



# XXVII FIG CONGRESS

11-15 SEPTEMBER 2022  
Warsaw, Poland

*Volunteering  
for the future –  
Geospatial excellence  
for a better living*

## Application of the 3D cadastre in modern rural and urban development

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dr inż. Szczepan Budkowski

New research directions in the environment in the geodesy

ORGANISED BY



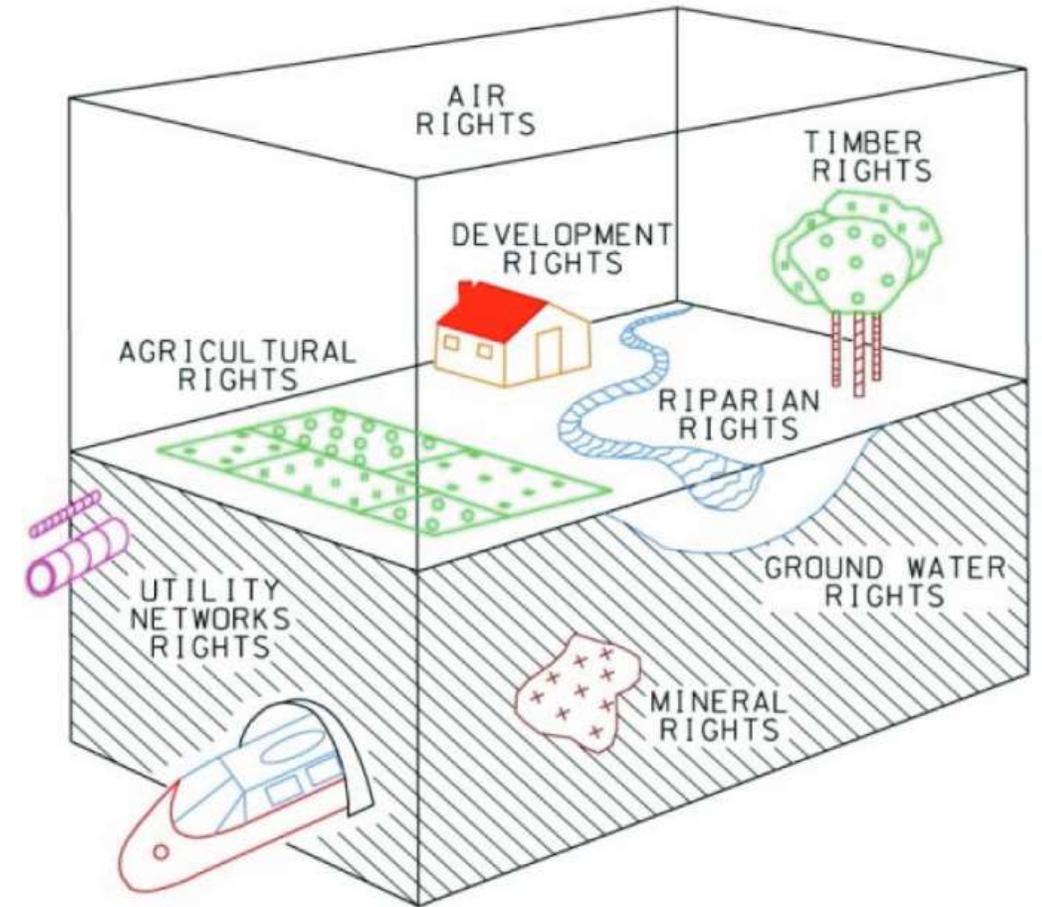
UNIVERSITY OF AGRICULTURE  
IN KRAKOW

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## Historical view

- The problem of the multidimensional cadastre used in various aspects of life was discussed for the first time in 2001 in Delf (the Netherlands) as part of a scientific conference organized there, and since then there has been a further development of this topic.

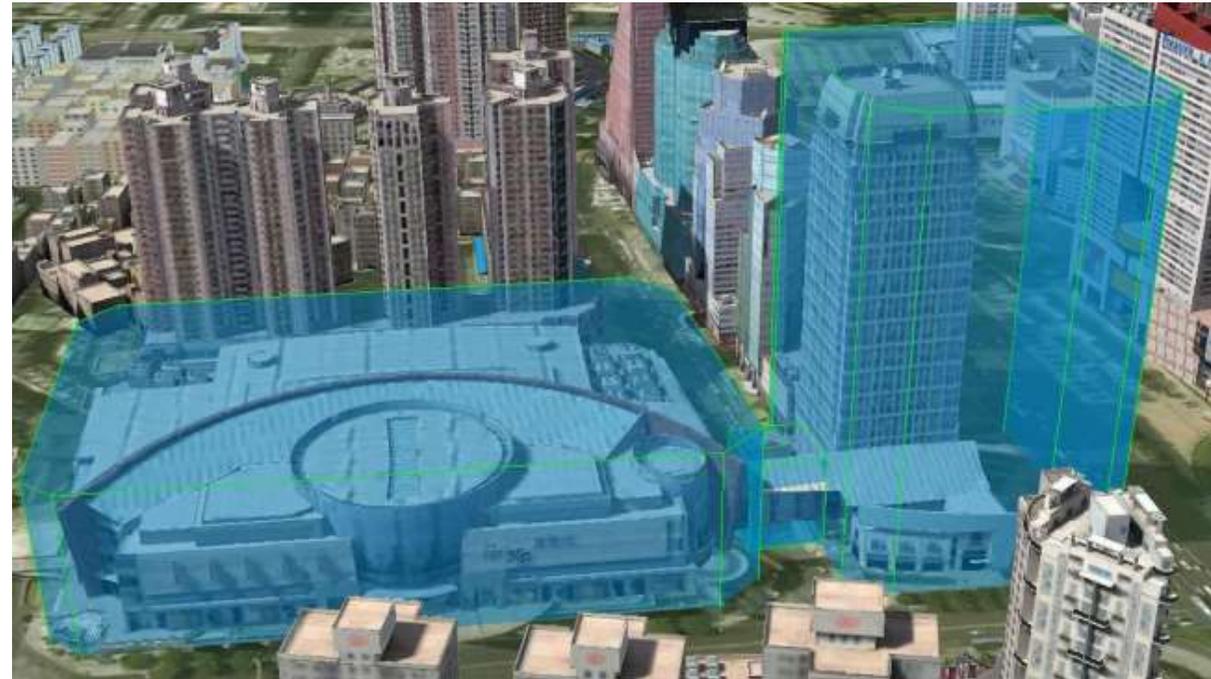


## Multidimensional cadastre in Poland

- Growing public awareness and the growing importance of property
- Rapid urban development - plot >> cadastre >> spatial data infrastructure >> plot administration system >> plot management >> urban development
- The changing model of the cadastre - multitasking and multidimensionality

## Fantasy or necessity?

The extent of a 3D object

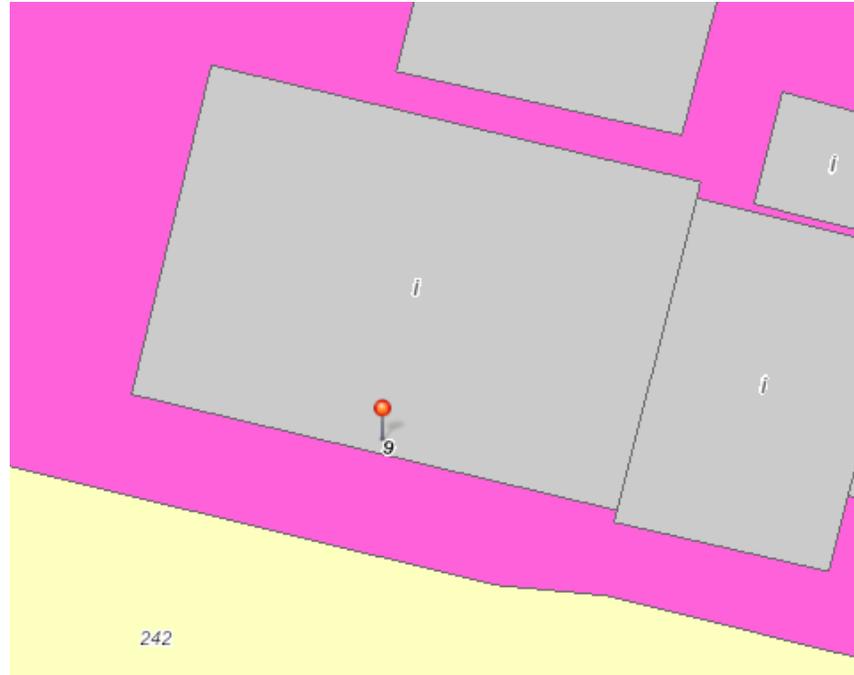


## Research methodology- the course of the research process

Task- Phase I	Process- Phase II
Formulating the problem	Data research of the City of Krakow - quantitative research - the results of the research are studies on environmental protection and interoperability within the functioning cadastre - the effect of the data evaluation system
Defining the study design	
Designing methods and forms of data collection	
Secondary sources analysis	Field interview - qualitative research - the result of research on changes in the registration of buildings and premises, development of a cadastre assessment model, presentation of the multi-dimensional cadastre applications
Specifying the purpose and scope of the study	
Putting research hypotheses	
Development of the work methodology	
Collection of data	
Data analysis and interpretation	

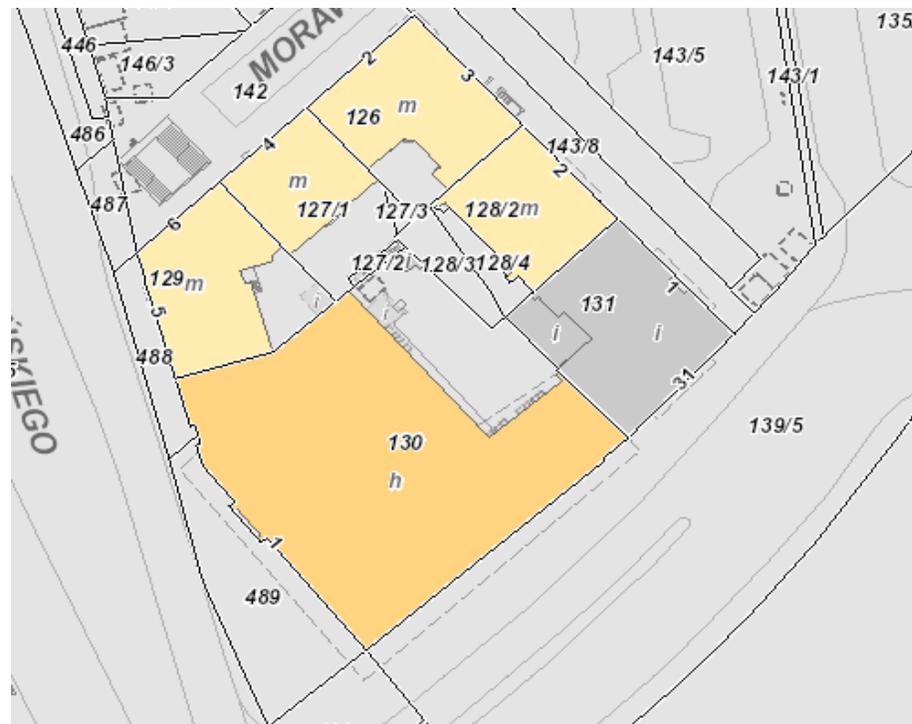
## Research methodology- phase II

ul. Kawiory so-called chocolate



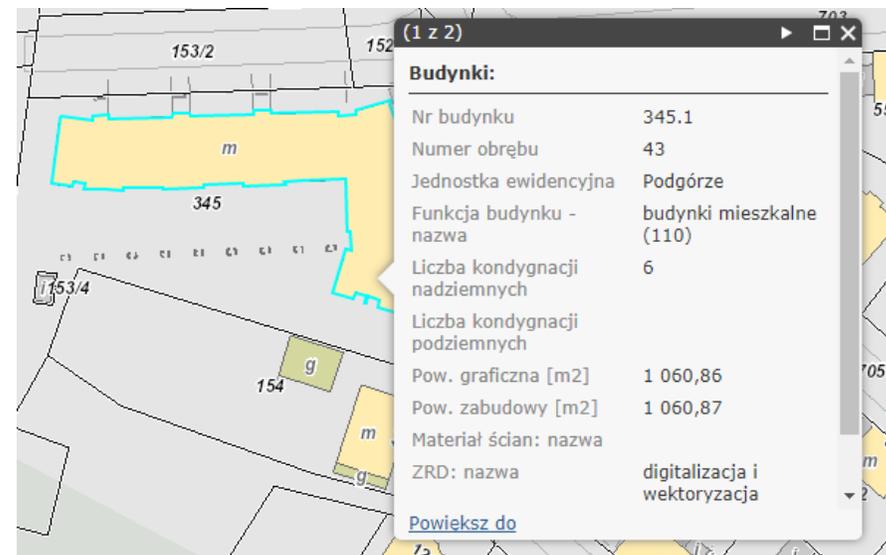
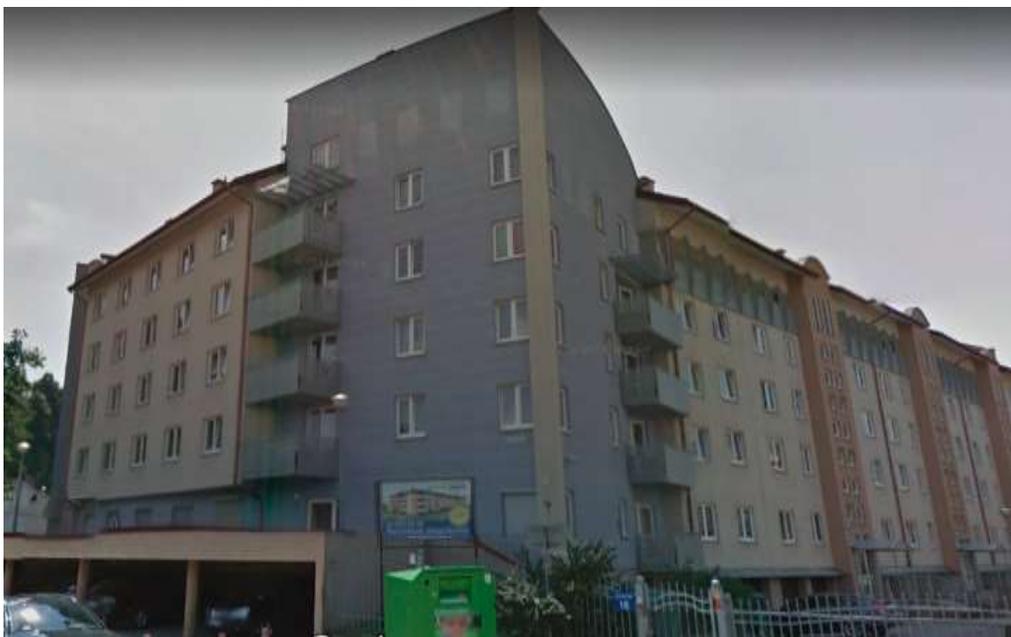
## Research methodology- phase II

ul. Krasińskiego, Jubilat



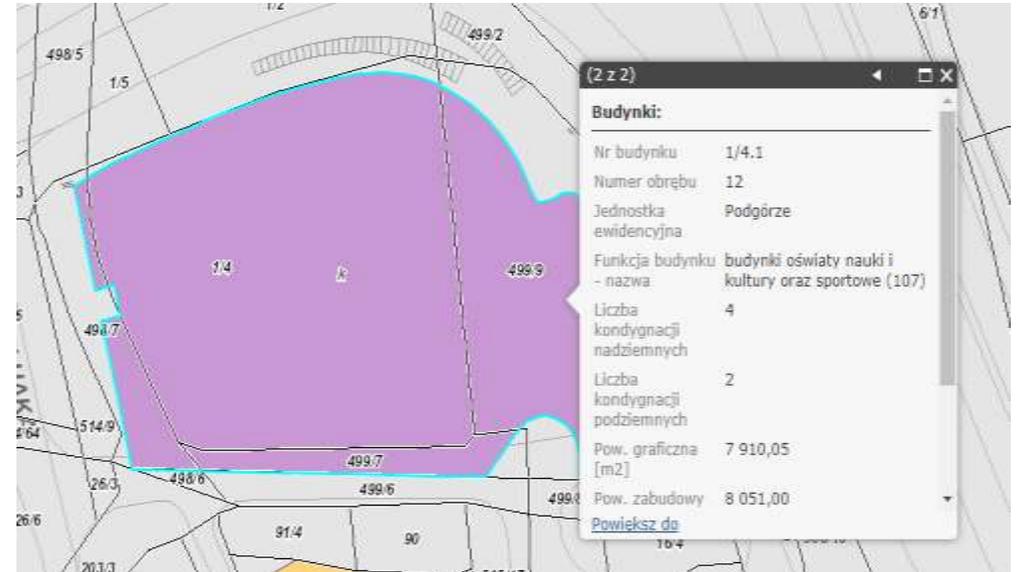
## Research methodology- phase II

ul. Krowoderskich Zuchów



## Research methodology- phase II

ul. Konopnickiej Centrum  
Kongresowe



## Research methodology- phase II



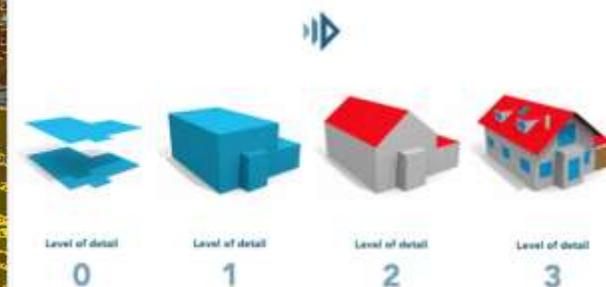
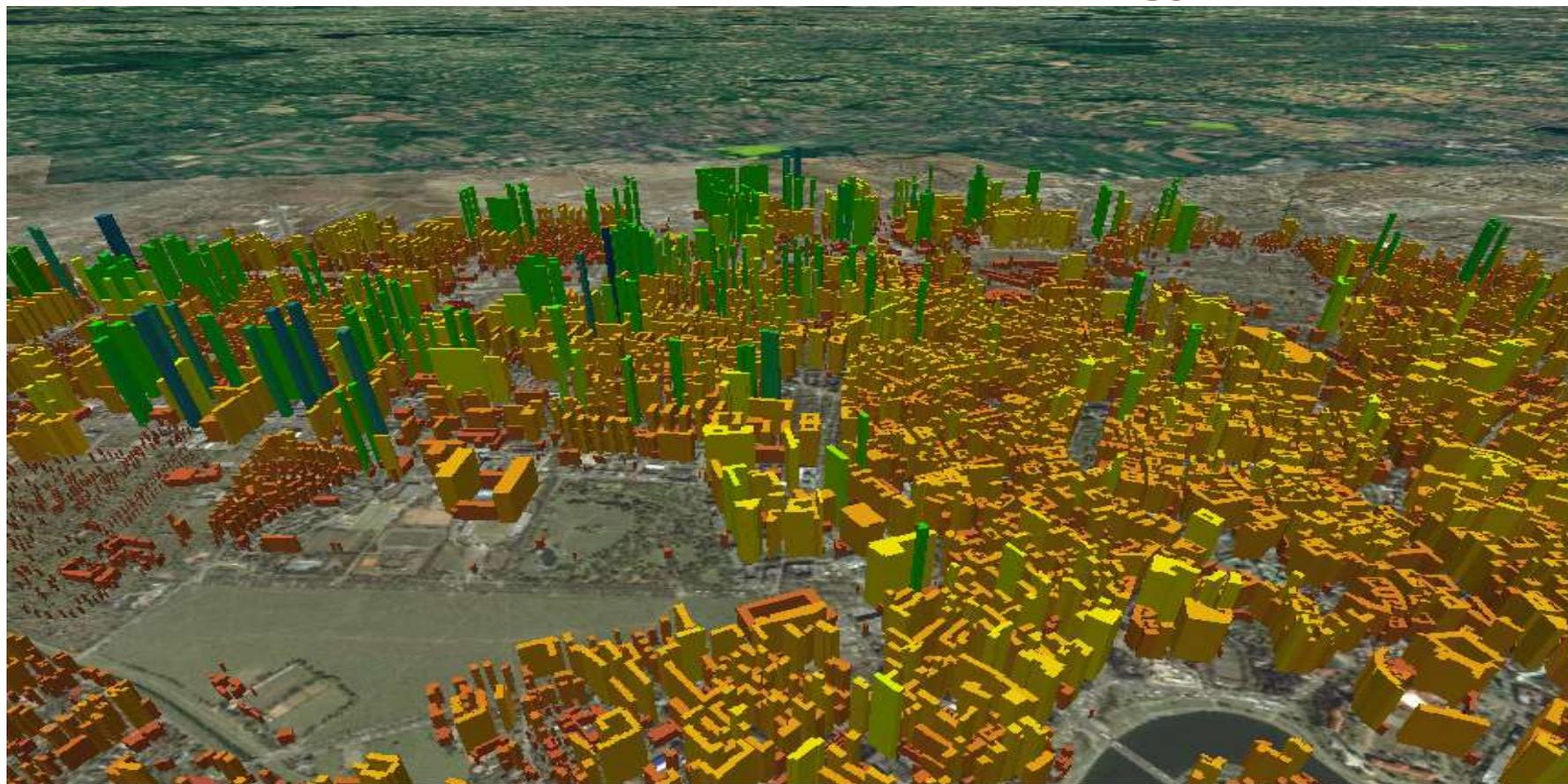
ul. Bratysławska 2, Hotel  
Aspel



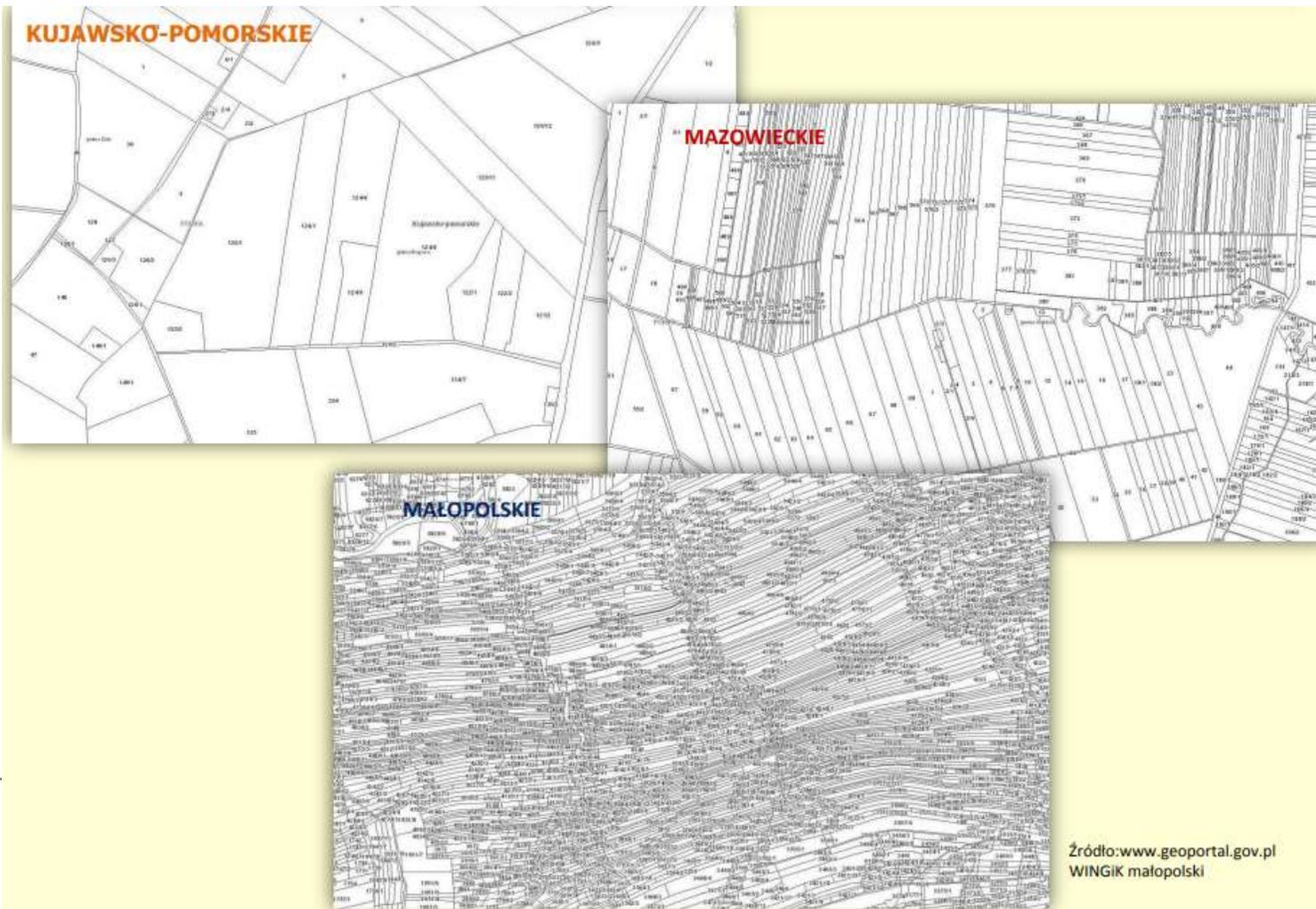
### Budynki:

Nr budynku	606.1
Numer obrębu	44
Jednostka ewidencyjna	Krowodrza
Funkcja budynku - nazwa	budynki mieszkalne (110)
Liczba kondygnacji nadziemnych	1
Liczba kondygnacji podziemnych	
Pow. graficzna [m2]	2 992,84
Pow. zabudowy [m2]	2 992,87
Materiał ścian: nazwa	mur
ZRD: nazwa	pomiar na osnowę

## Research methodology- phase II

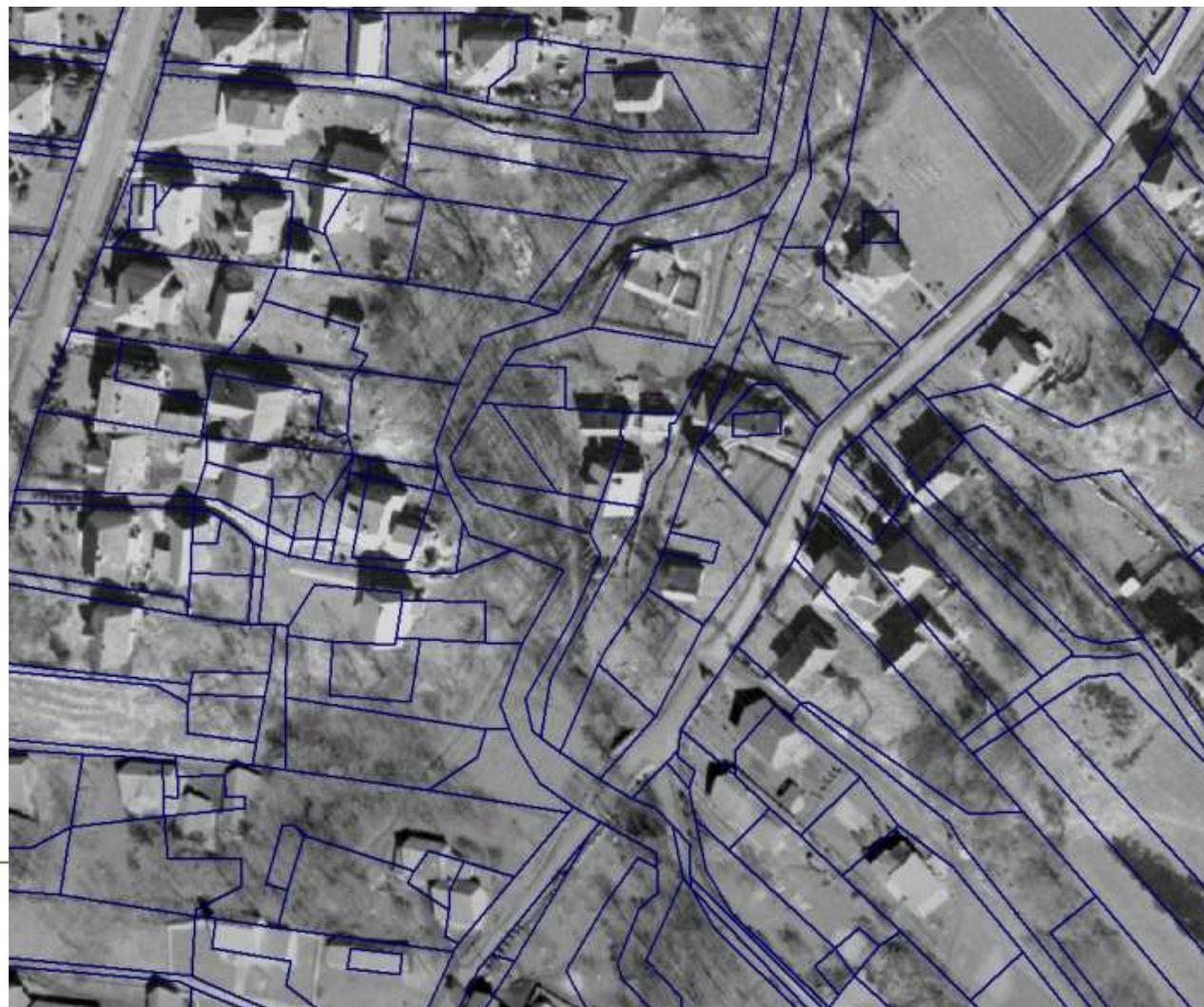


## Rural space



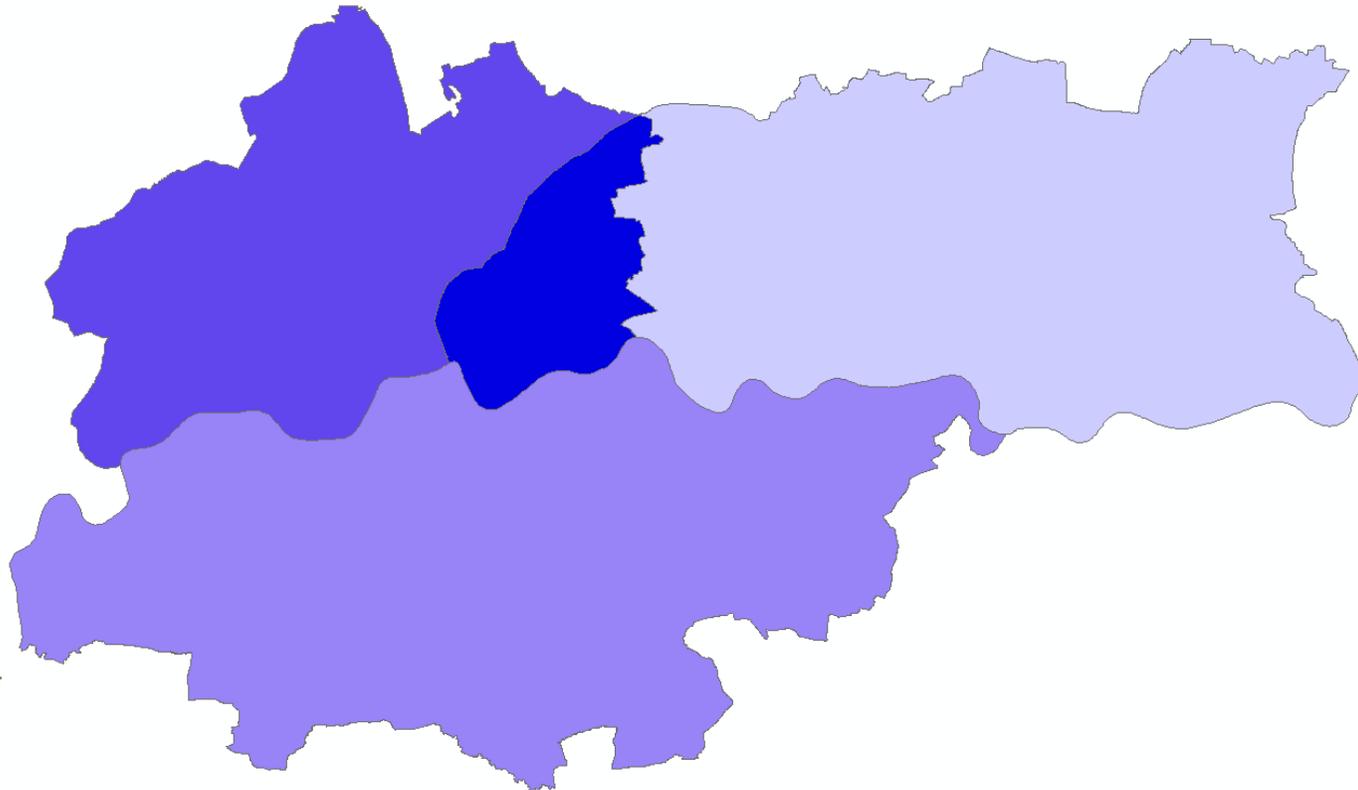
Źródło: [www.geoportal.gov.pl](http://www.geoportal.gov.pl)  
WINGIK małopolski

## Cadastral and land boundaries



## Result

**In the Polish cadastre, there are possibilities and substantive justification for the introduction of multi-dimensional cadastre solutions of the databases in the context of real estate management**



Thank you for your attention ;)



## Questions

- If you have questions, write them to the email:  
**[szczepan.budkowski@urk.edu.pl](mailto:szczepan.budkowski@urk.edu.pl)**

