

2015

eOSERVICESindustry



A Survey into the State and Health of the European EO Services Industry

prepared by EARSC under assignment from ESA
September 2015

Forward

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It is with great pleasure that we bring you the results of the 2015 EARSC survey of the EO services industry. This is the fourth survey conducted and the second performed by EARSC. We are very grateful to all the companies that have spent their time responding to our questions. This brochure is a summary of the survey results and the full report can be downloaded at www.earsc.org.

This is a critical time for the industry with a great deal of change happening in and around the sector; new low-cost satellites are being launched by start-up companies and several significant acquisitions have occurred suggesting that M&A activity may increase. Against this background the European Union flagship programme Copernicus is committing over €7b investment into the sector leading to new satellites, data sources and commercial relationships.

Our survey considers EO services companies which are those selling geospatial products which contain an element of satellite data. It comprises data suppliers including satellite operators, value-adding and GIS companies as well as consultants. In the report we show our view of the value chain and also give a glossary of relevant terms.

The survey provides an overview of the industry in 33 countries in Europe plus Canada (as an ESA member) based on solid, reported numbers; and it does so just before the Copernicus investments will start to impact the sector. The results provide a firm base on which the impact of the Copernicus investment can be measured.

The methodology used is basically the same as in 2012 and starts to give us comparisons on which we can analyse trends in the industry. We now have 3 years in which data was gathered; in 2006, 2012, and 2014 which is used to make comparison and to assess trends, as well as interpolate the intermediate years.

We plan to revisit the industry facts and figures every two years. Regular survey will be essential to develop a full understanding of the impact that policy decisions are having on the industry. In the meantime, the results for 2014 follow which we hope you will find interesting, stimulating and helpful in your ventures.

6811 employees

451 companies

€910m revenues

The survey

The survey was conducted between December 2014 and May 2015. We sent it to 548 companies and received 152 useful responses through an online questionnaire focused on financial and numerical data. 64 of these also responded in 2012.

Of these companies, 61 accepted to hold an in-depth telephone interview providing further information.

Strategic context

The 2015 EARS survey of the EO Services Industry in Europe and Canada comes at a time when the strategic landscape is changing very rapidly. A number of European EO satellites were launched as shown in the table below. In the US, 2014 saw the launch of Worldview 3 offering imagery down to 25cm resolution following the lifting of ITAR regulations and Landsat 8 which, like the Sentinels, provides data on a free and open basis, Skybox's first satellite and up to 101 "Doves" – the Planet Labs nano satellites launched in flocks at a time.

Year	Satellite	Type	Resolution	Owner	Country
2012	MSG3	Meteo		Eumetsat	
2012	SPOT 6	Optical	1.5m	Airbus GEO	France
2012	Pleiades 2	Optical	<1m	Airbus GEO	France
2014	Sentinel 1A	Radar	5m	EC/ESA	
2014	Deimos 2	Optical	1m/4m	Deimos	Spain
2015	Sentinel 2A	Optical	10m	EC/ESA	
2015	MSG4	Meteo		Eumetsat	
2015	TripleSat	Optical	1m	21AT	China

European EO Satellites launched in 2012-2015

Overall we see 5 significant trends:

1. New business ventures as exemplified by Skybox and Planet Labs (see the table below for a list of those of which we are aware). Mostly, they provide 1m optical and video imagery. Some are aimed at opening the meteorological market to commercial suppliers. Mainly focused on radio occultation to measure the atmosphere, these aim to supply public met agencies as well as finding new commercial applications.
2. Corporate actions with Skybox being taken out by Google and 2 of the European operators bought by North American companies and one company taking the opposite route; CLS acquiring in the US.
3. Copernicus; the EU flagship programme saw a major advance with the launch of Sentinels 1 & 2A and delegated authorities appointed to run each of the Copernicus Services.
4. Technology and especially the increased interest in geospatial information amongst major IT players, but also the rapid development of UAS as a complementary imaging platform.
5. New financing sources with "new money" in the US willing to take higher risk in a technologically interesting domain. The availability of "new money" finance has seen start-ups created and in three cases already subject to corporate actions (see table above).

2014	Spatial Energy	Acquired by DigitalGlobe
2014	Skybox Imaging	Acquired by Google
2014	MDA	MDA buys Advanced System division from General Dynamics
2015	CLS	CLS buys Horizon Energy (US)
2015	Deimos Imaging	Acquired by Urthecast
2015	Blackbridge	Acquired by Planet Labs

Major Corporate Actions 2012-2015

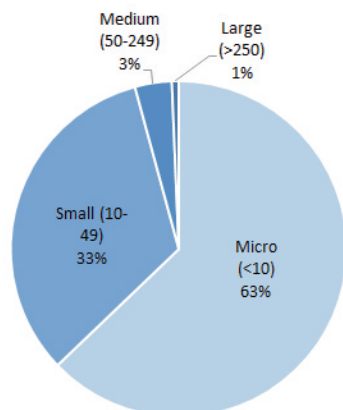
Company	Country	Description	Status
Aqualia Space	US	LandMapper constellation	2016
BlackSky	Canada	60 optical satellite constellation	2016+
Geooptics	US/China	Cicero constellation GPS occultation	2017/18
HySpecIQ	US	2 hyperspectral satellites	2018
Iceye	Finland	Microsatellite radar network	2016
NovaSAR	UK	4 SAR satellites	2016?
OmniEarth	US	18 optical satellite constellation	2018/19
PlanetIQ	US	GPS occultation	Launch 2016 & 2017
PlanetLabs	US	Dove satellites; Optical constellation	101 launched. 5 Rapideye satellites
Satelogic	US/Argentina	16 satellite constellation; 1m optical	To launch late 2015
Skybox Imaging	US	1m optical satellites constellation	2 satellites in operation Further 13 in construct.
Spire	US/UK	GPS occultation; 20 sats.	1st launch late 2015
Tempus Global Data	US	Hyperspectral atmosphere sounding	1st deploy April 2017
Urthecast	Canada	On-board ISS imagers. Optical & SAR constellation	Deimos-1 and 2 in-orbit.

New EO Satellite Business ventures

"The period 2012 to 2015 has been marked by the launch of new US mainly micro-satellites, backed by new business models."

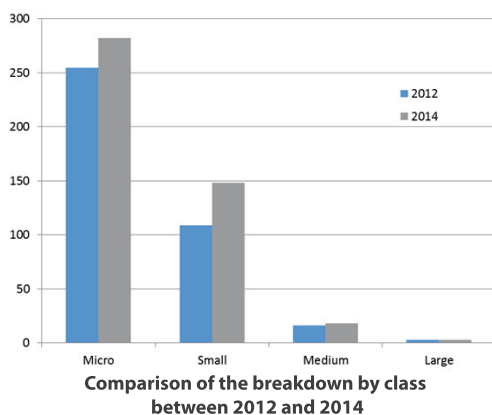
Industrial landscape

In 2014, our survey indicates there are 451 companies active in the domain of EO services in Europe and Canada. This compares with the 319 companies which we considered were active at the time of the survey in 2012. Our database has grown as we became aware of the existence of new companies and suspect that we missed some earlier. We thus decided to revise the figures of the 2 last surveys. For 2012, 319 has been revised upwards to 389 and for 2006, the figure of 151 has been revised upwards to 193.



Breakdown of companies by class

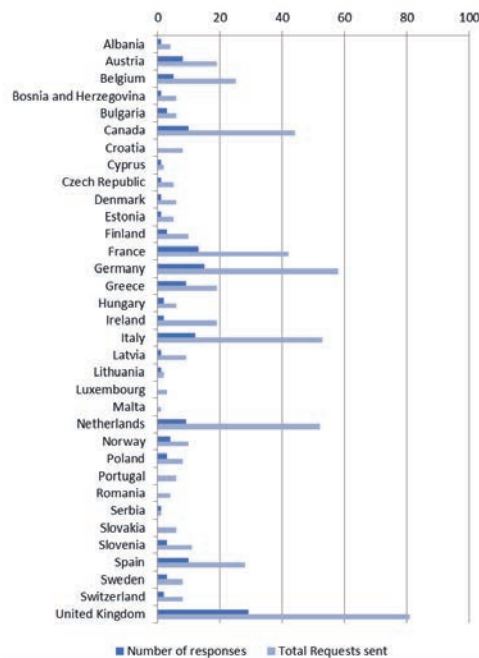
The sector is still very fragmented with many small players. The majority of companies - 63% - are micro-sized meaning that they have less than 10 employees. The percentage of small and micro companies has remained pretty much the same at 95% as it was in 2012.



Comparison of the breakdown by class between 2012 and 2014

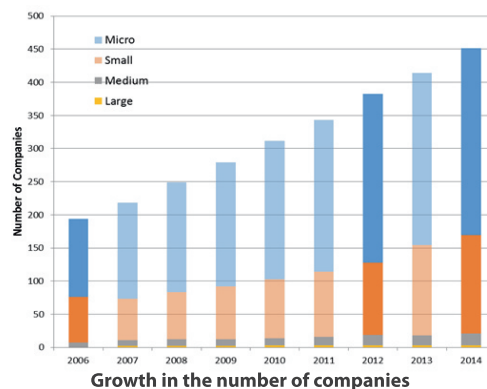
In the chart below are shown the number of companies in each country which were contacted (531 at the time of launch of the survey) and the number which responded. Our database currently covers the EU 28 plus Norway, Switzerland and Canada as ESA member countries and Albania, Bosnia-Herzegovina and Serbia as other European countries. The UK, as in 2012, has the largest number of companies with Germany second and Italy third. The largest number of responses came

from the UK with Germany second and France third. Companies are distributed throughout Europe with 10 countries having 20 or more companies.



Geographical distribution of companies

The number of companies has grown at around 8.7% p.a. in five years from 310 in 2010 to 451 in 2014. Growth concerns mostly small and micro-sized enterprises. The chart below represents the classification of the companies over the recent years. The years yielding real data are shown more heavily whilst those which have been projected are shown in a transparent mode.



Growth in the number of companies

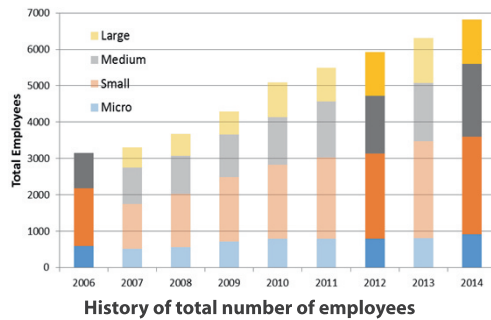
We also investigated the company ownership. Some 72% of the companies are privately owned (2012: 75%) supporting the view that this sector is dominated by start-ups with the founder owning the company. 5% of the companies are publically traded compared to 2% in 2012.

"The number of companies has grown at around 8.7% p.a. in five years from 310 in 2010 to 451 in 2014. Growth concerns mostly small and micro-sized enterprises."

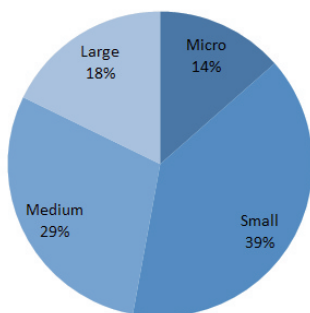
Employment

The survey shows a total sector employment of 6811 persons in 2014. The 152 companies which responded reported that they employ 4100 persons or 61% of the total (6811). Projecting that to the full population of 451 companies based on the average number of employees in each class of company gives us the total of 6811.

The chart shows the evolution of total employment over this period with this years results alongside those for the 2006 and 2012 surveys. Between 2006 and 2014, employment in the EO services sector has grown steadily at a rate of around 11% p.a; from 3100 employees in 2006, to the total of 6811 in 2014. Looking at the growth over the last 2 years (2012-2014) the rate has slowed to 7.9% where all of the growth over the last 2 years has come from the SME's whilst large company's employment numbers have remained essentially flat.



The total number of employees within each class of company is shown for 2014. The small and medium categories, which employ close to 70% between them, make the strongest contribution to the overall sector employment. The three large companies (1% of the total number of companies) employ close to 20% of the total workforce. The micro category may be the largest by number of companies but it is the smallest in terms of contribution to the total. These figures are very similar to those in 2012 which is to be expected since an increase only comes by there being more companies.

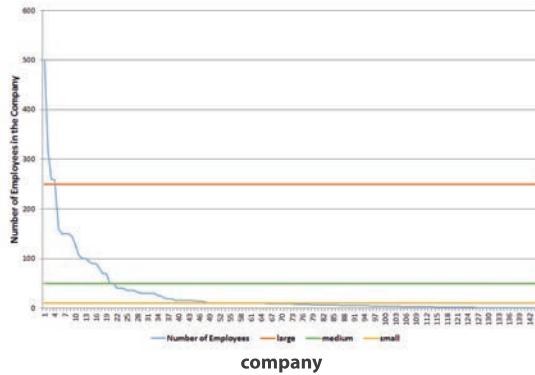


Distribution of employees amongst the company classes

The distribution of employee is also shown as a waterfall plotted as the number of employees in each company in order from the highest to the lowest. The horizontal bands represent the

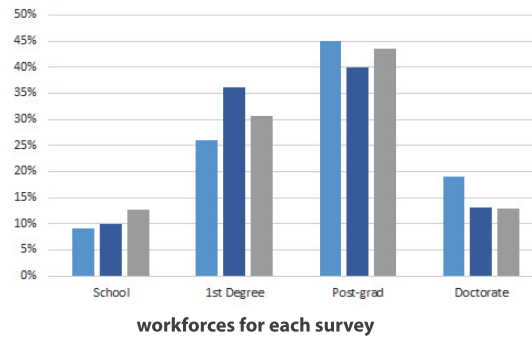
thresholds between the company classes. It demonstrates the long tail of small and micro enterprises which exists in the sector. Some 33 companies are one person specialists.

Ordered distribution of number of employees in each



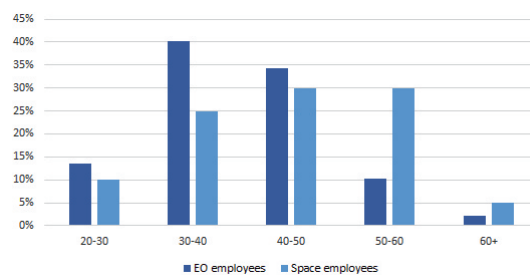
Employees in the EO service companies are highly qualified with nearly 90% of them holding a university degree level and over 60% having a post graduate degree or higher. This has not changed significantly over the 3 surveys as shown in the chart below.

Comparison of qualification levels in the EO services



The gender balance of the sector seems to stay essentially fixed at 33% female to 67% male (1:2). This was the same in 2012 and only slightly lower in 2006.

The age profile of the sector is shown in comparison to that of the space manufacturing industry (figures from Eurospace). It shows a much younger profile with an average of 39.6 years for the EO services sector and 44.5 years for the space sector.



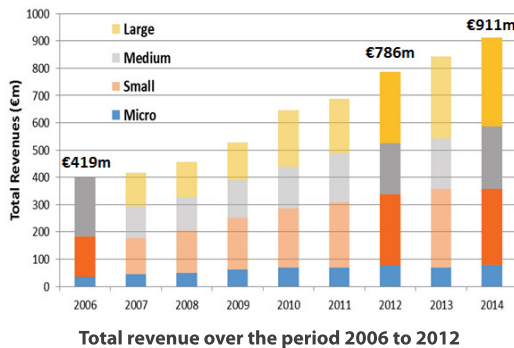
Age profile comparison with the Space Manufacturing Industry (figures Eurospace)

"Employees in the EO service companies are highly qualified with nearly 90% of them holding a university degree level and over 60% having a post graduate degree or higher."

Revenues & growth

Along with those for employment, the revenue figures provide the basic measure of the health and trends of the industry. The total revenues for the EO Services sector in 2014 was €910m (2012: €786m) and is growing at a rate of around 7.6% p.a.

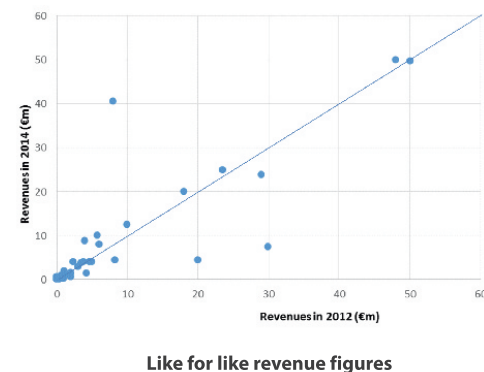
Of the 152 companies which responded, 138 provided revenue figures directly whilst for the remaining 15, the revenue was calculated based on the number of employees together with a figure for average revenues per head. This leads to a reported figure of €634m representing 70% of the final total of €910m which is calculated by projecting onto the total population of companies (451).



The chart highlights the 3 actual data points in 2006, 2012 and 2014 and indicates our estimates of what they would have been in the intermediate years. We revised upwards the 2006 and 2012 figures for the increase in the number of companies. The growth in the last 2 years is apparently coming from the medium and large companies.

35% of the total revenue is earned by the 3 large companies. The small and medium companies earn over 50% of the total and micro companies 9%. Of the companies responding in 2014, 64 also responded in 2012 which provides us with like-for-like comparisons presented in the chart below.

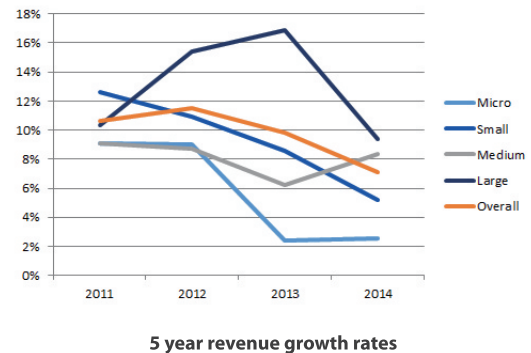
The like for like figures are indicating a growth rate of 10.8% which is higher than that for the total revenues (7.6%) over the 2 year period.



"The total revenues for the EO Services sector in 2014 was €910m (2012: €786m) and is growing at a rate of around 7.6% p.a."

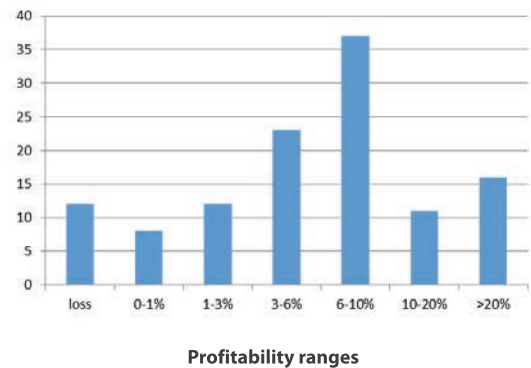
This may be statistical variation or it could be that companies which responded for a second time were those which had performed better than those which did not.

We have also calculated the average rate of growth over the 5 year period ending in the year as shown. Hence, in 2011, the rate of growth for all companies from 2007-2011 was around 10%. This also shows the growth rate falling since 2012 with the biggest impact on the larger companies - but the rate has fallen in all classes.



The 5 year revenue growth rate is lower over the last 2 years than over the previous 8 years which supports that there may be a slowing down. This could be seen as at odds with the optimism index which suggests companies are foreseeing higher growth over the next 12 months but maybe reflects that companies consider that after a few more difficult years, they see better prospects for 2015 and 2016. This is something that we shall watch next time we repeat the survey.

What about company profitability? 119 companies were willing to provide this sensitive information with their revenue corresponding to 33% of the total population. We estimate the mean level of profitability for the sector to be between 9% and 15% (8% in 2012).

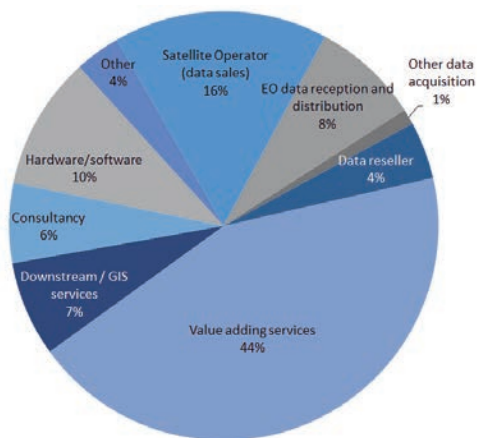


In conclusion, some major variations exist amongst the companies and especially between those of different sizes. Large and medium companies account for 60% of revenues.

Activities

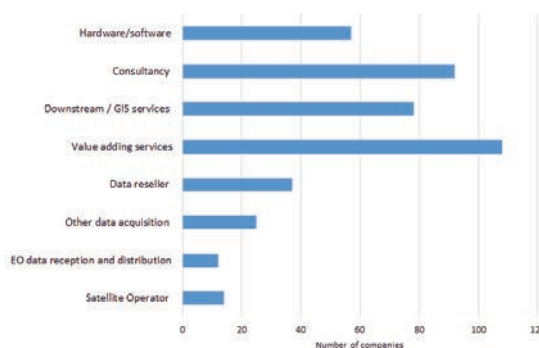
EO service companies in Europe are active right across the value chain (illustrated). Our survey does not include manufacturing but starts with those activities concerned with the supply of data: operations, reception, reselling. Satellite data is then processed into geoinformation, often in combination with other data eg. in-situ measurements, through value-adding services. We have chosen to recognise two parts to this downstream segment: VA companies dealing directly with the satellite data and Geographic Information (GI) services companies which are dealing with spatial data and using products generated using satellite data. We also include consultancy and software companies.

The chart below shows the relative size of each part of the value chain. We have been surprised by the strong growth in the value-adding segment which now represents 44% of the total revenues compared to 25% in 2012. The largest drop appears to be in activities associated with the sales of data.



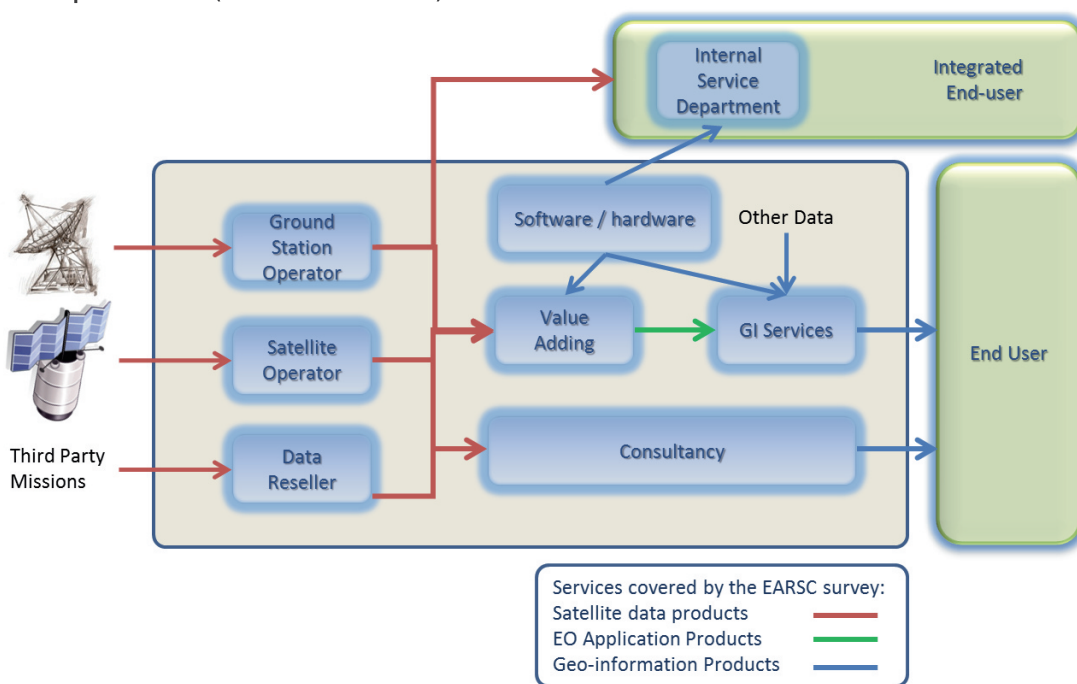
Split of activities (based on 2014 revenues)

Data selling activities generate €270m in revenues or 29% share of the market. We observe a growth of 5% since 2012. The information services part of the business generates €462m or 51% of the market. This is an exceptional rate growth of 72% since 2012 (31% per annum). When we conducted the survey in 2012, we found that the sector growth (10.7%pa) from 2008 to 2012 was largely driven by data sales from newly launched satellites; value-added sales had been quite flat. Hence we conclude that the volume of VA sales in 2012 had been suppressed during the financial crisis and hence the 70% growth in 2014 is coming off a low base. We also find that some large contracts can distort the figures in any one year.



Number of companies in each segment

The chart above shows the number of companies active in each segment. Out of the 148 companies answering, 14 are satellite operators, 37 are reselling data and 108 are value adding. Many companies are active in more than one segment. The results show a strong dominance by value added and consultancy as reported in 2012.



EO services value chain

"The information services part of the business represents 51% of the market or €462m. This represents a growth of 72% since 2012 (31% per annum)."

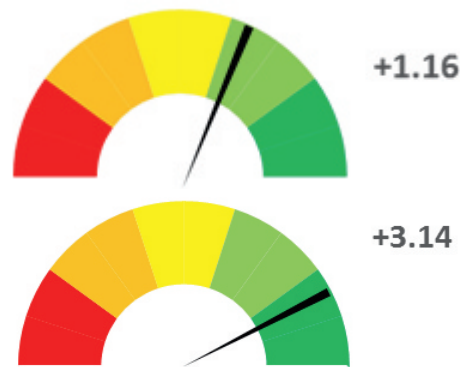
Copernicus

Copernicus is European flagship programme to provide geospatial information to policy makers. It has the potential to make a strong impact on the market for EO services with a goal to deliver economic growth and jobs. This survey has been conducted before Copernicus has become operational and whilst some revenues will be linked to it, in the main it is too early to have a big impact. Hence it provides reference numbers for comparison with future surveys.

For the next survey, provisionally in 2 years time (2016), we should start to see some impact in value added sales whilst we shall be watching for any impact on the sales of commercial data (since Sentinel data will be available for free). We can also expect to see an increase in revenues derived from using the (free) Sentinel data. In 2014, the value-added revenue from using Sentinel-like data was rather low; 4% from optical and 4% from radar (see the 3rd chart on page 12).

With the launch of Sentinel 1A in April 2014, the program has entered into its operational phase. Copernicus provides geo-information services to EU policy makers and provides a strong opportunity as market driver for EO-based services. It can only be realised through full involvement of the private sector.

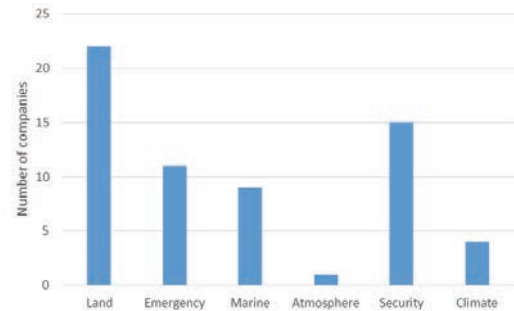
Industry is optimistic about this. Whilst they rate the current impact of Copernicus on their business as being 1.16 (on a scale of -5 to +5), the future impact is given a rating of 3.14. The survey was taken at the time when Sentinel 1 had just been launched and before Sentinel 2 was in orbit and the Copernicus Services are only starting in 2015. Hence the figures take no account of any influence of actual Copernicus data which is only built into the expectations.



Present and Future impact of Copernicus

We asked the companies if they were presently participating to the supply of the pre-operational Copernicus Services which are grouped into 6 specific categories. 36 companies out of 125 respondents are involved. Their involvement in the

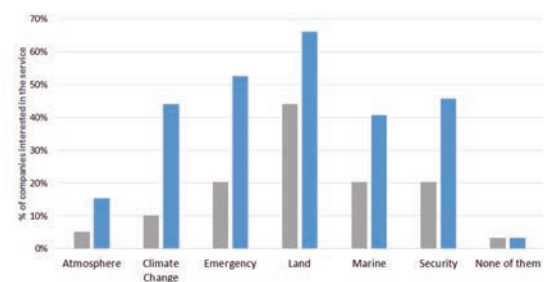
different services is presented below. We can see that land service is where industry is the most involved. Only one company participates to the supply of the Atmosphere service. The industry is still concerned to be adequately involved in the supply of the Copernicus Services in the face of public sector bodies.



Companies participating to the supply of Copernicus Services

We also asked the companies the percentage of their revenue coming from Copernicus Services provision. If we take the percentages given and weight them according to the revenue of each company, we obtain a figure of 3% of the total industry revenue coming from Copernicus.

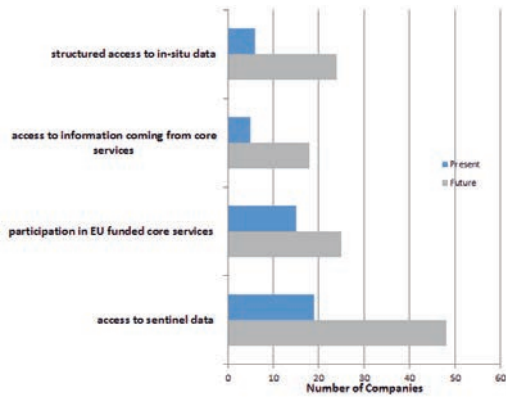
Then, companies were asked which of these services is of most interest for their business. As shown on the chart, unsurprisingly, land is still the service with most interest for the private sector but we note a strong future interest in all the services. This reflects the degree to which each is open to private business. Climate and atmosphere are topics dominated by public sector bodies but industry is ready to get involved in the next few years which is encouraging.



Companies interest in Copernicus Services

As Copernicus can impact businesses and the market in several ways, we wanted to know the aspects of Copernicus likely to be exploited by industry. When asked which aspect of Copernicus they thought would benefit them most, access to Sentinel data is the most cited both now and in the future. In addition, interest in other aspects such as European funding for the programme is increasing as awareness is growing.

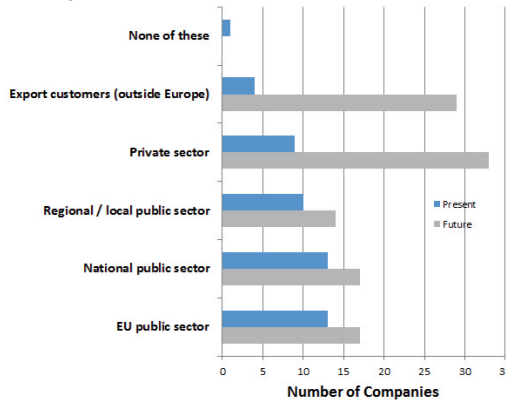
"land is still the service with most interest for the private sector but we note a strong future interest in all the services."



Opportunities arising from Copernicus

The key way in which industry can exploit the data and services to be generated by Copernicus is through using them to develop business in new markets. The chart below tries to identify where the future market for Copernicus Services is. At present, most companies believe that the national and European public sectors represent the biggest opportunities. However in the future, the strongest interest is the private sector with exports a close second. The expectation in the public market seems to be limited but some responders indicated that they also expect local & regional public sector to benefit from it in the medium term.

Copernicus is also seen as a means to raise awareness of the benefits of using satellite data. Hence both data providers and value-adding companies anticipate some benefit to feed through as a result.

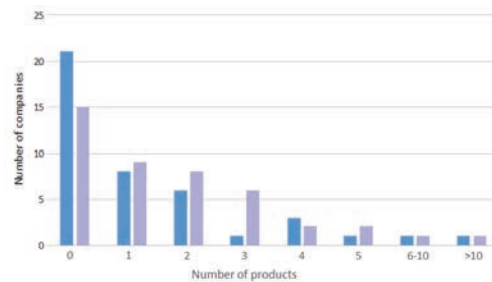


Copernicus market interest

We were also interested in the number of the products offered by companies which are in some way due to Copernicus. The chart below shows the result, existing products are shown in blue whereas products under development are in grey.

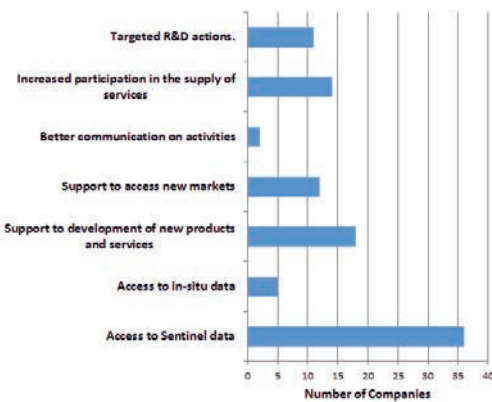
Whilst a lot of companies do not have products which can fit to the Copernicus services a few have many such products. Three companies reported to have 5 or more products based on Copernicus data. These also have strong plans to develop

further Copernicus products. It seems that being involved in the delivery of products for Copernicus services is also a motivator for companies to invest in further product development.



Products due to Copernicus

Finally, we tried to understand what prevented companies to benefit from the potential of the Copernicus programme. Companies were asked to select the most important problem which needs to be addressed in order that they can benefit from Copernicus. Access to Sentinel data is still perceived as being the main problem to solve. Ensuring a stable and secure access is also very important. There 's also a need to have a good software to extract the information to use Sentinel data. The unfair competition of public bodies was also mentioned.



Problems to address to in order to benefit from Copernicus

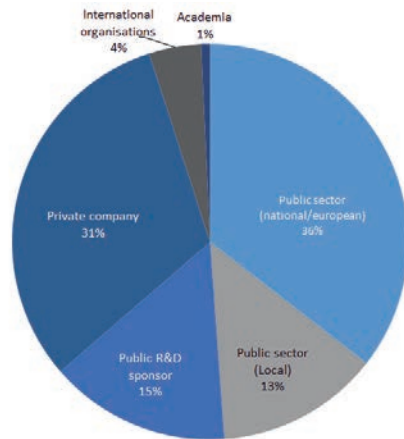
Sentinel 1 was launched in April 2014 and data has been available for 6 months of that year. Given the strong interest, we also asked for companies experience in getting hold of Sentinel 1 data. Many have tried to access data and mostly they have succeeded although only 1/3rd managed to get all the data that they wanted. At the time of the survey this only refers to Sentinel 1 with Sentinel 2 only being launched after the survey was completed.

Overall, the survey results show a strong industrial interest in the Copernicus services. Industry is still optimistic to benefit from Copernicus and even more so than was the case in 2012 and is looking to play a stronger role. We look forward to seeing how the situation will evolve.

Customers

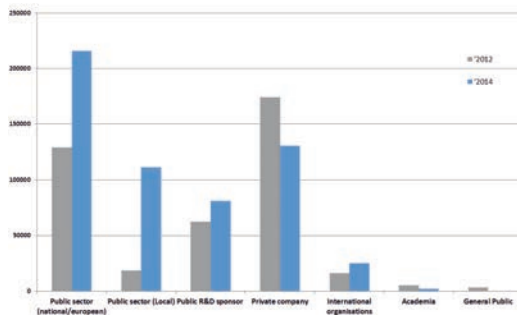
Public customers dominate with a total market share of 65% at all levels of public administration and including R&D agencies. Around 30% of revenues is coming from sales to other industrial customers whilst 4% comes from International organisations.

As a few large contracts are changing the picture quite significantly between years, the results displayed below are an aggregate picture of 2012 and 2014.



Revenue split by type of customer (Proportion combining 2012 & 2014 figures)

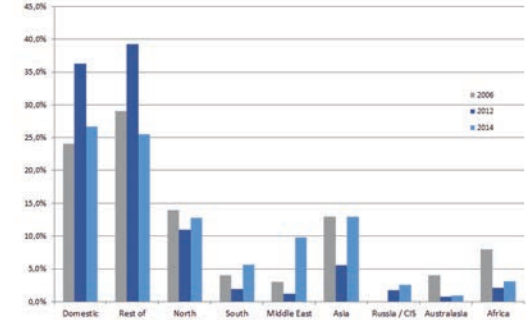
The second chart shows how the split has been evolving since last survey. We see a big increase in the public sector especially as an operational customer. We also note swings in the private sector. Growth is especially strong at local level whilst sales to private sector customers has decreased compared with 2012. It seems that one or two large contracts are influencing the results.



Comparison of Customer Type between 2012 and 2014

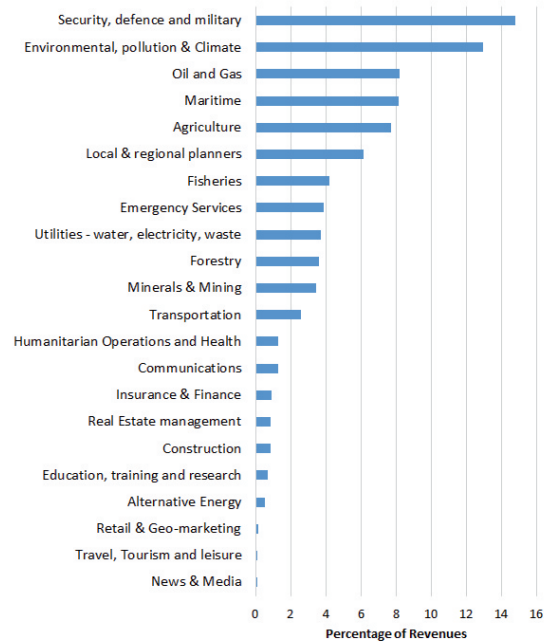
The geographical distribution of sales is shown in the next chart. A company's domestic or home market is still the most important although sales in Europe (for European companies) are also very significant. Overall, 50% of the sector revenues are coming from Europe. The export market (excluding

North America) represents 35% of company revenues when it only represented 14% in 2012. Asia and Middle East market represent the biggest increases. This may be explained by some big contracts reported outside Europe by some companies.



Geographical distribution of sales

Finally we look at the revenues coming from different market sectors.



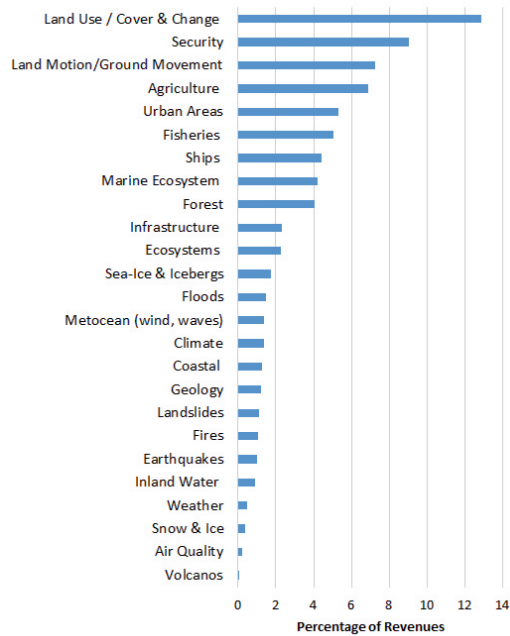
Market segmentation

Security and defence represents the largest segment with environment, pollution and climate second and the oil and gas industry third. The results are relatively similar to those in 2012 even though we note a shift between the importance of climate and environment and the local and regional planners which is decreasing. The results above are based on a sample size representing €342m of revenue. In this survey, we are making no distinction between sales of data and sales of geo-information products.

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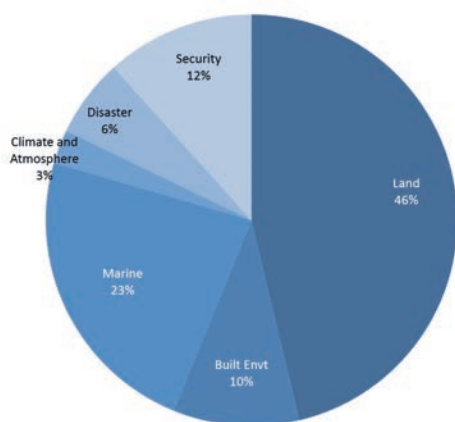
Thematic areas

This looks at the market from the perspective of the service provider and the thematic area in which the product falls following the EARSC Taxonomy. The most highly rated is land use/ land cover followed by security. The result is based on a sample size of €333m (37% of the total population). It may be hard for some companies to attribute their sales in this way. 22% of the company revenues represented by this result were uncategorized.



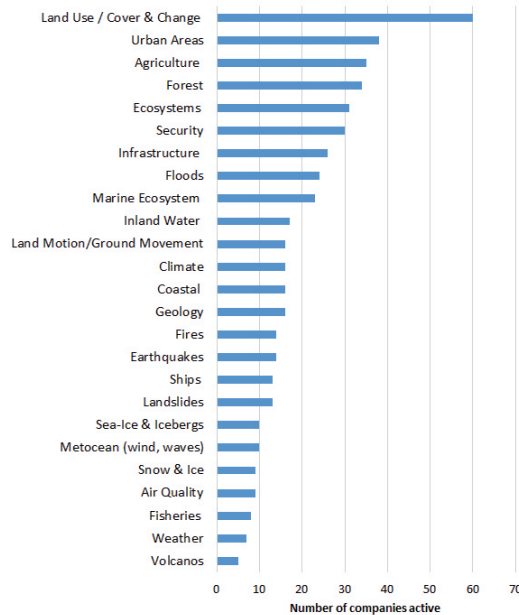
Thematic segmentation based on revenues

A thematic product can serve several different market segments ie industry, public sector, International markets etc. In the EARSC taxonomy we group the individual segments into 6 major sectors. The proportion of revenues in these 6 sectors is shown in the chart. Land is by far the strongest developed followed by marine and then security. This surely reflects the greater private sector presence in land products and the strong presence of public agencies in the other segments.



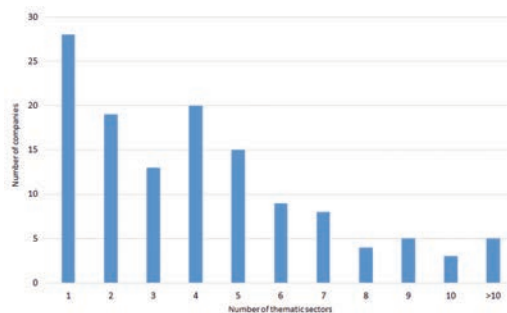
Market breakdown by thematic sector

If we step back and look at the wider categories the picture is slightly different with land products being the largest market followed by marine and security. These results are relatively similar to those in 2012 but we note that built environment has been increasing.



Companies addressing the thematic segments

This chart shows how many companies are addressing each thematic segment and gives an idea of the diversity being addressed. Similarly to 2012, land cover, agriculture and forest are key segments.



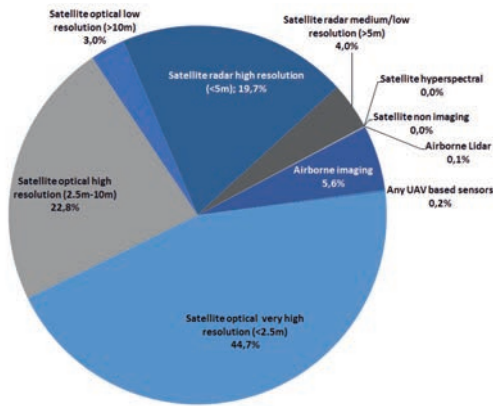
Company focus in thematic domains

We measured the focus of companies by looking at the diversity of thematic sectors that are being addressed. The chart shows the distribution of companies addressing more than one thematic segment. The median comes out at 4 which is slightly higher than in 2012 when it was at 3 although there is a long tail where companies are active in many thematic segments; which must not be easy given the domain expertise required to do this.

"The most highly rated is land use/ land cover followed by security[...] Land products are often driven by EU policy and associated with local needs to encourage local companies..."

Data sales

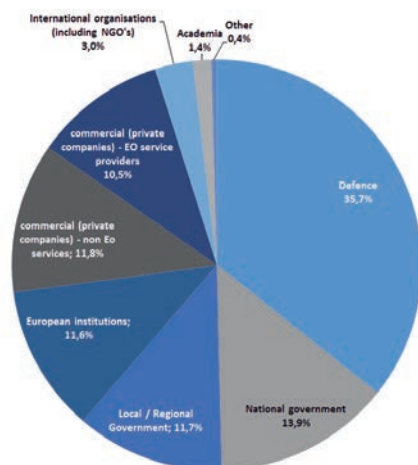
Optical data at different resolutions makes up 70% (2012:80%) whilst radar makes up 23%. The rest is mainly from aircraft with very little coming from UAV's. Some 65% is high resolution satellite data with 45% optical at under 2.5m resolution or radar under 5m resolution.



Type of data being sold

Since 2012, the balance has shifted from medium resolution to high resolution (<2.5m) data and the proportion of sales for optical imagery with less than 10m resolution has fallen significantly from 15% to 3%. This is no doubt strongly influenced by the anticipated arrival of Sentinel 2 data in 2015 as well as the increased number of sources for higher resolution data putting pressure on its' pricing.

Who are the customers for data? The survey results indicate that nearly 50% of sales are to national governmental customers with over a third of the total to defence customers. In total nearly 75% of data sales are to public customers at European, national or local levels with 22% going to commercial customers split fairly evenly between EO service providers and other companies.

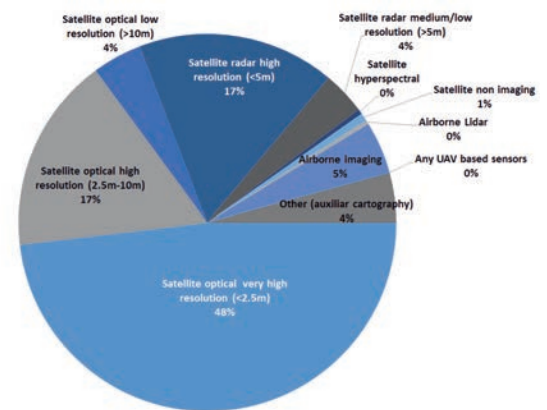


Data sales revenues from different customers

"All types of optical data make up nearly 70% of the VA market. Radar data makes up a further 21% of the market and airborne data 5%."

The following chart looks at the mix of data being used for value added sales. Very high resolution optical data (<2.5m) is the most important and underpins nearly 50% of the VA sector revenues. This is higher than in 2012 when the corresponding figure was 32%. In total, optical data drives nearly 70% of the VA market. Radar data makes up a further 21% of the market and airborne data 5%.

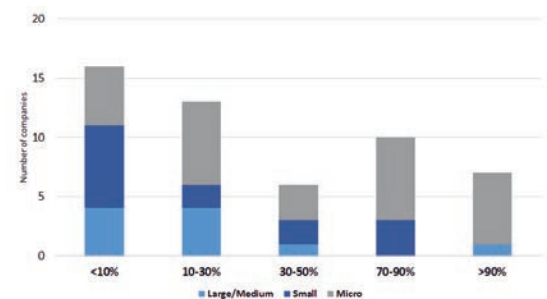
13% want the data in less than 6 hours with 36% wanting it within 1 day. Overall the trend is towards fresher data which may also reflect the competition coming onto the market to supply data which is driving the quality (speed) of delivery.



Value-added dependence on data types

Finally we focused on the importance of free data for the EO service companies. The breakdown shows that micro and to a lesser extent small companies are the one which use most free and open data. The figures represent around 19.9% of the relevant reported sales.

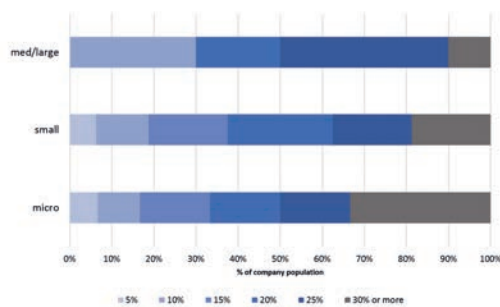
The use of free data and its importance to sales has increased to €88m in 2014 compared to €68m in 2012.



Revenues based on Free Data

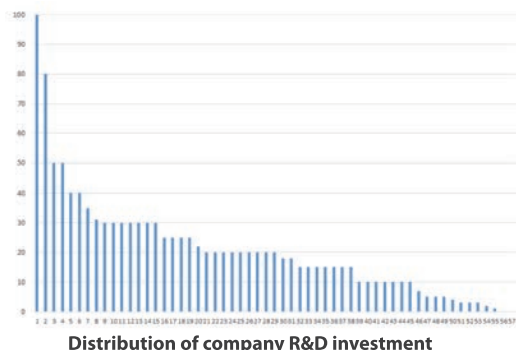
Internal practices

The full report contains many charts related to internal practices and research and development. We chose to expose the most relevant here. Firstly, EARSC has been interested by the effort devoted to business development as it is the lifeblood of companies' activities. Capturing new businesses still represents a high amount of efforts for companies as shown on the chart below. 14 companies reported to dedicate more than 30% of their time to business development. They say that the financial crisis affected them and they need to open new business opportunities. An analysis of the data shows that even the large and medium companies spend heavily on business development even if in general it is less than the smaller ones (ie the smaller the size of the company, proportionately more is spent on finding new business). This corresponds with another finding that the average revenue per employee increases significantly with company size. Micro companies remain the ones that devote most of their time; even more than in 2012.



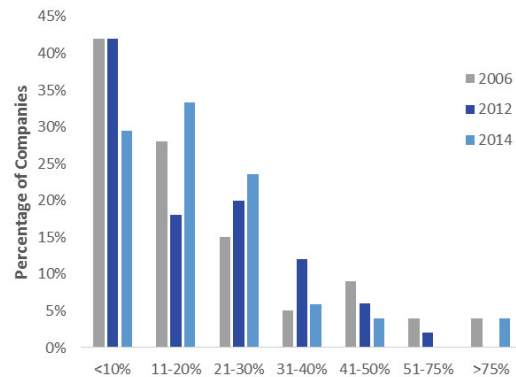
The EO services industry has developed through strong innovation and R&D investment for which there are two sources of funds; from the companies themselves (reinvested profits or loans / new capital) or external grants and development funding. We look at both sources.

The percentage of internal R&D spend to revenue is known as the R&D intensity. This is shown plotted for the companies which responded. The very high numbers are from young start-ups, small companies which are investing in new products and new business.



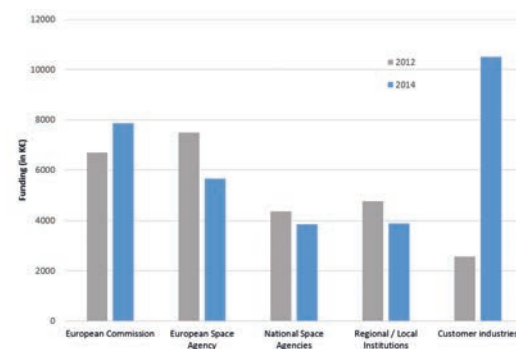
Calculated on the total figures, the average R&D intensity is 10.9% which is significantly higher than in 2012 (7%). These figures exclude external grants and development funding which we asked for as a separate figure.

The very high numbers for the R&D intensity are in general coming from small or micro companies with revenues less than €1m. Some of these are start-ups where heavy investment is to be expected in the early years.



Comparison of R&D spend from Previous Surveys

External R&D in the form of grants and contracts is a key element in the sector. The different sources of external R&D funding are shown with the levels coming from the revenues of those companies reporting in response to this question.



Comparison of sources of external R&D funds in 2012 and 2014

Customers industry appear to be the first source of R&D, it may be because one company reported big contracts in 2014. It was multiplied by four if we compare with the figures reported in 2012. The European Commission (through Framework programmes and Horizon 2020) and ESA are then the two other main sources of funding. Funding through EC instruments have increased over the past few years.

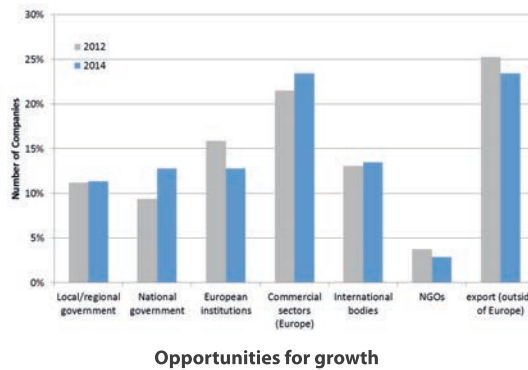
The total external funding represented in the chart is €31.7m coming from companies with revenues of 394€, so 43% of the total sector revenues.

"Capturing new businesses still represents a high amount of efforts for companies as shown on the chart below. 14 companies reported to dedicate more than 30% of their time to business development."

Strategic issues

The EO services business is a highly strategic sector where the interests of the private and public sectors interact closely. Indeed, the boundary between what is done in the public sector and the private sector has a very strong influence over investment decisions.

Where do companies see the main opportunities coming from to grow over the next few years? As in 2012, companies seem optimistic about the future.

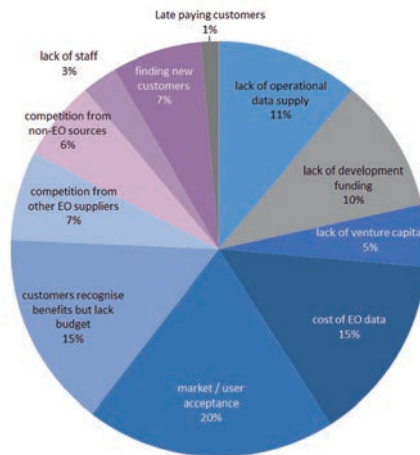


Opportunities for growth

Government at different levels is seen as the biggest opportunity by 37% of the responders; the split is even between the European, national and local levels. Perhaps the lowly rated impression of the local level as perceived opportunity is the most surprising given that a lot of attention is being given to this.

Exports and commercial sectors are equally perceived whilst if we include the International bodies as exports, then these are rated (at 37% combined) as equally attractive as government customers in Europe.

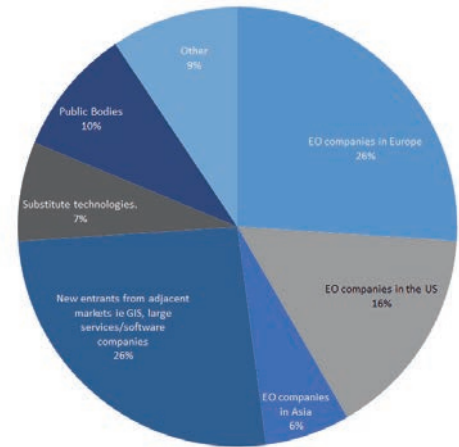
Turning to the barriers to growth, the chart below shows a fairly wide spread of opinion.



Barriers to growth

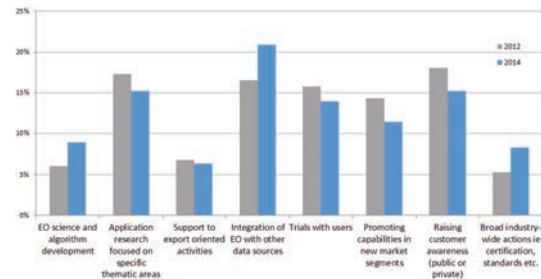
The lack of a structured market where users recognise the value of EO products is given as the biggest barrier; followed by the view that even if

they do recognise the value they do not have the budget to procure the services. This is coupled with the view that the data is too costly. In the 2012 survey, the largest barrier was considered to be the lack of operational data supply which has fallen into 4th place in 2014. Other concerns are the lack of venture capital and the potential for competition from other EO suppliers but slightly less concern about other technologies (sources) causing business barriers.



Perceived competitive threats

Turning to the competition, the two areas of most concern are their peer competitors in Europe and the increasing presence of the large ITC and software players where we note an increase in the concern of competition from companies which are largely in the US.



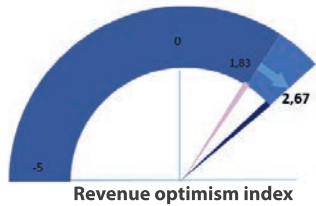
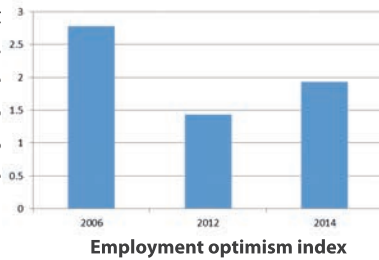
Public Support - comparison 2012-2014

The way in which government should interact with the sector and the policy measures which should be taken are of strong interest. The replies fall into two distinct groups one focused on R&D and the other one on market development activities. The results are split quite evenly between them noting that integration of EO with other data sources proves to be the action that is most supported. There is a small trend towards R&D actions in relation to market facing ones but it is small and probably not statistically significant.

"Turning to the competition, the two areas of most concern are their peer competitors in Europe and the increasing presence of the large ITC and software players."

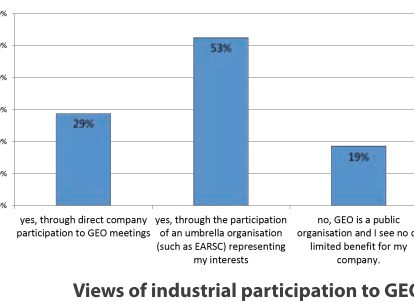
The future

This 2nd survey both re-enforces the results from the 1st and starts to establish some trends which we shall regard closely in the future. It comes at a critical time for the industry with major shifts in the satellite operators, the entry of large IT players into the sector and the start of the European Copernicus programme. In particular it provides further reference for future analysis regarding the impact of the Copernicus programme on the downstream industry. We plan to repeat our survey in 2016, ie to be launched at the end of 2016 with results available in 2017. We aim at maintaining a view of the trend of the industry.



We tried to get a measure of the degree of optimism of the industry and compared these results with the previous surveys. The employment growth index stand at 1.9. This is nearly 10 points higher than in 2012 so represents a significant shift. Over 60% of firms expect to increase their staff level in the next year. The revenue optimism index is still higher and has increased from 1.83 in 2012 to 2.67 in 2014.

Regarding future trends, we shall be watching closely to see how the growth rate evolves. After an exceptional rate of growth up to 2012, this appears to have normalised to around 8% and we shall await to see how this changes next time. The impact of Copernicus on the industry is expected to be positive and of course this will be closely followed. In the full survey, we asked a few questions about the Group on Earth Observations (GEO) and the attitude of the industry as GEO seeks to engage with the private sector. Nearly one fifth of the companies see no interest but 29% believe that they can benefit by a direct participation to GEO activities whilst 53% wish to see EARSC take a representative role. In a separate question we asked about past and actual industrial participation to GEO activities which is very low.



But perhaps one of the most interesting trends to watch out for is the rush to start new business ventures through the privately-funded launch of satellites. Will these succeed in shaking up the industry as they threaten to do? The availability of finance has long been an issue for the industry and this provides signs that this may change - provided that some of the ventures are a success.

Glossary

Term	Definition
Satellite Operator	An owner/ operator of a satellite system selling data acquired from the system.
Ground Station Operator	An owner/ operator of a ground station acquiring data from a 3rd party owned satellite system.
Data Reseller	A seller of data coming from another satellite operator.
Value-adding	This covers the activity of processing satellite data probably combined with other data to generate EO products or application products sometimes referred to also as thematic products.
GI Services	This covers provision of products that use EO products as part of their input. A downstream service provider is working indirectly with EO satellite data.
Consultancy	The provision of one-off products based on specific knowledge. It is distinguished from other services by the one-off nature of tasks where other services are providing regular and multiple products.
Internal Service Departement	An organisation providing EO or geospatial products to other departments within a company but which is not selling them in a commercial market. The parent organisation will be in a user sector such as oil & gas, agriculture etc.
End User	A customer in the public or private sectors which is procuring any geo-information product.
Integrated End User	Simply defined as being an end-user with its own internal EO service capacity.
Geo-information product	Any or all products covered by the terms; satellite data, value added, or geospatial products.

EARSC

European Association
of Remote Sensing
Companies



EARSC is a non-profit-making organisation created in 1989 with the mission to foster the development of European Geo-Information Service Industry. Our main objective is to stimulate a sustainable market for geo-information services using EO data. EARSC has 75 members from more than 22 European countries and is a recognised association both in Europe and worldwide.

EARSC represents the European providers of geo-information services creating a network between industry, decision-makers and users. We consider that the market is at a crucial stage of development as Earth observation becomes more frequently used by society and adds positive value to our daily lives. Nevertheless, there are many issues, opportunities and threats facing industrial actors. Supported by a small secretariat, EARSC informs and involves its members through its website and newsletters, through the provision of web-tools, as well as organizing events.

EARSC provides tools for its members to promote themselves and their services. As well as the EARSC web-site (www.earsc.org), we run a portal (www.earsc-portal.eu) which promotes links between EARSC members and other Communities such as the Oil & Gas industry, and a brokerage site (www.eopages.eu) for customers to find the services which they require and which companies can provide them with a solution.

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