

## **EARSC Views on**

### **European Geospatial services**

Developing the Downstream EO Services Sector in Europe.

*EARSC, the European Association of Remote Sensing Companies represents the Earth Observation geo-information services sector in Europe. Today EARSC has 75 members (64 full members and 11 observers), coming from 22 countries covering the full EO services value chain including commercial operators of EO satellites, resellers of data, value-adding companies, geospatial information suppliers, consultancies and EO system/software providers. The sector plays a key role in providing value-added, geo-spatial information to its customers in Europe and the world. In 2012, the revenue of the sector in Europe is €750m giving work to 5000 highly skilled employees and is growing at around 10% per annum. The sector is dominated by small and medium enterprises with over 90% of the companies having less than 50 and over 60% having less than 10 persons employed.*

*This paper reflects the views of the full members of EARSC which are commercial companies, coming from Member States in the EU or in ESA, providing services (including consultancy) or supplying equipment in the field of remote sensing or using EO data. EARSC observer members are informed and may have commented on the paper but are not necessarily endorsing its conclusions.*

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### Introduction

The EU Copernicus programme started with the Baveno manifesto in 1998, as an initiative concerning Global Monitoring for Environment and Security with the goal to provide *a long-term commitment to the development of space-based environmental monitoring services*. Since then it has developed into the flagship European Copernicus programme *to provide accurate and reliable information in the field of the environment and security, tailored to the needs of users and supporting other Union policies*. The first Sentinel satellite was launched 1 year ago, the second is due for launch in a few weeks' time and the EC has signed delegation agreements with European Entrusted Entities (EEE's) to manage the supply of services.

Europe seeks to reap the full benefits of Copernicus by maximising socio-economic benefits and stimulating smart, sustainable and inclusive growth. The programme will promote the use of Earth observation in applications and services and foster the development of a competitive European downstream industry. It is a driver for innovation and the creation of highly-skilled jobs, with direct and indirect benefits for the EU economy.

The EO services sector in Europe covers the EO satellite owners and operators and value-added service providers embracing also the hardware and software providers which serve the sector. Today, the sector comprises over 300 companies throughout Europe of which 95% are small enterprises with less than 50 employees. In 2012<sup>1</sup>, the private EO services sector provided over 5000 highly skilled jobs and €750m in revenues. Studies<sup>2,3</sup> estimate that thanks to Copernicus some 40,000 qualified high-tech jobs will be created or maintained in the EU and €30bn (equal to 0.2%) will be added to the EU GDP through 2030. The potential downstream market turnover directly attributable to Copernicus is estimated to be €1.8bn by 2030.

EARSC has expressed its view in several position papers that the benefits sought by policy makers in terms of jobs and economic growth can only be realised only through full involvement of the private sector. Industry is enthusiastic to play a stronger role and to develop new business in new markets based upon Copernicus data and services. However, for this to happen, a number of steps need to be taken as described in this paper.

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<sup>1</sup> EARSC Industry Survey 2012; The state and Health of the EO services industry in Europe and Canada. An update to the survey for 2014 is currently being completed.

<sup>2</sup> Booz & Company (2011), Cost-Benefit Analysis for GMES, Report for the European Commission

<sup>3</sup> SpaceTec Partners (2012), Assessing the economic value of Copernicus,

## Context

From the outset, Copernicus was conceived as a programme to bring a more coherent and efficient approach to the development of satellite observation capacity than the fragmented national efforts had up to then delivered. With the goal to deliver critical geospatial information to European policy makers, it was set against a background of past privatisation efforts, and was born in the shadow of the unsuccessful European efforts to bring private investment into Galileo through a PPP scheme. Hence Copernicus became a fully public programme devoted to meeting public needs.

As new technologies become available to support the delivery of geospatial information to meet policy needs, security of the supply of satellite data is still of fundamental importance but diversity of sources is making this of less concern. Instead the focus must now move to the sustainability of information since the strategic aspects and European non-dependence is as important as ever. It is not just satellites that feature in these considerations but the whole value-chain covering all types of data sources and value-adding capability together with the technology necessary to handle and deliver these products into the hands of the policy makers.

New technologies and business models have opened the way to more private investment as can be seen especially in North America with the advent of Skybox Imaging (now part of Google), PlanetLabs, Urthecast and many others. New space nations are launching their own satellite capacity and space-derived imagery is becoming a commodity. By reducing the cost of the imagery, the market is being opened to new players in the downstream sector and especially data coming from the Sentinel satellites which will be made available for free. These disruptions to the marketplace are causing companies to rethink and agility in the market is key.

At the same time the power is shifting from the data supply side where Europe does have strong players in the global market to the processing and distribution of information. This requires platforms capable of ingesting data from a multitude of sources, with large and distributed processing capacity so providing value-adding companies with distribution systems which reach out to all corners of the market. This trend is favouring the large IT companies which are particularly strong in the US but largely absent in Europe. As they become a key channel to the market those owning the platforms will take control of the distribution of critical geospatial information.

The good news is that Europe does not have to compete with the business models of the goliaths of Google, Microsoft, Amazon or Apple etc. But we do need to establish rather urgently a competitive business platform in geospatial services. Public demand in Europe alone is insufficient to sustain the business, hence Europe's industry must compete and be successful in the world market. Europe has a choice, it can rely on purely public sector supply and demand, with the associated costs to governments to sustain European capability, or it can create the conditions to help develop one or more global players in geospatial services.

## What should be done?

An overarching strategy should be developed which can address the concerns of the EO services sector expressed in this paper.

Despite the various efforts made to date to bring about substantial growth in the downstream EO services sector, EARSC's research shows that the industry remains relatively small and dominated by micro-enterprises. These are ill-placed to succeed in a global market where the major IT players are increasingly dominating key parts of the value chain. The free and open data policy was/is designed to help the downstream sector but alone this is insufficient and Europe must find the ways to leverage the Copernicus investment into the market place.

An abundance of national efforts has led to fragmentation and duplication of capabilities in Europe and has inhibited the development of European champions which can compete with the large US players. In some other sectors, aerospace being the best example, EU actions have caused a coalescing of efforts leading to global champions. A similar effort is now necessary in the EO services sector, recognising that the result could take one of several forms, but this will take time and national preferences mean that industry cannot achieve this alone.

There is much that can be done that would help our sector to overcome its main barriers to growth:

### 1. Leverage Copernicus and improve the public-private interface

Copernicus represents a great opportunity for Europe to take a lead in the market to deliver EO services. The significant public investment should be leveraged to stimulate industrial development and organisation. The free and open data policy is designed to maximise innovation and creation of new products, but the large number of micro and small enterprises will need to find willing buyers.

One of the key aims of the Copernicus programme is to help bring about such a shift of attitude and perception amongst potential users and customers, especially those in the public sector, but the process is very slow. The private sector can play a key role in this process but cannot act alone hence, to improve the public-private interface, specific actions are needed to:

- Take action to ensure the use of Copernicus products and services by public users; meeting their geospatial information needs. This will help to structure and develop the public market in Europe where public use of EO services is estimated to be around 50% of the overall market. Given its importance, without the motor of public sector demand, the downstream sector development is limited.
- Ensure the industrialisation of Copernicus services so that companies have home markets as a reference when seeking to develop others.

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- Clarify the boundary between public institutions supplying geospatial services and private industry. Too often we find private industry having to compete with public sector institutions for EO service development projects.
- Funding of projects to develop international partnerships. The free and open data policy for Copernicus has been supported by industry as a means to bootstrap the market. But this is only an advantage to European companies if they are able to beat their competitors on the world stage. A programme to help the industry establish positions in these markets is urgently needed if the free and open data advantage is not to be lost.
- Ensure easy access to the Copernicus data and information. The industry view has not been well considered in the design of the ground segment. A renewed effort is needed to develop a ground segment providing all potential users good, effective and easy access.
- Adopt industrially focused quality measures to maintain the standard of services expected by policy makers.

## 2. Research and Development

Whilst we appreciate that the EC does seek the views of user communities in defining programmes, as well as seeking impartial advice from advisory bodies, these can often be dominated by the research and space technology sector viewpoints, biasing programs towards scientific and technological requirements. A major proportion of R&D projects are still being undertaken by public institutions and national public funds, channelled through European programmes to meet operational requirements.

Missing is the EO services sector perspective, to define from the outset how programmes will be exploited and how investments will generate returns. For example, no industrial representative from the sector has any voice in the Advisory board for the H2020 space research programme. In our view, several steps need to be taken:

- Put users geospatial needs first. Too often the focus of European investment has been on the space sector and particularly the satellites and their operations; focused more on the scientific merits of the programme, and less on the end-user sectors and their geospatial information needs. In order for our sector to help deliver societal benefits through technology driven advancement, the geospatial information needs of users should drive the focus of R&D investment.
- Increase the R&D budgets available for EO services. The current EU investment in EO applications research is not adequate to support the development of an industry sector – especially considering the small proportion which will eventually help to drive commercialisation objectives.

- Give more attention to industrial participation in research projects so as to strengthen the focus on practical applications hence driving employment and growth. Too often projects are dominated by academic and public bodies. Without more attention (or intention) to developing the industrial participation, the research activities risk to duplicate what already exists (ie cloud services) and not to be focused on meeting industrial and commercial exploitation goals.

This will require a wider-held perspective that growth in the sector must be led by the industry with public sector actors acting together to support this role. A partnership approach is necessary with the active support of the EU and its member States.

### 3. Market Structure and Uptake

A key challenge to the EO services sector today is the lack of customers willing to pay for geospatial information derived from space. The market will only reach maturity when there is widespread understanding of the benefits that EO services can bring, coupled with an understanding of the value of those benefits which results in a willingness to pay for them.

The EC must also act to understand and organise EU information need through the EC services. The EARSC survey<sup>4</sup> has shown that 51% of the market for EO services is in the public sector. This has led to a favouring of local or national suppliers, whether in the private or public sector, perpetuating and encouraging the fragmentation in Europe and preventing the emergence of strong European players capable of challenging the US IT giants.

International co-operative efforts such as GEO have sought to make data and information available to users worldwide. Given the wholly institutional nature of the effort the activities have not embraced private sector capabilities but more recently have started to seek private sector engagement. Organised correctly, this can be a useful tool to help promote industrial capabilities to worldwide stakeholders. However, the ambitions of the public sector players, the academic networks and the GEO secretariat itself, coupled with the nationalistic approach of many of the governmental stakeholders is driving GEO itself into a conflictual position.

Hence, action is needed from public policies to help the European market to develop. Copernicus provides opportunities around public procurement whilst other means should be used to help stimulate the sector. It is notable that in the US, the industry has not developed through a central policy and strategy but through a collection of policies all enabling the development of business; the most consequent being the 2003 Commercial Remote Sensing act which deliberately puts the focus on the private sector wherever possible. A similar approach could be taken in Europe:

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<sup>4</sup> EARSC Industry Survey 2012; The state and Health of the EO services industry in Europe and Canada.

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- Introduce EU legislation stating that activities should only be undertaken in the public sector if the private sector is unable to act; for example a service contract policy rather than public procurement of space assets.
- Facilitate the emergence of new business models along with innovative concepts for upstream, midstream and downstream sectors, including new partnering schemes addressing public-public (P2P) and public-private partnerships (PPP). This will allow the sector to evolve towards a robust and sustainable European Earth observation capacity which, in turn, is expected to stimulate further investments driving employment and growth.
- Use of EU international policies, offices and other resources to support the sector in its goals. For example through regional programmes, export initiatives and collaborative agreements.
- Ensure the EU EO geospatial services sector can participate to international initiatives such as UNFCCC, GEO, REDD+ and others which have a clear need for information coming from global EO data coupled with specialised value-adding expertise.

Hence action is needed by the EC to help structure and organise this market and the industry which can serve it. Only the EC can act in this respect in its role to organise the single European market.

### **Conclusion: A Structured Dialogue**

A formal exchange with the industry has long been called for by EARSC in order that the service sector views can be heard and taken into account for the design of future programmes. A platform based upon geospatial information and the associated IT technologies could provide the best setting but, given the close links between the EO services sector and the space sector, a platform around space topics can also work provided that the governance allows the geospatial sector view to be heard.

The Structured Dialogue proposed by the European Commission to engage with the whole of the space industry includes the downstream sectors. A Memorandum of Understanding is planned to be signed by the EC (at Commissioner level) and the “space” trade associations. EARSC supports this process and looks forward to establishing a formal exchange with the EC representing the views of the downstream industry concerned with EO geospatial services.