SPACE 4Cities

GEOSPATIAL WORLD

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EU Horizon: Pre-Commercial Procurement

Session: Real-World Impact of Space & Geospatial Technologies

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City of Amsterdam

@SPACE4Cities #SatelliteData #UrbanSpace #SmartCity #ClimateResilience #EUSPA

City of Amsterdam

EUSPA This project has received funding from the European Union for the Space Programme Agency (EUSPA) via the Horizon Europe research and innovation programme under grant agreement No. 101131955.

Cities face complex challenges

Climate resilience
heat, fire/floods, urban heat islands, air quality, infrastructure deformations, biodiversity loss,

Sustainable mobility
zero-emission, charging stations, logistics

Urban planning & management
Digital twins, policy testing, budget planning, asset context, unforeseen risks

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Cities don’t lack data
Cities lack actionable intelligence

- Fragmented data and methods
  → limited impacts
- How to move from
  data → insights → decisions → actions → impact → flexible & adapt?

Unexploited potentials of satellite data for urban challenges

- **Energy transition**
  Maximize rooftop solar potential, locations of wind turbines.
- **Air quality**
  Measuring pollutants ($PM_{2.5}$, PM_{10}, NO_2, SO_2, O_3, CO_2, CH_4)
- **Urban green & biodiversity management**
  Vegetation volume cover, canopy health over the seasons, balance in biodiversity
- **Urban Heat Islands**
  Pinpointing by thermal imaging, tracking temperature trends
- **Mobility & infrastructure**
  Analyze subsidence and deformation of soil, quay walls, bridges, constructions

SPACE4Cities' approach

Design thinking steps to apply:

1. Start from a problem or question, not a dataset
2. Blend scalable sensing with local context
3. Design indicators, not data dumps
4. Prioritize explainability for public-sector users
5. Demand interoperability from the beginning

Scope of innovation:

1. Technology oriented innovation:	Development of new or improved (digital) products that address specific needs for the end-users, within the related urban challenges.
2. Use case oriented innovation:	Deliver value through involving how services are provided to end-users.
3. Process oriented innovation:	Improving workflows behind the solutions or services. Increasing efficiency, safety, reducing costs.
4. Market oriented innovation:	Adapting an existing solution for private users to public authorities.

Blueprint for hybrid urban intelligence services

SPACE4Cities consortium

Partners	Location	Role
Forum Virium Helsinki	Helsinki, Finland	Coordinator, Part of the Buyers' group
Aerospace Valley	Toulouse, France	Expert partner
Municipality of Amsterdam	Amsterdam, Netherlands	Part of the Buyers' group
Regional Development Fund of Attica	Athens, Greece	Part of the Buyers' group
District09	Ghent, Belgium	Part of the Buyers' group
Municipality of Guimarães	Guimarães, Portugal	Part of the Buyers' group
Open & Agile Smart Cities	Brussels, Belgium	Part of the Buyers' group

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Pre-Commercial Procurement Process

Commercial Procurement

PHASE 0

Open Market Consultation

Open call: 145 submissions

PHASE 1

Solution Design

20 Suppliers

40,000 € per Supplier*

PHASE 2

Prototype Development

10 Suppliers

GeoRisk Monitor
DYNAMO-SM
CLIMAPS
CityMotion
VISTA
AI-WUIFIRE
UrbanROOTS
CHERISH
OPTIM-Green
URBAN LENS

100,000 € per Supplier*

PHASE 3

Piloting: Preparation & Execution

5 Suppliers

SUPPLIER B

SUPPLIER D

250,000 € per Supplier*

PHASE 4

Public Procurement

Commercial roll-out Public Procurement by Replicator Cities

SUPPLIER

A, B, C, D, E

OR X

Pre-Commercial Tender
WTO Agreement on Government Procurement & Procurement directives not applicable

Intermediate evaluation & selection

Intermediate evaluation & selection

Tender for commercial deployment
WTO Agreement on Government Procurement & Procurement directives applicable

(*) Financial figures include VAT 24%. Total maximum budget per supplier 390,000 €.

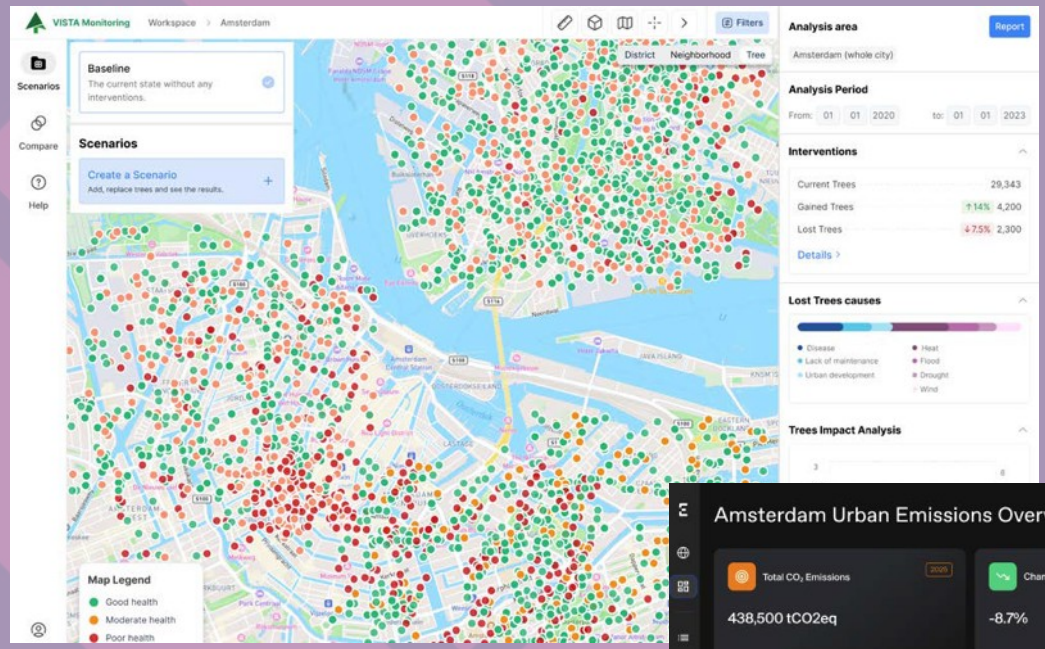
Space4Cities - Top 10 selected solutions

- Vexiza (Spain): AI-WUIFIRE – Prevention of wildfire risks
- eOnsight (France): CHERISH – Protection of cultural heritage sites
- Detektia (Spain): CityMotion – AI agents for urban stability and infrastructure
- Latitudo 40, Planetek , Teamdev (Italy): CLIMAPS – Detection of heat islands, floods, extreme weather
- Everimpact (France): DYNAMO-SM – Traffic emission reductions
- Survintel (Netherlands), Gisaia (France): GeoRisk Monitor – Monitoring of the condition of bridges, roads, and railways
- Optim.aize (France): OPTIM-Green – Strategic planning of urban green spaces
- Neptune (Italy): URBAN LENS – Tracing of underground pipe leaks
- CEiiA (Portugal): UrbanRoots – Monitoring the condition and changes of green spaces
- BitaGreen (Belgium), Climate Scale (Spain) and TreeSense (Germany): VISTA – Management of green areas and biodiversity

Comprehensive area sensing & local context

Satellite data provide replicable city-scale coverage
Combining local (sensor) data → tailored & operational

- Use scalable sensing layers to cover the whole city consistently
- Integrate with local datasets, sensors or field context for tailored solutions with a high precision
- Result: better targeting of interventions, more actions and sustainable impact



VISTA

Satellite + IoT + local climate forecasting

DYNAMO-SM

Satellite + IoT + AI based CFD modelling

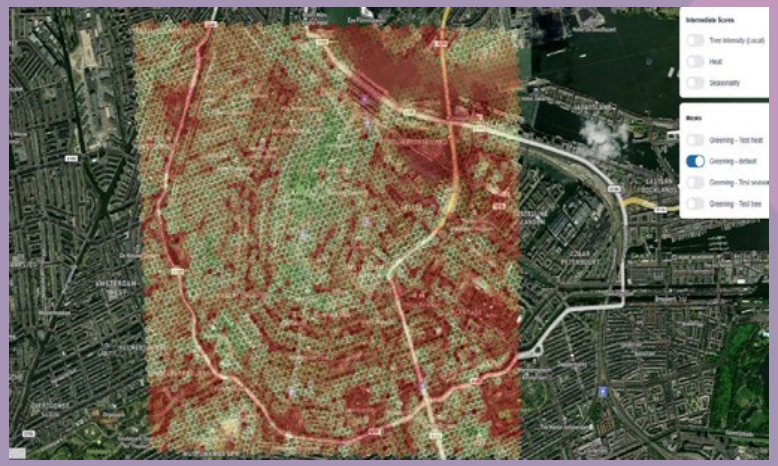
Raw data become early warning indicators

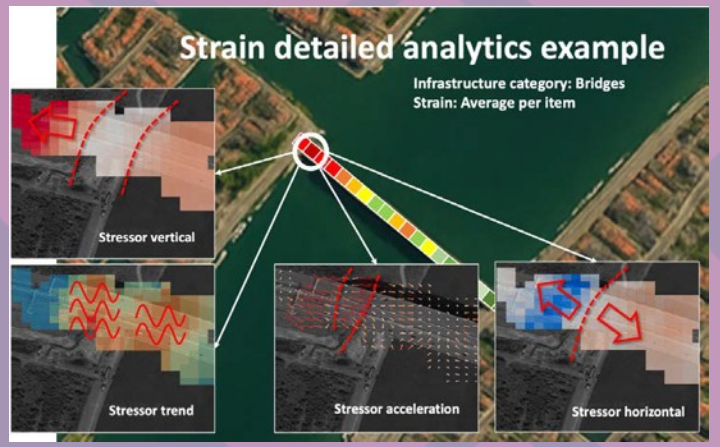
Images and maps represent intermediate data, not the final solution themselves

OptimGreen
Green space suitability score,
and budget insights:
suitable / reinforce / avoid

GeoRisk Monitor
Stress and strain indicators,
significant thresholds,
not only deformations

CHERISH / CityMotion
Asset maintenance priority and tracking structural health



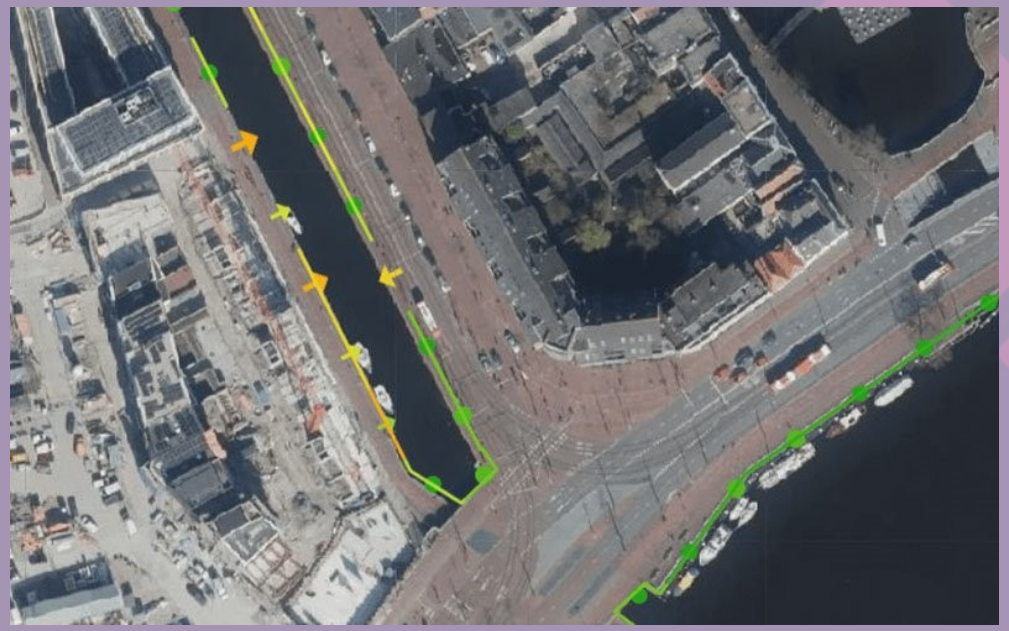


They compress complexity into indicators for decision making

Best practise example - Resilience

Applying satellite to prevent damages in Amsterdam, improving resilience of buildings and infrastructure

Subsidence is invisible to the eye, but the effects tremendous. It increases flood risks, degrades assets, and damaged houses. By observing surface deformation from space and providing this in easy-to-use product, damages will be prevented by monitoring the deformation of buildings, quay walls and bridges.



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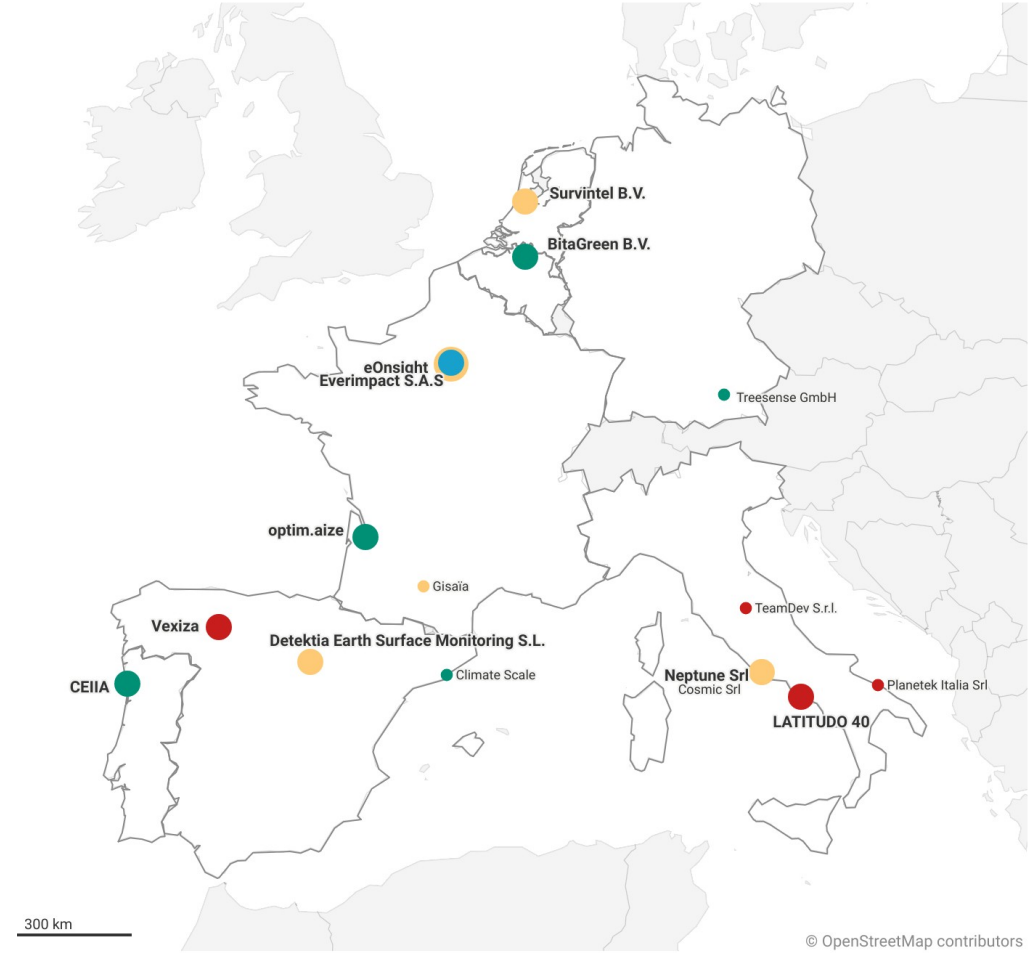
SPACE4Cities Phase 2 Suppliers

Map of suppliers selected for Phase 2 of SPACE4Cities' pre-commercial procurement.



Role and topic addressed by suppliers

- Lead supplier
- Consortium member
- Infrastructure and ground monitoring
- Mobility and emissions
- Green spaces management
- Climate risks in urban areas

Only legal entities are displayed on this map.

Map: Alan Mandrillon • Source: SPACE4Cities • Created with Datawrapper

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Innovation Catalogue

10 Solutions Funded by SPACE4Cities

EUSPA

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