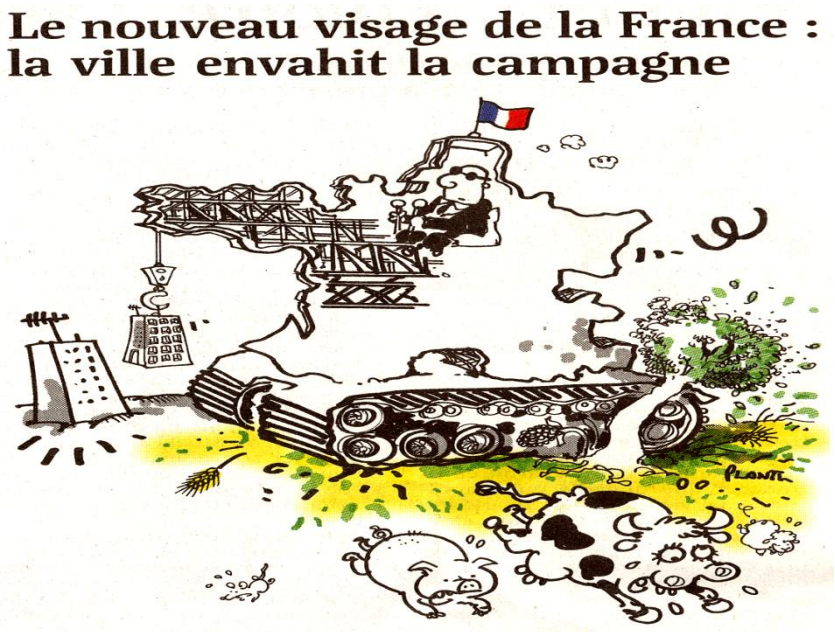
Interactive Analysis, Simulation and Visualisation
Tools for Urban Agile Policy Implementation



eGovPoliNet

FP7 Projects Workshop

Brunel University

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UWE, Bristol

urbanAPI at a glance

- Full title — Interactive Analysis, Simulation and Visualisation Tools for Urban Agile Policy Implementation
- Duration — 36 Months
  1st of September 2011 – 31st of August 2014
- Funded — **ICT Call 7,** FP7-ICT-2011-7, STREP
  Objective ICT-2011-5.6
  ICT solutions for governance and policy modelling
- Consortium — 9 partners (Coordinator Fraunhofer IGD)

urbanAPI Consortium

- **ICT Partners:** Fraunhofer IGD, AIT and GeoVille

  → development of the method and tools

- **Urban Sustainable Development and Stakeholder Engagement Partners:** UWE and AEW + Stakeholder Board

  → requirements, testing and specifications in respect of urban governance and policy modelling

- **City Partners**:
  - **Bologna** (Italy)
  - **Sofia, ASDE** (Bulgaria)
  - **Vienna** (Austria)
  - **Vitoria-Gasteiz, CEA** (Spain)

  → testing and evaluation of the urbanAPI tools

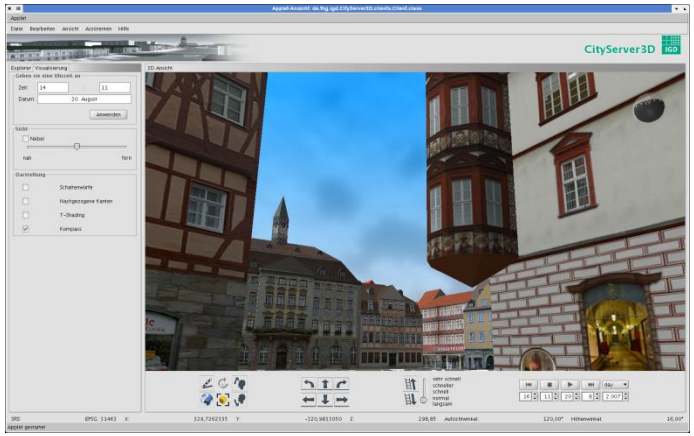
Project aims

- Support activities such as issue identification, policy analysis, consultation, decision and evaluation in urban planning and land management policy
- Develop a policy metamodel, a formalised vocabulary, a set of rule languages to define data integration and abstract simulation models
- Transpose elements of agile ICT development to the urban policy making process

Expected results

- **urbanAPI toolset**, consisting of citizen engagement, urban analysis and visualisation applications offering decision support in relation to territiorial development options

- Adapted **urban planning applications**, created, deployed, and evaluated - to support policy makers, planners and stakeholders at different governance and spatial levels (neighbourhood, city wide, and urban region levels)

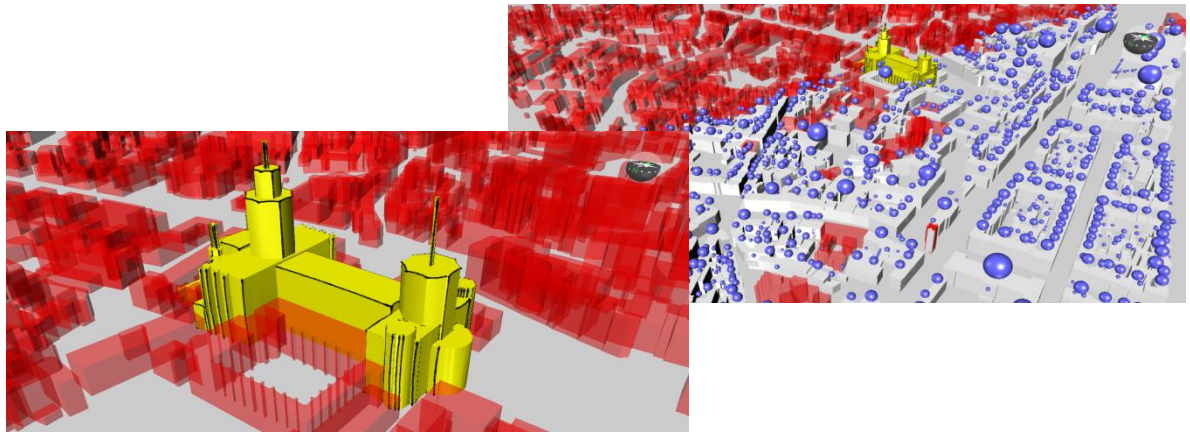


The urbanAPI ICT approach

Two perspectives:

- The toolset to be developed will support a range of activities that are **typical for policy making processes** in the area of urban planning:
  → issue identification, policy analysis, consultation, coordination, decision, implementation and evaluation.

- The developed toolset will be **generic and be reusable**
  → sustainability of the approach, as the created solutions will be applicable beyond the application cases used for evaluation



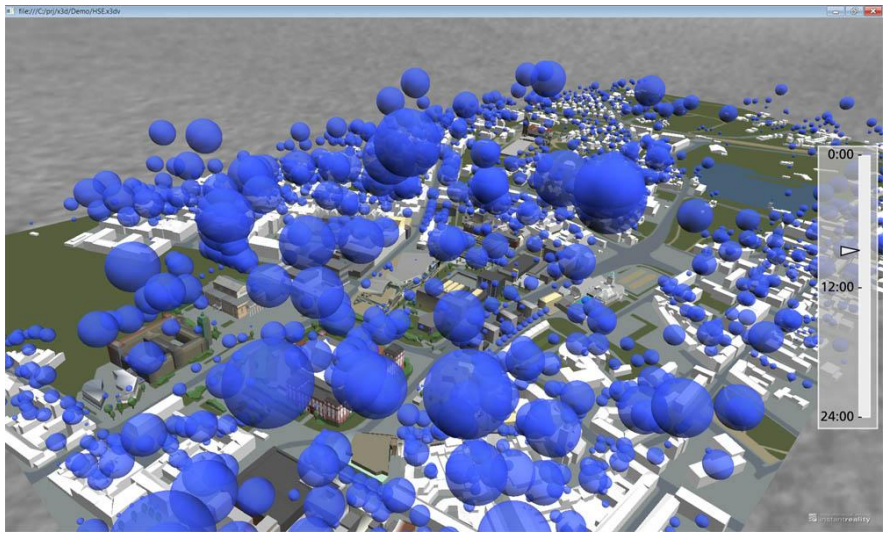
3 spatial scales – 3 scenarios

- **Urban quarters, addressing issues concerning the *neighbourhood level***
- **Urban core, addressing the *citywide level***
- ***City regions* focused on spatial and functional relationships, addressing the entire planning region**

Neighbourhood scale:

Creative participatory urban planning using a 3D scenario creator

- Maps – as 2D-visualizations of proposed changes in an urban environment – are often judged as too abstract
- 3D scenarios will support the negotiation process for urban development projects via virtual and augmented reality visualizations
- For this scenario, the 3D web client as well as the mobile app client will be used.

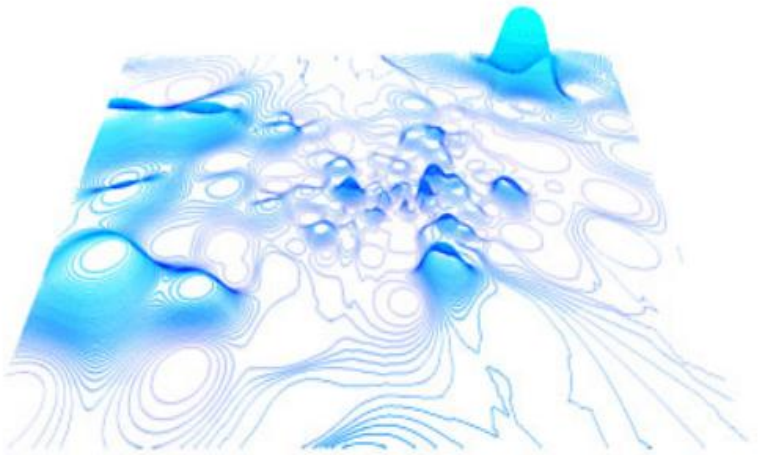


Real-time energy consumption

Citywide scale:

Exploring acceptance of urban infrastructure by Mobile Communication Device Locator

- Urban planning urgently requires information regarding the population distribution and mobility patterns for various land uses:
  - transportation infrastructure
  - population preferences for open spaces.
- Communication device locator:
  → features and characteristics of population's engagement with the facility
- 2D/3D Web mapping client for full public access to the activity distribution maps over time



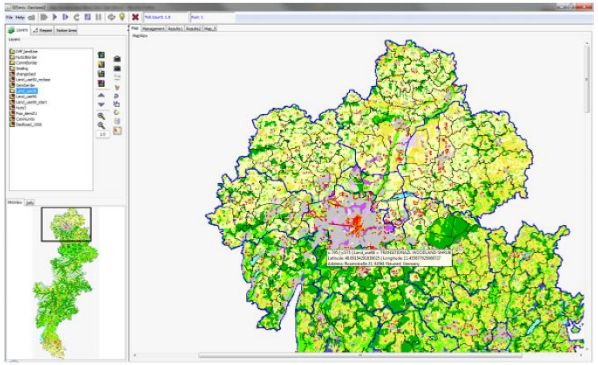
Interpolated mobile device distribution in Graz, Austria

- Opinion polls of local population and visitors to web maps supporting city authorities in making public space more attractive for residents

Cityregion scale:

Interactive city region development simulation addressing urban growth and densification with interactive planning interventions

- Public engagement in cityregion development requires detailed and easily understandable information about planning decisions and full transparency about the expected impacts → simulation is helpful
- Application makes use of an agent based model, simulating land use and land use density change in a high resolution cellular landscape
- Client- and server-side simulation components are part of the application
- MultiTouchTable as the main deployment platform



Visualising urban growth simulation: MASGISmo application of the Munich-Verona transect

Multi Touch Table at Fraunhofer IGD

Development principles - User Defined Solutions

- Fundamental principle for urban governance ICT applications – user (planner and associated professions) defined solutions - but difficult to achieve:

- Both planners and the planning research community are detached from the process – substantial funding is available for research on this theme supported by the FP7 ICT Smart Cities and GMES programs 2012.

- ICT community have profusion of ideas regarding application development to support smart urban governance but users unable to respond effectively– planners concerns that needs of users are misunderstood.

- Fundamental problem that it is difficult for user communities and ICT communities to communicate – there is no common language.

- Even where achieve effective communication is establish – still difficult to build effective solutions that must be forward looking – moving beyond the failure of current systems towards new urban governance models eg integrated urban management and SEIS principles

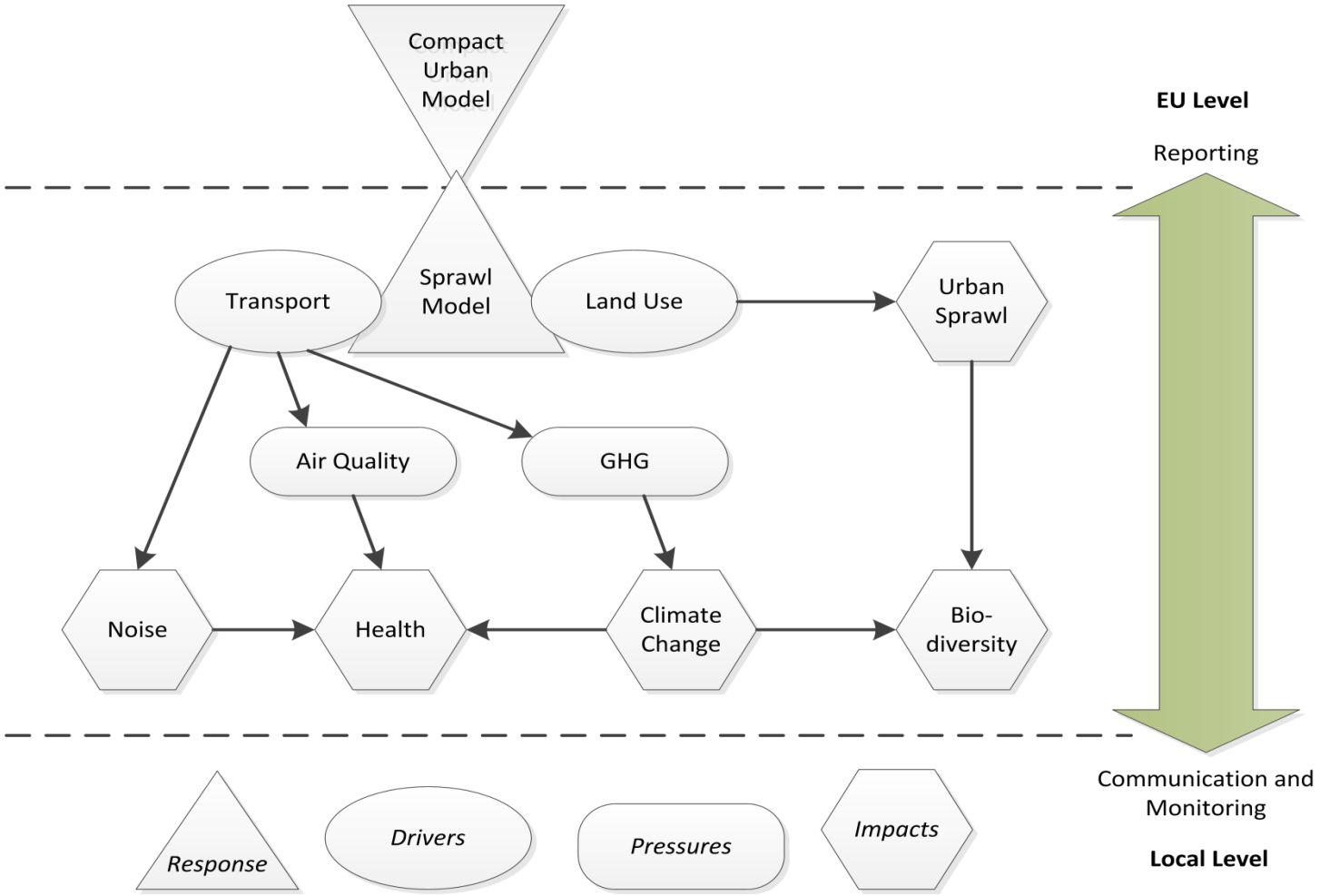
Transformational governance and ICT – user story

- Classical models of urban governance emphasise expert, centralised, hierarchical, top-down perspective - departmental defined implementation and (arguably) one-dimensional solutions

- Transformational governance critical to realisation of sustainable development, demands a new synthesis of expert governance fully articulated with bottom-up stakeholder and citizen engagement to inform decision-making.

- ICT enabled innovations founded on these principles of transformational governance offer planners new tools to fully engage stakeholders in the urban development process, and create new information and intelligence – all key components of **integrated urban management systems**.

urban complexity + integrated urban management



urbanAPI solutions

- **urbanAPI** solutions:

- enable **assessment of urban complexity** - provide planners with information needed to understand socio-economic and environmental impacts of territorial development
- offer **decision-making support** - provide planners with tools and intelligence needed to choose between alternative options for territorial development
- secure **effective engagement with the citizen** – as well as support wider stakeholder engagement on future development of the territory.
- create conditions in which **both political mandate and more effective management** is secured – both essential for sustainable urban development

urbanAPI solutions

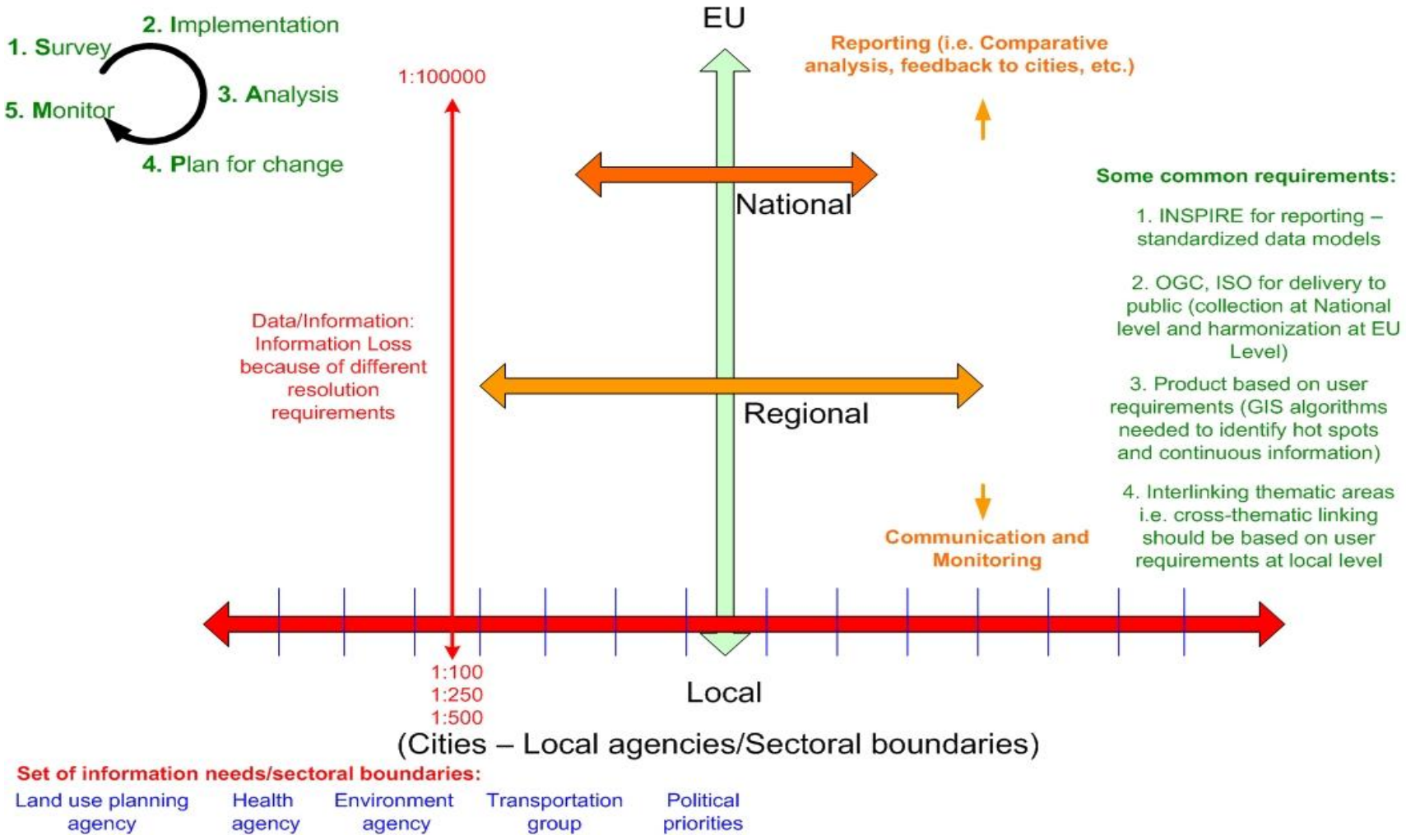
- lessons derived from comparative assessment of the applications developed in differing contexts – Vienna, Bologna, Sofia and Vitoria-Gasteiz - BUT

- common global and pan-European drivers of change shaping development of European cities, to which governance and management of urban areas must respond

- common problems = common solutions = common product

- solutions provide basis for generic ICT tools for > 500 cities of Europe with populations 100,000+ supporting integrated urban management via vertical and horizontal flows of information and intelligence

Structuring ICT Intelligence



Thank you!

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