

# CSEOL: Catalysing the potential of Citizen Science for Earth Observation into concrete, achievable projects

Uta Wehn & Catherine Cotton (IHE Delft), Elizabeth Gil-Roldán (Starlab),  
Joan Masó



39th Annual EARSeL Symposium, Salzburg, 1-4 July 2019



Project Coordinator: Dr. Uta Wehn, Associate Professor, IHE Delft



# Linking Citizen Scientists & Earth Observation

## DESK-BASED

FUNDRAISE FOR THE VICTIMS OF #CYCLONEIDA1 IN #MALAWI, #MOZAMBIQUE AND #ZIMBABWE

### #IHEURGENTACTION

**MISSING MAPS**

MAPATHON + COMPLEMENTARY DINNER (DON'T FORGET YOUR LAPTOP & MOUSE) catteria

DOCUMENTARY **DJAMBO** 3 € FOR STUDENTS 5 € FOR OTHERS A1 (auditorium)

BOXES FOR DONATIONS IN BOTH VENUES

ALL OF THE RESOURCES GATHERED WILL BE DONATED TO THE #REDCROSS IN THE NETHERLANDS. PLEASE JOIN US, SHARE AND BRING YOUR FRIENDS!

**MARCH 28 AND APRIL 1ST, 2019** at 17.30

FOR FURTHER INFORMATION AND REGISTRATION CHECK THE FACEBOOK EVENTS

IHE DELFT State Krein



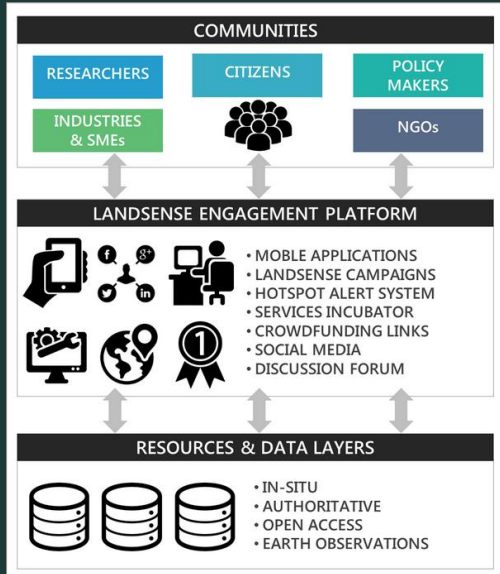
## IN THE FIELD





# Linking Citizen Scientists & Earth Observation

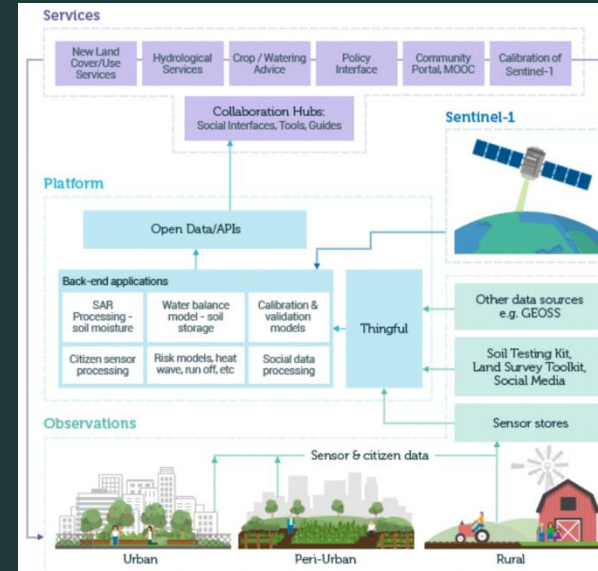
## LANDSENSE



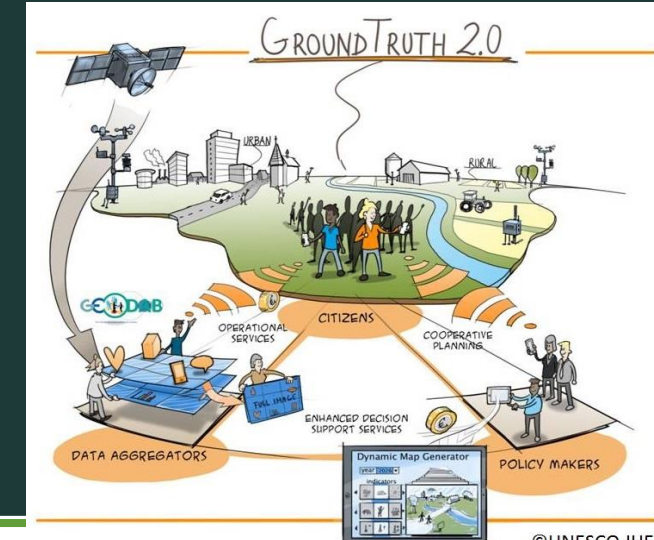
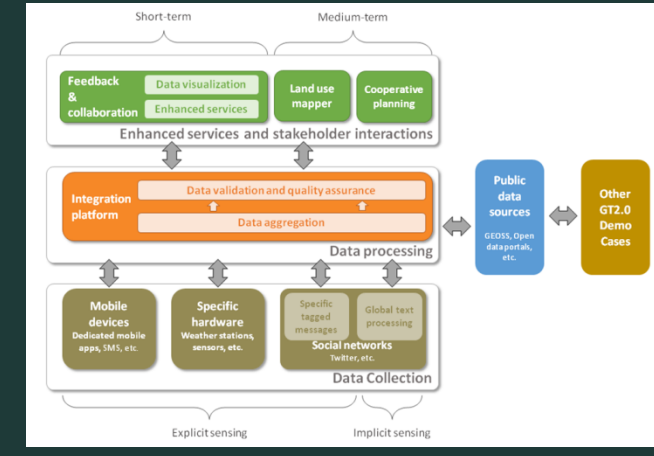
## SCENT



## GROW



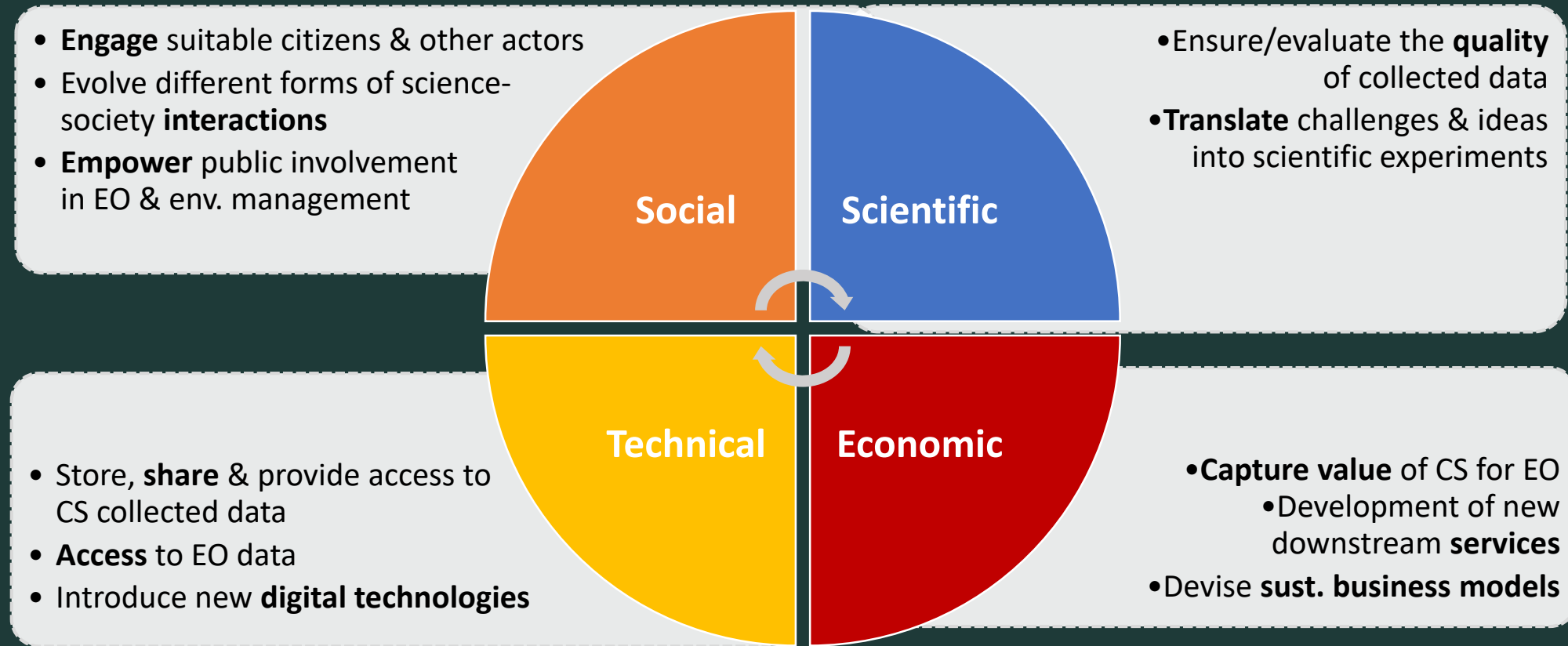
## GROUND TRUTH 2.0



BUT

- ... a lot more EO data to exploit & validate
- ... a lot more citizens to engage
- ... a lot more societal challenges to tackle

# CS & EO – not as easy it sounds...ISSUES:



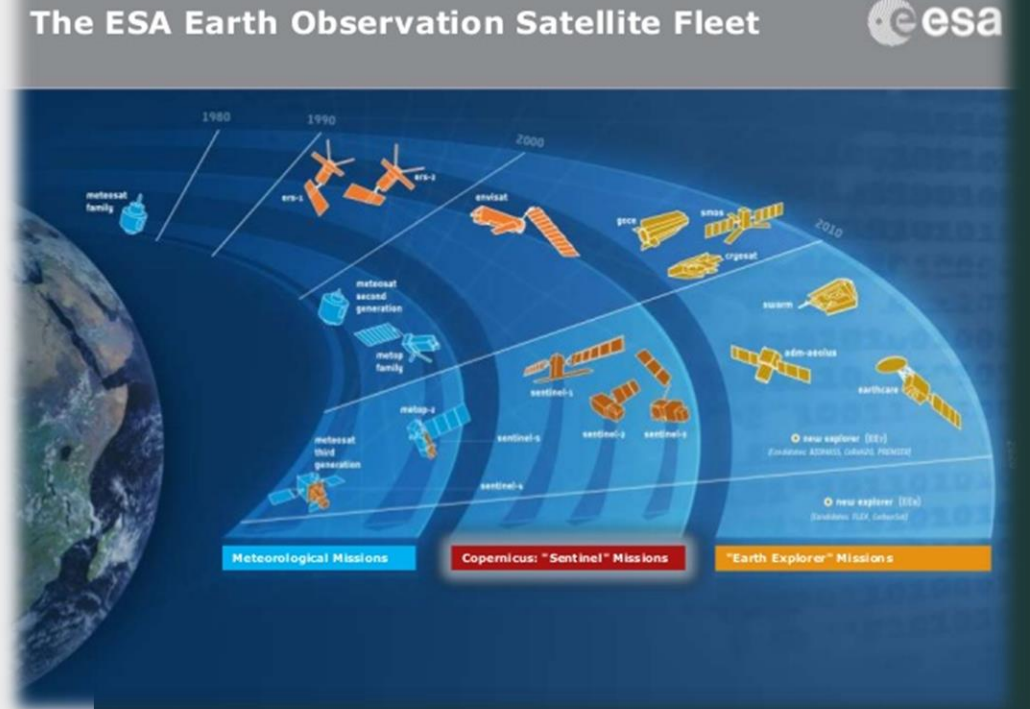
# Kinds of Earth Observation – not as easy it sounds:

Remote sensing

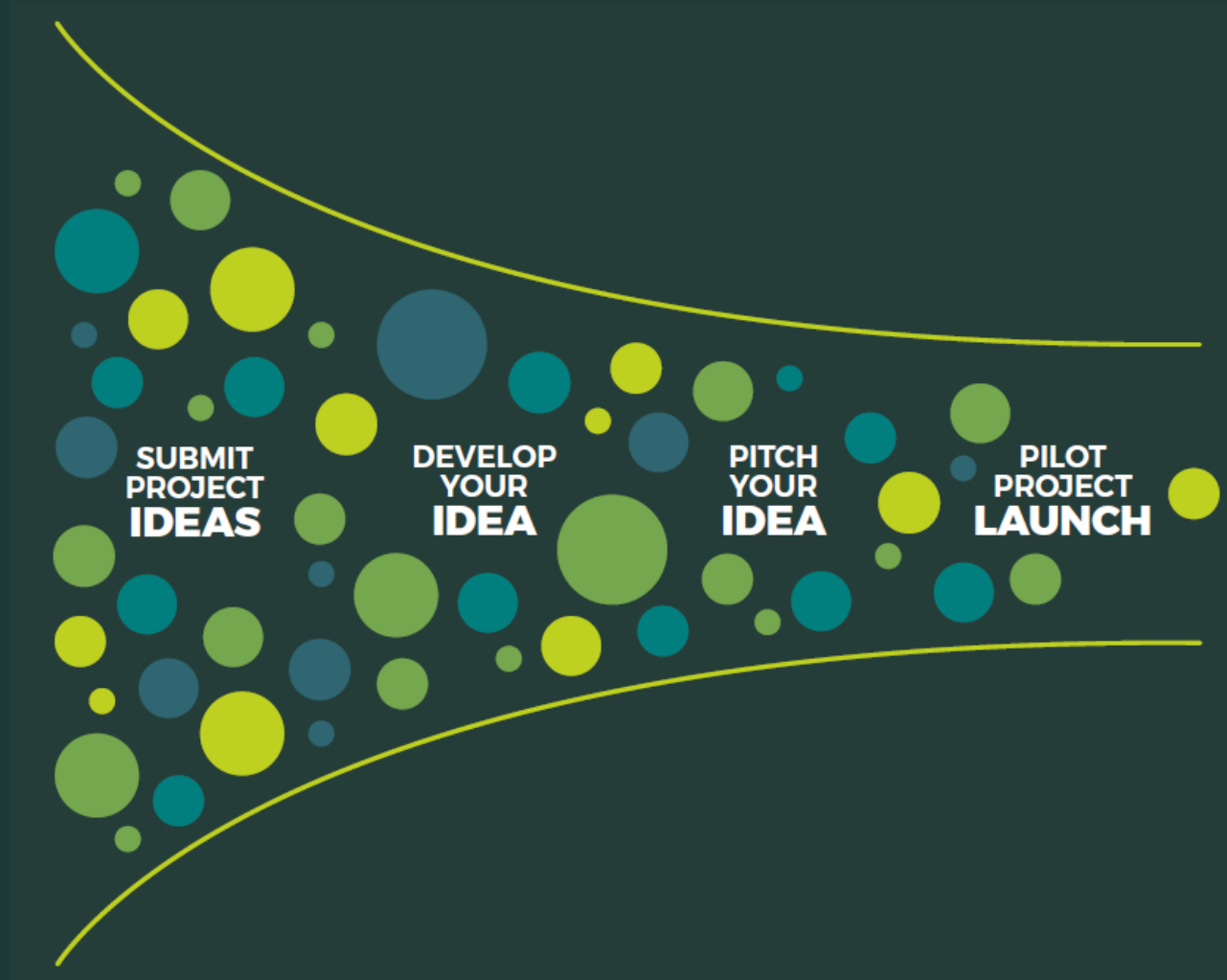
Airborne

Drone

In-situ



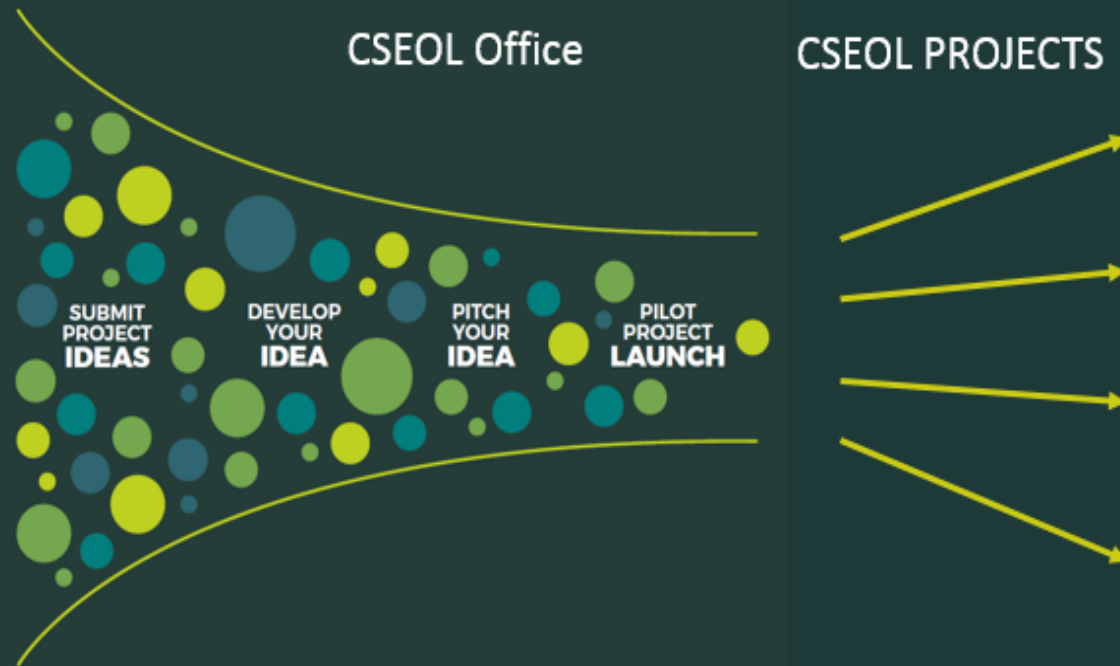
# Catalysing Citizen Science & Earth Observation



7



# CSEOL INNOVATION FUNNEL: ESA STRATEGY



## ESA STRATEGY

THEMES	
ESA Mission (GNSS, radar, optical)	Climate Change and Sustainable Development (algorithms, indicators)
	Downstream services (apps, data or services)
TOPICS	<b>SCIENCE</b> Observation – data gathering Validation – of EO products
	<b>POLICY</b> Interpretation – participation
	<b>SOCIETY</b> Education – learning about EO Outreach – use new technologies
	<b>BUSINESS</b> New generation value chain

# Catalysing Citizen Science & for Earth Observation





# 10 IDEAS



## Cities' Green Spaces

Characterize vegetation habitats structure in cities raising awareness of these elements for biodiversity, urban planning, climate regulation etc



## IceWatchApp

User Sentinel data for Polar Regions monitoring using CS data for calibration and validation



## MySnowMaps

Dynamical mapping of snow conditions in open terrain. The snow layer, in combination with local morphology and avalanche bulletin, helps the users to plan excursions



# 10 IDEAS



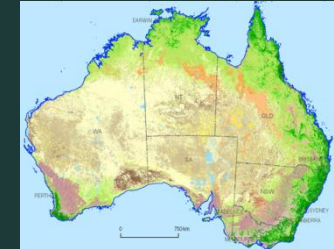
## Beespot

Decision support for beekeepers focus on honey bees.  
Targeting agriculture, and crop growers who depend on pollinators.



## PhenoTandem

Homogenization between citizen's science and remote sensing phenology monitoring protocols using Sentinel-2 .



## EarthTrack & LivingEarth

Land Cover change from Sentinel products validated by Citizen Science observations



GREENHOUSE PHASE

# 10 IDEAS



## Citizens for Soil Moisture; Soil Moisture for Citizens

Artificial Intelligence-based framework to estimate soil moisture combining remotely sensed soil moisture products and CS in-situ data



## Sentinel Citizen

Empower local communities in their air quality related urgencies



## Schools and Satellites

Improve rainfall information by combining a variety of EO data and state-of-the-art Machine Learning and CS for training and validation.



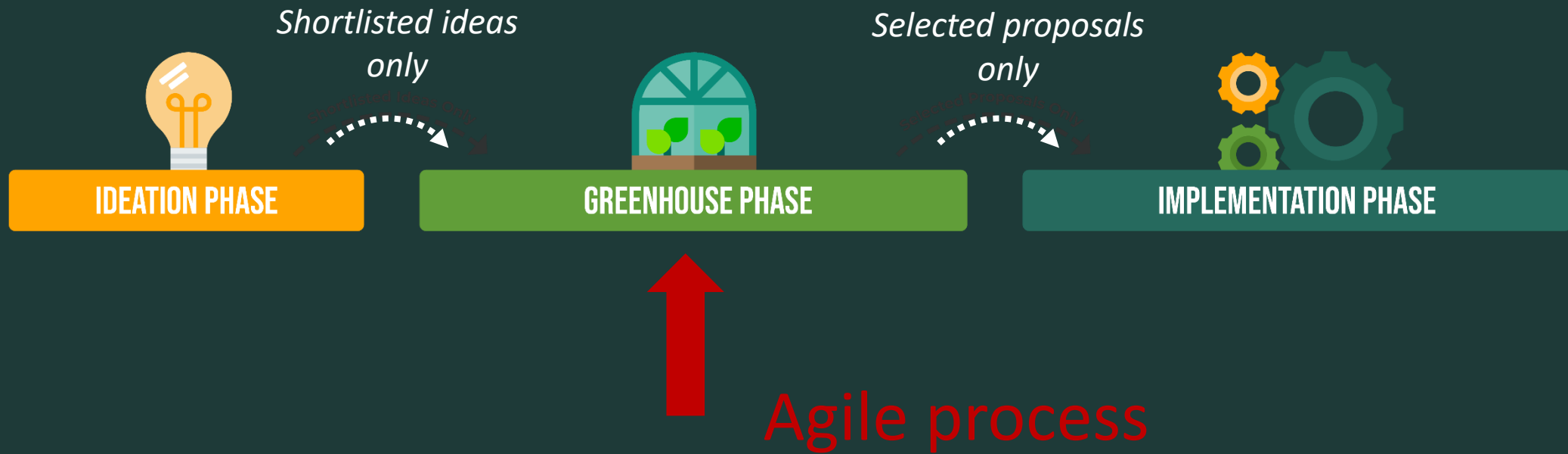
## Making Space for Cleaner Seas

Combining Citizen Science and Remote Sensing to detect and remove marine litter



GREENHOUSE PHASE

# Catalysing Citizen Science & for Earth Observation





# CSEOL Greenhouse: steps & milestone

GREENHOUSE PHASE



**Monday 3 June**  
Greenhouse Kick  
off telco



**June 2019**  
Proposal  
development  
with **expert  
mentoring &  
coaching**



**30 June 2019**  
Midnight:  
proposal  
submission  
deadline



**9-10 July 2019**  
CSEOL Bootcamp:  
**Expert coaching**  
on pitching  
proposals.  
Networking with  
mentors &  
shortlisted teams



**11 July 2019**  
CSEOL Pitch Day:  
**Expert panel**  
selects up to  
4 pilot projects  
to go on to  
implemenation

# WHAT IS CSEOL LOOKING FOR?

- Creativity!
- Combining CS & EO in innovative ways



## Evaluation criteria

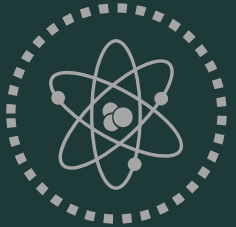
- Impact
- Project feasibility
- Relevant team experience

# CSEOL Expected results



## Goal 1

In the short run: 4 successful CS & EO Pilot projects



## Goal 2

Provide enabling environment to generate continuous stream of innovative ideas on EO and CS/Artificial Intelligence/...



## Goal 3

Greater awareness and exploitation of EO



# Thank you

Uta Wehn  
u.wehn@un-ihe.org

Keep in touch with CSEOL



[www.cseol.eu](http://www.cseol.eu)



@CSEOLab



@CSEOLab



@CSEOLab



**CSEOL**  
CITIZEN SCIENCE EARTH OBSERVATION LAB



IHE  
DELFT



esa

Starlab<sup>®</sup>  
Living Science