EXPERIENCES OF POLISH CITIES IN THE IMPLEMENTATION OF THE SMART CITY IDEA

Szymon Ciupa

WHO AM I?

- Since 2006, I have been supporting Polish cities in the process of **GIS implementation**, e-government, data analysis and visualization and **smart city projects** (e.g. Gliwice, Kielce, Łódź, Toruń, Poznań, Przemyśl, Ministry of Infrastructure)
- Involved in the development of smart city products and services that are based on city data
- City advisor in the Local Development Program, which is implemented by the **Association of Polish Cities** and the Ministry of Investment and Development, and is financed from Norwegian Funds
- Author of **smartcity-expert.eu** – blog about smart cities
- **World Council on City Data** Support Partner to promote and assist cities **with ISO37120** certification

KEY CHALLENGES OF POLISH CITIES

CLIMATE CHANGE

AGING SOCIETY

SPATIAL MANAGEMENT

QUALITY OF THE ENVIRONMENT

MOBILITY

DIGITAL TRANSFORMATION

POPULATION MIGRATIONS

ENERGETIC EFFICIENCY

MUNICIPAL INFRASTRUCTURE

QUALITY OF LIFE

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THE TRADITIONAL MODEL OF THE CITY'S OPERATION

Citizens issues

Customer services

City services

Data and information

Technology and infrastructure

- Waste
- Water
- Sewage
- Architecture and buildings
- Transport
- Social assistance
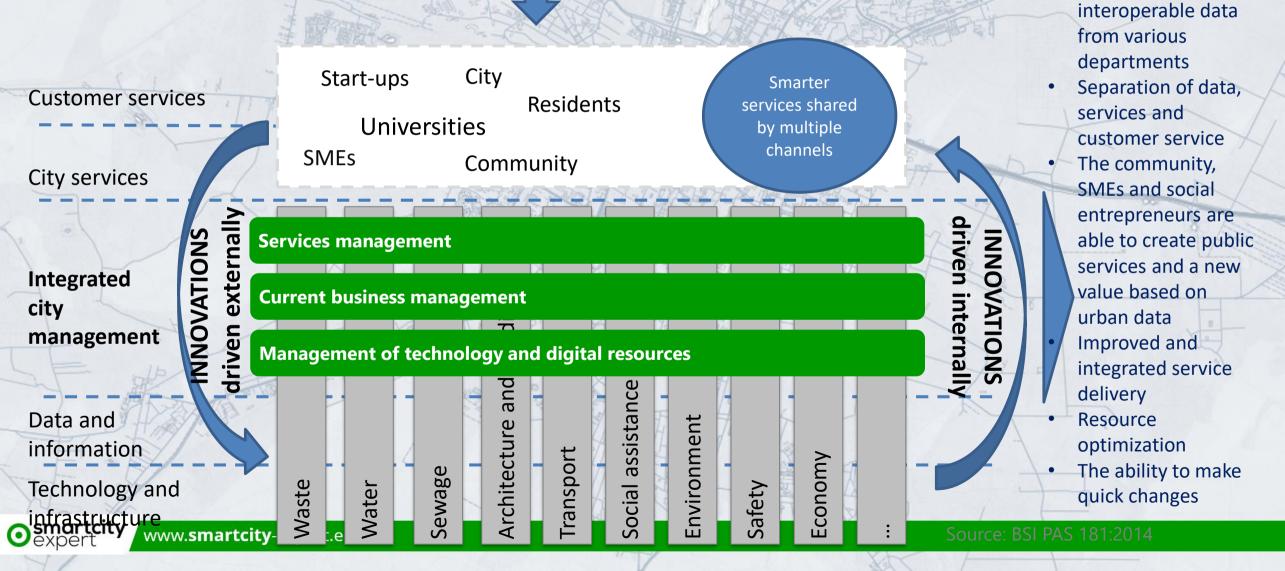- Environment
- Safety
- Economy
- ...

- Low or no interoperability
- Lack or little focus on the needs of residents
- Low efficiency
- Locked and closed for innovation systems
- Low cooperation between departments
- No quick changes are possible

AN INTEGRATED MODEL OF THE CITY'S OPERATION

Citizens issues

Customer services

City services

Integrated city management

Data and information

Technology and infrastructure

Start-ups   City
Residents
Universities
SMEs   Community

Smarter services shared by multiple channels

INNOVATIONS driven externally

INNOVATIONS driven internally

Services management

Current business management

Management of technology and digital resources

Waste
Water
Sewage
Architecture and
Transport
Social assistance
Environment
Safety
Economy
...

- Open and interoperable data from various departments
- Separation of data, services and customer service
- The community, SMEs and social entrepreneurs are able to create public services and a new value based on urban data
- Improved and integrated service delivery
- Resource optimization
- The ability to make quick changes

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Source: BSI PAS 181:2014

SUSTAINABLE SMART CITY

an innovative city that uses the achievements of science, including information and communication technologies (ICTs) and other methods to improve quality of life, efficiency of urban operation and services, and city competitiveness, while ensuring that city meets the needs of present and future generations with respect to economic, social and environmental aspects

Based on ITU-T Focus Group on Smart Sustainable Cities

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EXAMPLES OF SMART CITY PROJECTS IN POLAND

SUSTAINABLE MOBILITY IN JAWORZNO

JAWORZNO

SUSTAINABLE URBAN MOBILITY +

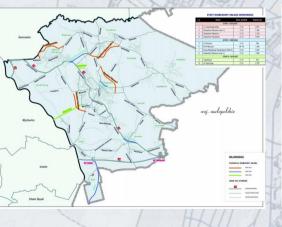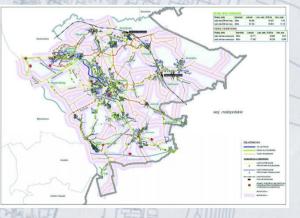**OBJECTIVE: IMPROVING THE QUALITY OF LIFE IN THE CITY. IMPROVING ROAD SAFETY. IMPLEMENTATION OF ZERO VISION.**

Tools:
- **Strategic management and spatial planning**

Plan
mobilności
miejskiej
Jaworzna

JAWORZNO

SUSTAINABLE URBAN MOBILITY +

OBJECTIVE: IMPROVING THE QUALITY OF LIFE IN THE CITY. IMPROVING ROAD SAFETY. IMPLEMENTATION OF ZERO VISION.

Tools:
- **Investments in road infrastructure**
  - 30% of modernized streets to calm traffic
  - Development of cycling infrastructure (including Velostrada - highway for bicycles)
- **Public transport reform:**
  - Annual ticket for the price of 1 fuel tank (PLN 180 = 45 EURO)
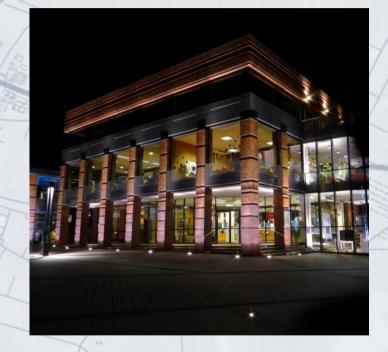 - Electromobility (40% of courses), fast charging stations

JAWORZNO

SUSTAINABLE URBAN MOBILITY +

- Investments in public spaces, parks, education (city library)
- Periodic quality of life research (high support for change!)
- Incentives and awareness-raising rather than penalties (no paid parking zone, no speed cameras)

Achievements:

- 33% travel around the city using public transport (vs 32% using private cars)
- Reverse trend - positive migration balance (+1200 people in 2018)
- City brand

CITY CONTACT CENTER IN WARSAW

19115 CITY CONTACT CENTER

Information on administrative procedures

Reports (e.g. infrastructure faults)

Initiatives and ideas

KITCHEN OF 19115

**70 consultants
24h / 7 days**

Using data to optimize processes and make decisions

Obsługujemy Wasze zgłoszenia
Miejskie Centrum Kontaktu Warszawa 19115 w ZDM

W marcu otrzymaliśmy **2320** zgłoszeń.
To **114%** więcej niż rok wcześniej (1085).

Najwięcej zgłoszeń dotyczyło:

594 wykruszeń w jezdni, chodniku lub na drodze rowerowej

571 uszkodzeń latarni

388 uszkodzeń sygnalizacji świetlnej

ZARZĄD DRÓG MIEJSKICH

19115 WARSZAWA MIEJSKIE CENTRUM KONTAKTU

WHAT ELSE?

INTEGRATED COMMUNAL ECONOMY IN OSTRÓW WLKP

OSTRÓW WIELKOPOLSKI

The main goal: Create a city that is **"self-sufficient in energy"** - that is, to maximize the production of its own energy within the cluster

Expected benefits:
- lower electricity charges,
- cheaper public transport,
- new work places,
- improving the quality of the environment.

DIGITAL SPATIAL MANAGEMENT IN THE CITY OF GLIWICE

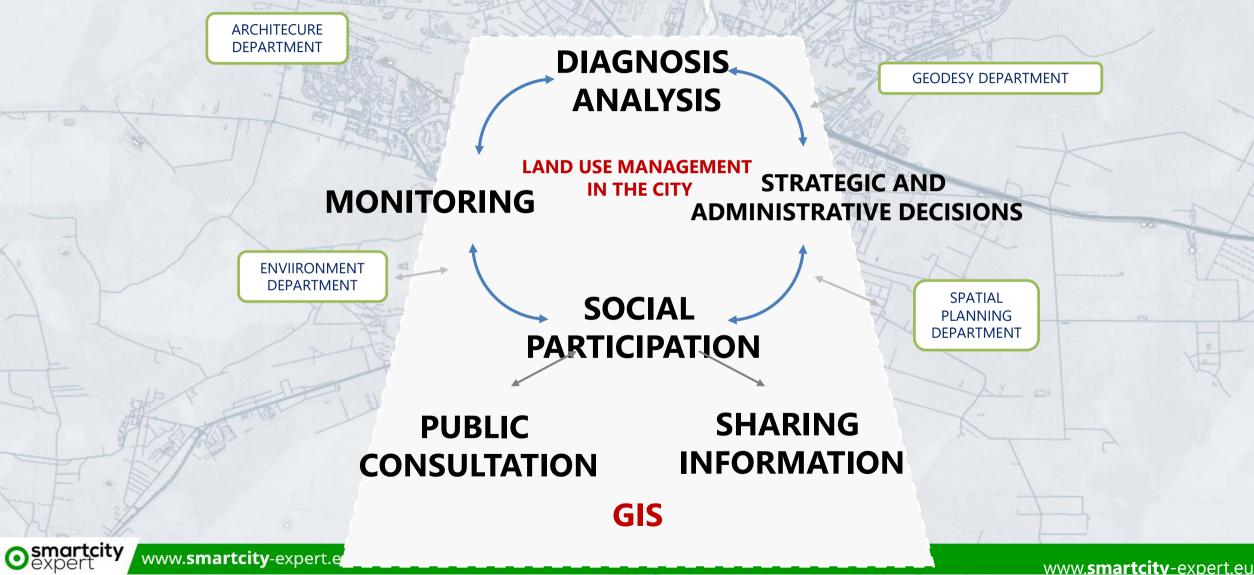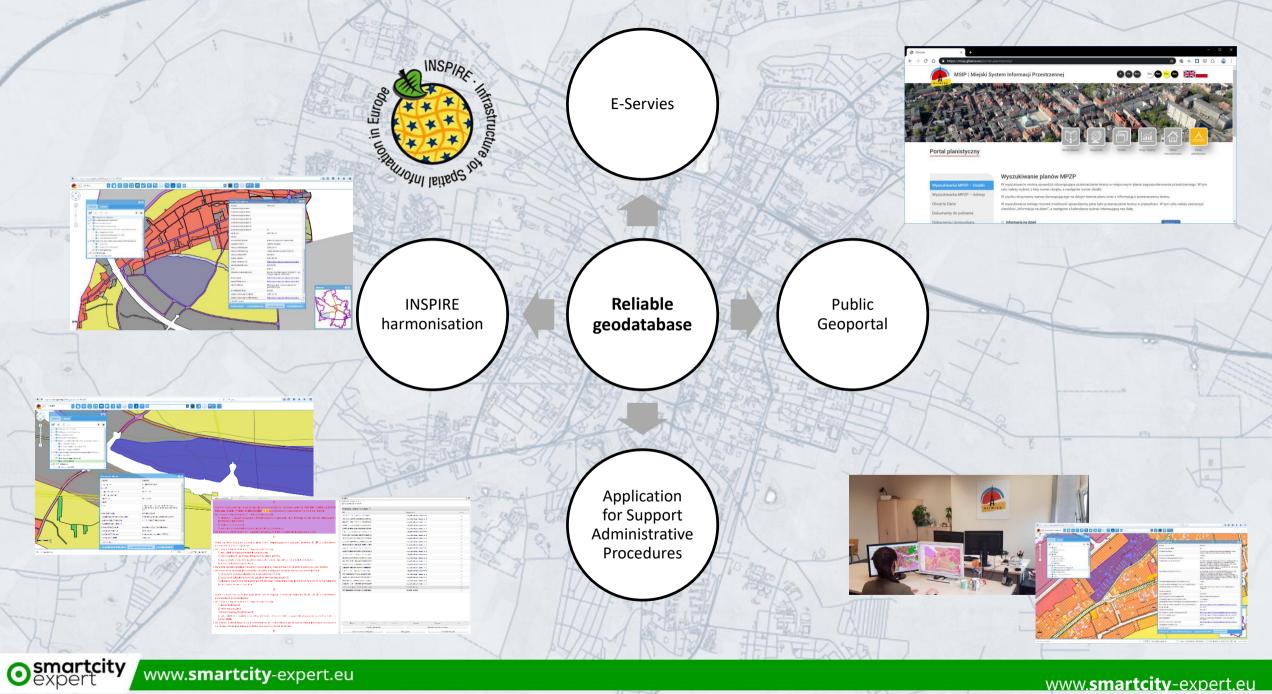# DIGITAL SPATIAL MANAGEMENT IN THE CITY OF GLIWICE

Problems identified:

- **Limited possibility of conducting comprehensive and integrated spatial policy** resulting from the lack of adequate information resources and IT tools.

- **Non-optimal time** for handling administrative matters requiring access to formal information on land use in the land use plan (for construction projects)

- **Lack of an integrated local planning database** in line with technical and legal standards and lack of tools that suport internal work what significantly limits the efficiency of administrative procedures inside the office.

- **Low public awareness** in the field of spatial planning and the **lack of publicly available e-services** in this field, including providing information and planning data in an accessible way and ensuring the possibility of social participation.

E-Servies

INSPIRE harmonisation

Reliable geodatabase

Public Geoportal

Application for Support Administrative Procedures

DIGITAL SPATIAL MANAGEMENT IN THE CITY OF GLIWICE

- Integration of urban strategic and management processes in the field of spatial development and planning with information and communication technologies.

- Increasing the transparency of the functioning of the Municipal Office in Gliwice

- Launch of a number of public e-services

- Utilizing the integrated approach to urban development policy on a larger scale by better analyzing conditions, coordinating plans (including planning documents) and urban strategies, and involving citizens and institutional partners.

SMART CITY

URBAN GEOGRAPHICAL INFORMATION SYSTEM
IN KIELCE CITY

THE CURRENT ROLE OF GIS IN CITY INTEGRATED MANAGEMENT

Issuance of administrative decisions, especially building permits of investment considerating impact on environment

Performance management (indicators of life quality, public services and state of the environment)

A huge role in supporting social participation

Support of strategic management and municipal policies including spatial economy, planning policy and zoning

Enabling the integration of multiple IT systems to optimize city tasks

IDEA KIELCE HACKATHON

CHALLENGES FOR POLISH SMART CITIES

1. SMART CITY STRATEGY

Implementing the **Smart City idea is not a short cut**. Implemented solutions must be a response to specific, identified problems or challenges and bring cities closer to the set vision. Developed with the involvement of the local community and a wide range of stakeholders, constantly monitored The Smart City Strategy is the basis for the transformation of the city into a truly intelligent city.

CHALLENGES FOR POLISH SMART CITIES

2. POTENTIAL OF CITY DATA

- Most often, Polish cities use data only to handle a specific administrative procedure and their reuse is very limited (for various reasons - technical problems, lack of culture of using data in making decisions, or lack of tools or competences).

- The effective use of data has great potential - social (e.g. opendat's initiatives) but also financial (generating specific savings, sealing the system of taxes and local fees, possibilities of accelerating the implementation of administrative procedures or improving the quality of the surrounding space).

CHALLENGES FOR POLISH SMART CITIES

3. DATA-BASED DIAGNOSIS AND MANAGEMENT

- To make good decisions you need to systematically assess the city's functioning and its environment.
- **Cities need to use current and reliable data** and proven, documented methodologies (including ISO37120).
- It is impossible to consciously manage a city without effective access to current and reliable data about the city and about phenomena or activities that take place within its borders (and often outside of them).
- **Smart city should systematically monitor the quality of provided services**, **effectiveness** in achieving its development goals and the condition of the urban environment.
- **Integrated city management is based on data**, because they are the basis for building strategies, urban policies and making decisions. It's high time to integrate, analyze, visualize, share (in an appropriate form, tailored to the specific group of recipients) and most importantly draw conclusions from city data.

CHALLENGES FOR POLISH SMART CITIES

4. SHARING EXPERIENCES AND COOPERATION

- Cities should share valuable experiences - especially those that will allow other cities to avoid mistakes.
- The reduction of errors due to inter-city cooperation will translate into better spending of public funds as well as higher quality of urban services.
- When planning and designing services (whether digital or traditional), cities involve more users but also solution providers

CHALLENGES FOR POLISH SMART CITIES

5. A NEW APPROACH TO FINANCING AND IMPLEMENTING SERVICES AND URBAN INVESTMENTS

- The 2014-2020 perspective and significant, relatively easily available UE funds are coming to an end.
- Cities must use new ways of financing investments and urban services, e.g.
  - Public-private partnership
  - Success Fee
  - Shared Service Centers

![smartcity expert logo — blog o miastach prawdziwie **inteligentnych**]

Thank you!

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