



EUROPEAN UNION  
SATELLITE CENTRE

*Analysis for decision making*

**esa**  
space solutions



# Path to post-Covid Recovery

## Webinar

10/06/2020 15:00 CEST

Davide Coppola, Roberta Mugellesi Dow (ESA)  
Sergio Albani (EU SatCen)  
Kirsimarja Säkkinen (Microsoft)  
Sunil Agarwal (Toilet Board Coalition)

ESA UNCLASSIFIED



European Space Agency

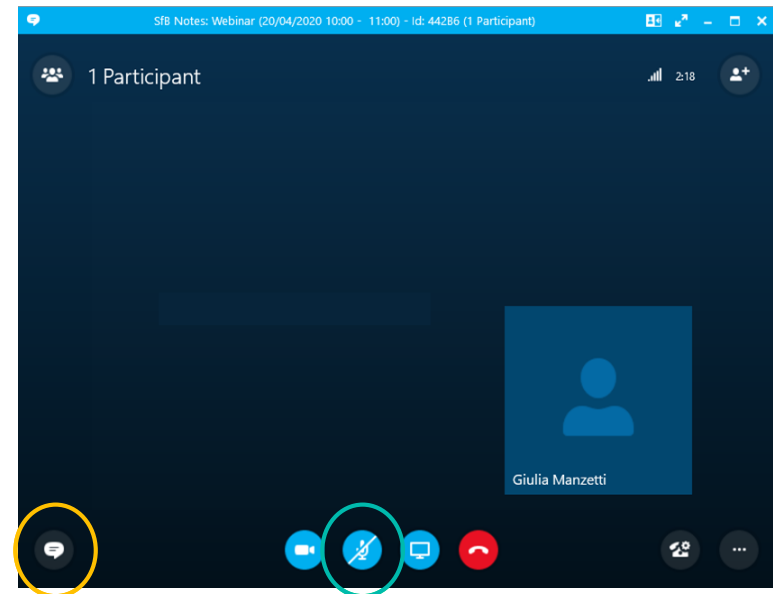


Davide Coppola

## WELCOME TO THE WEBINAR!

### Before we start...

- Due to the number of attendees, please **keep your microphones muted** at all times and switch off the webcam function
- You can use the **conversation function** anytime to submit your questions. They will be addressed during the Q&A at the end of the webinar

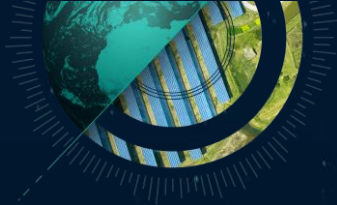


## AGENDA

- ESA introduction
- “Path to post-Covid Recovery” Invitation to Tender
  - Objectives
  - Examples of applications
- Post-Covid challenges
  - Sergio Albani (EU SatCen)
  - Kirsimarja Säkkinen (Microsoft)
  - Sunil Agarwal (Toilet Board Coalition)
- How to apply: funding and tender information
- Open Questions & Answers session







## THE EUROPEAN SPACE AGENCY

### Purpose of ESA

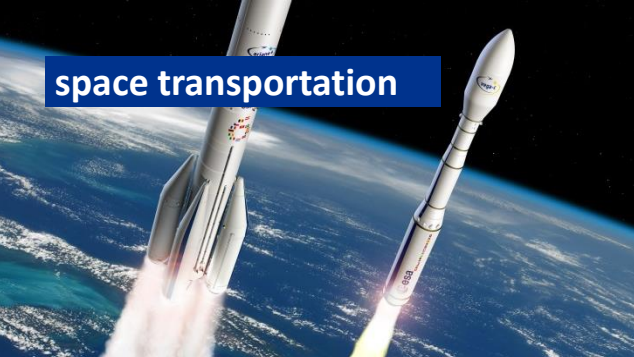
To provide for and promote, for exclusively peaceful purposes, cooperation among European states in space research and technology and their space applications.

### Facts and figures

- Over 50 years of experience
- 22 Member States
- 8 sites across Europe and a spaceport in French Guiana
- Over 80 satellites designed, tested and operated in flight



**space transportation**



**science**



**human spaceflight**



**earth observation**



**telecommunications  
and applications**



**navigation**



**exploration**



**operations**

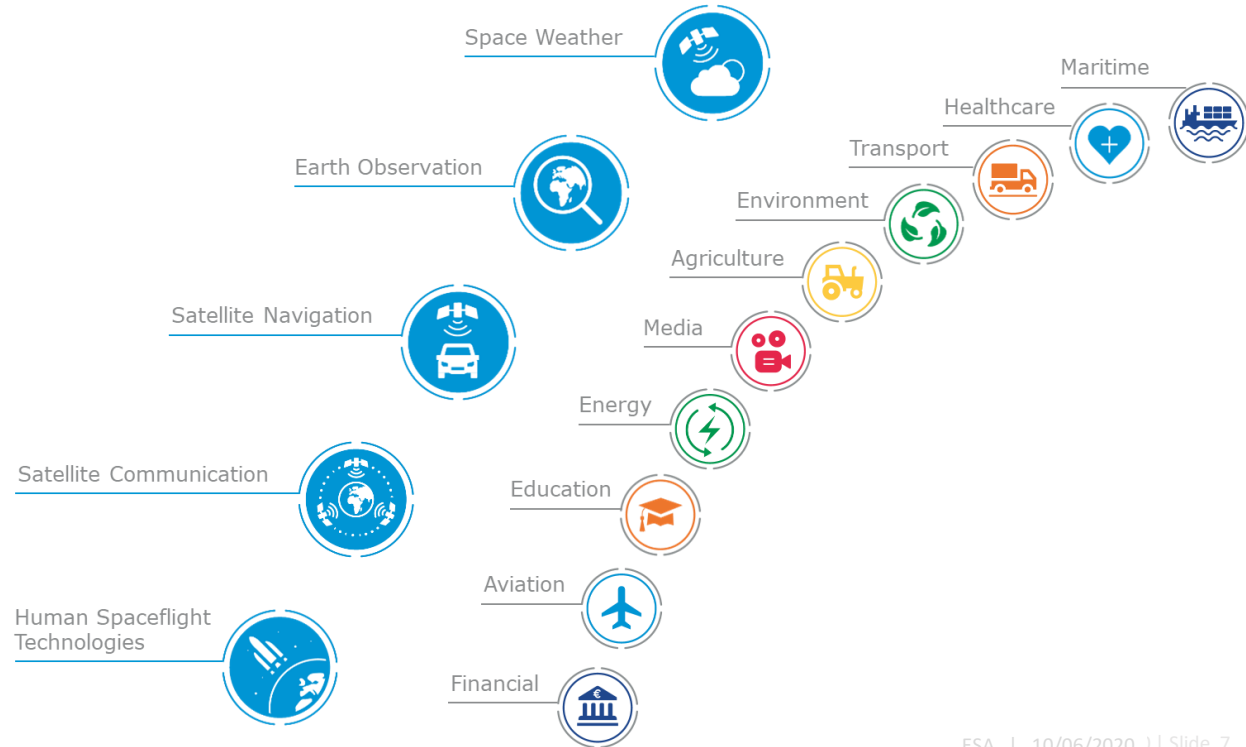


**technology**



# ESA SPACE SOLUTIONS

Could you be leveraging  
Space technology and data  
for the benefit of life on  
Earth?



## WHAT ESA SPACE SOLUTIONS OFFERS



Zero-Equity  
Funding  
(€50K-€2M+)



Tailored Project  
Management  
Support



Access to our  
Network and  
Partners



Use of ESA  
Brand for  
Credibility



A person in a dark suit is shown from the chest up, holding a glowing blue digital globe in their right hand. The globe is composed of a wireframe grid with bright white nodes at the intersections, resembling a network or data structure. The background is dark and out of focus.

## Path to post-Covid Recovery

Planned ESA's funded invitation to tender

## Planned ESA-funded invitation to tender on Path to post-Covid Recovery

ESA Space Solutions is planning on issuing an open competitive tender for a feasibility study to investigate the technical feasibility and economic viability of space based services which can contribute to the post-Covid recovery in several vertical sectors such as transport, energy, travel and others and define a roadmap for services implementation and demonstration.

Invitation to tender planned to be issued in June 2020

**Funding up to € 150K per activity (100% ESA funded)**

Duration 5 months



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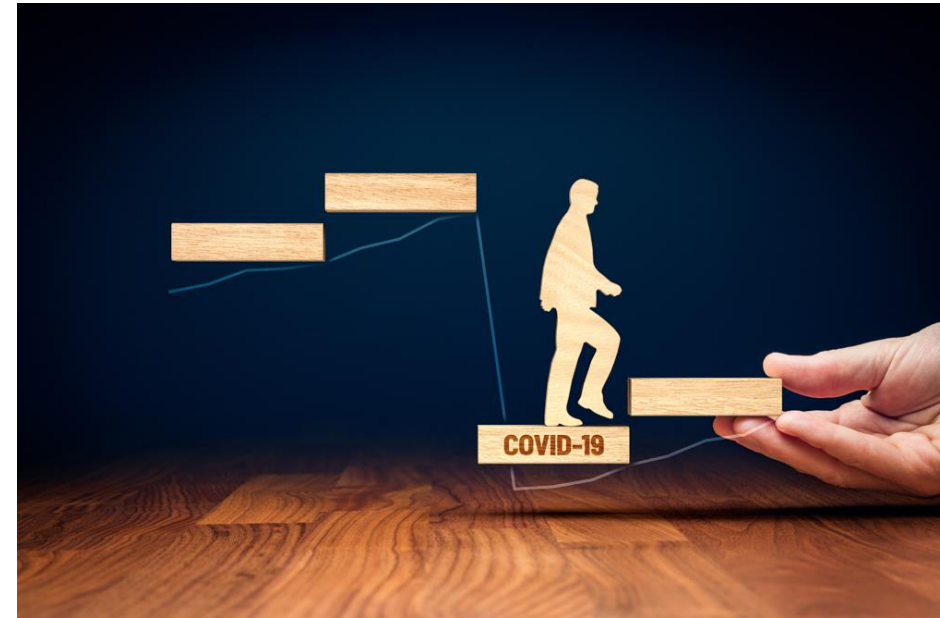
ESA | 10/06/2020 | Slide 10



Roberta Mugellesi Dow

## OBJECTIVES

- Assess **technical** feasibility and **economic** viability of **space** based services which can contribute to the **post-Covid** recovery in several vertical sectors such as **transport, energy, travel and others**;
- Get **users/customers** commitment towards services implementation and **sustainable** operation;
- Consolidate the business plan for supporting an informed decision for investment in further activities
- Define a **roadmap** for services **implementation** and **demonstration** (potentially through a follow-up ESA co-funded demonstration project).





## EXAMPLES OF AREAS OF INTEREST

- **Transport & Tourism**

e.g. Seamless and efficient transportation solutions to increase mobility access with sustainable environmental solutions, Digital tourism management.

- **Education**

e.g. remote learning solutions to offer access to quality education and information

- **Health & Sanitation:**

e.g.: development of comprehensive sanitation and health systems aided by advances in digitisation, data transmission and analytics AI diagnostic assistance, and remote health monitoring; telemedicine services;

- **Energy**

e.g. renewable energies distribution, smart grid management.





## EXAMPLES OF AREAS OF INTEREST

- **Safety and security**

E.g.: solutions to monitor and analyse scenarios in which the security of citizens may be affected by pandemics as Covid-19 (during spread, post-pandemic recovery and possible future virus outbreak)

- **Agrifood**

e.g. automated operations, digital solutions as record-keeping for the farmers operations, innovation in supply chains and markets to help the farmers in getting the required material and placing their products to market.

- **Real Estate**

e.g. land planning and identification, digital applications for industrial plants, warehouse management with increased use of automation, robots and data analytics prediction algorithms.



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## VALUE OF SPACE



### Satellite Navigation

- Tracking & tracing people and vehicles and guiding to the locations of interest;
- navigating autonomous vehicles, e.g. RPAS;
- This will be particularly useful by helping people to implement social distancing in queues and other public spaces.



### Satellite Communications

- Provide connectivity where terrestrial communications are insufficient and to increase the communication network robustness and communication resilience, including M2M, voice and data.



### Earth Observation

- Geospatial data to support planning of infrastructure, demand for transport services,
- Provision of models for people crowding in certain locations
- Provision of weather forecast for planning and optimisation of decommissioning activities



Davide Coppola





## EUROPEAN UNION SATELLITE CENTRE

*Analysis for decision making*

**Sergio Albani**

Head of Research, Technology Development and  
Innovation (RTDI) Unit

# Safety and Security



A weakness in Security creates increased risk, which in turn creates a decrease in Safety

**Security: protection against threats**

**Safety: a state in which you are not at risk**

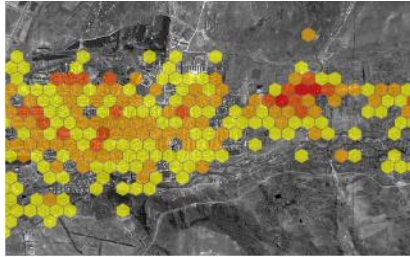
# The European Union Satellite Centre



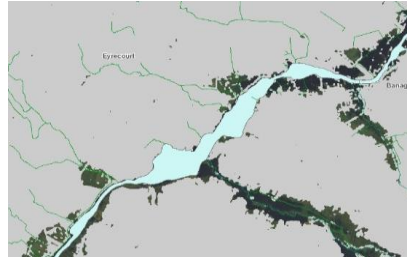
## SatCen Mission

To support the decision making and actions of the European Union in the field of Common Foreign and Security Policy by providing products and services resulting from the exploitation of relevant space assets and collateral data.

# Examples of Classic Security Domains



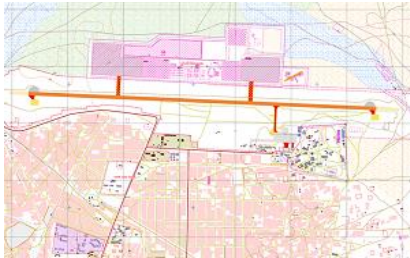
**Border and Maritime Surveillance**



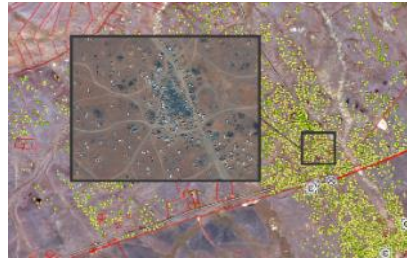
**Disaster Resilience**



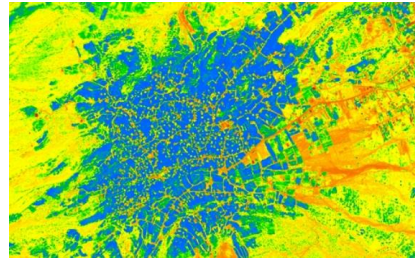
**Monitoring of Critical Infrastructures**



**Contingency Planning**



**Support to Humanitarian Aid**



**Assessment of Illegal Activities**

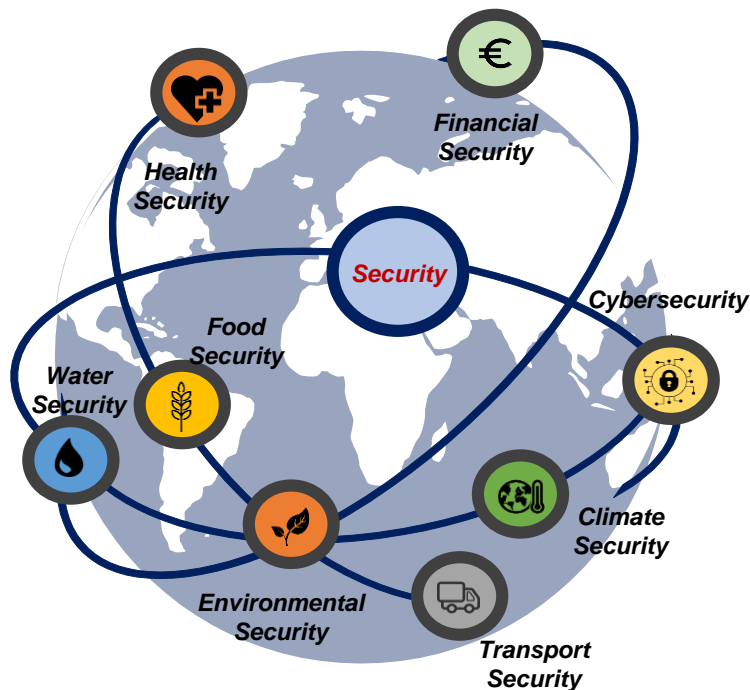


# The New Security Concept

In the global context, Security is a intricate subject where several potential scenarios can be triggered by causes of different nature

*“The range of topics that can be labelled as security and safety issues is broadening, due to the complex nature of this century’s problems”*

B. Van den Berg & P. Hutten  
ISGA, Leiden University



*“Sustainable development cannot be realised without Peace and Security, and Peace and Security will be at risk without sustainable development”*

24th September 2018, UN  
Political Declaration

# Safety and Security Challenges - 1



**Exploit the capacities offered by Space** to deal with the new Security concept



**Use Space data (e.g. EO) and other relevant data sources** (e.g. GNSS, Open Source)

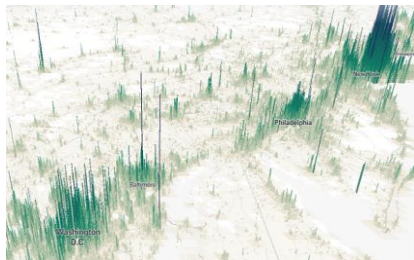


**Apply advanced processing technologies** (e.g. AI, ML, IoT)

Solutions shall:

- enable to **monitor and analyse scenarios** in which the security of citizens may be affected by pandemics as Covid-19
- generate information relevant to assess potential risks for ordinary citizens as well as relevant for **preventive or reactive decision-making**

# Safety and Security Challenges - 2



**Addressing the agglomeration of people**  
in public spaces with anonymized and aggregated tracking to provide decision-makers fighting against Covid-19 with information on crowding places, density of queues, parking places, and others.



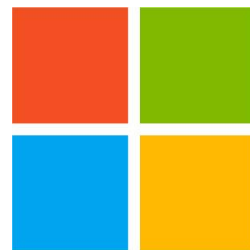
**Assessing the impact on individuals of variations**  
in international transport of goods (e.g. food, medicines), industrial activities and/or distribution chains, e.g. to be able to deal with the possible lack of certain resources or to evaluate the potential evolution of a threat.



**Monitoring relevant changes**  
in the usage of critical infrastructures and/or in daily patterns of life to support informed decision-making.



**Sergio Albani**  
Head of RTDI Unit  
*sergio.albani@satcen.europa.eu*

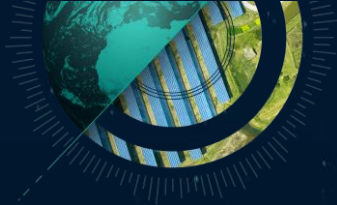


# Microsoft

Kirsimarja Säkkinen

Microsoft





# TOILET BOARD COALITION

Sunil Agarwal

Toilet Board Coalition



# SMART SANITATION ECOSYSTEM FOR PREVENTATIVE HEALTH



Objective



How?



Question to validate

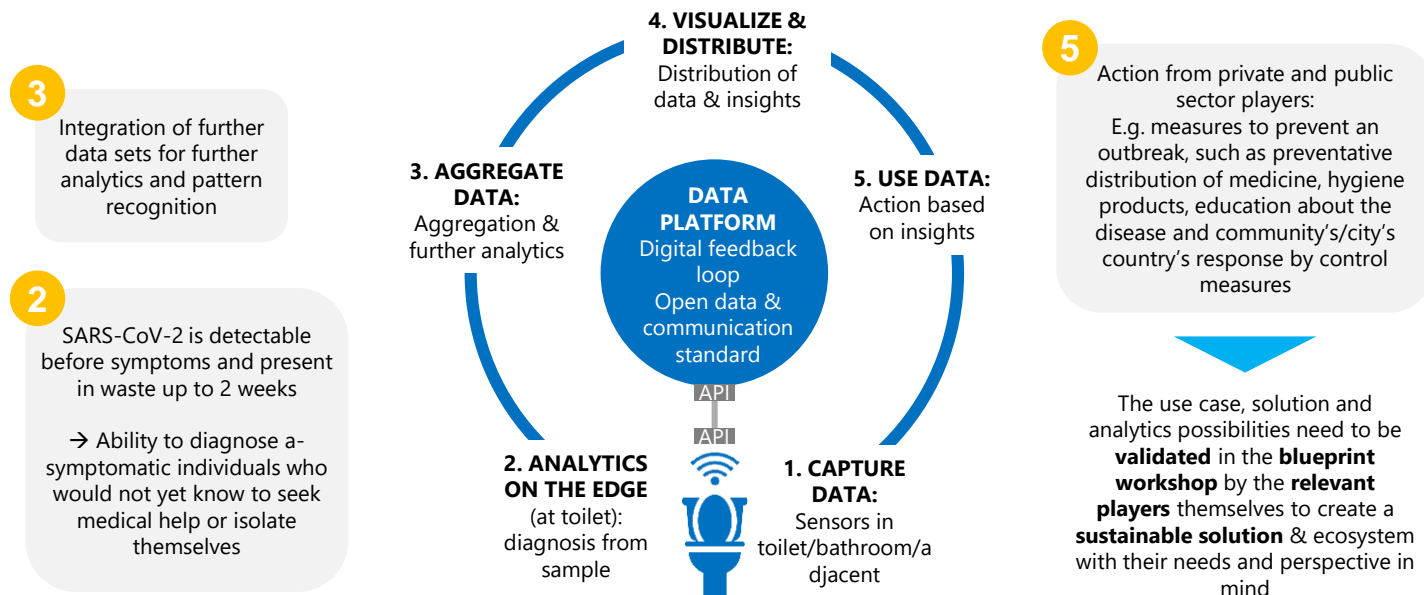


Targeted use case

Bringing together the worlds of the **sanitation economy, health sector & digital technologies** to **improve the health** of communities in **low-income countries** by understanding their current health situation and delivering targeted action based on data and current status.

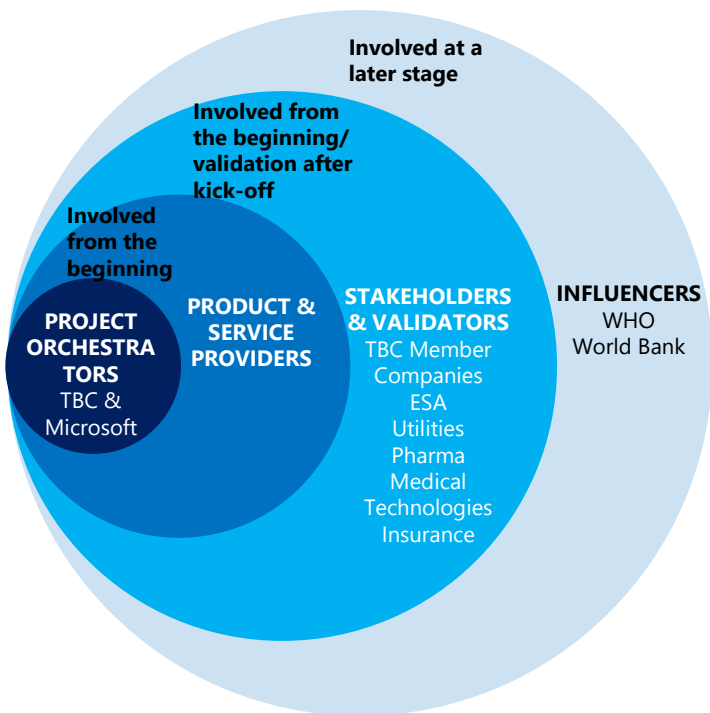
Connecting existing technologies and smart sanitation application learnings to build an **ecosystem and open data initiative** which allow the stakeholders to do **virus monitoring and surveillance** (and broader health monitoring) via **smart sanitation systems** starting with **COVID-19 response** and broadening to **other preventative health** scenarios.

How do we **safely and sustainably collect & manage** valuable **public health data** through the **smart sanitation economy**?

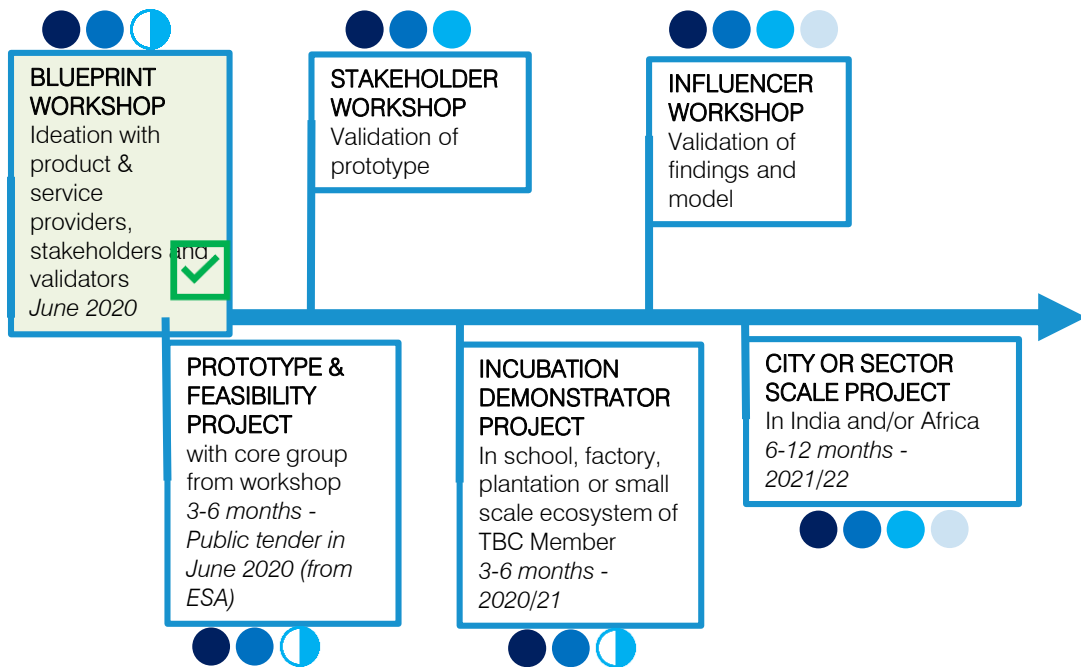


# PATH FORWARD

**Plan of types of parties to be involved**, in order to have a sustainable approach with a validated use case and business model:

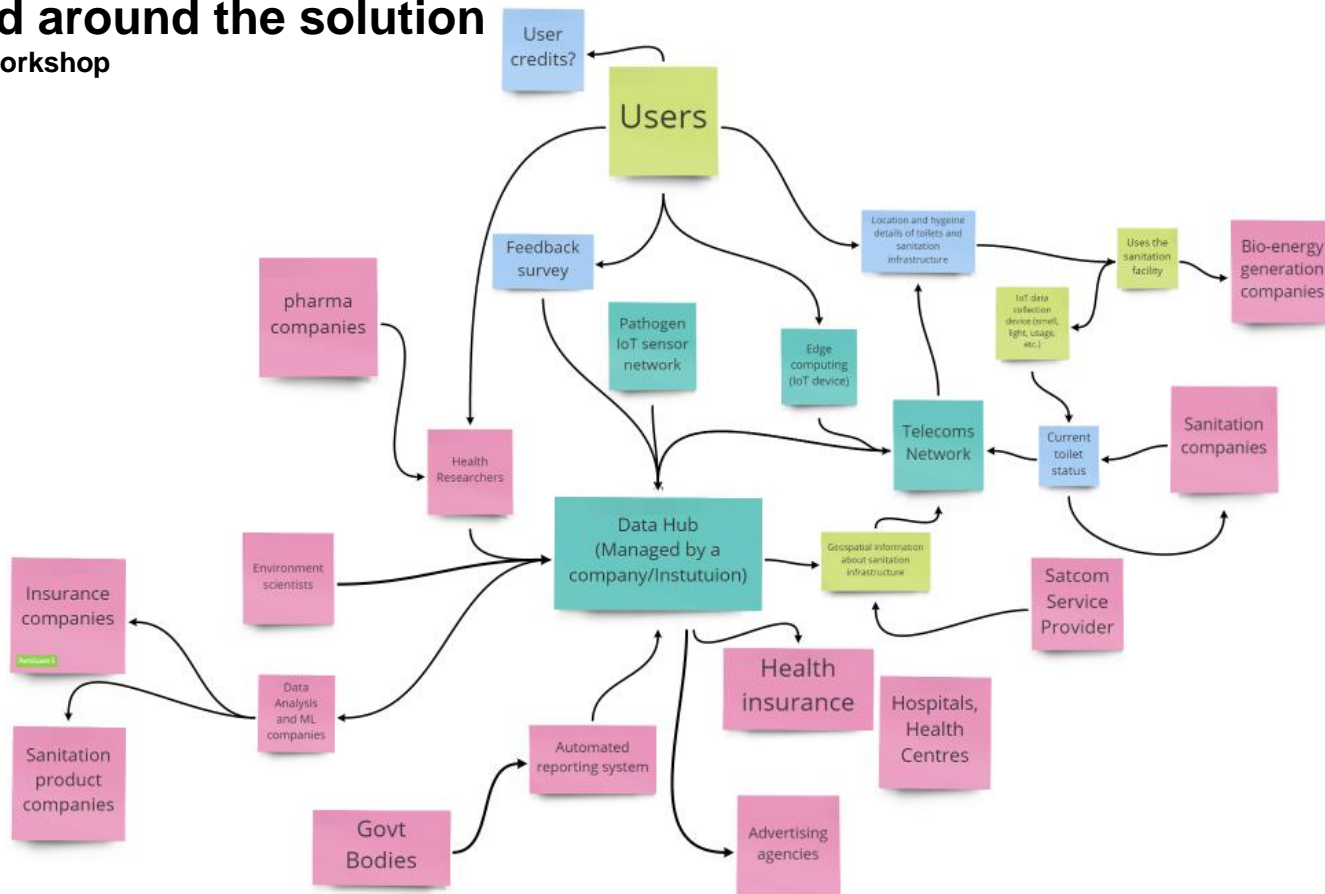


## Preliminary project plan



# ECOSYSTEM JOURNEY – visualization of how organizations will be connected around the solution

Example from workshop





# ECOSYSTEM VALUE EXCHANGES

Example from workshop

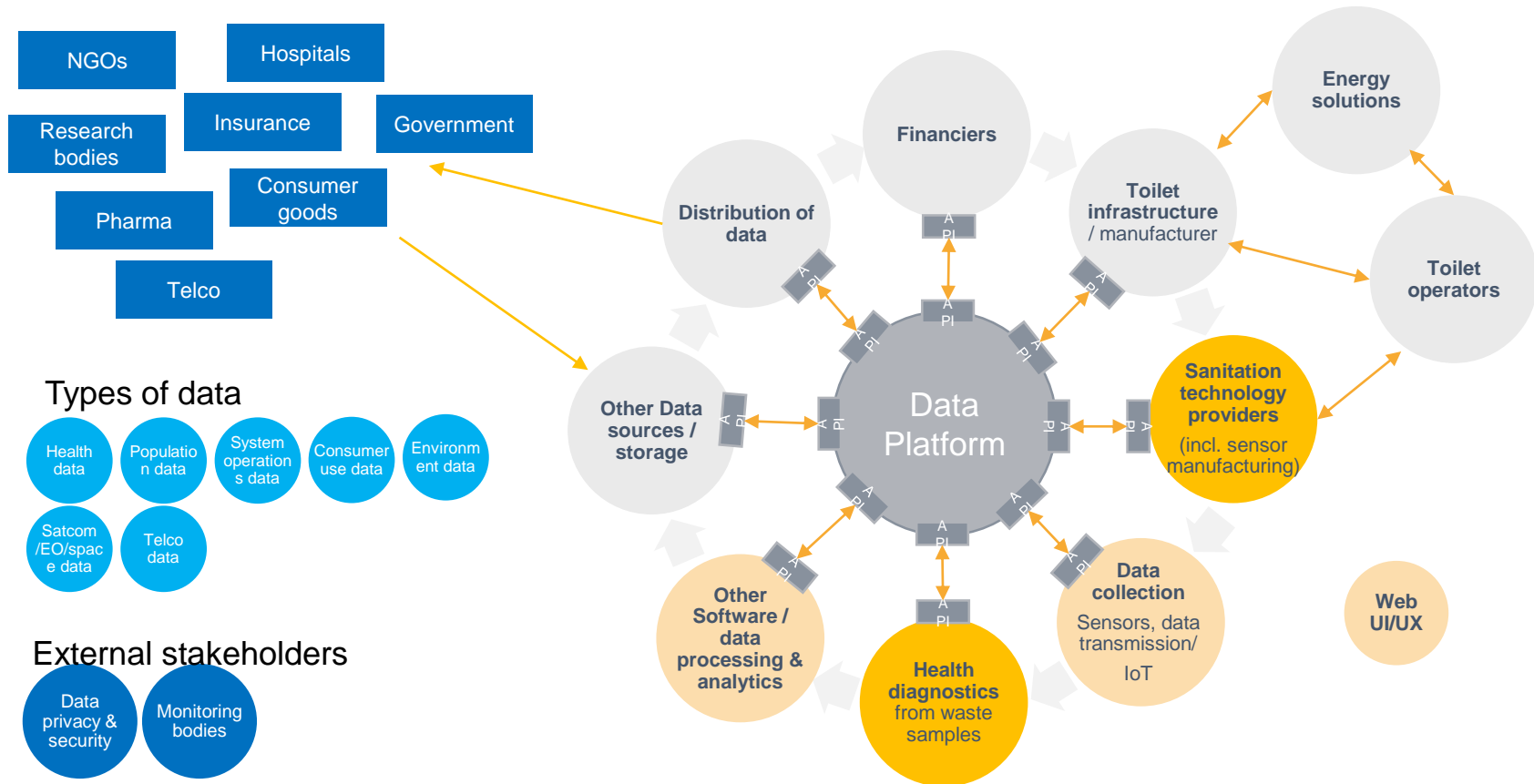
## THE ECOSYSTEM'S MOTIVATIONS MATRIX PLATFORM DESIGN TOOLKIT 2.2



### Business model implications

- Usage
- Usage data
- Predictive health
- Health data for developing drugs
- Reuse of products (waste)
- Ad revenue
- System operations data
- Data for targeted distribution of sanitation products
- Potential creation of new insurance products; recalculations of premiums
- Economies of scale
- Job creation

# SOLUTION MAP TO ENABLE PREVENTATIVE HEALTH ACTIONS



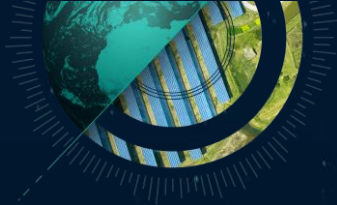


Davide Coppola

A person in a dark suit and white shirt is shown from the chest up, holding a glowing blue digital globe in their right hand. The globe is composed of a wireframe grid with numerous bright white nodes connected by thin lines, resembling a global network or data flow. The background is dark and out of focus.

## How to apply: Funding and Tender Information





## ESA TENDER INFORMATION

Funded participation to ESA Space Solutions is open to any company and/or organisation, be it as group of users, public body or non-governmental organisation, residing in the following Member States:

Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and the United Kingdom



## HOW TO APPLY

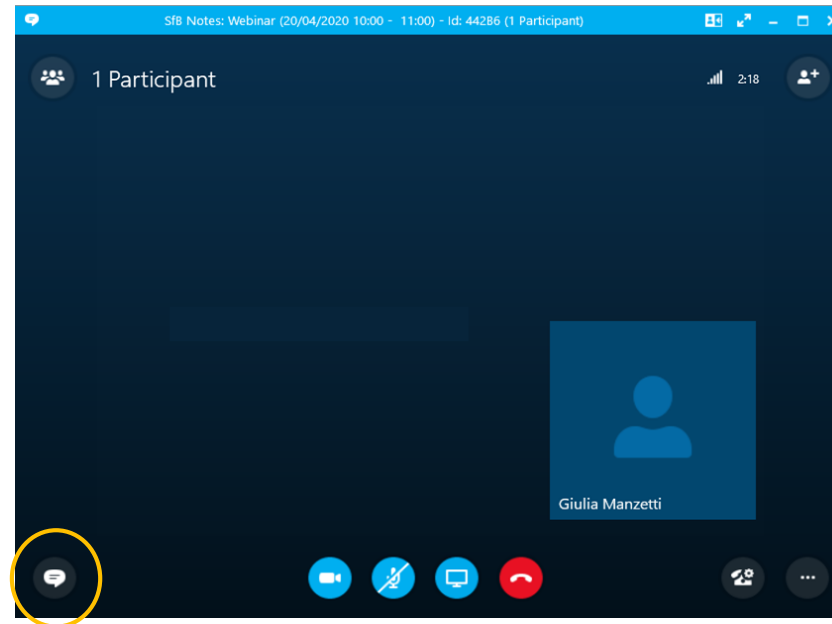
1. **Register** (minimum 'light registration') by completing online questionnaire on ESA-STAR Registration ([esastar-emr.sso.esa.int](https://esastar-emr.sso.esa.int))
2. **Download** the official tender **documentation** (Invitation to Tender), which will be available as soon as the ITT is open (June 2020) via EMITS ([emits.esa.int](https://emits.esa.int))
3. Create 'Bidder Restricted Area' in ESA-STAR
4. **Write your Proposal** using the template provided in the Tender documentation and obtain **Letter of Authorization** from your National Delegation ([business.esa.int/national-delegations](https://business.esa.int/national-delegations))
5. **Submit** your proposal via 'Bidder Restricted Area' in ESA-STAR Tendering ([esastar.sso.esa.int](https://esastar.sso.esa.int))

More info can be found here:

[esa.int/About\\_Us/Business\\_with\\_ESA/How\\_to\\_do/esa-star\\_Registration\\_Process](https://esa.int/About_Us/Business_with_ESA/How_to_do/esa-star_Registration_Process)



## OPEN QUESTION & ANSWER SESSION



[business.esa.int](https://business.esa.int)

**THANK YOU  
FOR PARTICIPATING**

[davide.coppola@esa.int](mailto:davide.coppola@esa.int)  
[Roberta.mugellesi.dow@esa.int](mailto:Roberta.mugellesi.dow@esa.int)