

MELODIES

WP4

Urban ecosystem accounting service

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GISAT



Overview

Motivation/background

Why Urban?

- Population, economy, quality of life, poverty
- Development constraints - environmental, economic & social challenges
- Investments to prioritize, trade-offs to evaluate
- strategic level urban planning support
- Vast data available incl. GMES/Copernicus ones
- **Need for data integration, data-to-information, better communication**

Overview

Motivation/background

Why Urban?

territorial agenda, commitments at nat & EU level

Biodiversity - green infrastructure, fragmentation

Directive on zero net land take

...

- strategic level urban planning support
- Vast data available incl. GMES/Copernicus ones
- **Need for data integration, data-to-information, better communication**

Overview

Motivation/background

Why GISAT?

- Remote sensing services company
- Active in GMES/Copernicus area
- Active in urban and environment services
- Data integration (e.g. EEA's LEAC)
- Data exploration and analysis platforms
- Users/customers: city/region authorities, ESA, EEA, ESPON, World Bank
- **Enhanced and new services potential**

Overview

Motivation/background

Why now? Why in Melodies?

- Growing Open Data Initiative activities (transparent and more effective governance)
- Growing free and open EO data - organized archives + Copernicus Sentinels potential
- Emerging developments in data visualization and presentation e.g. Data-Driven Documents
- **Benefit from Linked Open Data approach**
- **User: City of Prague, EEA**

Overview

Motivation/background

Exploration and analysis platform requirements

- support non-technical audience with different background – vocabulary, outputs
- integrate data and organize them in overall solid concept
- put data in the new contexts
- visualize in fast and understandable way
- support collaboration and cooperation
- support public involvement - participation

Overview

Motivation/background

Evolution of exploration and analysis platform

- more powerful core engine
- flexible linking new thematic data
- cloud based
- support to live data - VGI, sensors, social media
- flexibility vs complexity
- user dashboards / components based
- *support big data exploration*

Data inputs

EO datasets

Landsat *x*, *Sentinel2*

- format: raster, vector, grids, tables
- size: ~Gbytes
- status: free and open
- pre-processing: on-demand processors (WPS), to be linkable

Data inputs

Copernicus services

Land: Urban Atlas, High Resolution Layers

Atmosphere, Climate Change

- format: raster, vector, grids, tables
- size: ~Gbytes
- status: free and open
- pre-processing: to be linkable

Data inputs

City level datasets

ESTAT Urban Audit, Prague city socio-economic and environmental databases (numerous, tbc)

- format: tables, raster, vector, grids,
- size: ~Gbytes
- status: free and open (mostly)
- pre-processing: to be linkable

Data inputs

- Can you see opportunities to use outputs from other WPs as inputs to your application?

Open for that. To be explored

Data outputs

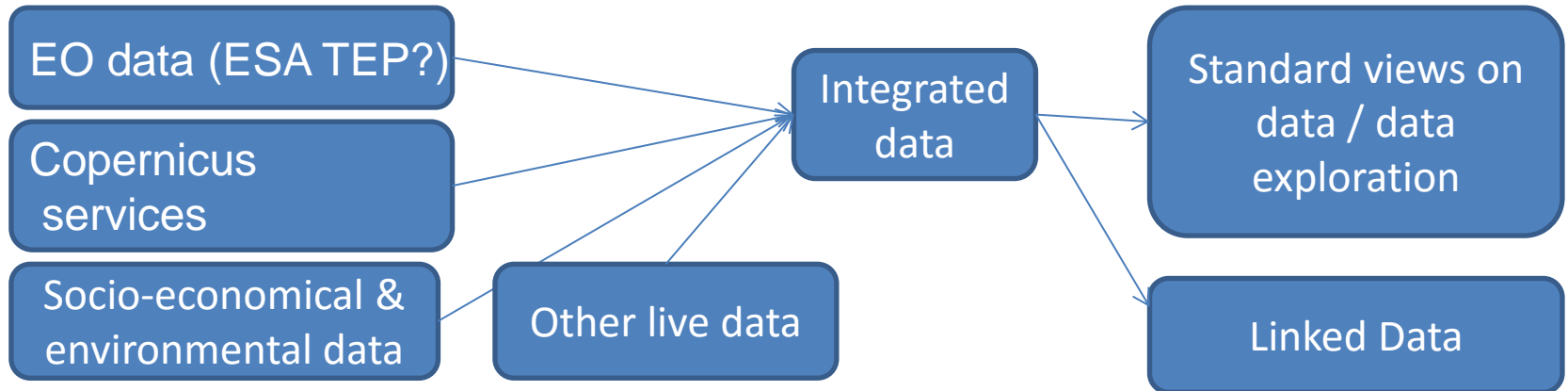
- primarily within exploration platform
- softcopy/hardcopy outputs - tables, maps, D3
- web services

- Should we make available as Linked Open Data?

Yes, but to be explored

Computing requirements

- Give an overview of the processing chain, perhaps as a block diagram



- On-demand or offline processing?

Off-line for sure. OnD - depends on performance

- How much processing power?

Not clear yet

Visualization requirements

- How will you visualize your outputs?

Web-based data exploration and analysis tool

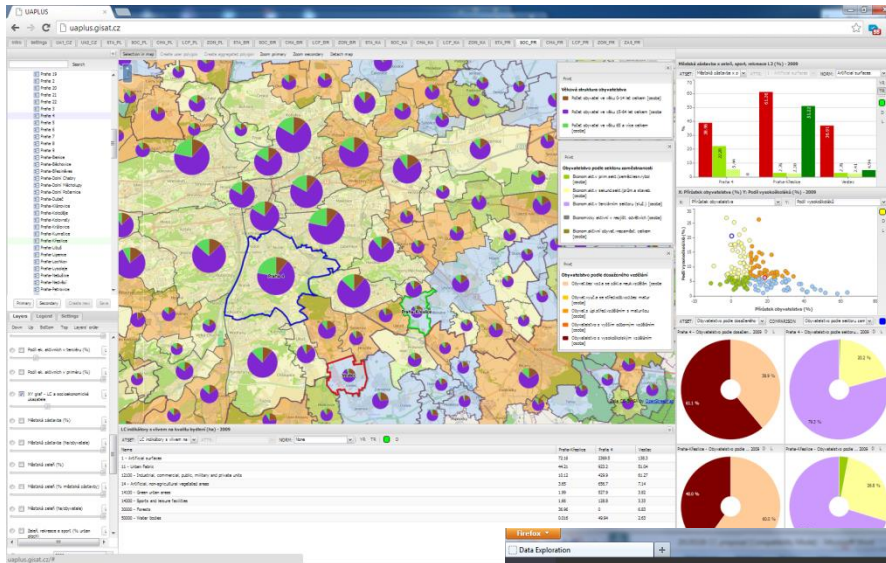
- Are your outputs maps, timeseries, something else?

Combination of all these

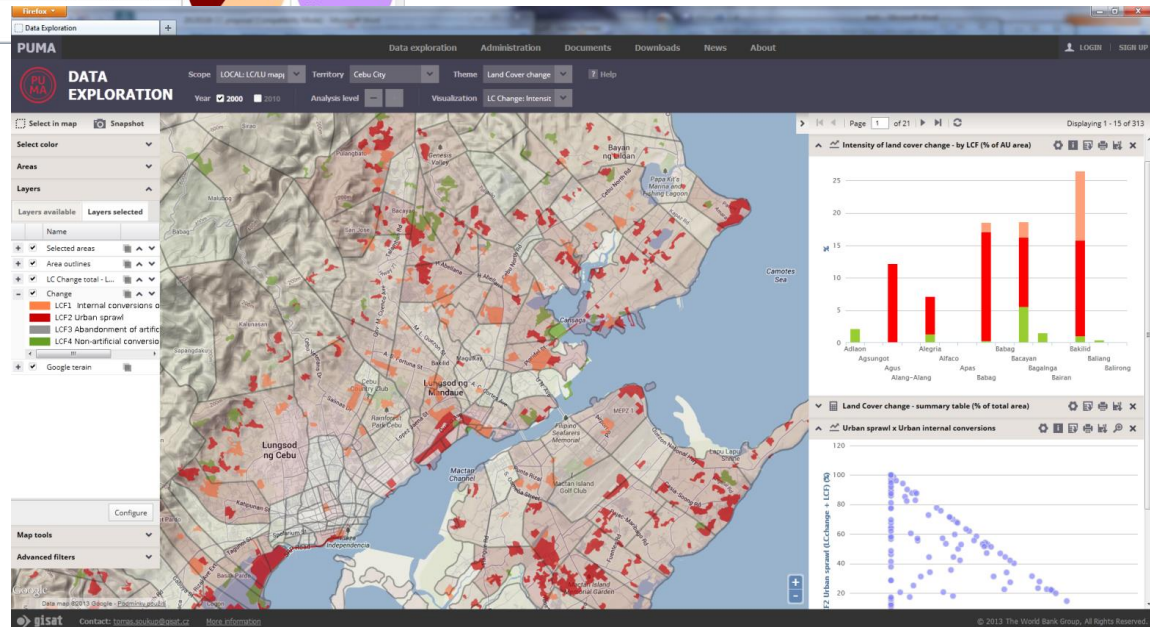
- Do you plan to develop viz tools yourself or is this something you want WP2 to do?

Ourselves, but we are open to collaboration

Visualization requirements



UrbanAtlas+ (ESA)



PUMA (World Bank)

Rough timeline for development

Year 1

- Detailed descriptions of technical and data requirements
- Detailed development plan
- Work on the visualization libraries and relevant datasets to be procured and reformatted as necessary.
- “early” services implementation (i.e. those that already exist in some form)

Rough timeline for development

Year 2

- Update to the detailed project plan based on Y1 feedback
- More technical platform support - integration of services in technical platform
- First version of service prototype

Rough timeline for development

Year 3

- Detailed project plan update based on critical assessment and feedback from Y2
- Further development of the service - refinement and scaling-up
- Second version of service prototype
- Final refinements and a critical assessment of the state and sustainability of the services

Main issues

- **linked to Linked Data and cloud potential**
- semantic interpretations (semantics-based search), integration of heterogeneous (and spatial) data - semantic interoperability (themes, scale)
- inclusion of time dimension
- cloud processing potential
- on-demand linking vs pre-cooking (performance)
- flexibility vs complexity / clarity vs simplicity

WP4

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Thank you
for your attention

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