The Digital Twin of Pilsen

Helping city decision-making to become more effective and democratic

9 December 2021

Evidence Based Policymaking in Europe Summit 2021

Pilsen Smart City is not only about its digital twin

Smart City Pilsen

It's where we want to live

View the Projects

| Mobility | Living | Economy | Environment | People | eGovernment |

Mobilní aplikace FC Viktoria Plzeň

Karkulka PMDP

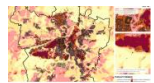SIT Port, the port open to anyone.

Web města Plzně

Vybavenost základních škol

Využití dronů pro Integrovaný záchranný systém

Eduroam

Plzeň – analýza satelitních snímků

HYDROGEN HORIZON AUTOMOTIVE CHALLENGE – H2AC

Moje PMDP

Stadionová WiFi FC Viktoria Plzeň

Bezpečnost dětí – opatření na ZŠ

TutaPlzeň

Elektronické vyřízení povolení pro předzahrádku

Tichá linka

Naše firmy – jak vybrat další školu

Pilsen CUBE II

Dynamický dispečink

Open data

Vizualizace intenzity dopravy

Kamery ve vozech MHD

Síť internetu věcí

Plzni To

Free WiFi

Bateriové trolejbusy

Centrum Robotiky

Úhrada jízdného bezkontaktní platební kartou

Elektronický Portál Občana EPO

Inteligentní zastávky

Klikací rozpočet města

Aplikace Plzeň – občan

Plzeňská karta

Pilsen journey towards its digital twin

OpenTransportNet	2014-2017	Traffic Modeller starts
PoliVisu	2017-2020	Traffic analysis and simulation for policy making
DUET	2019-2022	Simulations across multiple inter-connected domains
S4AllCities	2020-2022	Digital twin and simulations for crisis management

Our strengths since beginning

- Political support
- Smart city as an agenda approved by the City Council
- Technically skilled personnel
- Advanced technical infrastructure managed by the city
- State-of-the art UAVs

Data

Mobility

- Traffic detectors
- Public transport (location, delay...)
- Traffic model
- Shared bikes
- Carsharing

City-operated cameras

- Traffic management
- security
- Video analytics

Metadata information

C_NO2 values from Air pollution calculation

C_NO2: 31.41

Telco data

Air quality

City GIS

Digital Technical map

... and many more

Data selection

- Management of city data
  - New usage for existing data (e.g. video analytics, traffic detectors)
  - Further use as open data if possible

- Looking for useful data from external sources
  - Experimentation – learning by doing (telco data, FCD data)
  - CycloMedia experiment
    - panoramic photographs - photogrammetric 3D measurements
    - use the imagery for 3D modelling and texture mapping
    - AI to detect city property (traffic lights, sings, posts)
    - measuring road quality
    - Rescue system – detailed view and measurements in 3D

Data use example C-ITS:
Cooperative Intelligent Transport Systems pilot

Foto: Škoda Transportation

- Digital Twin of a street

- Autonomous tram

- Dynamic traffic management

- Rescue vehicles priority
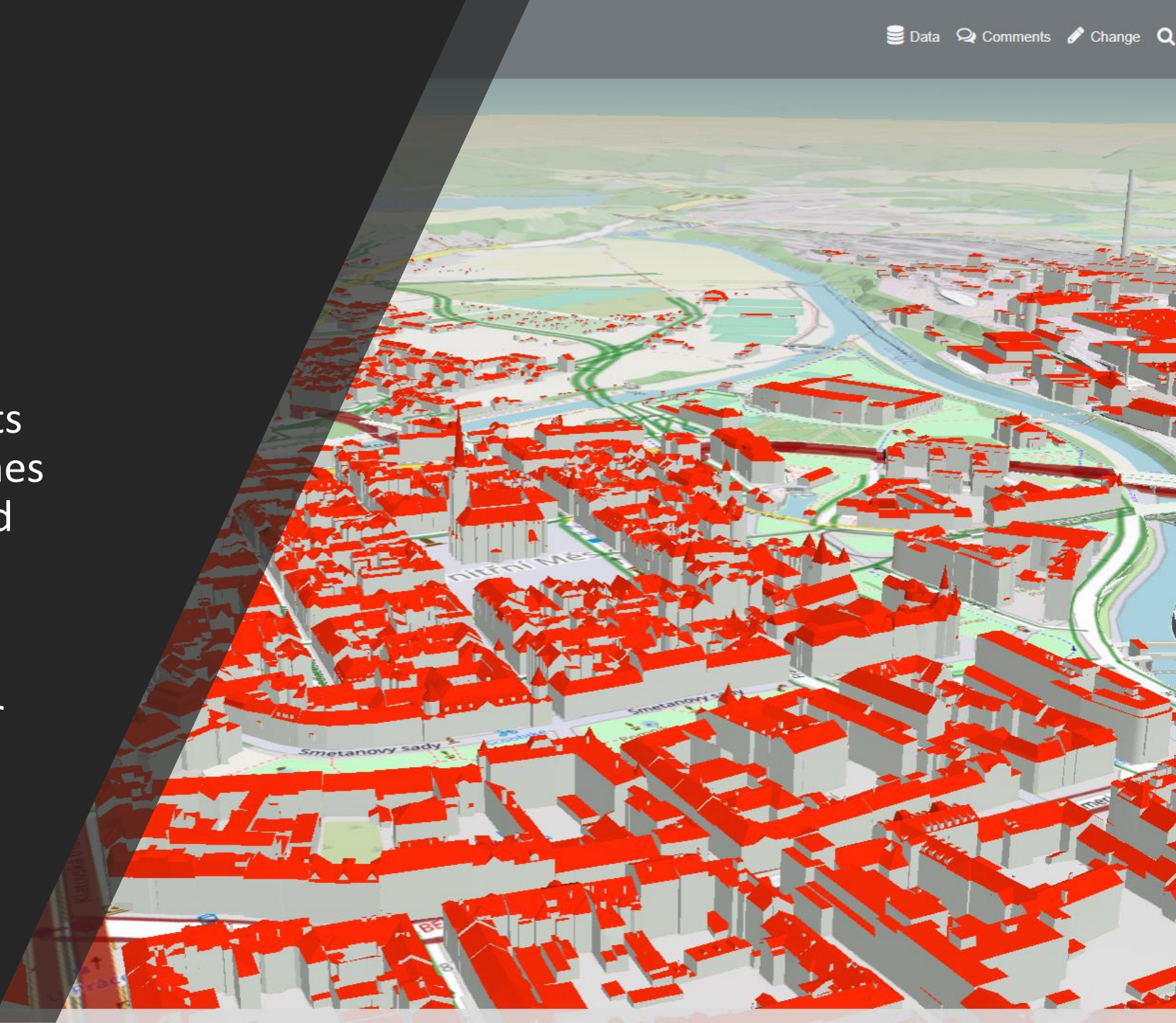
- Anticollision C2X system

- Crash call C2X
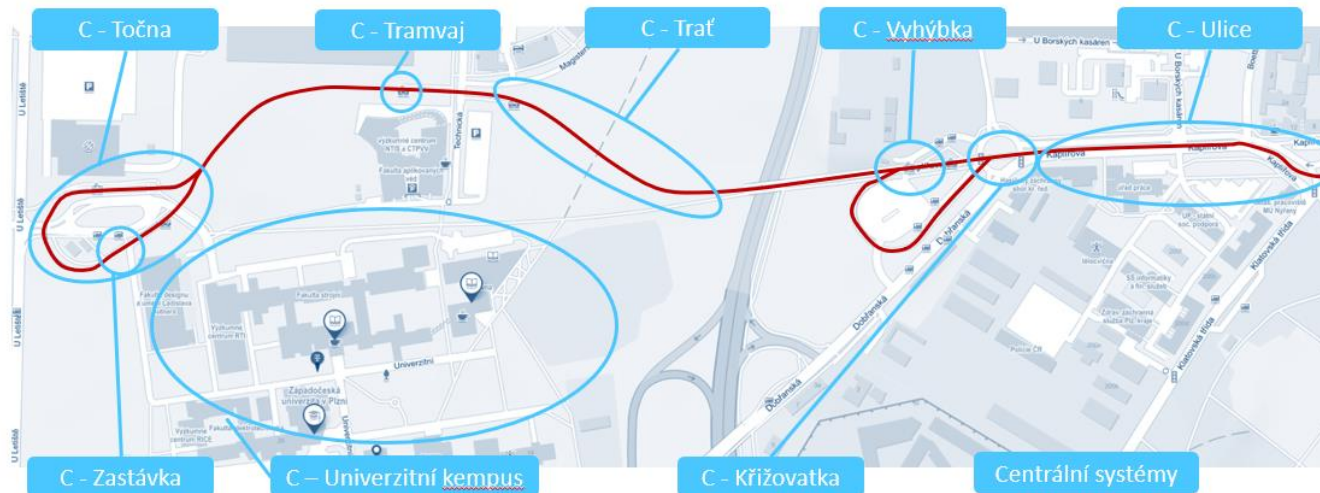
Policy making challenges

City managers
- concerned about data interpretation results and its impact on their work routines
- Skills needed to analyse and interpret data

Policy makers
- Explain benefits to get their support

How are the data going to help?

- Analyse current situation
- Set strategies, milestones and measurable goals (KPIs)

DUET (and previous projects)

- provides a hands-on experience with new technologies
- Reveals opportunities to apply the technology further and in other domains

  -> S4ALLCities – crisis managemnt

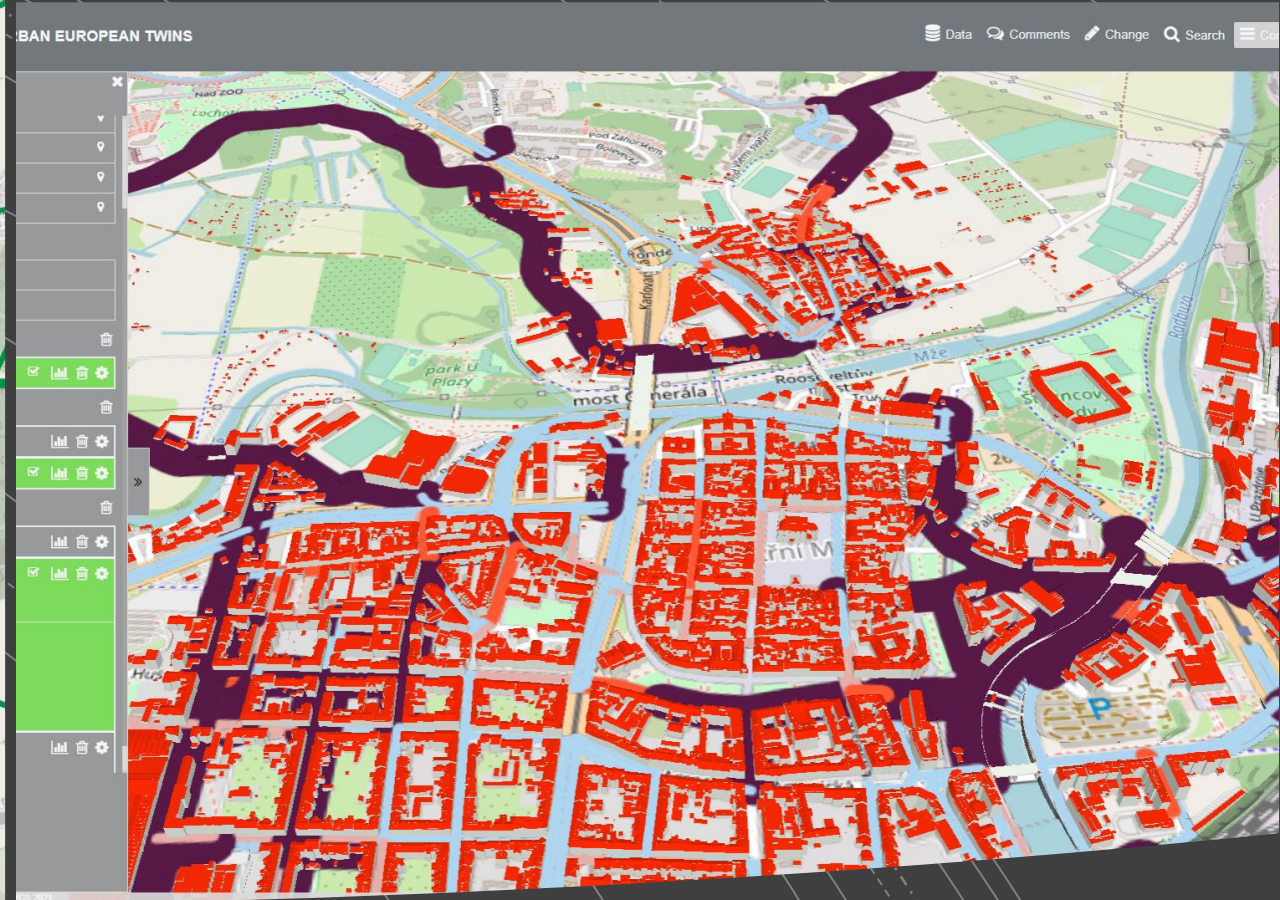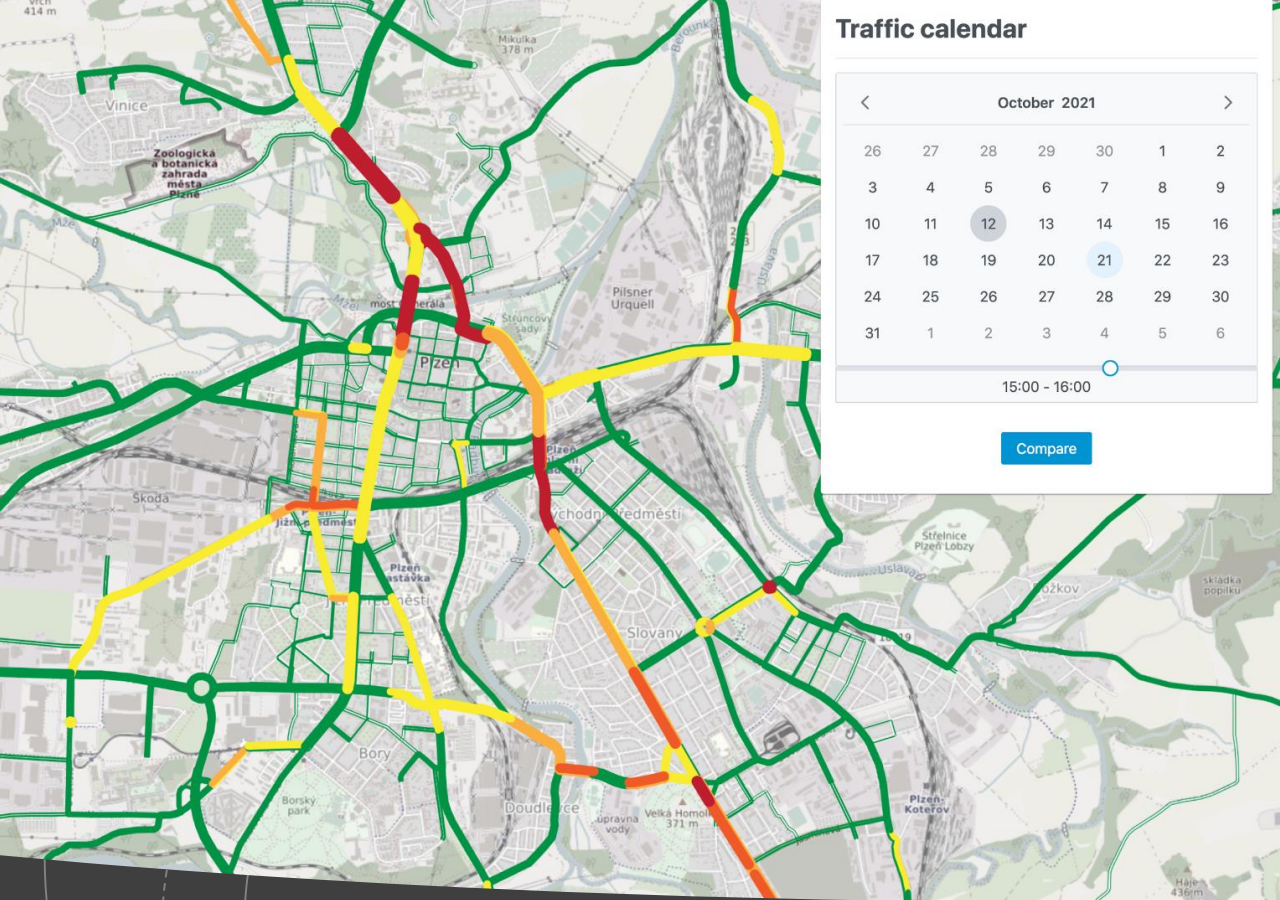 -> VR in grammar schools recently

DUET's main added value for the city

- **interaction of simulation models** in different domains

Traffic	Air quality	Noise

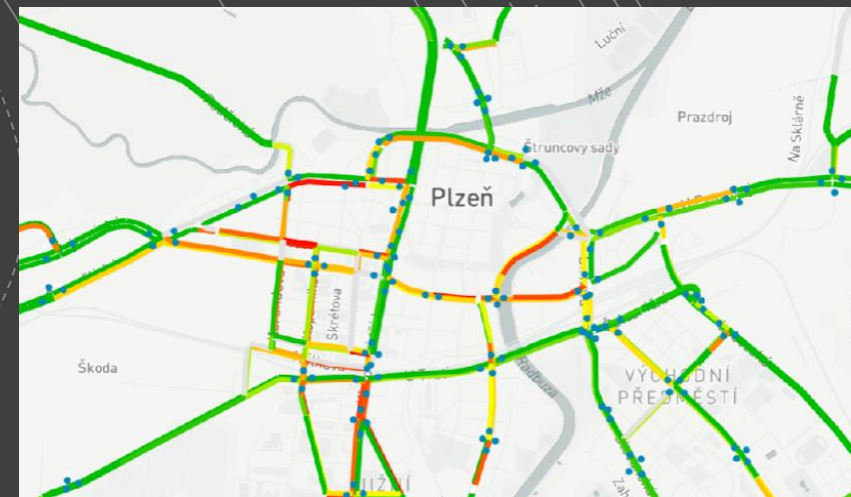# Traffic Visualisations

- 2D view & 3D view, delta visualization in the DT
- Sensor data, floating car data (historical and real-time) with GLayer
- Future traffic simulation with Traffic Modeller

Expected impact Benefits for society

- Improving the current situation (e.g. in mobility)
- Nourishing innovation & startups support
- Engaging students and data enthusiasts
- Support informed and data-driven policy making towards sustainable city,

-> HAPPY CITIZENS

-> BETTER QUALITY OF LIFE IN PILSEN

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