



Novel Applications for Earth Observation Data

Challenge ID: TIH-C00050 | Published: 12 May 2017 | Deadline: 17 July 2017

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Challenge owner: SANSA & Airbus Defence and Space (ADS)



Opportunity:

- Access to spatial data
- Partnership opportunities with Airbus Defence and Space, globally.
- Site visit to Airbus Operations in Toulouse.
- Ongoing entrepreneur support with various SA partners

Technology maturity:

All solutions from concept to pre-commercial will be considered.

Delivery timelines: See Challenge process below. Initial concepts are due 17 July 2017.

Challenge Statement

SANSA and Airbus Defence and Space believe there is significant scope to increase the use of earth observation data, in both the public and private sphere, within South Africa. This will lead to a range of benefits, both in terms of commercial competitiveness as well as societal benefit. In order to achieve these outcomes, SANSA and Airbus Defence and Space are searching for novel uses of earth observation data gathered by satellite.

SANSA / Airbus Defence and Space therefore invite both groups and individuals to submit proposals around the novel use of satellite data.

These ideas should ideally be connected to the achievement of five Sustainable Development goals, being in agriculture, environmental monitoring, water management, marine management, and sustainable cities.

Business opportunity

There are a number of ways the challenge parties would like to support the commercialisation of earth observation data.

- Airbus Defence and Space will offer the top solution provider access to the Airbus Defence and Space facilities for the purpose of identifying innovative commercial opportunities. This will include site visits in



Toulouse, such as Intelligence, Space Systems, Intespace and Airbus commercial aircraft assembly line. In addition, solution providers will receive access to EO data¹ at zero cost.

- Shortlisted candidates will further have access to support from Airbus Defence and Space and SANSA specialists and be able to request historical or new data sets at no cost.
- The candidates will also receive a three-day capacity building workshop / training workshop focused on business model design and validation; pitching and negotiation, to support their proposal in the final evaluation
- Based on the candidate's requirements, facilitated business introductions will be made to senior decision makers at potential clients through a business matchmaking workshop. A list of previous attendees is provided as an example of what can be achieved.
- The top solution provider will be offered incubation with The Innovation Hub in Johannesburg for 12 months, where they will receive product and business development support.

Challenge process

There are two stages to this challenge – the first is the submission of a short concept document that describes the proposed use of the data. The closing date for this submission is 17 July 2017.

The Challenge Evaluation team will consider these proposals, and select a shortlist of candidates who will be invited to develop a working proof of concept by 30 October 2017. These will be reviewed to select a final winner, and engage in discussions across the month of November, 2017.

The timelines are summarised below:

Stage	Description	Start Date	End Date
1	Development of concepts	12 May 2017	17 July 2017
2	Evaluation of concepts	17 July 2017	28 July 2017
3	Notification of shortlist	31 July 2017	n/a
4	Development of proof of concepts	1 August 2017	30 October 2017
5	Evaluation of proof of concepts	31 October 2017	14 November 2017
6	Notification of outcomes	15 October 2017	
7	SANSA / ADS partner workshop	November 2017	n/a

Background

The South African National Space Agency

The South African National Space Agency was established in 2010 through South African National Space Agency Act (Act No. 36 of 2008), although South Africa's involvement in Earth Observation dates back to 1978. SANSA hosts an impressive archive containing more than 150 terabytes of remote sensing data dating back to 1972. The aim of this data collection is to help improve the livelihoods of communities across Africa through the delivery of space-derived services and products, high-impact collaborative R&D and active partnerships.

¹ For the explicit purpose of solution development in regards to this proposal



Airbus Defence and Space

Airbus Defence and Space is a division of the Airbus and is Europe's number one defence and space enterprise. It is the second largest space business worldwide and generates about €14 billion per year. The company is a recognised leader in the geospatial information market and provides an array of solutions built on satellite earth observation data. The available solutions are developed for various markets including defence and security, agriculture, oil, gas and mining operations and environmental monitoring. The company has exclusive access to the data from the SPOT and Pléiades optical satellites as well as the TerraSAR-X and TanDEM-X radar satellites.

The UN Sustainable Development Goals

During 2015, the United Nations adopted 17 goals to end poverty, protect the environment, and to strive for global prosperity – the Sustainable Development Goals².

Five of these SDGs bear significant relevance to this challenge:

- Environmental Monitoring & Management (SDG 15), Agriculture (SDG 2)
 - Using EOD to promote the sustainable use of terrestrial ecosystems, sustainably managing forests, combating desertification, halting and reversing land degradation, and halting biodiversity loss.
 - Using EOD to achieve food security, improved nutrition and promoting sustainable agriculture.
- Water (SDG 6) & Marine (SDG 14) Management
 - Using EOD to promote can be used to ensure the availability and sustainable management of water and sanitation for all.
 - Using EOD to conserve and ensure the sustainable use of the oceans, seas and marine resources for sustainable development.
- Sustainable cities and Communities (SDG 11)
 - Using EOD to make cities and human settlements inclusive, safe, resilient and sustainable.

Possible approaches

There are countless examples of where earth observation data can be applied in solving society's challenges; we are interested in supporting *how* these solutions can be developed. Such approaches could include:

- Novel approaches in linking with other terrestrial or human sensor networks (drones etc).
- Solution integration platforms and technologies
- Novel image processing technologies
- Novel big data management systems (including both hardware and software)
- Applications which results in an intersection between positioning, navigation and communication
- Advanced analytics and mathematical modelling
- Novel applications of machine learning, and artificial intelligence systems.

² For more information, please see http://www.za.undp.org/content/south_africa/en/home/sustainable-development-goals.html



Evaluation criteria

Solution submissions are open to anyone with insight into potential applications of earth observation data.

Additional criteria include:

- The scientific and/or technical merit of the proposed solution;
- The value proposition associated with the proposed solution;
- Presentation, motivation and data to support any scientific and/or technical claims;
- Communication and explanation of any associated proprietary or 3rd party intellectual property aspects involved in the proposal;
- The ability of the respondent to work successfully in a team with the Challenge owner's staff;
- The capability and experience of the respondent and associated track record;
- There is a strong preference for South African and African-based solutions

While the submissions should not reveal any confidential information or IP around the solution, it is necessary to provide robust evidence of the viability of the solution through validated evidence. This will be dependent on the type of solution. Solutions that do not include appropriate information in regards to the evaluation criteria above may be disqualified.

TO RESPOND TO THIS CHALLENGE, PLEASE COMPLETE THE RESPONSE TEMPLATE ONLINE
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