



Copernicus For Urban Resilience In Europe: User Requirements & Contribution

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FIRE Focus Group II - Urban

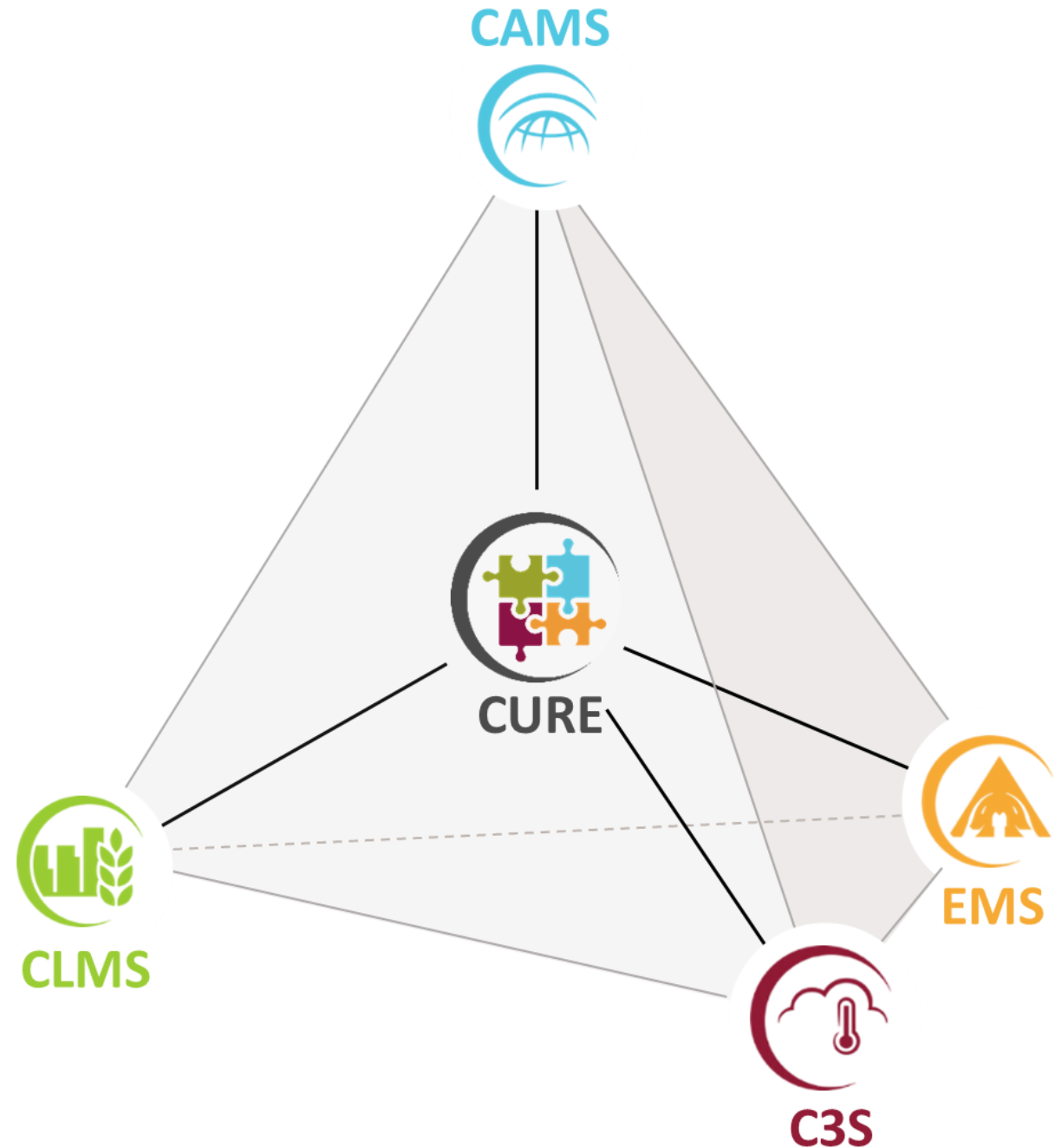
Why CURE?

- 🌐 Urban environment is **multidimensional**: information from more than one Copernicus Core Services is needed.
- 🌐 To address urban resilience **spatially disaggregated** information at local (**neighbourhood**) scale is necessary.
- 🌐 Such information **is not yet available** from Copernicus Core Services.
- 🌐 **CURE: Cross-cutting applications among Core Services**, capable of coping with the required **scale**, exploiting also **third-party** data, *in-situ* observations and **modelling**.



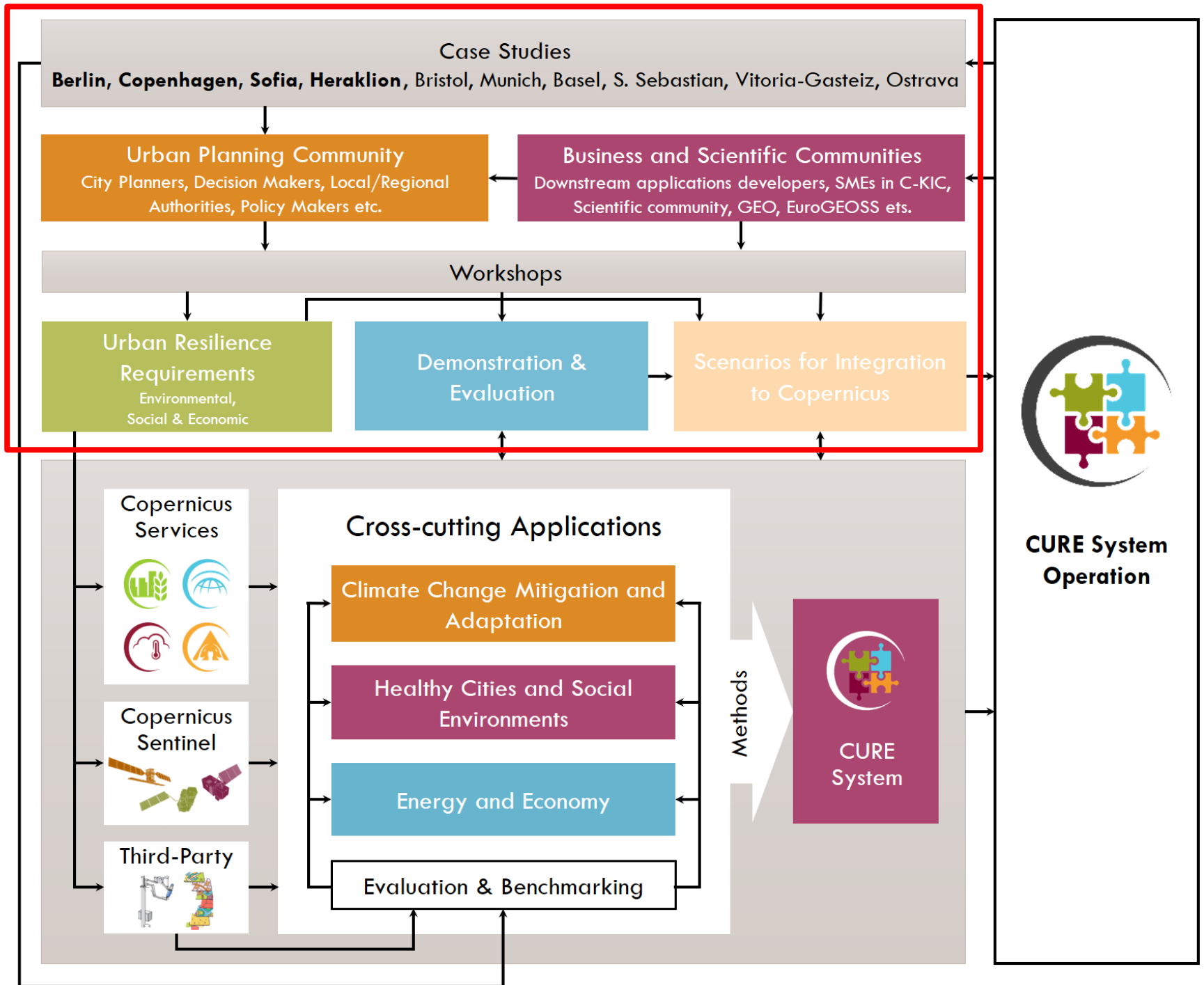
Concept

- Provide the means to cope with the EO data under-exploitation in the domain of **sustainable and resilient urbanization**, by combining products from CAMS, CLMS, C3S and EMS.
- Introduce novel ideas on how to **develop applications** across Copernicus Core Services in the domains:
 - climate change adaptation & mitigation
 - healthy cities and social environments
 - energy and economy

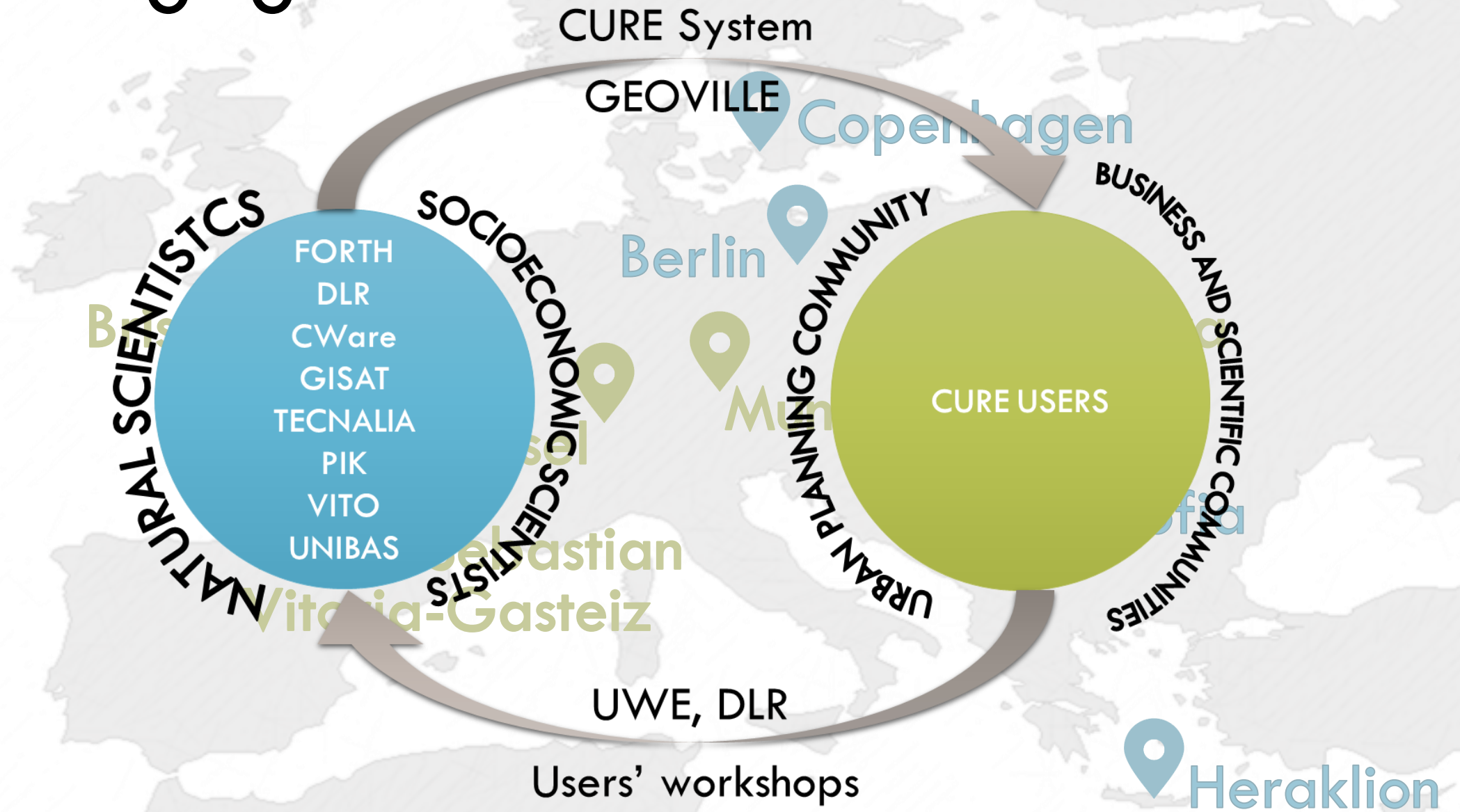


Approach

Users at the forefront



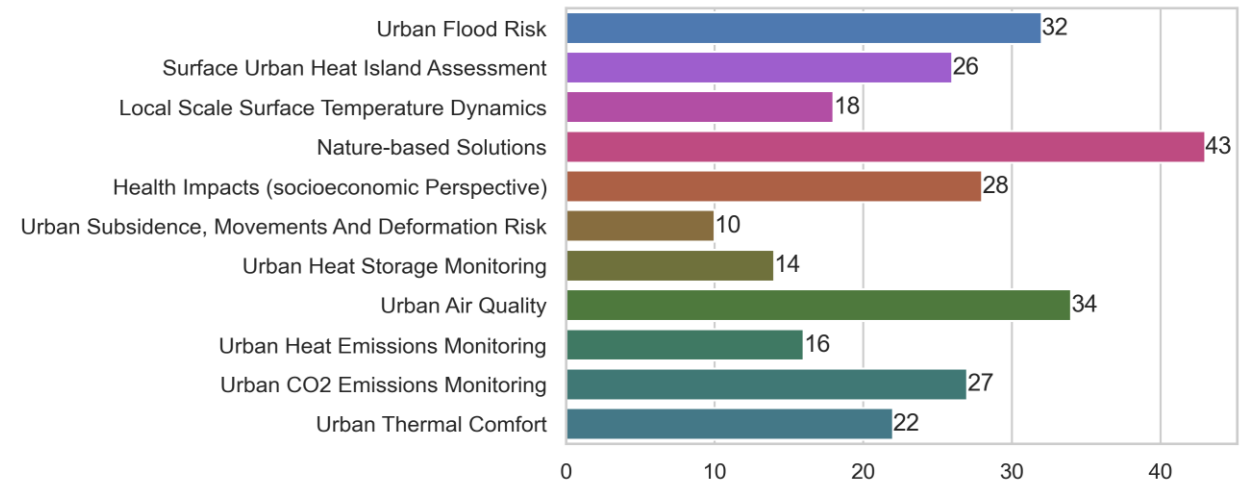
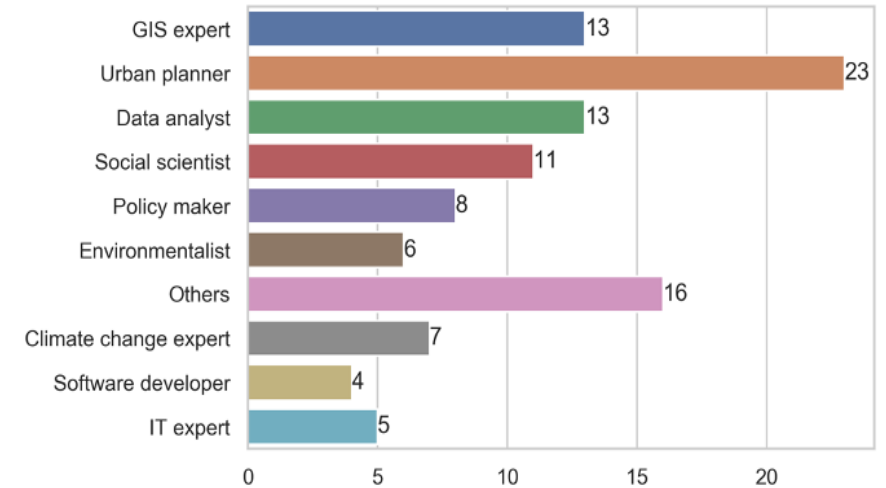
Users Engagement



User Requirements

🌐 Questions related to interest in different CURE applications, resolution scales, data frequency, data domain, expected features, etc.

🌐 Aiming to shape the **development of CURE cross-cutting applications** considering user requirements for integrated urban resilience solutions.



User Requirements

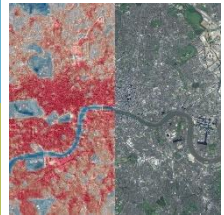
Applications:

- 🌐 Integrating various **data types**.
- 🌐 **Cross-validating** with other data sources.
- 🌐 Easy-to-**use** and accessible.
- 🌐 Serving as a single point of **access** for various datasets.
- 🌐 **Coupling** various CURE applications together.
- 🌐 Supporting further **transferability** and downstream services development.

Products:

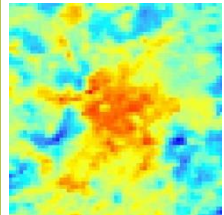
- 🌐 Demand for **high-resolution** data.
- 🌐 Providing the most **recent** data for each application.
- 🌐 Supporting **hourly, daily and annual** monitoring information.
- 🌐 Supporting integrated **impact assessment** and **implementation monitoring**.
- 🌐 **Availability** through web map services, data APIs and file downloads.

Applications



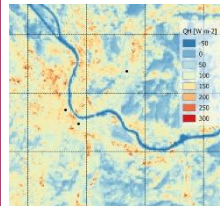
LOCAL SCALE SURFACE TEMPERATURE DYNAMICS

Developers: [FORTH](#), [DLR](#), [TECNALIA](#)



SURFACE URBAN HEAT ISLAND ASSESSMENT

Developers: [DLR](#), [FORTH](#), [UWE](#)



URBAN HEAT EMISSIONS & STORAGE MONITORING

Developers: [FORTH](#), [UNIBAS](#)



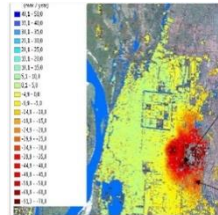
URBAN CO₂ EMISSIONS MONITORING

Developers: [UNIBAS](#), [FORTH](#)



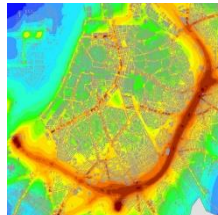
URBAN FLOOD RISK

Developers: [GISAT](#), [GEOVILLE](#), [DLR](#)



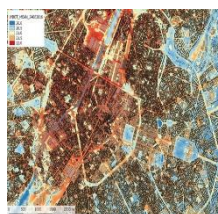
URBAN SUBSIDENCE, MOVEMENTS AND DEFORMATION RISK

Developers: [GISAT](#), [VITO](#)



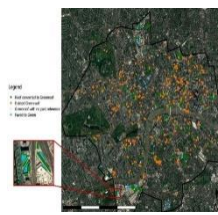
URBAN AIR QUALITY

Developer: [VITO](#)



URBAN THERMAL COMFORT

Developer: [VITO](#)



NATURE-BASED SOLUTIONS

Developers: [TECNALIA](#), [DLR](#), [FORTH](#)



HEALTH IMPACTS (SOCIOECONOMIC PERSPECTIVE)

Developer: [CWare](#)



1st Demonstration Workshop

- 🌐 Participation of a broad range of **high-level CURE stakeholders** through question/answer sessions, stakeholder dialogues, etc.
- 🌐 Aiming to get **user feedback** on the feasibility and effectiveness of the CURE Applications and their usability in addressing urban resilience challenges.
- 🌐 Engagement through the themes of climate change mitigation, climate change adaptation and healthy cities; investigating **CURE Applications contribution** to the delivery of integrated policy strategy solutions.



System



Copernicus DIAS

WEKEO

User Requirements

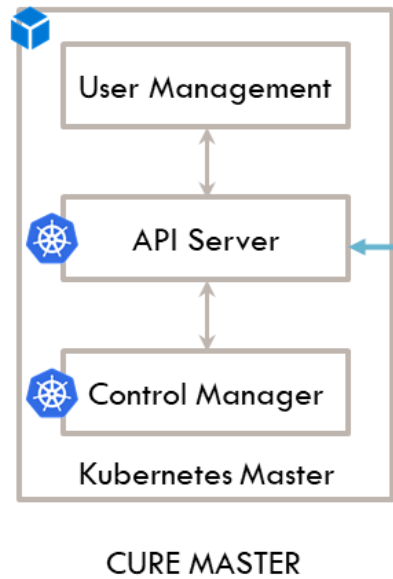
Copernicus Services



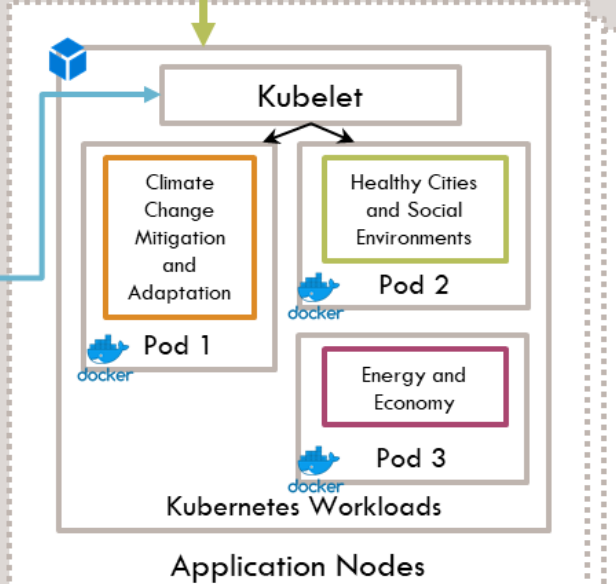
CURE Copernicus Core Service Interface (CCSI)



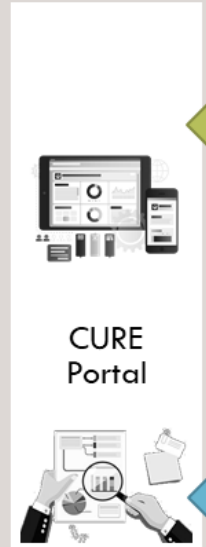
Third Party Services



CURE MASTER



Application Nodes



CURE Portal



CURE Users Cities ICT



CURE Case Studies
Berlin, Copenhagen, Sofia, Heraklion, Bristol, Munich, Basel, Vitoria-Gasteiz, Ostrava, San Sebastian



CURE Platform

- Virtual machine
- IPR
- Internal Call
- Web API Call
- Docker Container
- Kubernetes

Contribution

To what extent the **CCS** are able to provide reliable information for enhancing the **resilience** of European cities?

The **contribution** of CURE mainly concerns:

- 🧩 **Online platform** for combining Core Services to support urban resilience.
- 🧩 **Uniform data** for large samples of urban areas across Europe.
- 🧩 **Consistent measurements** across European cities for synergies between Copernicus products and third-party data.
- 🧩 **Different approaches and models** for better information on **urban form** and **function** at different spatial and temporal scales.
- 🧩 **Assimilation of users' knowledge** with technical data and benchmarking.
- 🧩 **Fostering innovation.**



Vision

Become a focused **evidence-based toolkit** for assisting current and future policy making in the field.

- 🌐 **Short term**: integrating specific CURE products into the Copernicus Operational Service Portfolio (rapid implementation of a slim CURE service).
- 🌐 **Long term**: developing a Copernicus Urban Service.



<http://cure-copernicus.eu>

