

Workshop Summary Report

Introduction and Background

Organizers: ESA, in cooperation with EARSC

Participants/invitees: European and Canadian Space industry

Time and place: 09.00-15.30, June 7 2016, ESRIN, Frascati

Background: The EO satellite sector is evolving rapidly, both in terms of data availability and new commercial initiatives. Copernicus, the world's first operational multi-platform EO programme is becoming a reality with four Sentinel satellites already in orbit. New and innovative satellite operators are entering the market especially in the US, new data sources are emerging - including unmanned aircraft systems (UAS) and crowd or citizen sources using mobile technologies. Large IT companies such as Google and Amazon are seeking to establish global, geospatial initiatives (eg. Terra Bella).

Europe has an active and vibrant EO services sector, with over 500 companies spread through the Member States making over €900m revenues and generating nearly 7000 highly skilled jobs in 2014. Most of these companies are very small, but represent a highly skilled industry providing leading-edge EO-based products & services. The challenge will be to nourish these capabilities and ensure competitiveness and growth in the European and global market-place over the years to come.

In the Earth Observation Envelope Program (EOEP5) proposal to the 2016 ESA ministerial meeting, ESA is introducing elements aimed at addressing these challenges for the period 2017-2021, and will present the plans for discussion. 'EO-Innovation Europe' will address key enabling technologies such as application platforms, while other elements will focus on expanding use of EO and uptake within key demand sectors. A first consultation meeting between ESA and EARSC was held in September 2015 focusing on the exchange of ideas for the creation of a new environment for EO data exploitation and innovation in Europe, in line with the new ground segment evolution strategy. These discussions have continued and the latest status will be reviewed,

Objectives: The objectives of this Industry Consultation are to discuss the following issues :

- ESA's current plans and proposals for activities under EOEP5
- Which user sectors (public and private) offer the greatest opportunity to expand and grow demand for what types of EO-based information?
- Develop a common understanding with respect to key enabling technologies required to support the European EO service sector
- What support actions are required from ESA for Industry to fully realize these opportunities (short-term, mid-term)?

ESA in cooperation with EARSC invites you to join this Industry Consultation workshop and actively take part in shaping the 5th ESA Earth Observation Envelope Program, planned to start early 2017.

Agenda

Industry Consultation Workshop, 7 June 2016, ESA-ESRIN (Frascati) Magellan Room

9:00	0:10	Welcome and Objectives (ESA and EARSC)
9:10	0:20	Preparation of ESA Ministerial Council - N. Hanowski / M. Borgeaud (ESA)
9:30	0:20	ESA Digital Agenda for Space - G. Kohlhammer (ESA)
9:50	0:30	Status of Ground Segment Evolution Strategy implementation - H. Laur (ESA)
10:20	0:30	Coffee Break
10:50	0:20	Network of platforms: architecture and implementation - G.Landgraf (ESA)
11:10	0:20	An OpenSource approach for implementation - C.Pradhan (EARSC)
11:30	0:20	Request for Information presentation - G.Landgraf (ESA)
11:50	0:10	Questions and Answers
12:00	0:30	EARSC Briefing - G. Sawyer (EARSC)
12:30	1:00	Lunch Break
13:30	0:20	Enabling Industry Growth - S. Coulson (ESA)
13:50	0:40	Discussion
14:30	0:20	EO for Sustainable Development - S. Coulson (ESA)
14:50	0:40	Discussion
15:30	0:30	Wrap-up and next steps (ESA)
16:00		End of Meeting

Organisation:

Invitations were sent out by ESA and EARSC to their respective contacts lists. The number of people registered was much higher than had been anticipated; some 160 persons registered and 125 participated during the day.

The workshop took place in the Big Hall instead of the Magellan due to the high number of participants.

Summary of discussions

Here follows a summary of the discussion that took place in the afternoon session, which was mainly focused on EO based services and user uptake

- **The importance of end user involvement.** It was considered important that ESA play a role in federating user communities in order to support companies and organizations trying to develop a sustainable business based upon EO platforms. ESA has the potential to leverage EO towards large public

and private user organizations way beyond the individual capabilities of SMEs, and this should be continued in EOEP5. Having the user pull will also be important for consolidating the requirements on which the EO platforms will be developed.

- **Importance of commercial data for operational services:** Even though the amount of freely available EO data is increasing rapidly (especially because of the Sentinels) and is made available via platforms such as GEE and Amazon Web services it was emphasized that many EO based services also require data from commercial satellites in order to meet user requirements, and these data are not available via these platforms.
- **Sentinel data availability via the Sci-hub:** Several participants explained that the Sentinel data can be downloaded from the ESA data hub if done in the right way, i.e. using scripts that automate the download interface procedure. These scripts are now available on the web and in theory could be used by anyone.
- **ESA funding mechanisms:** Different types of funding mechanisms could be suitable for different phases of a product development cycle. I.e. early phase exploratory prototype developments will need to smaller, faster procurements, while EO service developments involving end users will require larger and longer term funding mechanisms.
- **Boot camps and innovation labs:** It was emphasized that suitable boot camps initiatives exist and that inventing new ones could be counterproductive. One should instead try to build upon those that exist and take benefit from existing infrastructure, communities and capabilities.
- **Industry role in science:** Industry expressed the wish to be even more present in ESA EOEP5 science focused elements, in order to ensure that industry can better take advantage of cutting edge development that would otherwise remain within the science community of universities and institutions.

Conclusions

Some lessons learned from the meeting:

- The large number of attendees shows the interest to have such a meeting on a regular basis. Feedback afterwards suggested more interaction would have been welcomed.
- This meeting followed the first one of this type held with ESA ground segment in September 2015.
- Despite leaving time on the agenda, in the end there was not enough time to discuss as much as would have been liked. Feedback came from some participants that they would have liked more exchange. This was certainly inhibited by being in the large hall which is not a good setting for discussion.

- Some questions were developed during the meeting and feedback was requested by ESA afterwards. A short survey for attendees to complete would have sharpened up some of the impressions of the meeting.
- An annual, open meeting has been foreseen with ESA. This first event with all the ESA-ESRIN partners showed the desire to have such an opportunity to really exchange more than an information day. Whilst this event fell at the time to consult on EOEP5, future meetings can take other topics as a framework for discussion. At the heart, should always be an exchange on the current issues concerning ESA and industry.

List of Participants

Family name	First name	Institution/Company
Aas	Christina	Science [&] Technology AS
Amici	Alessandro	B-Open Solutions srl
Appel	Florian	VISTA GmbH
Atencia Yépez	Amaya	GMV
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BARRE	Richard	CAPGEMINI A&D
BARROS	Serge	Airbus Defence and Space - Space Systems
Bernat	Martinez	isardSAT
Bianchi	Marco	TRE ALTAMIRA
Bizzi	Mario	RHEA SA
Borgstroem	Rasmus	DHI GRAS
Bottaccio	Maurizio	B-Open Solutions srl
Briese	Christian	EODC
BUCARELLI	ANDREA	E-GEOS
Busswell	Geoff	Telespazio VEGA UK
Buszke	Bartosz	Wasat
Campbell	Richard	Serco
Capellades	Maria Angeles	UrtheCast Corp.
Carrasco	Daniel	Indra
Carvalho	Bruno	CRITICAL Software
Catarino	Nuno	DEIMOS Engenharia S.A.
Chanié	Anne	CS
Cocco	Massimo	Istituto Nazionale di Geofisica e Vulcanologia
Coene	Yves	Spacebel s.a.
Constantin	Mirela	TERRASIGNA
Conway	Jacque	Airbus Defence & Space, Intelligence
Desclee	Baudouin	SIRS
Di Felice	Alessandro	Esri Italy
Dias	Luis	EDISOFT SA
Dumitru	Mircea-Alexandru	Rasdaman
Earl	Jon	CGI
Edgardh	Lars	Spacemetric AB

Fabrizi	Roberto	Deimos Imaging
Famoso	Ivan	CGI
Ferrer	Marc	Atos
Ferretti	Alessandro	TRE
Flamini	Alessandro	e-GEOS
Flebus	Olivier	Capgemini
Fletcher	Robert	Satellite Applications Catapult
Föckersperger	Stefan	OHB System AG
Gale	Leslie	Space Applications Services
Geist	Thomas	FFG
Golebiewski	Tomasz	NQA Certification Ltd
Goncalves	Pedro	Terradue Srl.
Gontier	Eric	VITO
GONZALEZ	LUIS	GMV
Graziano	Antonio	CGI
Habib	Tarek	Atos
Hawkins	Owen	Earth-i
Hembise Fanton d'Andon	Odile	ACRI-ST
Heurteaux	Vincent	Geomatys
Iris	Steve	Canadian Space Agency
Jadot	Andre	Eurosense
Jenkin	Robert	CloudSigma
Johannsson	Magni	Disrupt Space GbR
John	Allan	EARSC
Kohlhammer	Gunther	ESA
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Krzyżanowski	Maciej	CloudFerro sp. z o.o.
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MADIER	Jean-Pierre	MAGELLIUM
Malmberg	Rainer	IABG mbH
Manunta	Paolo	Planetek
Maranesi	Marcello	Consultant
Marin	Alessandro	Solenix
Marquard	Uwe	T-Systems International
Mastracci	Federica	e-GEOS
Medri	Roberto Maria	ACS
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MONDON	Emmanuel	AdviceGEO
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Nyenhuis	Michael	DLR Space Administration

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Serban	Florin	TERRASIGNA
Sindelar	Martina	European Commission
Spera	Paolo	Advanced Computer Systems ACS S.p.A.
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