Tapping into web data for European statistics – challenges and experiences of the ESSnet Web Intelligence Network

UNECE Expert Meeting on Statistical Data Collection and Sources

May 22, 2024

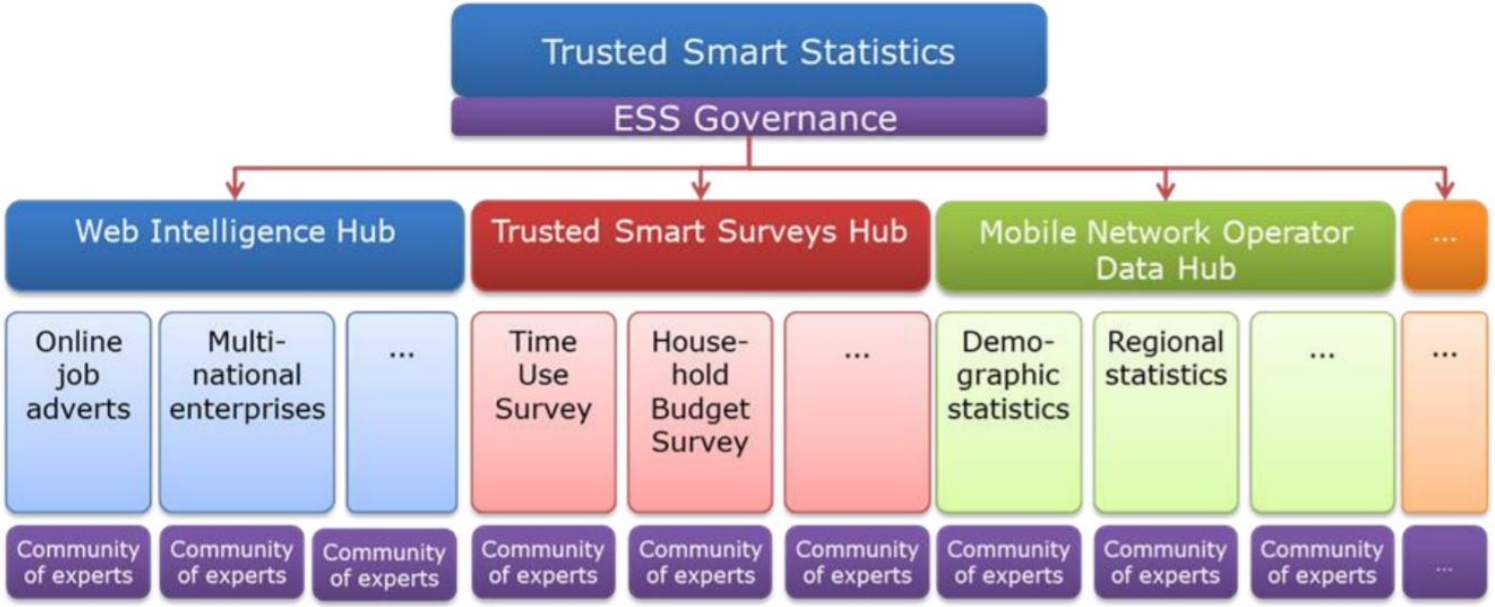
Klaudia Peszat, Dominika Nowak (Statistics Poland)

Web Intelligence Network

Funded by the European Union

Web Intelligence Hub (WIH)

- Started as a concept – evolved towards tangible tools
- Web data acquisition, processing & analysis environment
- Centralized, shared system, pan-European platform

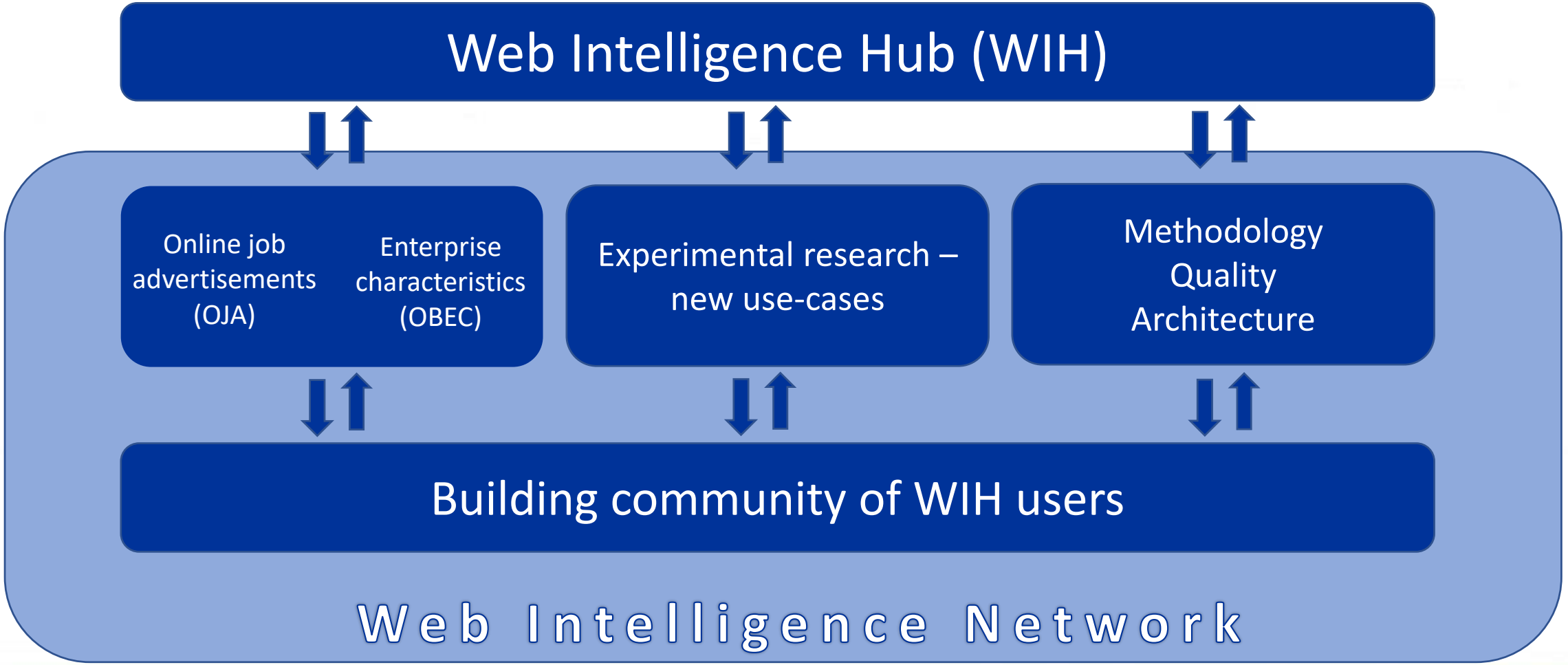


Rationale behind the Web Intelligence Hub (WIH)

- Different capacity of NSIs across Europe to use web data
- Different competency levels, scarcity of data science skills
- Infrastructure with big data capabilities required
- More efficient use of resources
- Overcoming technical/legal issues with accessing web data

Funded by the European Union

The role of the Web Intelligence Network (WIN)



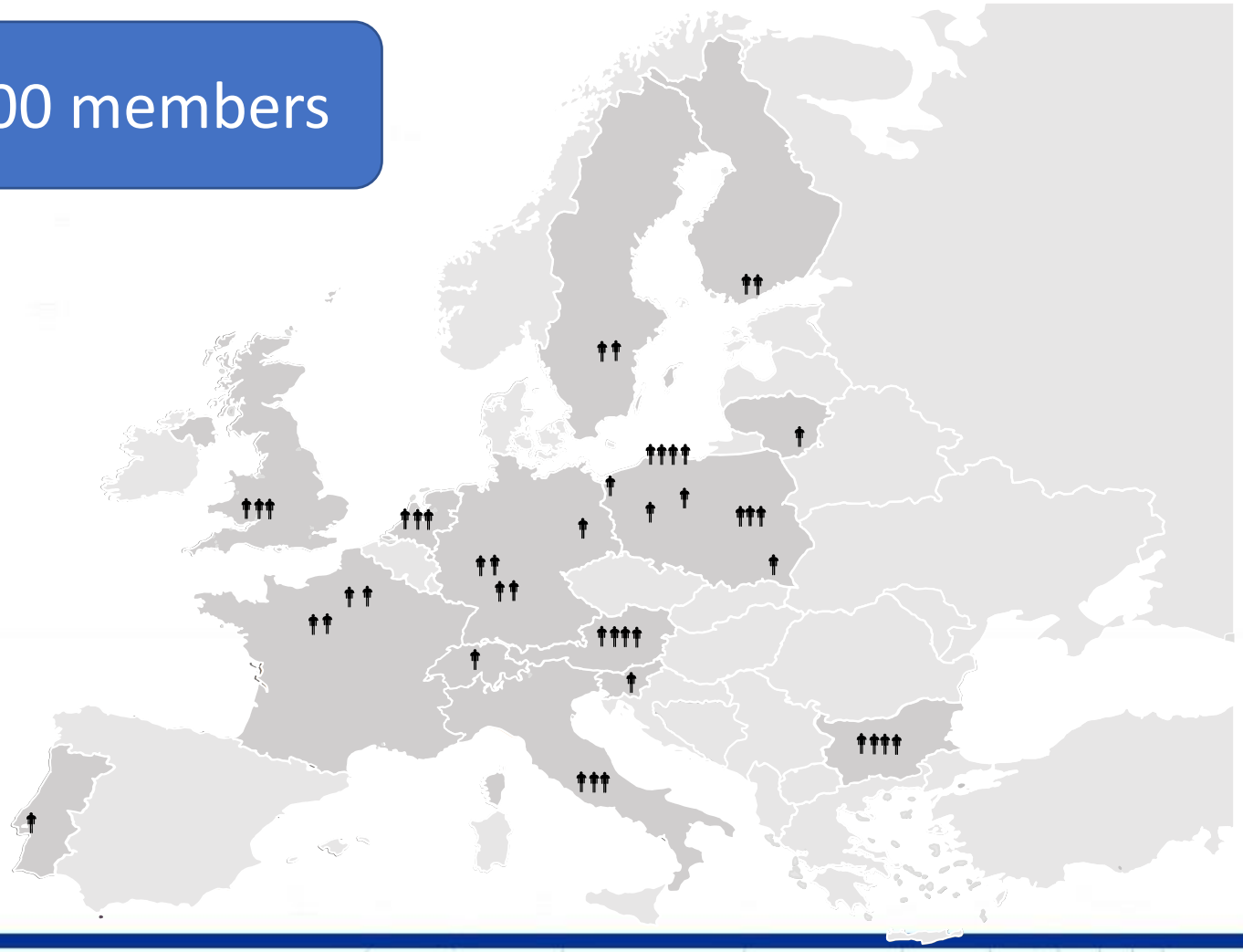
Web Intelligence Network (WIN)

14 countries, 17 organizations, ~100 members

Contribute to the development of the Web Intelligence Hub

Reach out to **all ESS countries**

Use web data, use the WIH



Web Intelligence Network

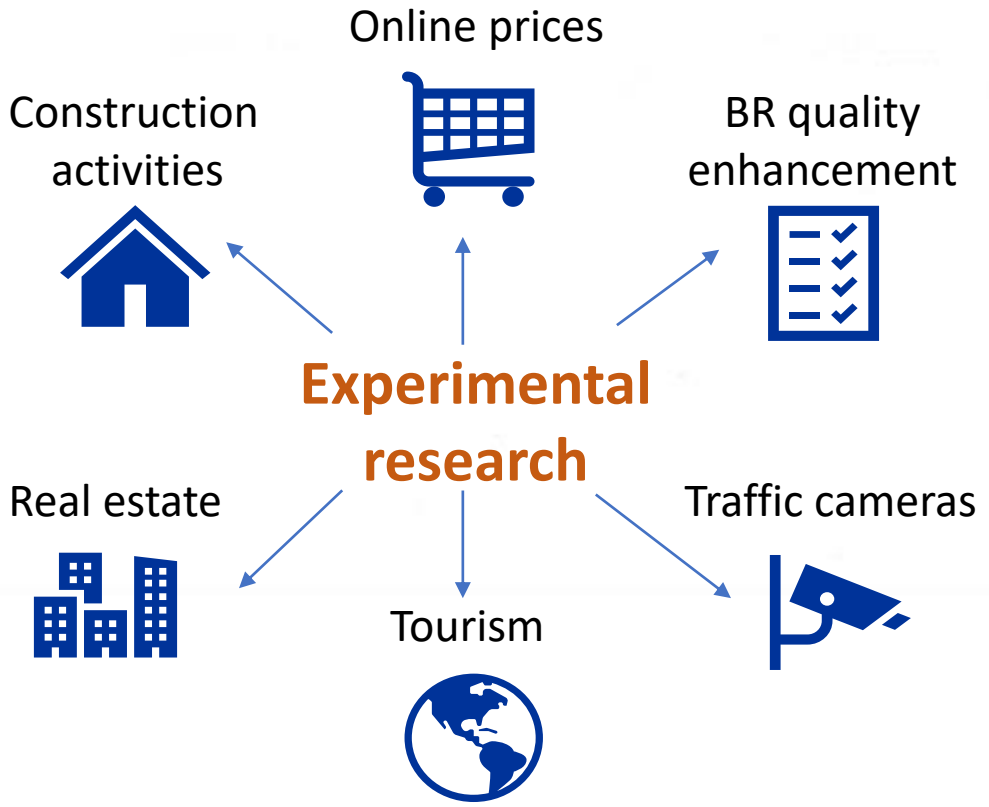
Funded by the European Union

Topics WIN is looking to

Most mature use-cases

Online job advertisements (OJA)

Enterprise characteristics (OBEC)



OJA – data classification quality

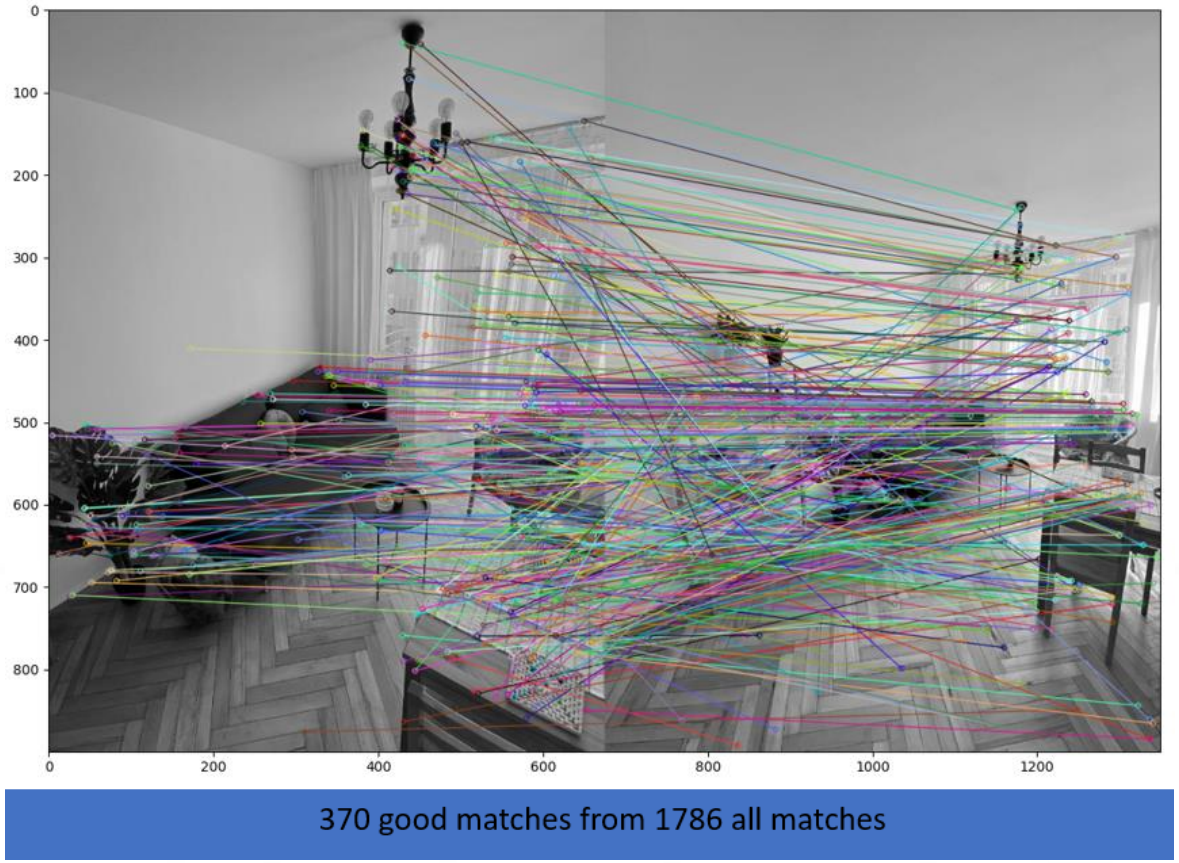
occupation1d	AT	BG	FI	FR	IT	PL	SI
NA	0	4 / 3.6	2.4 / 2.7	2.3 / 1.9	2.3 / 2.9	0	12 / 13
correct	49 / 52.7	48.5 / 52.7	62.4 / 63.8	63.3 / 59.7	61.9 / 61	44.7 / 50.1	50.5 / 53.2
incorrect	51 / 47.3	47.5 / 43.8	35.2 / 33.5	34.3 / 38.4	35.8 / 36.2	55.3 / 49.9	37.5 / 33.8

working_time	AT	BG	FI	FR	IT	PL	SI
NA	0	13.5 / 12.7	0.3 / 0.4	4.3 / 4.7	3.2 / 3.4	0.2 / 0.1	17.9 / 17.1
correct	75.2 / 73.3	62 / 67	67.9 / 76	49 / 54.7	61.6 / 65.5	50.7 / 58.8	55.1 / 67.5
incorrect	24.8 / 26.7	24.6 / 20.3	31.8 / 23.5	46.7 / 40.6	35.2 / 31.1	49.2 / 41.1	26.9 / 15.4

* unweighted / weighted

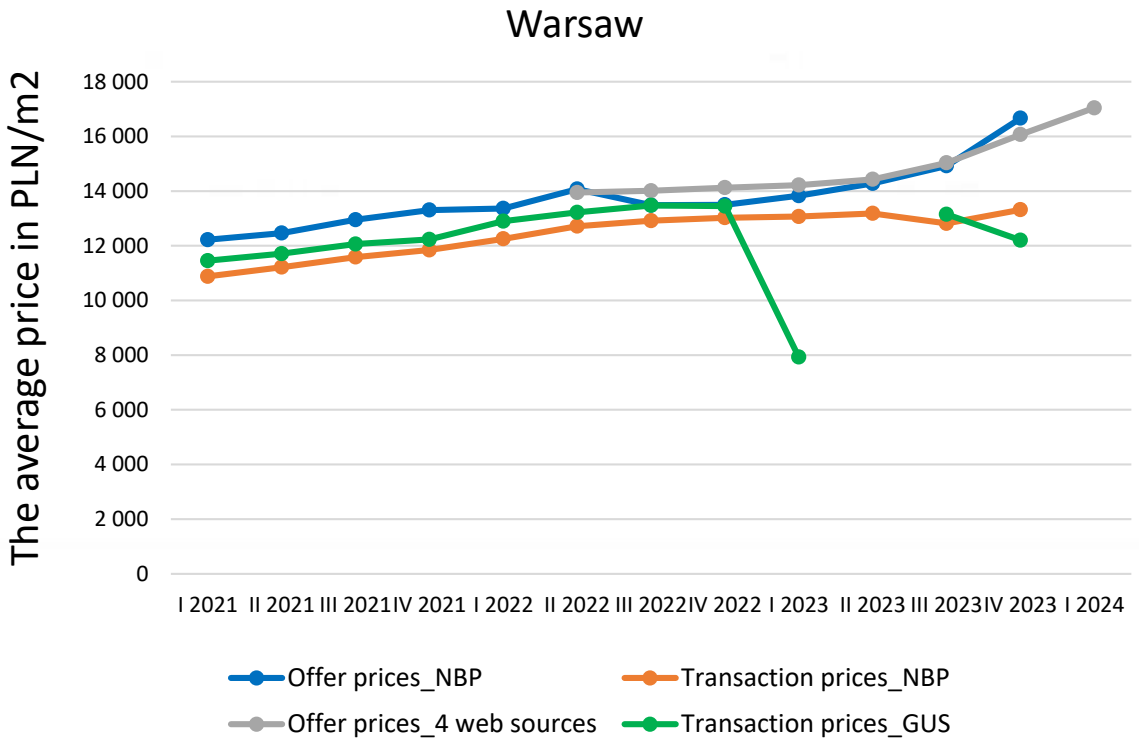
Tourism – detection of duplicates

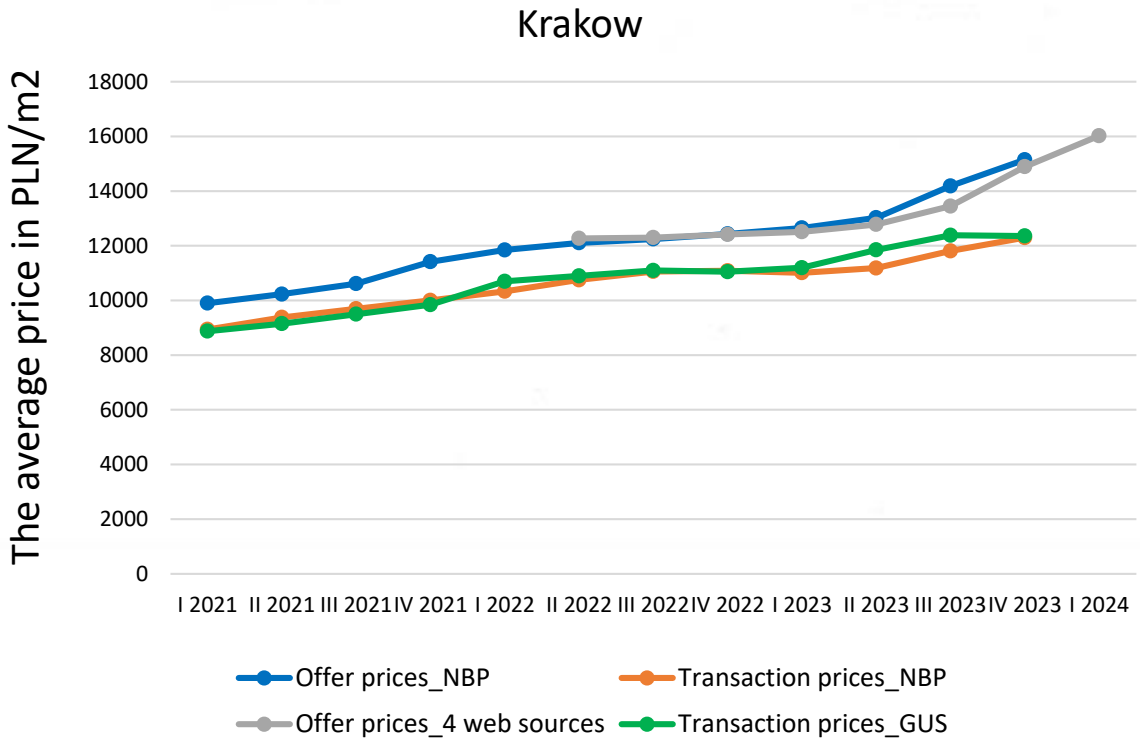
The key-point detection



370 good matches from 1786 all matches

Real estate – comparison between web data and official statistics





Issues WIN is dealing with

- **Quality assessment:**
  - Data source selection and stability
  - Quality of the data (e.g. over and under coverage, de-duplication, dealing with missing data etc.)
  - Quality of data classification (e.g. ISCO, NACE, NUTS)
- **Legal / organizational constraints:**
  - Legal grounds for using register data in a web scraping pipeline
  - Agreements with private companies, purchasing data from third parties
- **Technical:**
  - WIH – still in the development stage

Funded by the European Union

Building community of WIH and web data users

Meet us at conferences

NTTS conferences

EUROPEAN CONFERENCE ON QUALITY IN OFFICIAL STATISTICS 2024 ESTORIL - PORTUGAL

IAOS INTERNATIONAL ASSOCIATION FOR OFFICIAL STATISTICS

Visit us on-line

Look for our training, webinars, tutorials

- Statistical Business Registers
- Tourism data
- Online real estate market
- Architecture, methodology and quality
- Construction activity
- Web Intelligence in Practice - OBEC
- OJA Training for WIN and WISER
- And more…

Join WISER (Web Intelligence uSERs Group)

Web Intelligence Network

Funded by the European Union

Thank you.

k.peszat@stat.gov.pl – Klaudia Peszat

do.nowak@stat.gov.pl – Dominika Nowak

Funded by the European Union