

Can we automate the process of identifying urban futures?

Trend analysis for smart cities, the results of the research project carried out by IBR Inotec Sp. z o.o. co-financed by the EU



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01

Why do **smart cities**
need foresight for
sustained and
sustainable growth?





Cities are nested in new realities

01

Growing complexity and interconnectedness on regional and global levels.

02

Ever expanding pool of data sources allowing crisis prevention and effective long-term strategic planning.

03

Citizen engagement requires dialogue and continuous knowledge exchange, also related to long-term trends.

02

Why do we need
to **automate** trend
analysis?

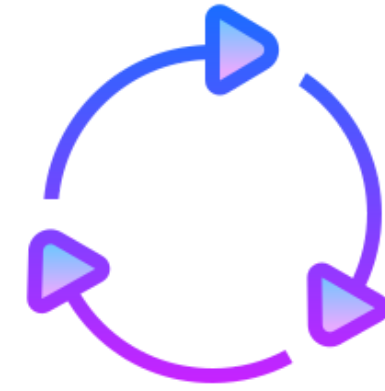
Economic argument



Major part of a participatory urban foresight process is typically done manually and requires long periods of high intensity engagement in order to collect and analyze key insights and data.

The cost of labour is what makes this method expensive and thus limits its accessibility for small and medium cities, which typically have tight budgets at their disposal.

Methodological argument



In principle, the foresight process should never end. It should be constantly reiterated in order to accommodate latest data, wild cards and political changes, if any.

Automating the process of trend analysis alleviates significant part of the procedural burden and thus makes it easier for municipal staff to keep reevaluating the situation.

03

**What are the pillars
of the smart city
foresight support
technology?**





Effective Foresight Must-Haves

01

Open data - access to high quality data, preferably open, is necessary to analyze trends from the local perspective

02

Effective engagement of experts and local community is vital for minimizing expert bias and making context-sensitive recommendations

03

Cross-Impact Analysis - the impact trends have on one another differs from city to city, given underlying policies, social constructs and infrastructure.

04

Technology in **real
life** - what we've
learned.

Platform for automated smart city foresight



FORESIGHT

witamy w systemie FORESIGHT

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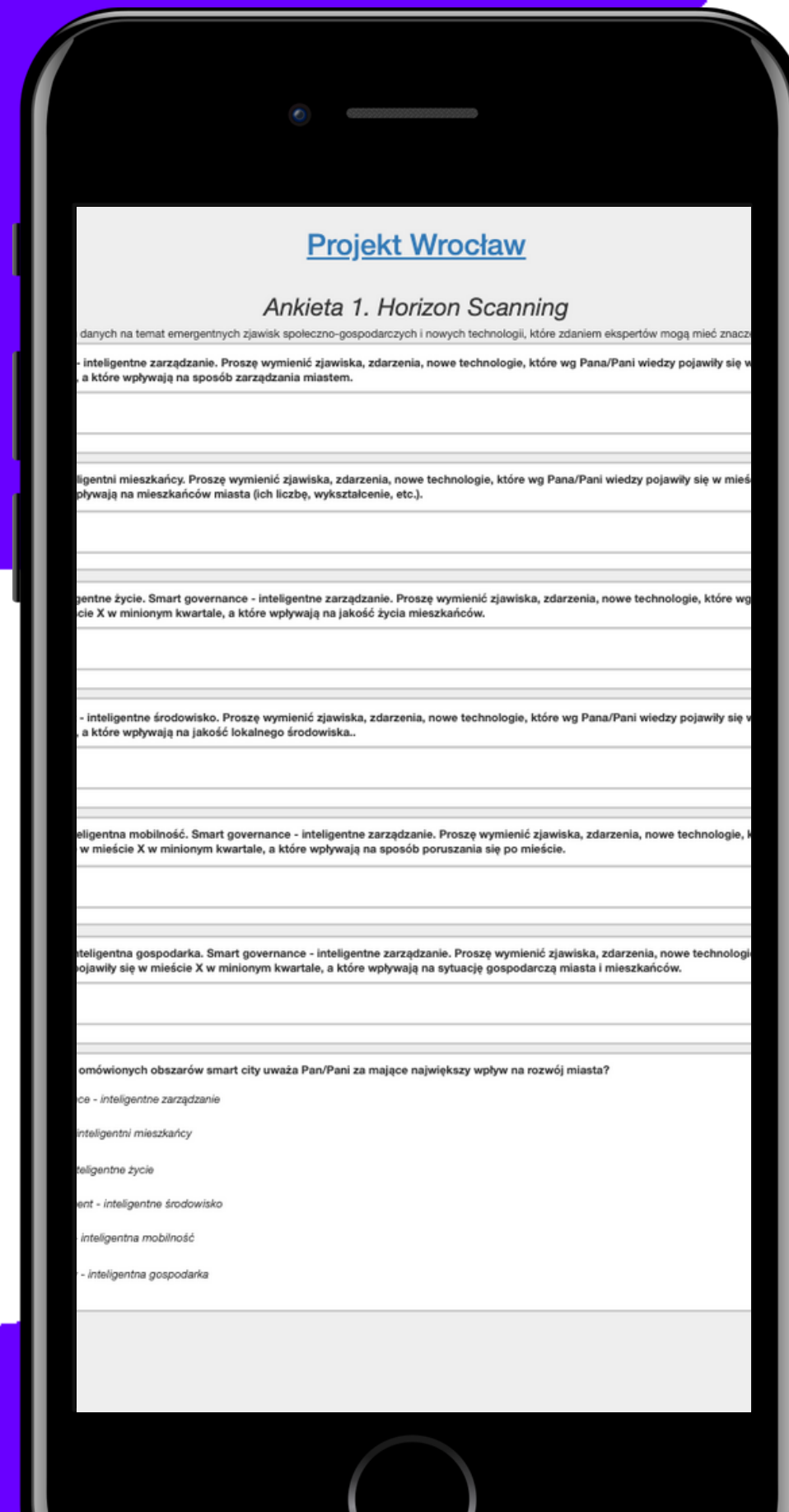
Open data from Wrocław

The screenshot shows the 'otwarte dane wrocław' website interface. At the top, there is a navigation menu with the following items: 'Zbiory danych', 'Organizacje', 'Kategorie', 'Wnioski', 'Artykuły', and 'O serwisie'. The 'Unia Europejska' logo is visible in the top right corner. The main content area displays a grid of data categories, each with an icon, a title, and a count of datasets ('Zbiory danych').

Category	Icon	Zbiory danych
Dane przestrzenne	Map icon	10
Demografia	Group of people icon	1
Edukacja	Graduation cap icon	2
Inne	Folder icon	4
Sport i rekreacja	Medal icon	2
Sprawy społeczne	Group of people icon	1
Środowisko	Leaf icon	2
Transport	Bus icon	18
Urząd Miejski	Building icon	10
Wydarzenia	Calendar icon	2

Supplemented by
Statistics Poland
(public source)

The pilot platform was designed in a way that allowed municipal staff to gather expert insights and conduct public consultations that would feed directly into trend analysis.



Expert **surveys**
and public
consultations

Cross-Impact Analysis

wskaźnik	1	2	3	4	5	6	7
WSK1 Otwarte dane (liczba dostępnych zbiorów danych/liczbę pobrań)	1	3	2	1	0	1	1
WSK2 Zaangażowanie społeczne: Liczba projektów zgłoszonych w BO	2	1	3	2	0	1	0
WSK3 Zaangażowanie społeczne: Liczba osób głosujących w BO	3	1	3	2	0	0	3
WSK4 Liczba projektów PPP	4	0	1	0	0	1	0
WSK5 Rosnący nacjonalizm - incydenty 257KK	5	0	1	1	0	3	2
WSK6 Wydatki na bezpieczeństwo publiczne	6	2	0	0	0	3	2
FREKWYB Frekwencja wyborcza	7	2	3	3	1	3	1

- 0 - nie ma wpływu
- 1 - mały wpływ
- 2 - średni wpływ
- 3 - duży wpływ
- - sugerowany wpływ zaproponowany przez ekspertów

Expert input allows to evaluate the relationships among various trends based on the local context.

Key learnings from the testing phase

01

The quality of public data in Poland is not yet sufficient for automated trend analysis.

02

The need of building trust and constant cooperation with experts and local communities;

03

The universal quality of Cross-Impact Analysis in smart city foresight;

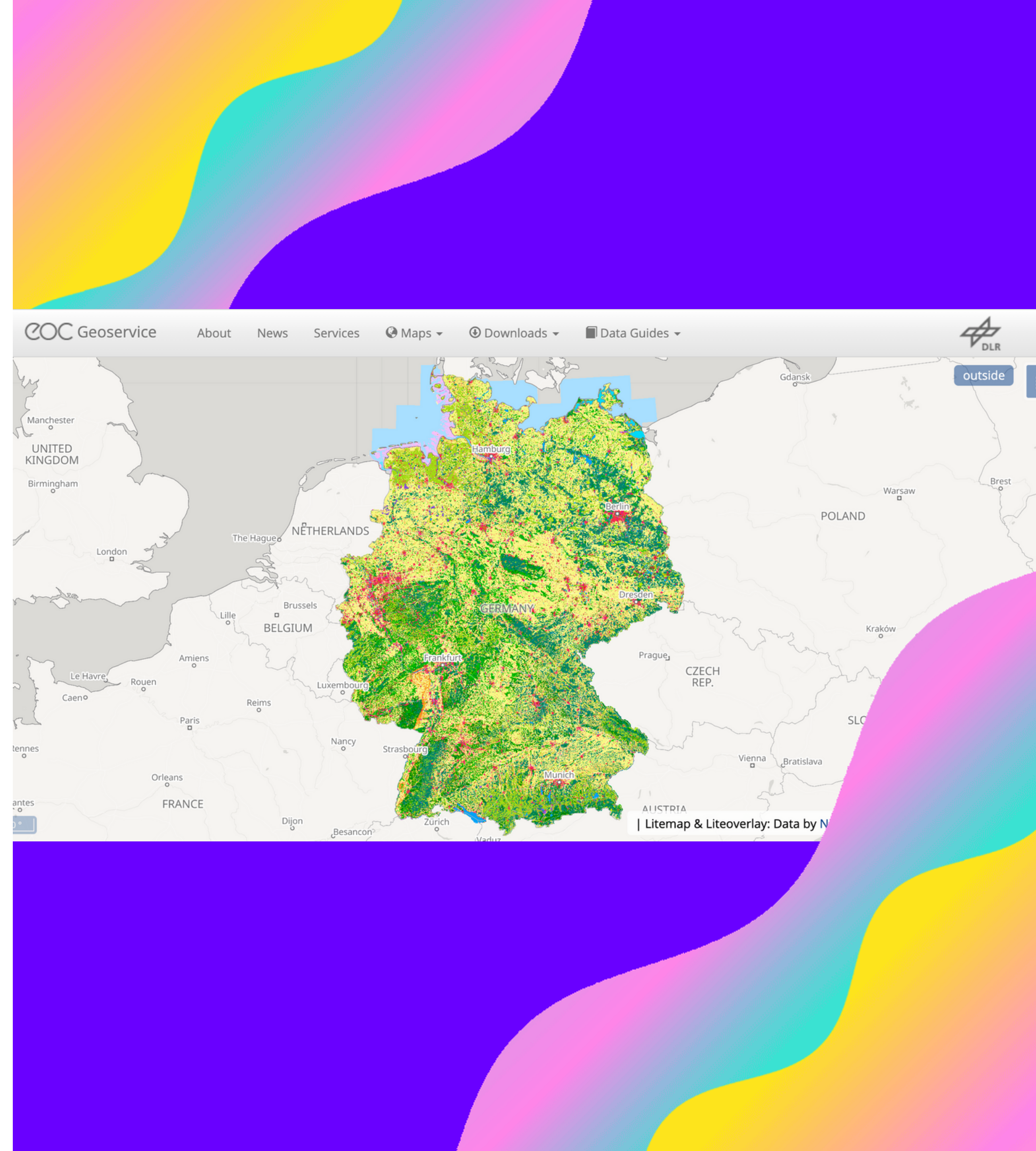
05

**The potential for
growth in the field of
smart city foresight
automation.**



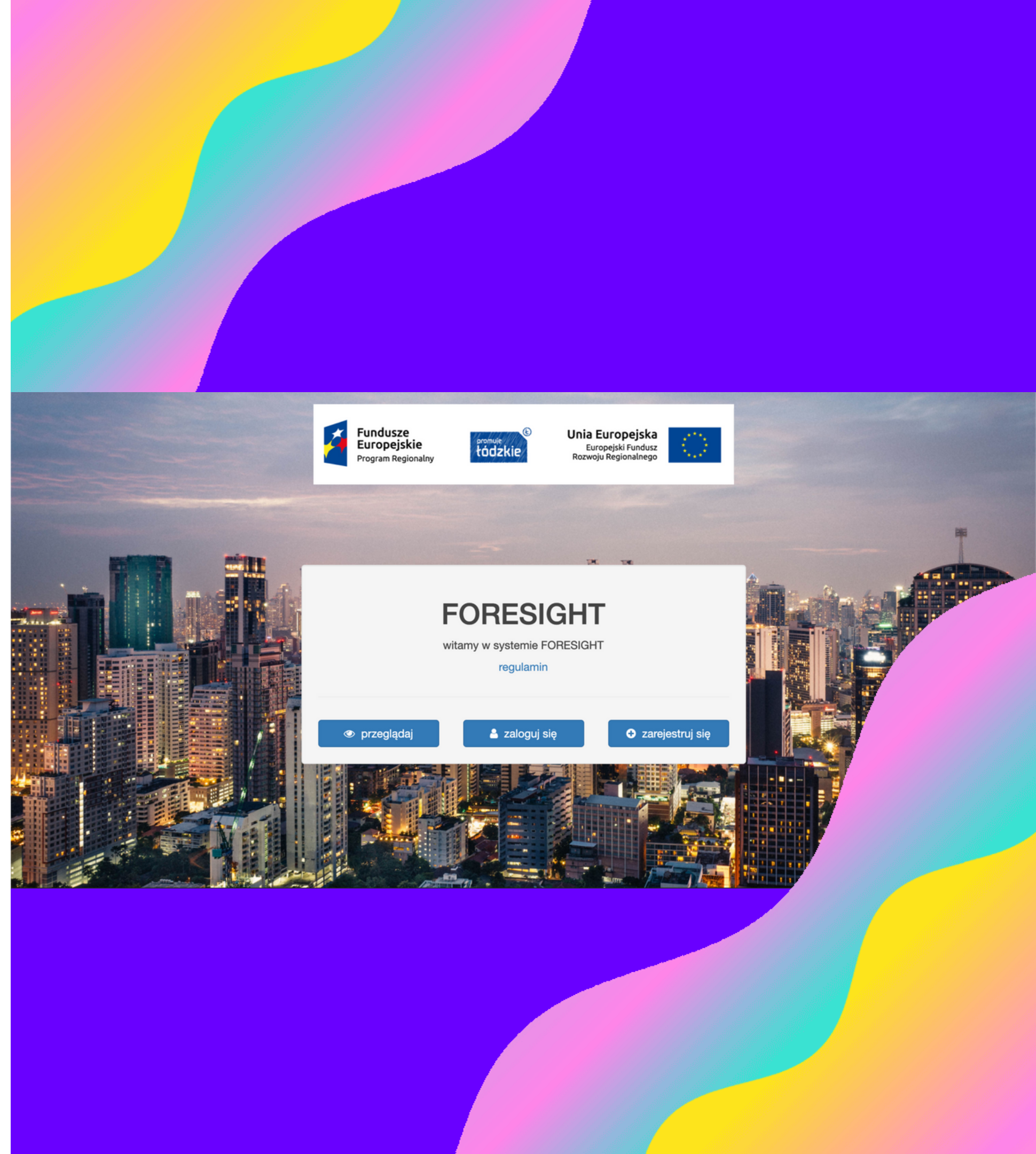
Technological solutions to data shortages ensuring the quality of results

Where to next?



Case study of a technology enabling foresight for smart cities.

Where to next?



Thank you!

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Visit: <https://ibrinotec.pl/smart-city.html>



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