SMURBS

SMart URBan Solutions for air quality, disasters and city growth

ERA-PLANET

Concept, approach and vision

Dr. Evangelos Gerasopoulos,
National Observatory of Athens (NOA), Greece

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689943
Proposal acronym: ERA-PLANET

GEO GROUP ON EARTH OBSERVATIONS

Copernicus

the ERA-PLANET call

- The overall goal of ERA-PLANET's Strand 1 is to fully exploit data and information, tools and services that derive from the increasing multi-sensor, multi-temporal and multi-scale capacity and use of EO (in situ and space-borne), in conjunction with other cross cutting observational platforms, towards identifying and facing cities' vulnerabilities, supporting policies to design strategies and procedures to shield citizens and mitigate impacts of urbanization.

- The achievement of this overarching goal will be based on two discrete, but at the same time interconnected, objectives: create Smart Cities and develop Resilient Societies.

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

SMURBS
SMART URBAN SOLUTIONS

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

GEO GROUP ON EARTH OBSERVATIONS
Copernicus

the fellowship of SMURBS

- 19 partners, 12 countries
- 2.75 m€, 9.15 m€ total

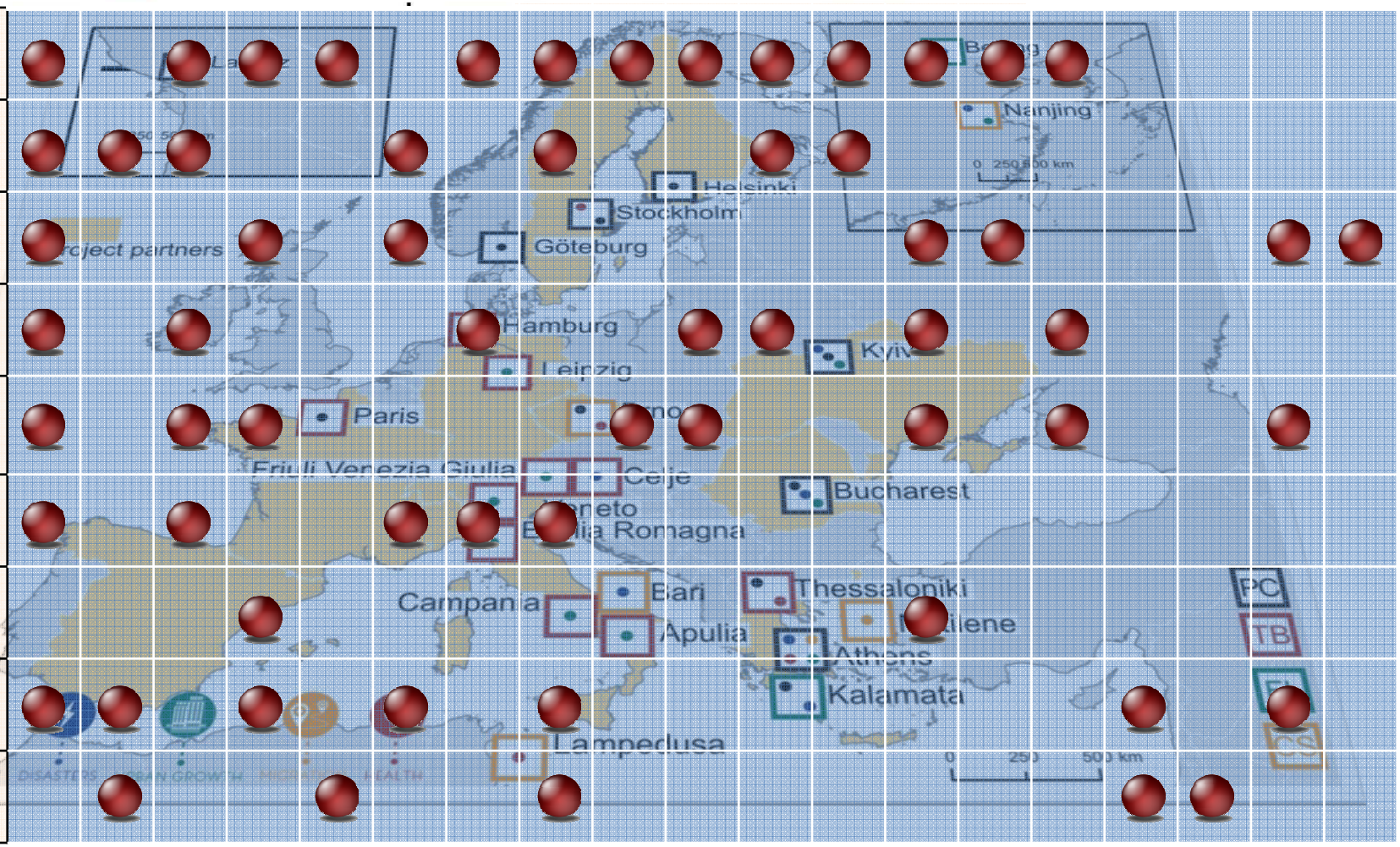
The partners are committed to involve women and men across the project activities:

- 41 women will be involved, representing 40% of the personnel involved;
- 30% of the Tasks and 1 WP will be led by women.

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

the fellowship of SMURBS

In situ component	
Remote Sensing	
Model capacity	
Smart sensors, COs	
RIs, networks	
Operational capacity	
Overseas activities	
Copernicus, GEO liaison	
Interoperab. -semantics	



Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

GROUP ON EARTH OBSERVATIONS

SMURBS
SMART URBAN SOLUTIONS

the objectives

A.	Overarching Objectives
OA1	Empower EO-enabled **informed decision making** in support of the implementation of European Environmental Policy in key priority areas
OA2	Align with **national agendas and programmes** and become the cohesive link with relevant JPIs, EIPs, ENEON and ongoing smart city projects
OA3	Contribute to the **implementation of the GEO Strategic Plan** (2016-2025) and its components (e.g. core functions, foundational tasks) and optimise **exploitation of Copernicus data and core services**
OA4	Reduce running costs of fragmented EO infrastructures under the smart city approach and trigger sustainable economic development and growth, **in support of the relevant UN2030 agenda SDGs**

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

GEO GROUP ON EARTH OBSERVATIONS
copernicus

SMURBS
SMART URBAN SOLUTIONS

the objectives

A.	Overarching Objectives
OA1	Empower EO-enabled **informed decision making** in support of the implementation of European Environmental Policy in key priority areas
OA2	Align with **national agendas and programmes** and become the cohesive link with relevant JPIs, EIPs, ENEON and ongoing smart city projects
OA3	Contribute to the **implementation of the GEO Strategic Plan** (2016-2025) and its components (e.g. core functions, foundational tasks) and optimise **exploitation of Copernicus data and core services**
OA4	Reduce running costs of fragmented EO infrastructures under the smart city approach and trigger sustainable economic development and growth, in support of the relevant UN2030 agenda SDGs

B.	Vertical or Thematic Objectives
OB1	Enable different platform data fusion in EO based urban management of **air pollution pressures** and improve stakeholder and public awareness through new technologies
OB2	Improve preparedness regarding **natural and man-made disasters** affecting cities, supporting coordinated emergency management schemes at the urban scale
OB3	Exploit the full of EO tools for uncontrolled **urban growth** monitoring and understand its interconnection with the addressed environmental pressures
OB4	Improve citizens' **health and well being** via timely, valid and tailored information
OB5	Address EO based solutions to identify the reciprocal relations between environmental and other urban pressures with **migration and other specified inequalities**, to alleviate bi-directional impacts

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

GEO GROUP ON EARTH OBSERVATIONS
copernicus

SMURBS
SMART URBAN SOLUTIONS

the objectives

A	Overarching Objectives
OA1	Empower EO-enabled **informed decision making** in support of the implementation of European Environmental Policy in key priority areas
OA2	Align with **national agendas and programmes** and become the cohesive link with relevant JPIs, EIPs, ENEON and ongoing smart city projects
OA3	Contribute to the **implementation of the GEO Strategic Plan** (2016-2025) and its components (e.g. core functions, foundational tasks) and optimise **exploitation of Copernicus data and core services**
OA4	Reduce running costs of fragmented EO infrastructures under the smart city approach and trigger sustainable economic development and growth, **in support of the relevant UN2030 agenda SDGs**

B	Vertical or Thematic Objectives
OB1	Enable different platform data fusion in EO based urban management of **air pollution pressures** and improve stakeholder and public awareness through new technologies
OB2	Improve preparedness regarding **natural and man-made disasters** affecting cities, supporting coordinated emergency management schemes at the urban scale
OB3	Exploit the full of EO tools for uncontrolled **urban growth** monitoring and understand its interconnection with the addressed environmental pressures
OB4	Improve citizens' **health and well being** via timely, valid and tailo
OB5	Address EO based solutions to identify the reciprocal relations urban pressures with **migration and other specified inequalities,**

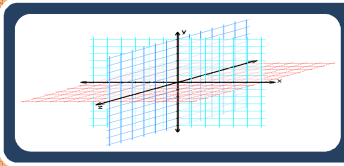
C.	Horizontal or Interoperability Objectives
OC1	Augment cross-validated EO information and **synergies between different platforms/services** (e.g. satellites, in situ, models, IoT/smart sensors, UAVs, citizen observatories) for city scale applications
OC2	Define and generate tailored **Urban Essential Variables (EVs)** and build protocols for their systematic monitoring
OC3	Reinforce **interoperability** via the use of the GEOSS Common Infrastructure (GCI) and create synergies with existing national or regional data hubs
OC4	Promote the adoption of **GEOSS Data Sharing (DSP) and Data Management (DMP) Principles** and the use of open specifications in the provision of urban scale data and information
OC5	Foster **citizen participatory mechanisms** to build urban societal resilience on environmentally induced pressures
OC6	Create an **umbrella for "smart city" initiatives** in the EU relevant area, foster networking, assure replicability and exploitation of developed capacities

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

GEO GROUP ON EARTH OBSERVATIONS
Copernicus

Conceptual cornerstones

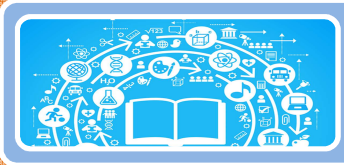
Convergence of existing knowledge and technological advancement under the ‘smart city’ banner



Three cross-linked axes of objectives: overarching, thematic and interoperability

‘Smart city’ model implementation based on assets and needs

Showcasing EO synergistic exploitation for high priority policy issues



Diverse disciplinary interactions

Extroversion heavily built in the overall concept of the project

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

SMURBS
SMART URBAN SOLUTIONS

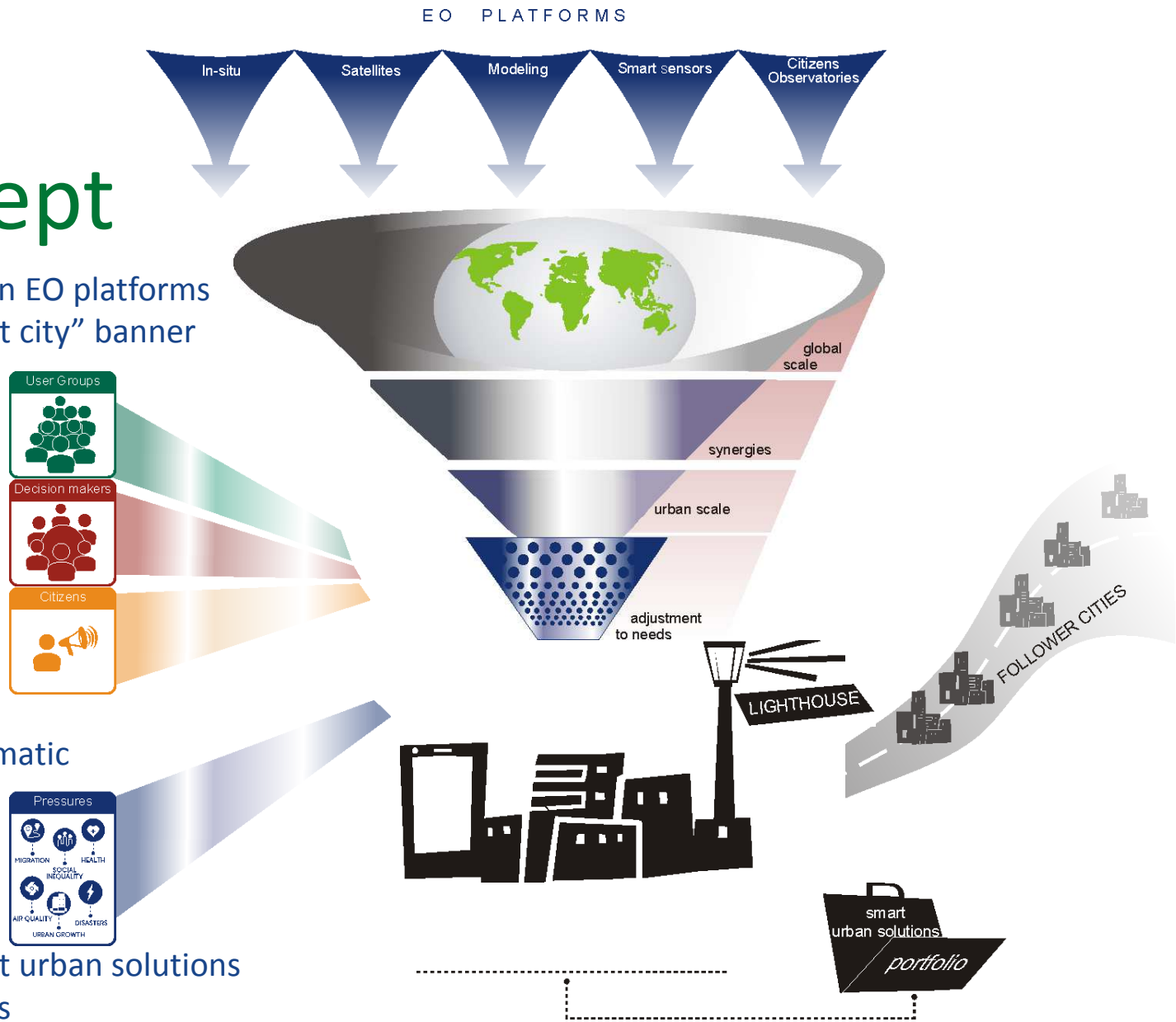
the concept

- develop synergies between EO platforms
- converge under the “smart city” banner

- take user needs on board

- tailor solutions to the thematic areas

- deliver a portfolio of smart urban solutions
- test and showcase in pilots
- let the followers amplify the impact



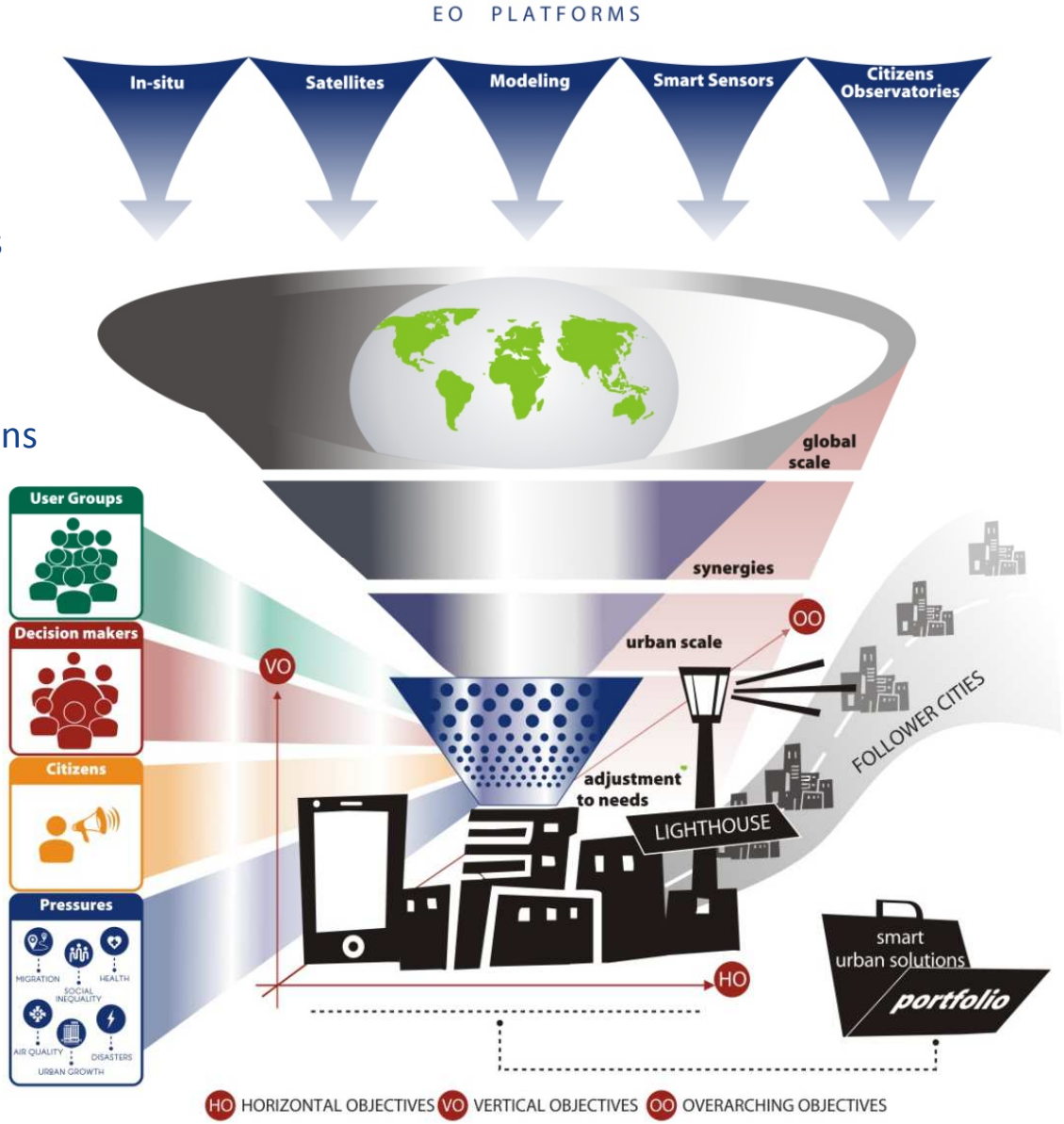
Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

GEO GROUP ON EARTH OBSERVATIONS
Copernicus

SMURBS
SMART URBAN SOLUTIONS

the concept

- develop synergies between EO platforms
- converge under the “smart city” banner
- take user needs on board
- tailor solutions to the thematic areas
- deliver a portfolio of smart urban solutions
- test and showcase in pilots
- let the followers amplify the impact



Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

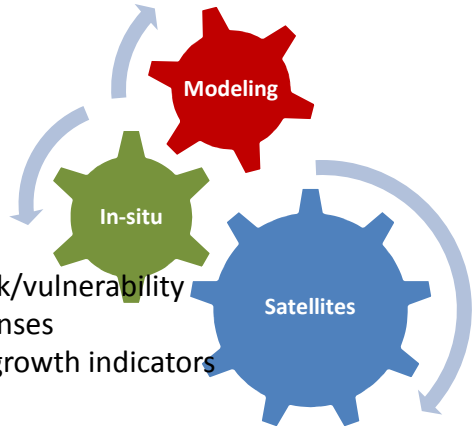
GEO GROUP ON EARTH OBSERVATIONS
copernicus

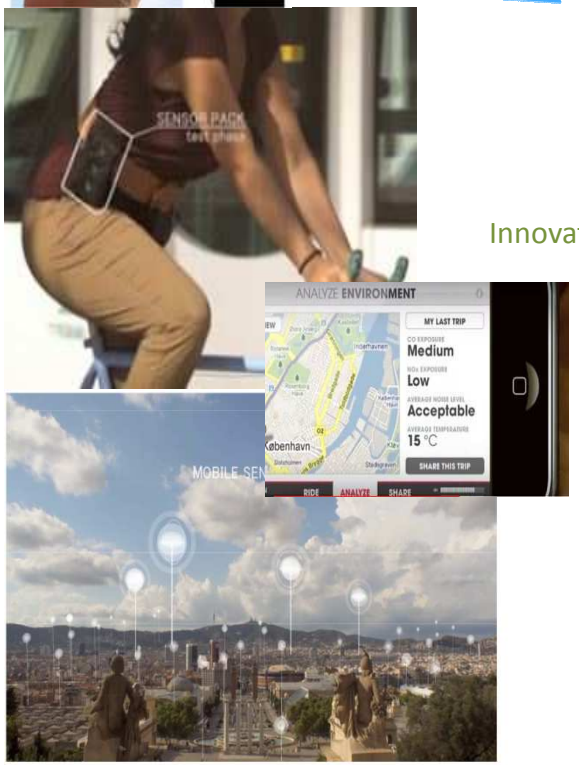
SMURBS
SMART URBAN SOLUTIONS

smart urban solutions portfolio

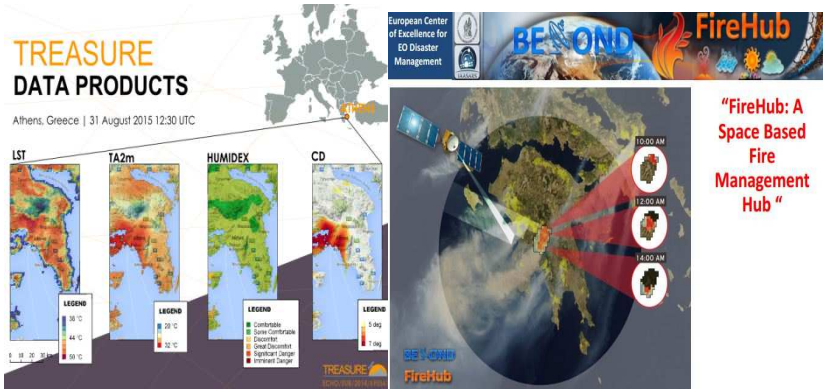
Concept highlights

- ✓ Mobile applications
- ✓ Service platforms
- ✓ Data fusion algorithms for multi-source EO data
- ✓ Crowd-sourced hubs, tools/applications
  - ✓ Decision Support Systems
  - ✓ Chemical weather forecasting
  - ✓ Source apportionment/source finder tool
    - ✓ Mapping of natural and manmade risk/vulnerability
    - ✓ Optimal routing for emergency responses
    - ✓ Natural ecosystem and urbanization growth indicators
    - ✓ Urban essential variables





Innovative observational platforms (including smart sensors, airborne/lidar/hyperspectral, UAVs, online/real-time specialized measurements)



"FireHub: A Space Based Fire Management Hub "

Ref. later presentation "Sensor Platforms for Citizens Observatories", Leonardo Santiago, ATEKNEA

Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

GEO EARTH OBSERVATIONS

Copernicus

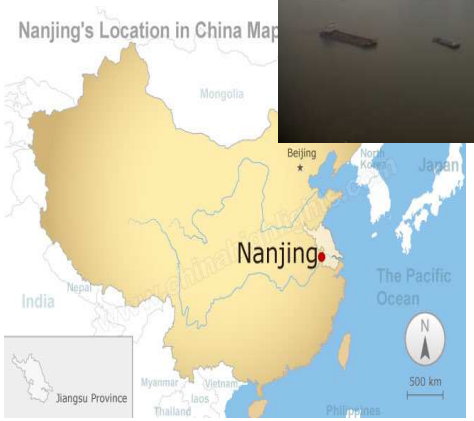
Concept highlights

The project will use the **'lighthouse city' approach** (pilot cases), i.e. selected smart cities of the European network will set the stage to integrate and unify existing, increasing, but still fragmented EO resources (satellites, in situ networks/sensors, UAVs, models, citizen observatories), into information and decision making tools for individuals and local governments.

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

Vision

The implementation of the project will foresee **training and replication of the tools/methods to follower cities (including non European),** and will foster processes that will be ensuring the **sustainability** and **extendibility** of the network within ERA-PLANET and relevant JPIs, EIPs.



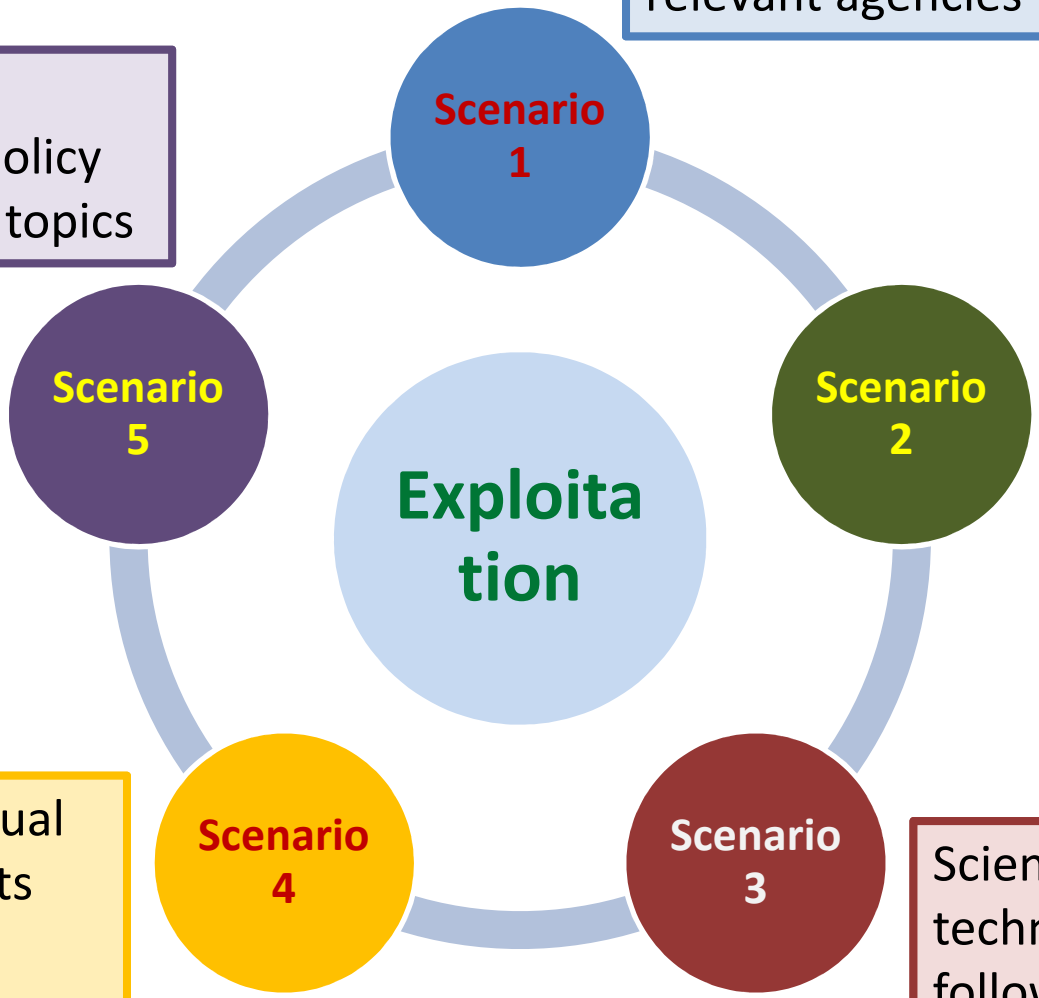
Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

GROUP ON EARTH OBSERVATIONS

SMURBS
SMART URBAN SOLUTIONS

Uptake of SMURBS tools and services by partner cities and relevant agencies

White paper for EO exploitation in EU policy in sensitive priority topics



Export of SMURBS tools and services to the outer world including non-EU cities

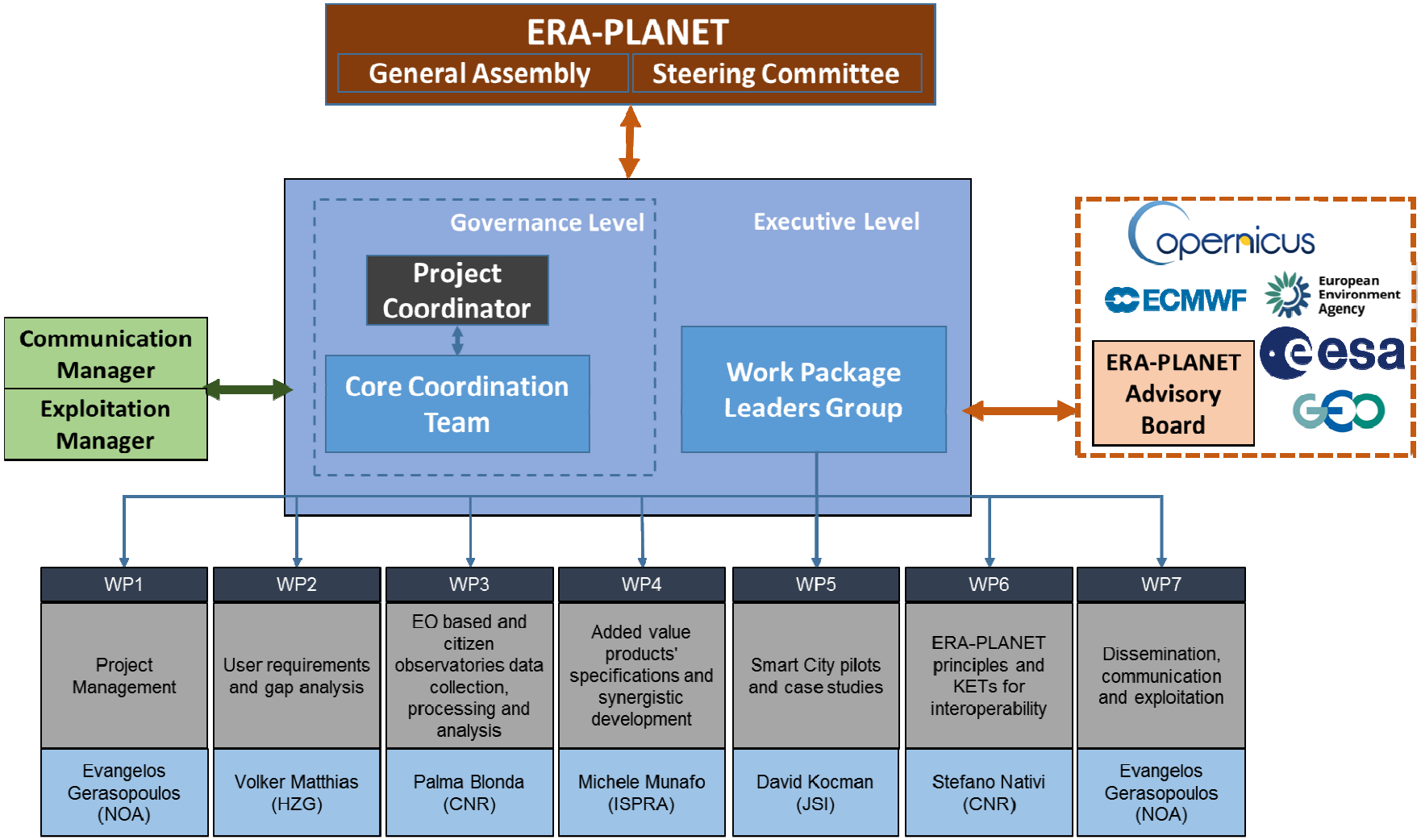
Introduce individual portfolio elements into the EO marketplace

Scientific and technological follow ups

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

GEO GROUP ON EARTH OBSERVATIONS
Copernicus

Management structure



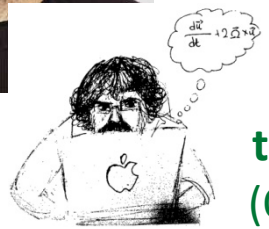
SMURBS
SMART URBAN SOLUTIONS

me

coordinator
(Evangelos)

co²-ordinator
(Eleni)

CORE GROUP



theorist
(Orestis)

communication & admin
(Georgia)

comm. & dissemination
(Eleni)

Horizon 2020
Call: H2020-SC5-2015-one-stage
Topic: SC5-15-2015
Type of action: ERA-NET-Cofund
Grant agreement no: 689443
Proposal acronym: ERA-PLANET

GEO GROUP ON EARTH OBSERVATIONS
Copernicus