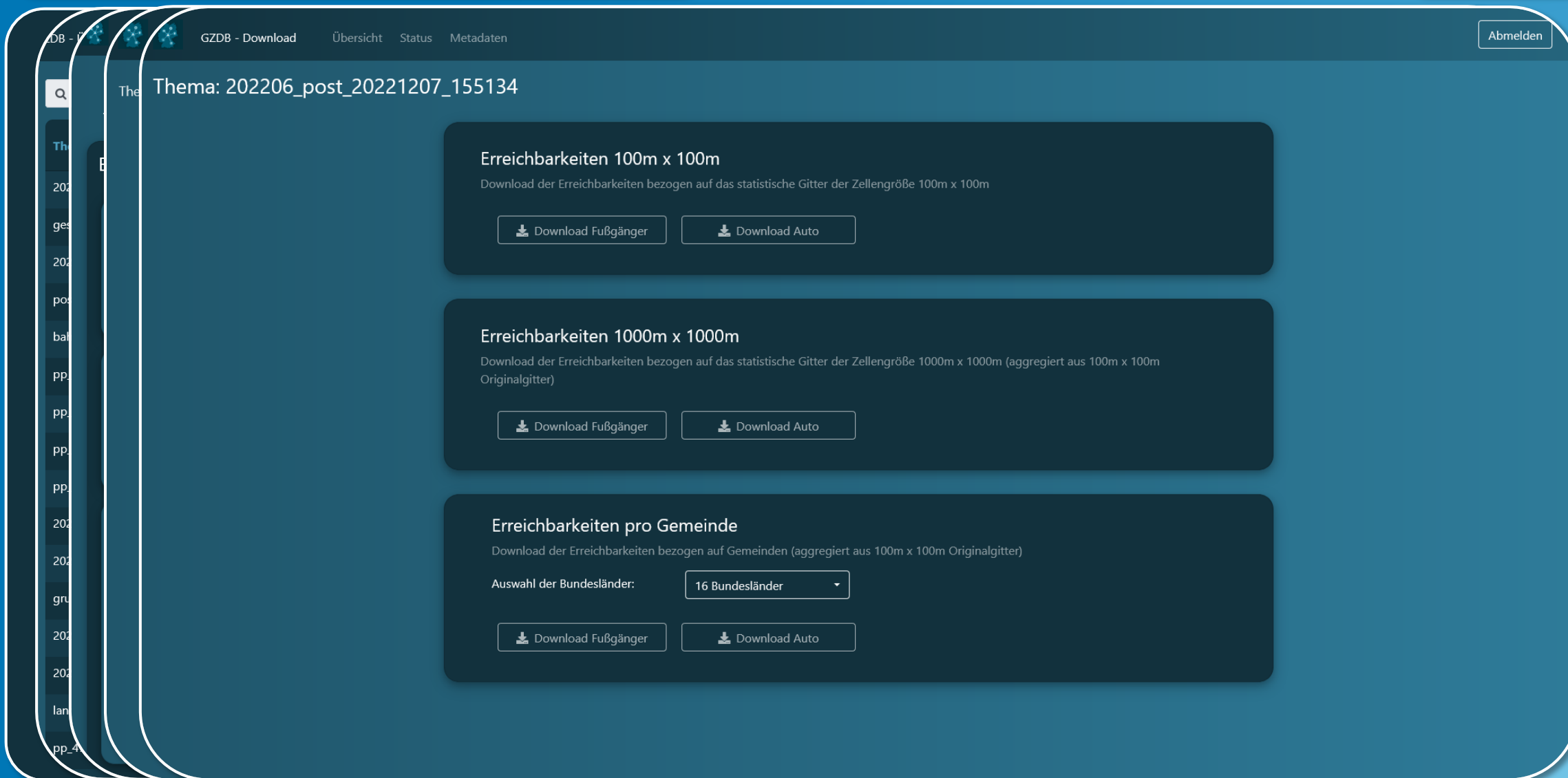
Database

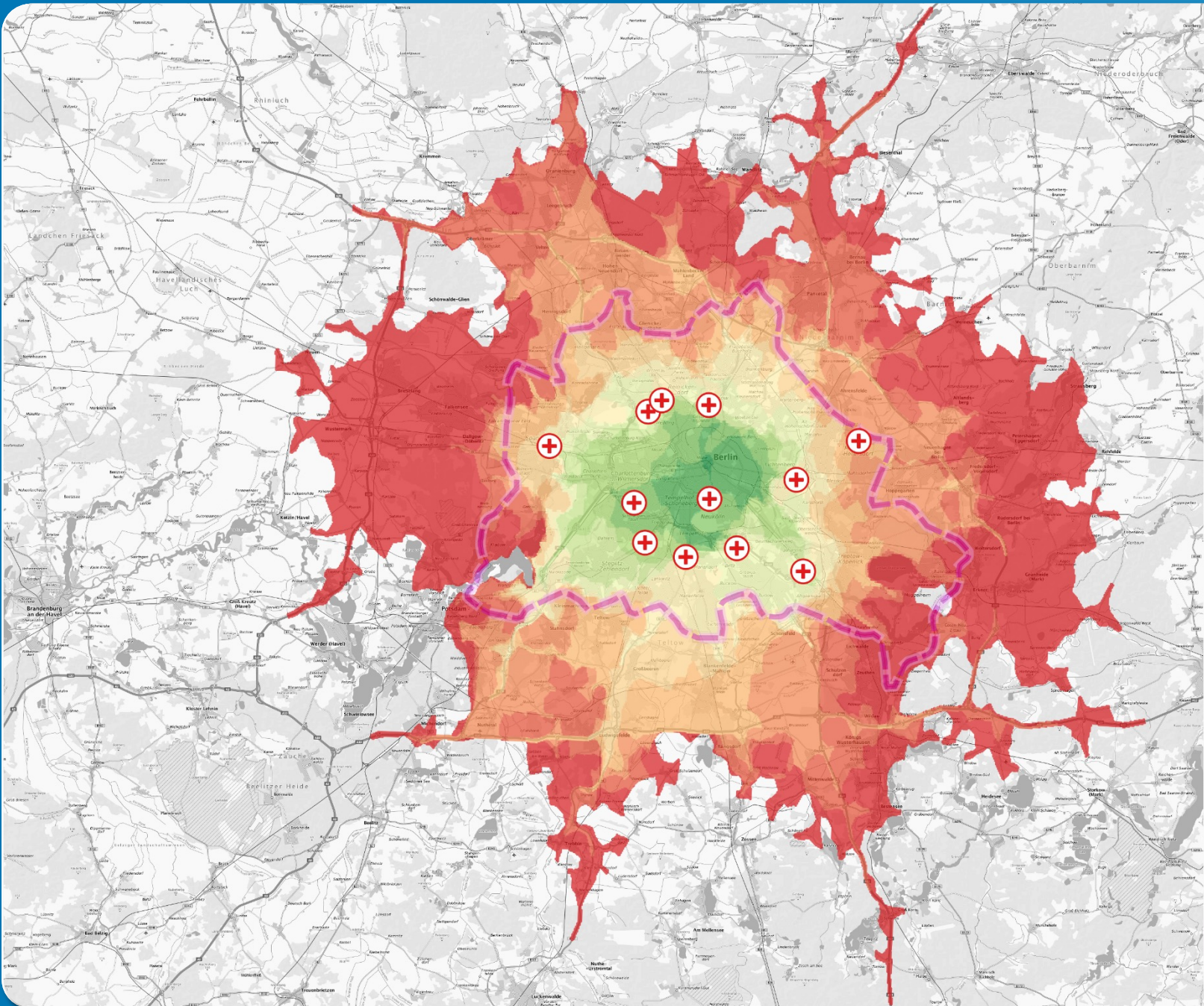
- PostgreSQL-PostGIS database
- Data collation, processing and storage



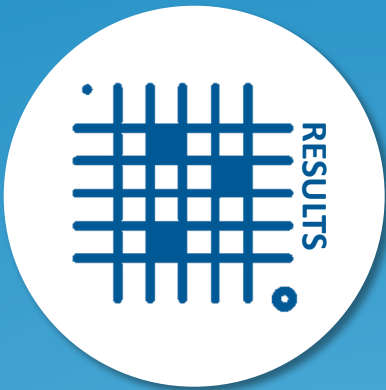
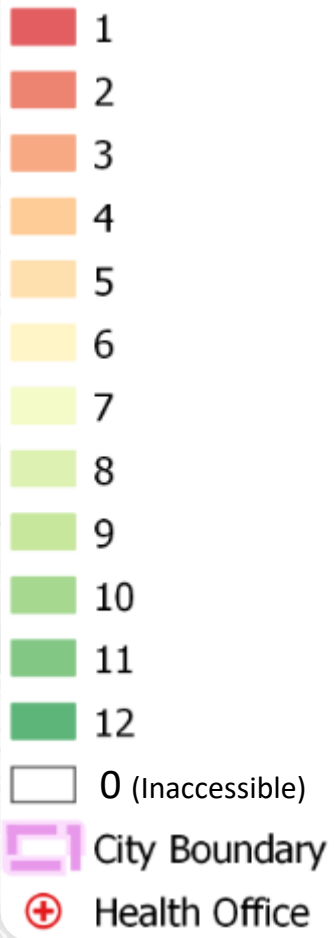


Technical implementation



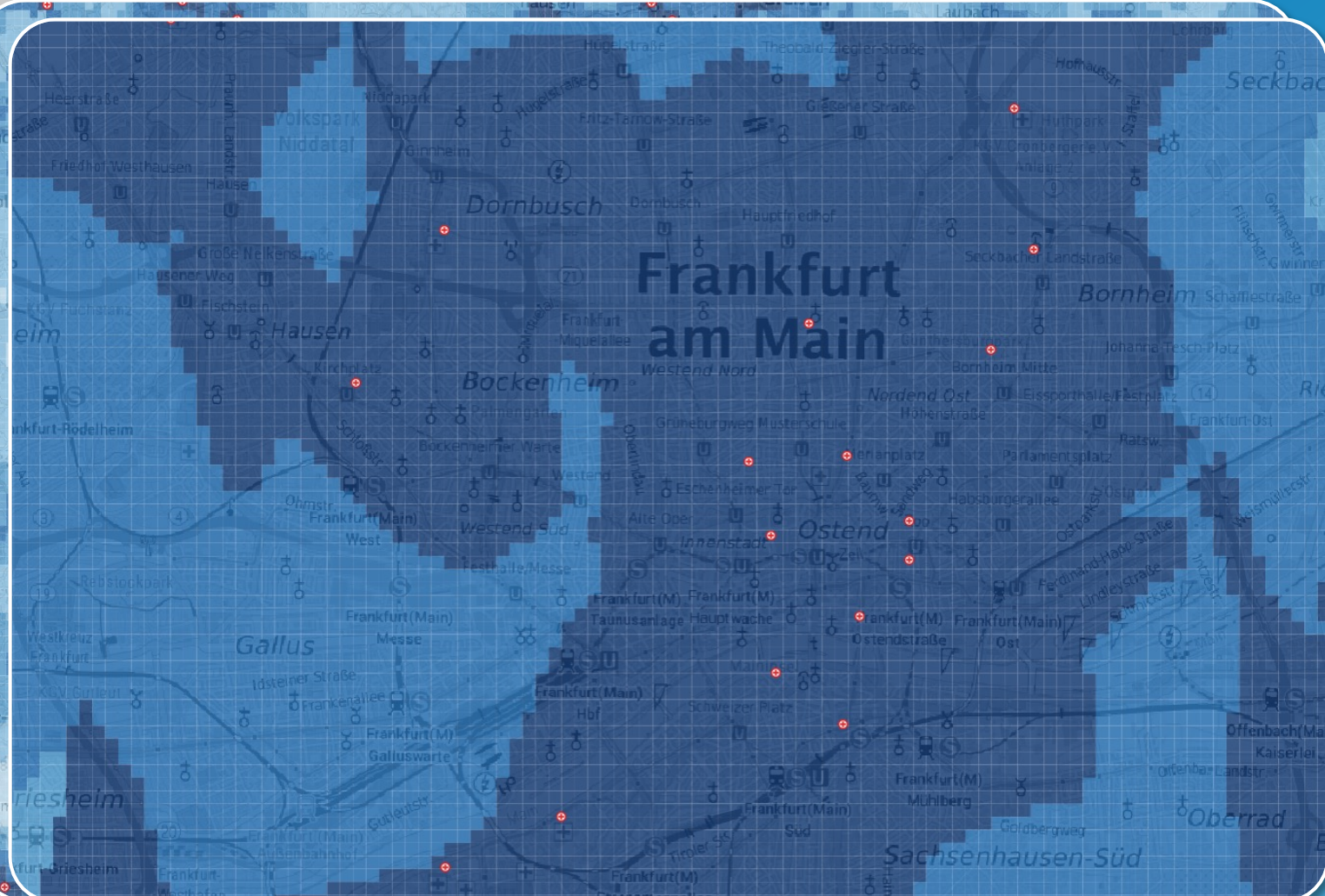
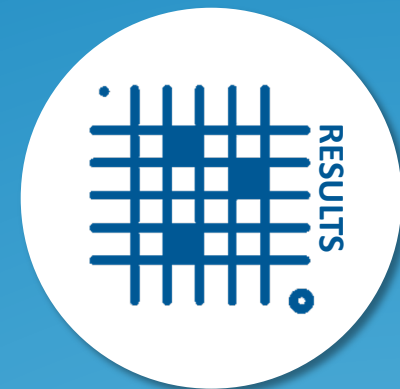


Number of
Berlin Health
Offices
accessible in
30 min. by car









Number of
Health Offices
accessible in 30
min. by car

1 - 3
4 - 6
7 - 9
10 - 12
13 - 15
16 - 18
19 - 21
0 (Inaccessible)

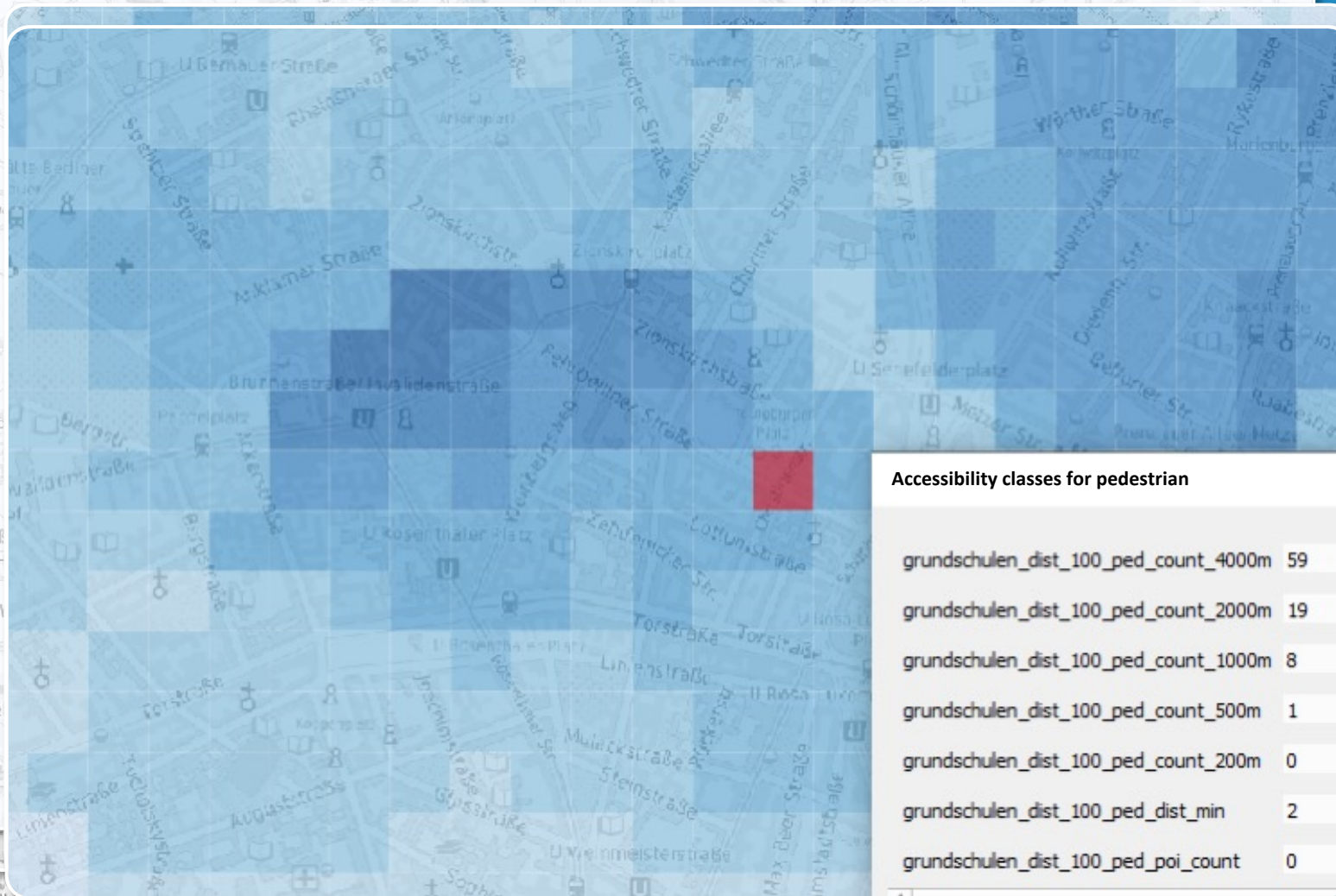
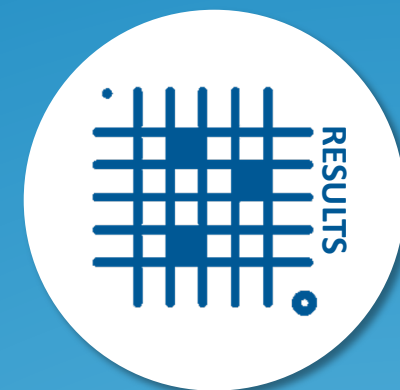


Accessibilities (1000x1000 m grid)

Next hospital accessible in x minutes

-  ≤ 5 min
-  ≤ 10 min
-  ≤ 15 min
-  ≤ 30 min
-  ≤ 60 min
-  over 60 min









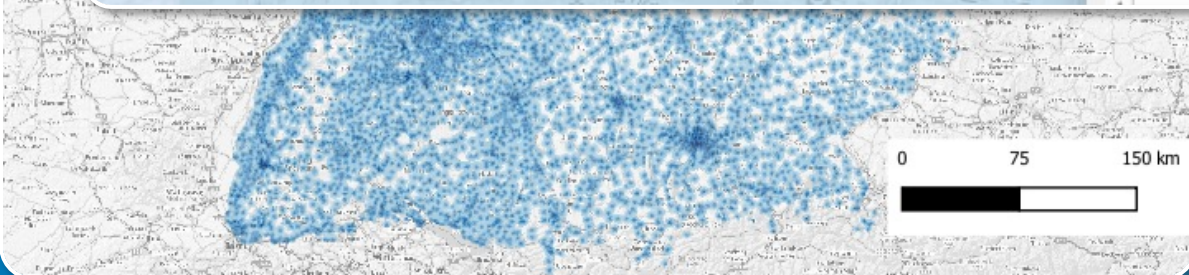
Accessibility classes for pedestrian

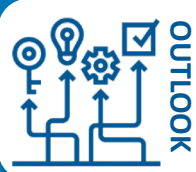
grundschulen_dist_100_ped_count_4000m	59
grundschulen_dist_100_ped_count_2000m	19
grundschulen_dist_100_ped_count_1000m	8
grundschulen_dist_100_ped_count_500m	1
grundschulen_dist_100_ped_count_200m	0
grundschulen_dist_100_ped_dist_min	2
grundschulen_dist_100_ped_poi_count	0

Accessibilities (1000x1000 m grid)

Next primary school accessible in x metres

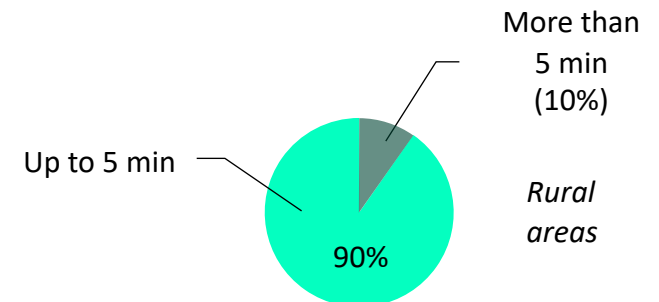
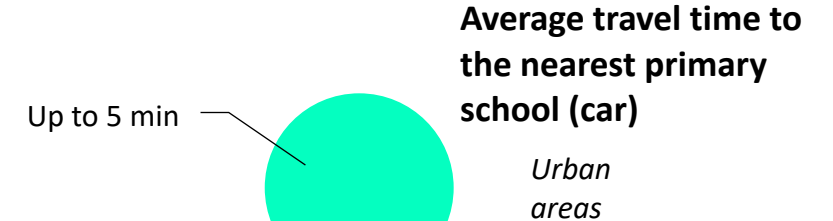
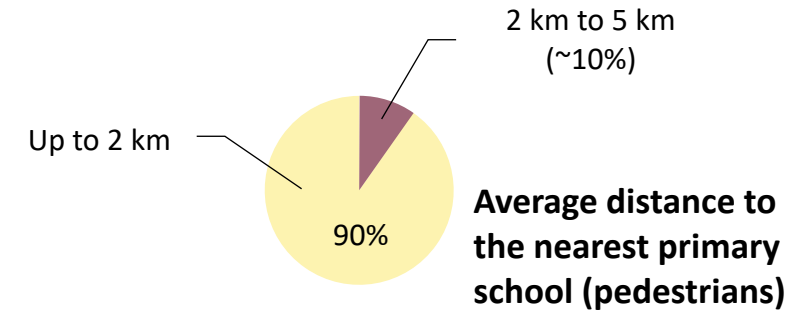
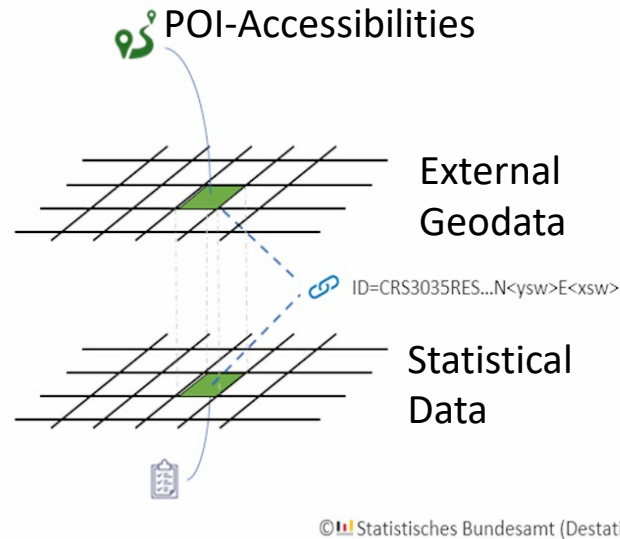
-  ≤ 500 m
-  ≤ 1000 m
-  ≤ 2000 m
-  ≤ 4000 m
- over 4000 m





Outlook

Data Output	Explain	Messages	Notifications
	name text	value smallint	geom geometry
1	ffb2cca5-9820-430b-9ebb-...	3600	0103000020DB0B0...
2	3041c47c-a18a-40a1-bcf8-...	600	0103000020DB0B0...
3	4e842035-7dd4-4278-8f65-...	300	0103000020DB0B0...
4	7216e100-c588-450b-bae2-...	300	0103000020DB0B0...
5	517e1ac6-cfe3-4832-92fc-...	3600	0103000020DB0B0...
6	2f24898e-5c4b-47df-bacd-...	900	0103000020DB0B0...
7	91d73d7c-1610-4e07-bd44-...	900	0103000020DB0B0...
8	391c008f-c4fb-44c3-8b36-...	900	0103000020DB0B0...
9	79337b19-c3f2-4d39-8d6d-...	1800	0103000020DB0B0...
10	ac02f6af-0842-4f0a-81a0-f...	1800	0103000020DB0B0...
11	899709ae-cdc0-484b-9fcd-...	1800	0103000020DB0B0...



Potential

- Analysing equality of living conditions
- Enrichment of official statistical data
- Create value-added products by combining multiple datasets
- Spatial analysis on:
 - Securing basic services
 - Crisis prevention and management
 - Monitoring and evaluation of evidence-based policy



What else we want to „access“!

Publishing the Source Code



Further Development of the Application



GeoTIFF



Contribute to the UN SDGs



SUSTAINABLE DEVELOPMENT GOALS



Thank you for your kind attention!

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