



Sustainable services for the management of the environment, wildlife and natural resources

Fausto Vieira, 8th SpaceTech Symposium

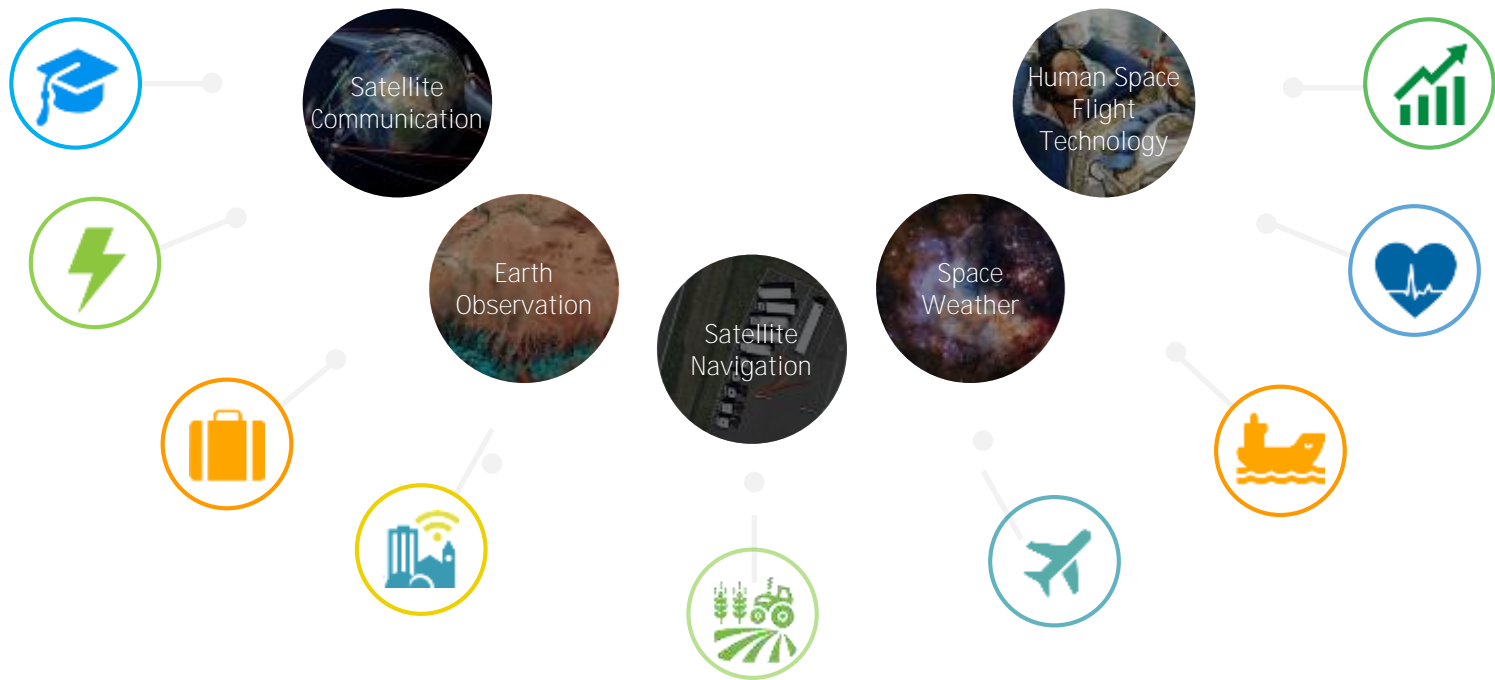
ESA-ESTEC, 28 June 2019

→ SATELLITES BENEFITTING THE WORLD



- **Satellites play a key role in Environmental Resources Management**
- **There is no such thing as free data or free service**
- **Challenge in creating sustainable services**
- **The cost of doing nothing**
- **Commercial services can also benefit society**

→ SUSTAINABLE SERVICES ENABLED BY SPACE ASSETS



Nazka mapps

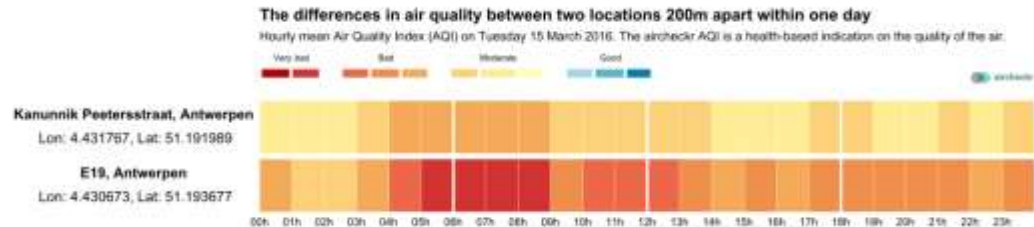
Target users

- Digital signage
- Real Estate websites
- Ventilation, IoT & smart cities

Service/ System Concept

Aircheckr service provides an API for delivering air quality information based on geo-referenced requests.



- Real-time street level air quality.
- Real-time city level air quality with 2-day forecasting.
- Long-term air quality statistics and comparison with other cities or with the country average.





ASSIST WRM



 **ISMB**, Giletta, SAET, Alpha Consult
 GeoVille

Target users

- Public administrations responsible for public roads
- Road maintenance companies
- Motorway operators

Service/ System Concept

ASSIST WRM provides:

- an in-vehicle segment for managing the equipment.
- real-time the precise and robust positioning of the vehicle.
- fully automatic control of the equipment.
- middleware segment to aggregate all the information and create the added value services.
- EO-based accurate roads network spatial database.
- Optional Satcom for areas with low cellular coverage

Gains

ASSIST WRM provides:

- Up to 30% less de-icing chemicals
- Less damage to road surfaces
- Lower workload for the driver





Curio Canopy



 Breadboard labs

Target users

- Arborists, tree nurseries
- Municipal authorities
- Academic researchers, NGO's, community groups

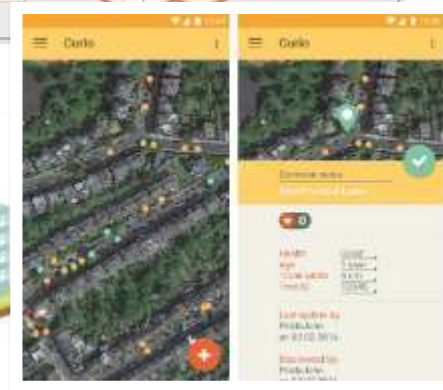
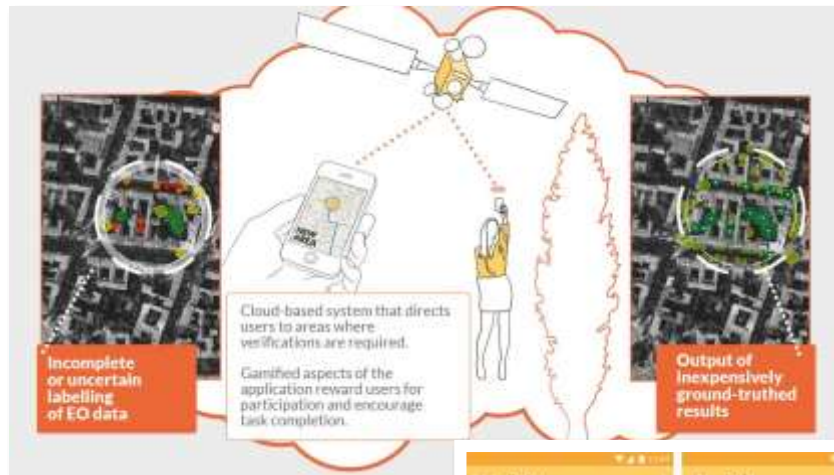
Service/ System Concept

Curio canopy service provides a crowdsourced service for urban forestry inventory and monitoring platform.

- Arborists and local authorities can monitor urban trees.
- Local authorities can also calculate the economic benefit of their tree stock, as well as engage local communities.
- Users engage with the trees in their local area, and contribute new and valuable information through taking photos, adding messages, measurements and observations.

Gains

- Curio Canopy provides:
- Improved tree stock identification
 - Early warning of diseases
 - Community outreach



BlackShore

Target users

- NGO's, Social Enterprises, Investment banks
- Food companies, sustainable forest authorities
- Gamers

Service/ System Concept

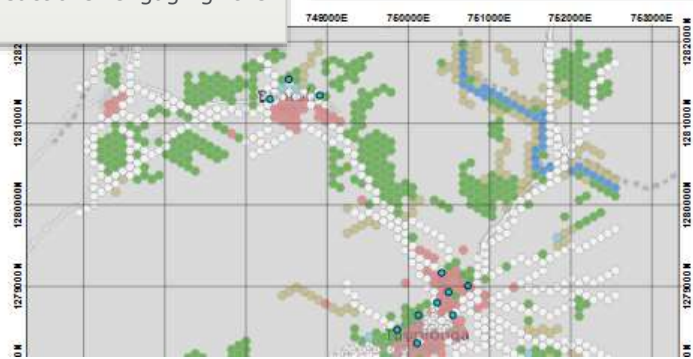
Cerberus – Forest Falcon service provides a crowdsourced service for generating crowdsourced maps using EO imagery.

- Information supporting agricultural activities (drought, fertility, diseases, harvest conditions etc.)
- Community mapping (infrastructure, livelihoods etc.)
- Forestry (logging activity, bio diversity, carbon stocks etc.)
- Return from in-game micro transactions engaging the social gaming market

Gains

Cerberus provides:

- Fast and accurate mapping
- Revenue generation for the social cause
- Engaged community



Astrocast

Target users

- Maritime companies
- Infrastructure operators
- Vehicle fleet operators

Service/ System Concept

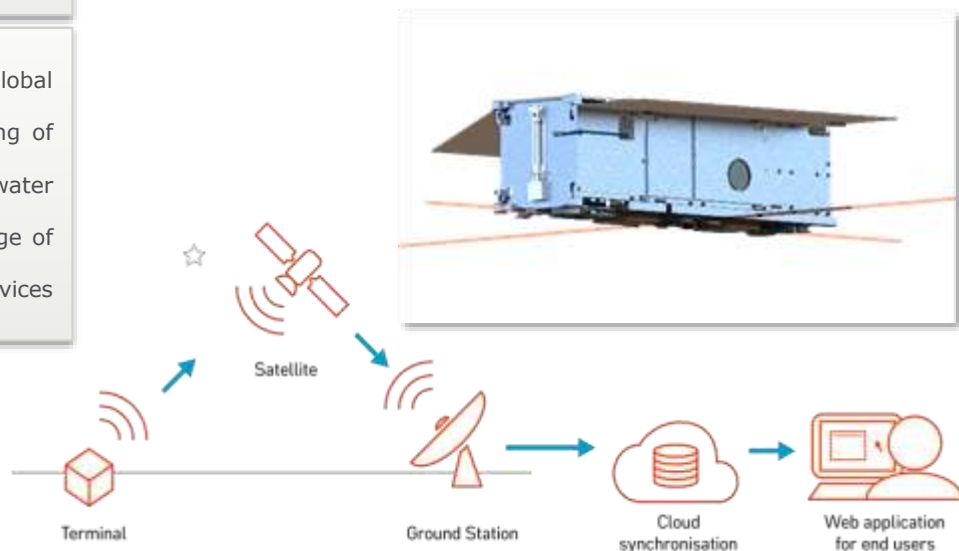
Astrocast provides Internet-of-Things (IoT) global connectivity service.

- Marine buoys with IoT can provide remote monitoring of fish, water conditions, pollution.
- Large distributed infrastructures such as water distribution, pipeline monitoring, water kiosks.
- Global connectivity over satellite provides full coverage of vehicle tracking, and telemetry.
- Low energy usage allows for battery operated devices lasting several years

Gains

Astrocast provides:

- Low-cost affordable communications
- Global coverage
- Data delivery to the cloud



➤ **Monitoring air quality**

companies using this data to enhance their existing services as citizens become more aware of the importance of air quality

➤ **Improving winter road maintenance**

operators can reduce the amount of chemicals used, lower the environmental impact and significantly reduce the operational costs

➤ **Management of urban green infrastructure**

reduce labour costs, provide targeted maintenance, allow for public engagement

➤ **Monitoring deforestation and natural resources**

regulations and public pressure create economic incentives, while engaging games provide a massive online crowdsourcing tool for annotated mapping

➤ **Monitoring infrastructures and resources**

IoT enabled monitoring allows for optimised used resources in remote locations

→ ESA BUSINESS APPLICATIONS



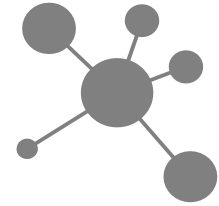
Funding



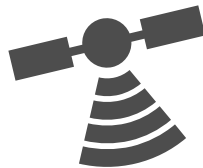
**Technical
&
Business
Expertise**



**ESA
Branding
& Promotion**



**Network &
Partnership
Building**



ESA's One-Stop-Shop for Downstream Applications

ESA UNCLASSIFIED - For Official Use

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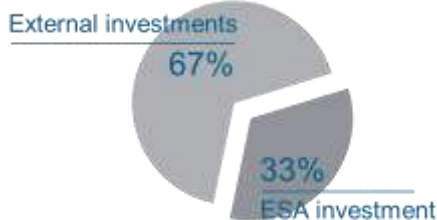
→ RETURNS AND INVESTMENTS

68%
of revenues goes to export

€29b+
Space Applications &
Services Market



59
Export countries



ESA funding

€67m

Cumulated revenues

€210m

Cumulated revenues
projection 2020

€857m



→ THANK YOU

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