

# The State and Health of the European and Canadian EO Service Industry

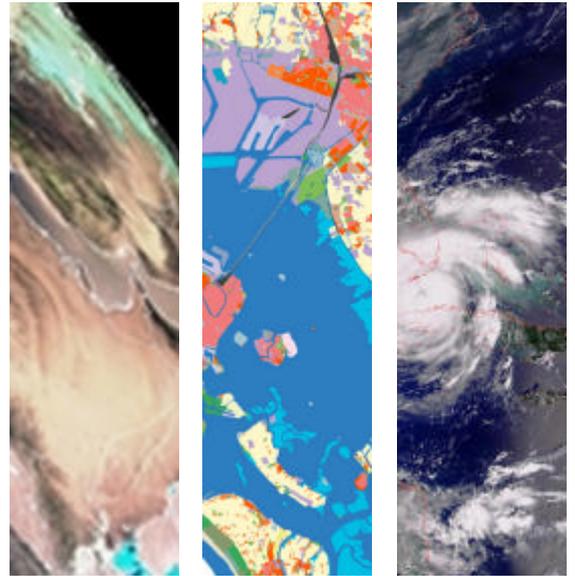
Executive Summary

September 2008



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## Analysis of the European and Canadian EO Service Industry

### Main Findings

A survey of the status of the European and Canadian EO service industry was conducted by VEGA Group. This analysed the situation for private sector service providers over the time period 2003 to 2006. The objective was to use the findings to structure ESA EO exploitation elements so that they continue to respond effectively to EO service industry priorities.

The survey was based on a comprehensive survey of company activity and finances. Financial details were provided on a dedicated spreadsheet (and also collected from publicly available fiscal reporting) while other details were collected using a web based questionnaire. The study gathered information from 74 companies from an identified population of 151 companies. Further detailed financial information was gathered for 40 companies.

Companies remain predominantly small (<10 employees) or medium (11 – 60) with only 9% of the companies classed as “large”. Employee numbers have been growing at an modest rate of 6.6% annually from 2003 to 2006, while revenue levels have shown a growth of just above 7% for the same period. The total number of employees is estimated to be approximately 3000, productivity has remained stable at 105k€ per member of staff, and so total value adding revenue for the industry in 2006 is estimated to be 306 M€ while.. Profitability is typically below 10% and concentrated in a few larger companies.

The fundamental performance of the industry sector is very similar to that which was found in 2003. Furthermore, some characteristics are broadly unchanged - the geographic distribution of customers, the commercial constraints experienced and the extent of development activity within the revenue profile are all similar. Strong constraints are still reported in accessing new customers and this is confirmed by lack of growth in private sector customers over the period analysed. Revenues are primarily generated from operational services but grants still comprise about a quarter of company revenues.

What has changed over the period is a widening range of EO thematic services, where Land use monitoring and Cartographic & Topographic Mapping, Marine and Coastal Surveillance and Agriculture are the primary thematic areas. Similarly, EO products are supplied to a wider range of market sectors and now have strong presence in Environment, Regional planning, Oil, Gas and Mining and Forestry. The largest customer group is public sector operational entities. Another notable change is a shift in primary price drivers away from staff costs and competitive pricing pressures towards recognising costs of data and return on development costs.

A related issue is supply-side performance, where value-adding companies are more aware of the potential consequences of data supplier performance on their ability to deliver reliably against customer requirements.

The anticipated impacts of emerging market forces such as Google Earth have yet to filter through to this sector, although many report a growing awareness as a secondary result of their presence.

## Introduction

This report presents the main findings from an analysis of the state and health of the European and Canadian Earth Observation service industry. It follows a similar study conducted in 2003 and published in 2004 under the title “The State and Health of the European and Canadian EO Service Industry”.

The study was conducted by VEGA Group and was based on information gathered from 74 companies from an identified population of 151 companies. Information on company activities was collected using a web survey tool. Further detailed financial information was gathered for 40 companies, either by direct submission or by gathering financial statements from publicly available sources. Additional commentary was gained and validation of the received data was achieved through telephone follow up with almost all of the submitting companies. In addition, the survey design and analysis findings were reviewed in depth with a panel of EO service industry representatives.

The study data were analysed to present a view of the industry as it stood at the end of 2006. Where equivalent data are available, this was compared to the scenario of 2003 to indicate trends and evolution of the sector.

## Industry Profile

Companies remain predominantly small (<10 employees) or medium (11-60). Only 9% of EO organisations surveyed have more than 60 employees.

The staff qualification level remains high – a typical EO sector employee is qualified to Masters level or above.

The industry also presents a very youthful workforce compared with wider industrial statistics with significantly higher concentration of staff in the 30 – 39 year age bracket than national averages.

There is a wide geographic distribution of company operational centres:

- Spain and Portugal have shown a growth in the number of companies over the last 3 years.
- Despite the changes in numbers of companies, activity levels indicated by employment remain high in France and Germany with the U.K, Spain and Italy also showing a significant industrial base.

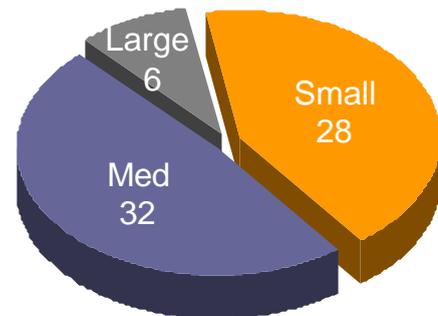


Figure 1 - EO Companies by size

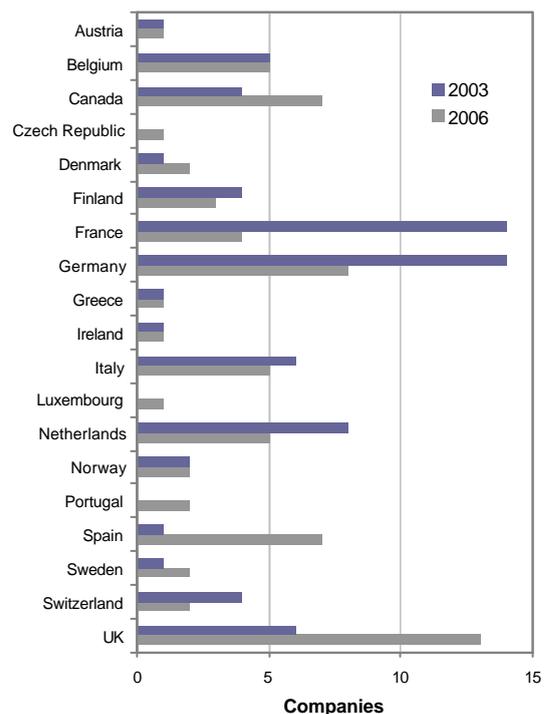


Figure 2 Company locations

The EO sector has demonstrated growth (both in terms of employees and revenues) over the last 3 years. There were approximately 3000 people working in the sector in 2006, compared with 2800 in 2002.

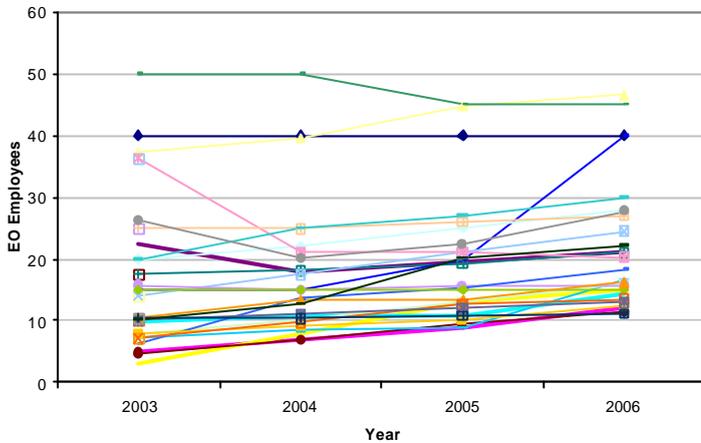


Figure 3 Employee trends of medium sized companies

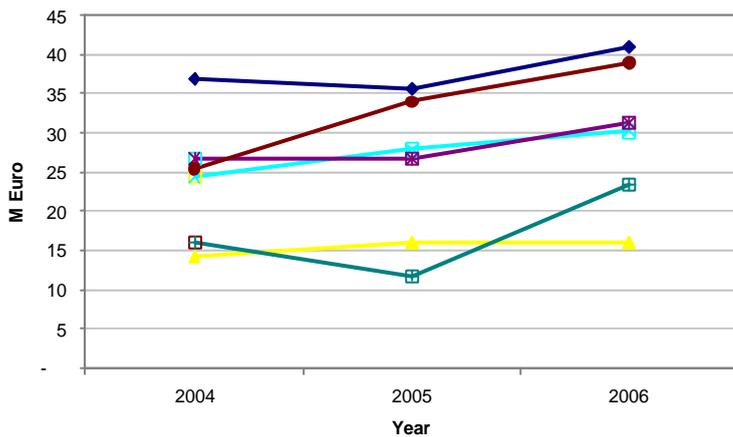


Figure 4 Revenue trends of the top 6 value-adding companies

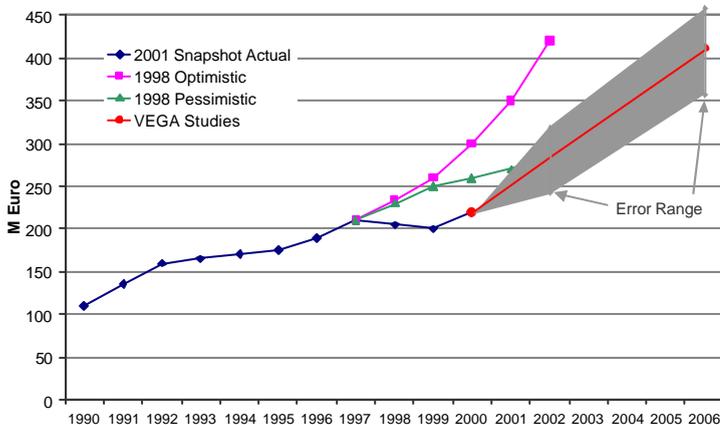


Figure 5 Long Term Revenue Trends

Employment trends in individual companies are generally positive – the sample has demonstrated 6.6% annual growth in staff numbers over the period 2003 to 2006, although this is less evident among the small companies in the population.

71% of VACs have increased staff numbers over the last 3 years.

There is also evidence in revenue growth across the sample- between 2003 and 2005, submitting companies showed annual growth just above 7%.

Isolating the large data providers and focusing on the top six Value Adding Companies, there is evidence of slow or negative growth from 2004 into 2005, and then they typically show much improved growth into 2006.

The study team estimates total industry revenues of €412m, and €306m for value-adding activity once the major data supplier's revenues are factored out

This value can be overlaid onto prior studies, the 2001 Industry Snapshot carried out by ESYS and the 2003 State and Health study to indicate long term growth rate of approximately 8%.

The study team recognises €233m from the detailed financial submission of 40 companies, including the 10 known largest active companies. Applying the distribution of remaining 111 non-submitting companies across small and medium segments, the study team estimates additional revenue of €179m

By applying standard statistical techniques, the study team estimate the error range in these figures to be below 13%

**Revenue per head differs widely** between companies within the different size groups. Therefore the study team has segmented the population to estimate industry revenue based upon:

- Small companies typically achieve €65k per head per year
- Medium companies typically achieve €109k
- Large companies typically achieve €272k

The wide difference in productivity of the large companies is thought to be partially explained by the difference in business activities of the large data suppliers.

**Profitability is typically below 10%** and concentrated in a few larger companies - 89% of all profit value across the sample was delivered by just five companies

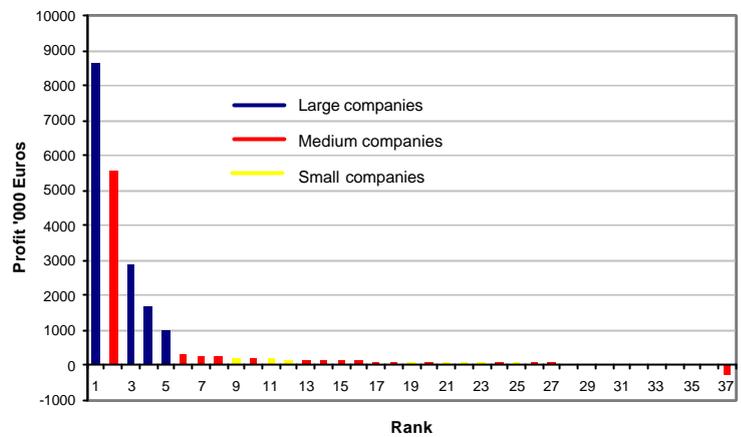
The chart reflects specific data provided by companies for profit arising from EO operations in 2006. The segmentation shows that significant profit (greater than 1 million Euros) is limited to just five companies in this sample, including all large respondents and just one medium sized organisation. When considering profit in terms of margin, a slightly different scenario emerges.

Where margins are higher than average, it is typically small companies that are involved.

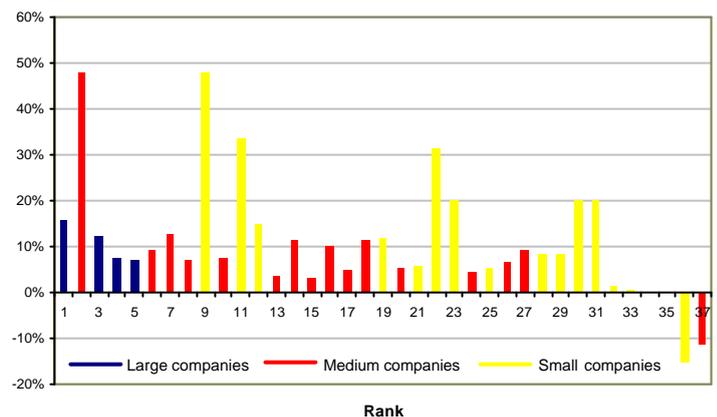
There is evidence of volatility of margins over the period of the study, mostly from small and medium companies – large companies are typically more consistent performers.

**Past growth is reflected in outlook as** more than three quarters of respondents expect this to grow further in the coming years. The drivers for this growth are variable. Many companies identified a generally growing market opportunity arising from public policy movement and increasing awareness of EO as a potential solution or component thereof.

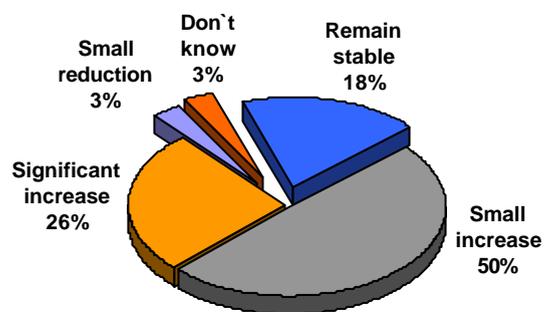
This optimism appears to be slightly firmer than the 2003 study which showed slightly less optimism for growth in staff numbers. The factors given by the industry as growth drivers have themselves matured since 2003, particularly the impact of GMES and higher resolution data, both of which may be considered to be beneficial in establishing an improved product and demand profile for the industry.



**Figure 6 Profit from EO activities**



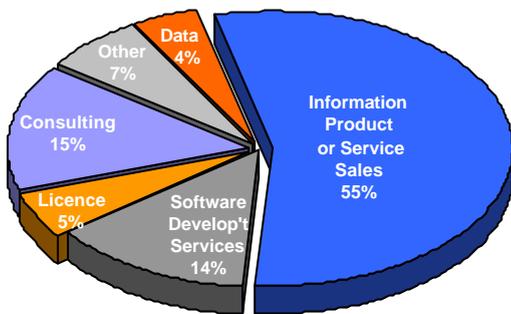
**Figure 7 Profit as % of EO revenue**



**Figure 8 Expected staffing needs in two years**

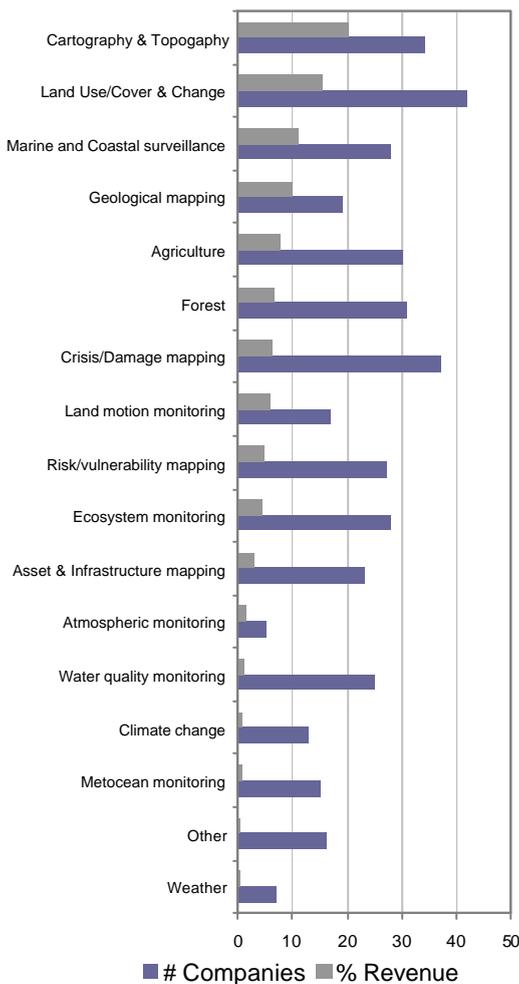
## Product & Service Characteristics

Information product/service sales are the largest service type provided by the EO service industry. Raw data sales are the largest single revenue generator across the whole population but the effect is dominated by two large data providers.



**Figure 9 Product and service types supplied by value-adding companies**

- The proportion of information products has reduced as compared with 2003. This appears to be due to an increase in consultancy, the second most common offering. Consultancy services are more prominent for smaller companies.
- Added-value product types such as report-based deliverables, time series analysis, or the undefined units which are believed to include aspects of consultancy and other supporting services are more common than they were in 2003.
- There remain few completely off-the-shelf products with most services requiring at least some customisation - this has not changed since the similar distribution from the 2003 study.
- Standard products tend not to be offered by small companies and are connected to companies with average or strong profitability.



**Figure 10 Number of active companies and industry revenue share per thematic area**

## Product & Service Content

There is a wide range of subjects monitored by EO services:

- Land use monitoring and Cartographic & Topographic Mapping, Marine and Coastal Surveillance and Agriculture are the primary thematic areas in which EO companies are involved. Cartographic & Topographic Mapping and Land use monitoring generate approximately 35% of industry revenues.
- Since 2003, Cartography has reduced and many other thematic areas have emerged. It may be implied from this that thematic added value services have evolved from simple map production over the study period.
- Some activity in new thematic areas such as Weather, Atmospheric Monitoring and Climate Change is observed.
- Within most thematic areas there are many individual products offered, suggesting competition between EO products exists.
- EO products and services most commonly cover local northern and western European zones - there is no significant relationship between company size and the geographical regions their products cover

The typical unit of measure under which a product or service is supplied has changed since 2003. Additional added value activity is now seen in production of time series analysis and products sold on the basis of specific geographical area areas. Further use of "Other" is associated with an increase in consultancy activity which has altogether different units of delivery.

### Product Uses and Customers

EO products are supplied to a wide range of market sectors:

The most common market sector, in terms of supplier companies, is Environmental Protection & Pollution Management. Other market sectors showing significant activity include Oil, Gas and Mining; Regional, Defence and Law Enforcement and Science and Technology. When revenue weighted, defence and law enforcement has the greatest market share, and this is due to the influence of large companies.

The strong presence in Environment is considered to be a reflection of the emphasis on provision of environmental monitoring as a result of the evolving maturity of GMES.

The profile of customers shows products most commonly sold into public sector operational services. This customer type was 60% of reported revenues. Next most significant, but less than half of the value, is sales to the private sector. These two customer types represent more than 90% of reported activity.

There is good mix of both repeat sales and new users across the industry. The dominance of repeat sales demonstrates an ability to maintain customer relationships.

Revenues are primarily generated from operational services but revenues grants still comprise about 25% of average company revenues.

The geographical distribution of users has remained similar over the last three years with VACs maintaining a strong reliance on local or national markets. Larger companies are better at accessing export markets.

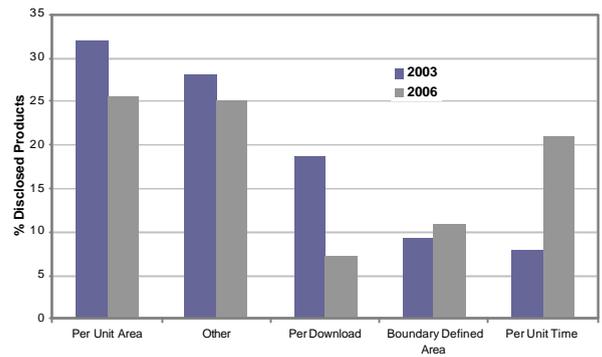


Figure 11 Historical comparison of Sales Units

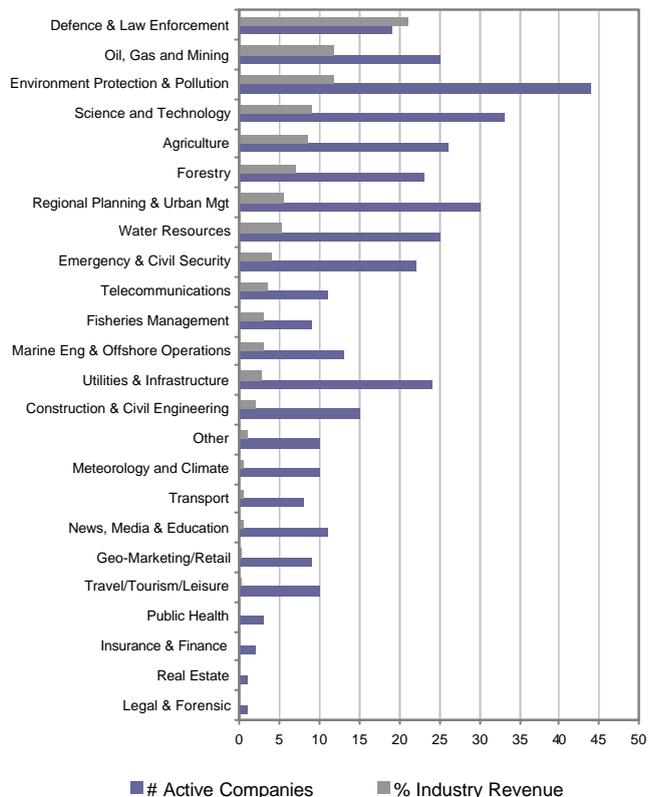


Figure 12 Active companies and revenue share per customer market sector

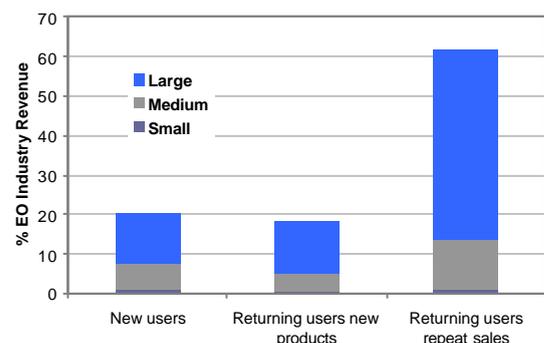


Figure 13 Customer History

## EO Industry State & Health

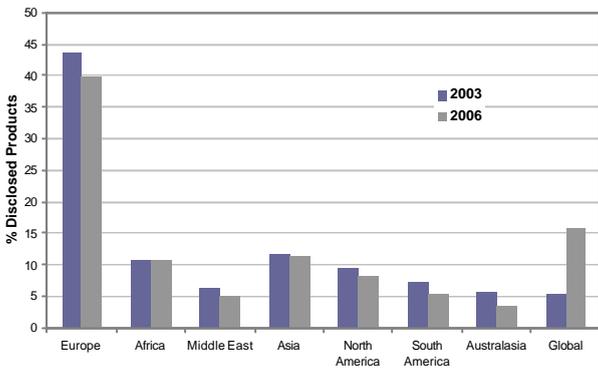


Figure 14 Geographic Location of Customers

Europe remains the key customer base for European VACs. Access to global customers is improving but it is not clear how these are engaged with at a practical level.

The stability of the distribution to specific regional markets suggests that the industry is still having difficulty in reaching export markets effectively.

### Product Quality and Support

Internet ordering and delivery are possible for over a third of EO products and services

Data indicate that over the last three years the availability both of ordering and of delivery EO products using E-Business tools has more than doubled in both cases

A variety of quality processes are applied with more than 90% of products having some form of assurance applied:

- 62% of products have more than one assurance process applied.
- The requirement for customer assurance has reduced with much greater use of 3rd party assurance

For the majority of products in the EO sector, delivery will be accompanied by at least one of user guide, telephone support or maintenance service. 40% of products have three or more of the identified support services.

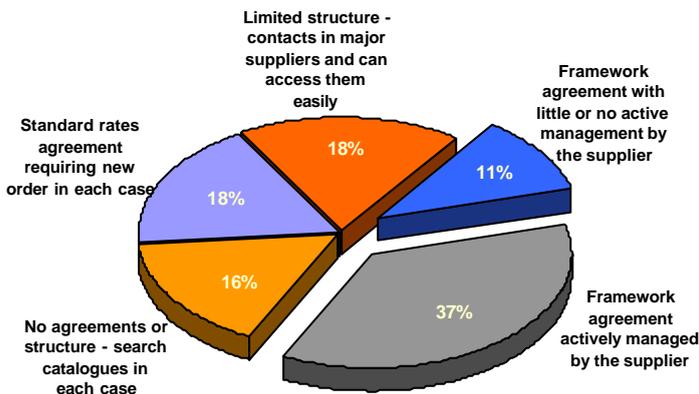


Figure 15 Relationship with data suppliers

### Supply Chain

The level of sophistication of supplier relationships has increased in the last 3 years. Nearly half of the data supplier relationships are now supported by some form of framework agreement, more than double the number of agreements in place in 2003.

Data for this point are almost entirely from small and medium companies. Comparing the two groups shows that small companies tend to have less developed or structured relationships with their supply base.

Of the framework agreements used, more than three-quarters are managed by the data supplier, which indicates the dependency of the industry upon the capability of the supply base.

Data supplier performance is generally rated as adequate for effectiveness and reliability. However, nearly 25% consider data suppliers to have a negative impact on their performance.

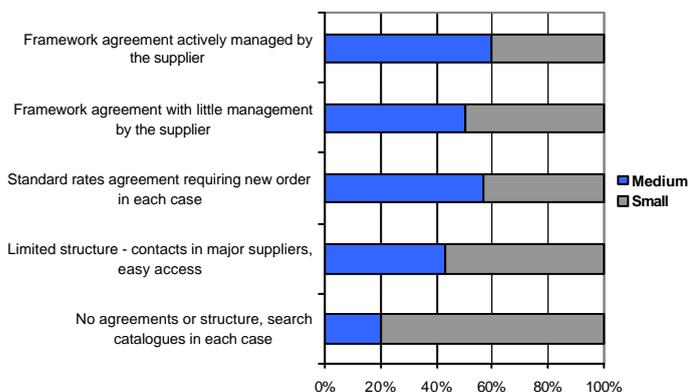


Figure 16 Supplier relationships by company size

Enhanced speed and timeliness of delivery are quoted as the priority factors to improve satisfaction.

Aside from better resolution, use of data sources has remained largely similar, although the number of data types per product appears to be reducing.

### Internal Practices

There is evidence of changing product profiles away from standard products towards customised deliveries and consultancy activity. This has blurred the distinction between classical product research and development carried out within a single revenue-earning project

The analysis indicates a sector that dedicates a lot of effort and resources to development activity. This may suggest that the sector is still evolving towards a stable and mature commercial operating model.

This is supported by evidence that there are a significant number of small and medium companies that generate substantial parts of their revenue and devote more than half their staff effort to R&D.

New product development in recent years has been strong, but the outlook for future product introductions appears to be slightly less optimistic

EO products often require a significant amount of customisation, in particular for new users. Such levels of value adding require time and effort on the part of the VAC so delivery of a product to a new customer can often take more than one month.

To increase customer satisfaction, lead times need to be reduced. Customers are generally happy with VAC performance but report delivery times to be below expectation in approximately 60% of cases. Meeting delivery standards may remain difficult for VACs as they cite issues with data supply.

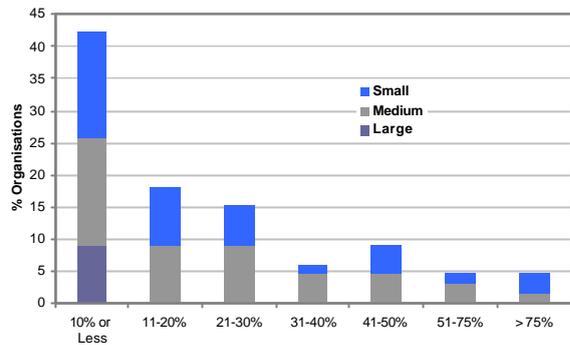


Figure 17 Value of R&D as Percent of EO Revenue

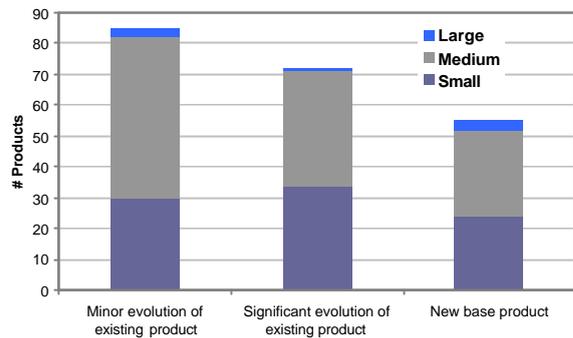


Figure 18 EO Products Brought to Market in 2006

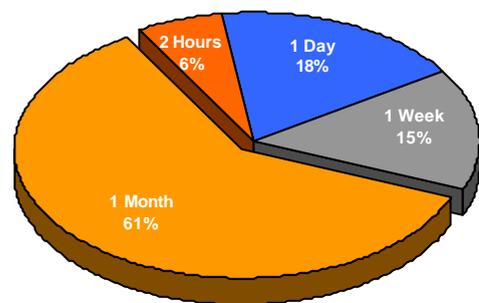


Figure 19 Delivery Lead-time to New Customers

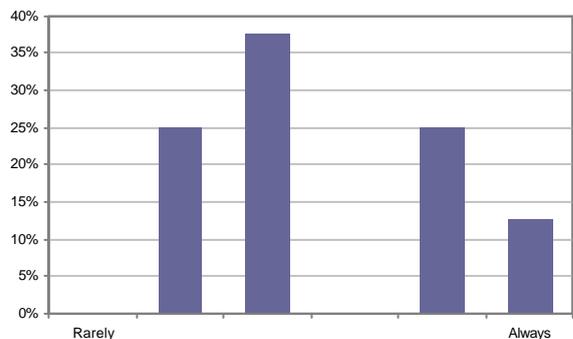


Figure 20 Customer Views on VACs Meeting On-time Delivery Performance

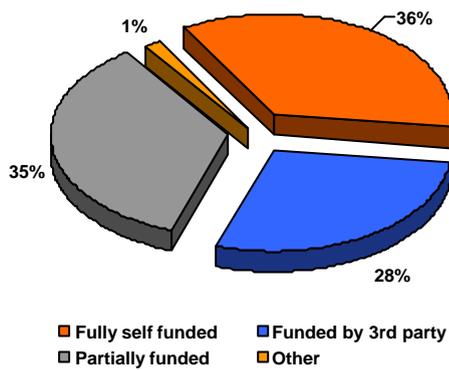


Figure 21 Funding for Development Activity

Value Adding Companies provide a substantial amount of the funding applied to development activities. The proportion of funding from grants remains high (over 25% by revenue for an average organisation).

The most commonly quoted source of external funding is from national grants.

Whilst funding is available, VACs appear to need to “hunt” for various sources to support a development plan, and whilst levels of funding may be appropriate, continuity and the “start/stop” nature of individual programmes is a commonly voiced issue.

Despite issues with funding, the sector shows above average investment in R&D compared with other sectors and strong generation of new products. This is expected to continue although most new products will be evolutions of existing products and so introductions of new products is set to slow down.

Once products are made available to the market, we looked at the response of the commercial users to these products. From a limited sample we found that:

- Of the products developed, most meet user requirements in a timely manner
- Despite improvements over the last three years, customers would like more visibility of the production process.

### Customer-facing Practices

Value-adding companies maintain relationships with their customers that are driven in part by the nature of the products and services supplied.

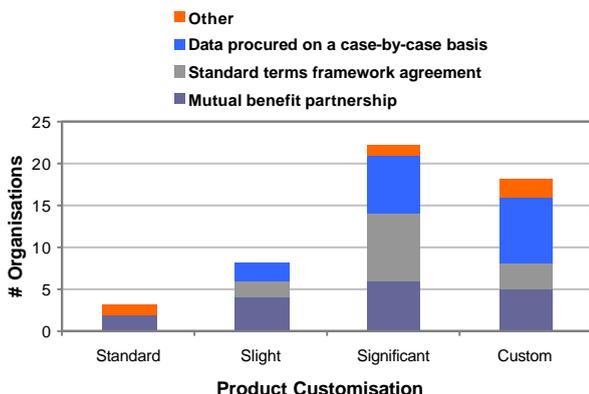


Figure 22 Customer relationship vs product customisation

- Standard products tend to be purchased under structured arrangements. Heavily customised products, which may be more one-off uses, are more likely to be procured on a case-by-case assessment.
- Customers are generally happy with EO solutions, aware of their capabilities and accept EO despite competition (especially from non-EO solutions) remaining high.
- Market and product range have both grown over the last three years. This is an encouraging sign that the scope limits of the industry have not been reached and opportunity for expansion remains. New products continue to be developed and new markets are being addressed.

- These data also suggest that the driving force of innovation and expansion rests with the small and medium companies, as large companies report a more stable profile.

Sales process issues do remain, with user access being quoted as a common problem. Users are generally dispersed and resources to locate them are not available, particularly in export markets, with difficulties being felt more acutely by smaller companies.

Constraints to sales and the ability to meet user requirements are dominated by two further factors:

- Firstly, budget and funding on the customer side and the ability of VACs to meet requirements cost effectively are the biggest user-facing issues in making sales. These issues are a problem for all sizes of company and suggest a need to better communicate the value of propositions to users.
- Looking in the other direction, data availability remains a big issue for the EO sector in meeting requirements. VACs address data supply issues through use of different sources but all mitigation techniques drive up cost which in turn limits sales effectiveness.

In the VACs' view, internal issues have generally improved, with external factors such as data supply now dominating.

Pricing appears to have become a more acute issue for VACs since the study of 2003. The factors driving price remain very much on the supply side.

However, findings from this study have shown customers to be reasonably happy with the value for money they achieve from EO solutions so there is perhaps scope to re-assess pricing to increase profitability. Establishing the value, in user terms, of the product is a key issue that can be addressed.

User acceptance and awareness of EO solutions is perceived to be reasonable by those within the EO community and this is supported by views of customers.

Customers have expressed a view that they find EO-based information products suitable in certain cases and where they are used they are positively regarded in terms of value for money and performance.

Cost was not cited as a key factor in non-selection and the value for money views would also suggest that the scope is not for a price-driven commodity service but for a high quality, high performance service, with a strong value proposition in its areas of suitability.

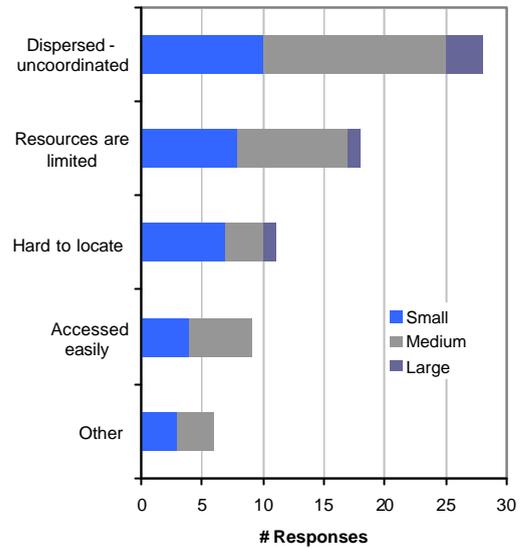


Figure 23 Ease of User Access

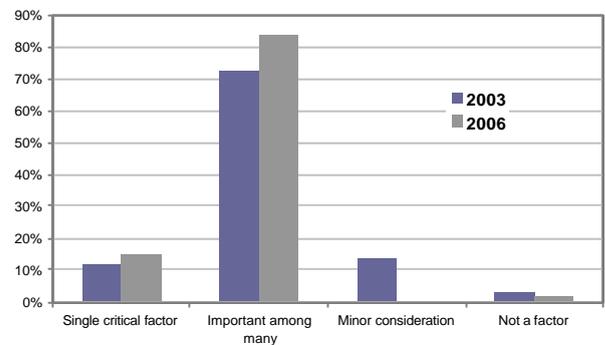


Figure 24 Price as a critical factor in winning business

## External Influences

The next few years will see the evolution of key programmes such as GMES and growth in the usage of geo-web browsers. These external influences are generally viewed positively as they expand awareness and acceptance of EO solutions and increase opportunities for new business.

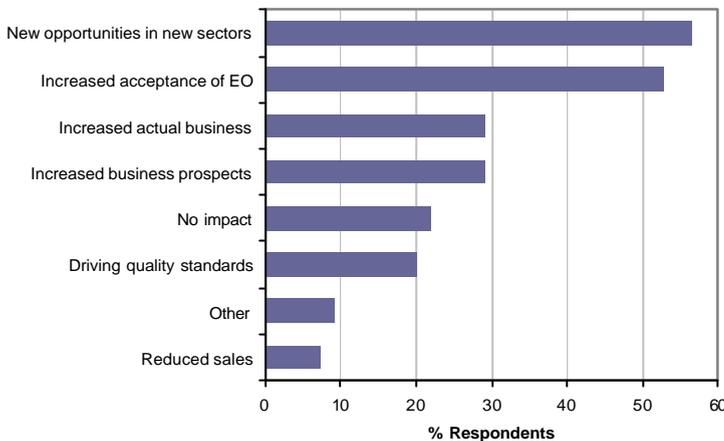


Figure 25 Impact of GMES, GEOSS and INSPIRE

The idea that large initiatives can be used as a vehicle to establish widespread quality standards was not supported by the respondents in this sample. The industry preference is for such initiatives to function as a source of additional demand and to foster wider acceptance.

More than half of respondents are aware of and actively pursuing programmes such as FP7. This confidence is not fully reflected in the VACs' views on their positioning to benefit from the programme, particularly amongst smaller companies where only a third feel that they are well positioned.

The emergence of mass-market geo-web browsers has increased public awareness of EO solutions. Whilst there are potential competition issues, what has been presented to the EO sector is seen as a real opportunity. Exactly how the industry will approach the opportunity and build upon the subsequent increased awareness remains to be seen.

Against this, customers have expressed the view that their usage of EO products and services is likely to increase in the coming years.

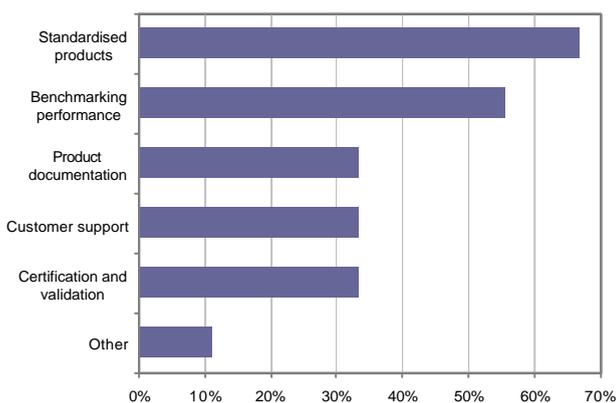


Figure 26 Customer suggestions for improving the perception of EO

## Industry Evolution

In the previous study the focus for industry improvement was on the stimulation of public sector investment and co-ordination between participants in the industry. Work carried out by ESA in response to these issues and by the industry trade associations would appear to have had some impact.

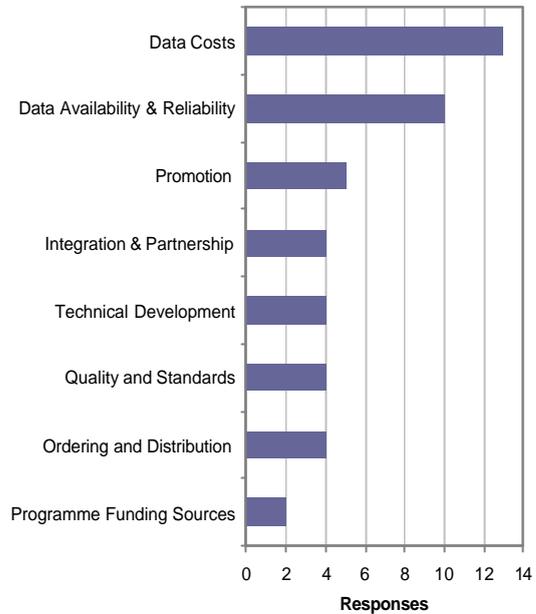
The analysis of customer feedback highlights the priorities shown below to improve the perception of EO based information services

However, for the EO Service industry, raw materials and costs have now emerged as key issues to be addressed. This focus of attention reflects a more mature industry sector where the standard commercial challenges of supply-side cost management, capacity to meet user requirements and promotion of capability to attract new customers are now the most evident.

When looking inwards, the EO community has emphasised process improvement and commercial markets which highlights a major challenge – convincing the customer of the value of EO solutions.

To address this VACs are looking to take the sensible steps of:

- Reducing Costs: VACs are looking to reduce costs through process improvement.
- Increasing Quality: Quality and standardisation are key areas for improvement, hopefully leading to greater acceptance of EO solutions.
- Marketing: Targeting the key commercial market to make the case for EO solutions with reduced cost and improved quality as key selling points.



**Figure 27 Characterised Industry Priorities**

### In Summary

The EO service industry in Europe and Canada has evolved from its position in 2003. It has:

- Grown, although at a modest pace
- Matured, in terms of commercial and operational behaviour
- Responded positively to the market influencing programmes and events that have occurred over the last few years

However, the sector has not changed materially in terms of scale or performance over the last few years.

It faces another stage in its evolution as it prepares to:

- Embrace the challenges of the demand stimulating programmes before it
- Present the value of its offerings as means to enhance the sustainability of its market
- Improve the quality and usability of its products to enhance customer acceptance
- Work towards a managed and reduced cost base to assure its own viability in the long term
- Widen product and service uptake in established market sectors whilst also expanding into new markets and geographies

To evolve over the coming years it will look to:

- Its own resources for both independent and collaborative product and market development
- Its traditional institutional channels such as the ESA VAE to develop new services and access new markets against a co-ordinated backdrop
- New institutional channels such as GMES
- Harness the impact of the mass-market geo-browsers to position themselves against maturing demand.

The consequence of these actions is a broadly positive outlook where:

- VACs anticipate increasing activity levels that will call for additional staff
- Customers anticipate greater use of EO based products in the future.

### Survey Details

This study has been carried out by VEGA under ESA contract 16400/02/HW and presents an analysis of data provided by the European and Canadian EO Service Industry and other data available in the public domain.

ESA engaged Booz Allen Hamilton and VEGA to perform an analysis of the industry in 2003. This covered the evolution of the industry over the 3 year period 2000 to 2002.

Since this period, the industry has been exposed to significant change drivers affecting both the EO service industry and many target market sectors. As a follow-on to the EOMD study in 2003 ESA wanted to reassess the industry; how things have changed/developed; how successful initiatives to grow the industry have been and what the challenges the industry are facing today in order to best structure the EOMD programme in future years. As with the previous study, the findings and conclusions from this analysis will be integrated directly into the work programme for ESA EO exploitation activities.

The study involved 6 months of interviews and data collection from EO Value Adding Companies (VACs) throughout the ESA countries. Findings are based primarily on the data from an industry-wide survey conducted over the web, involving approximately 80 questions on a range of matters critical to the EO Service Industry. The financial elements of this report are based primarily on the results of a separate and confidential financial survey, although it draws where appropriate on the results of the technical survey in order to clarify points and conclusions.

From an identified population of 151 companies, the study team received 74 responses to the general survey and 33 submissions (50% more than returned in 2003) using the financial workbook. Further financial data was gathered from public filings to give financial data on 59 organisations

Throughout the study, the approach has been guided by a group of experts from the European Earth Observation Value Adding Industry who have functioned as a steering committee,

guiding the initial analyses, overseeing the development of the survey instruments, and assisting in the interpretation and validation of the results.

Data were checked for consistency and validity. Follow-up information and clarification was gathered through interviews held with the majority of participants through a wide-reaching telephone campaign.

From this approach, a coherent picture of the industry has emerged. This represents the industry over the three-year period 2003-6 and with a historical comparison to the findings of the previous study. This sets the foundation for the continuing examination of trends and the monitoring of progress towards identified goals.

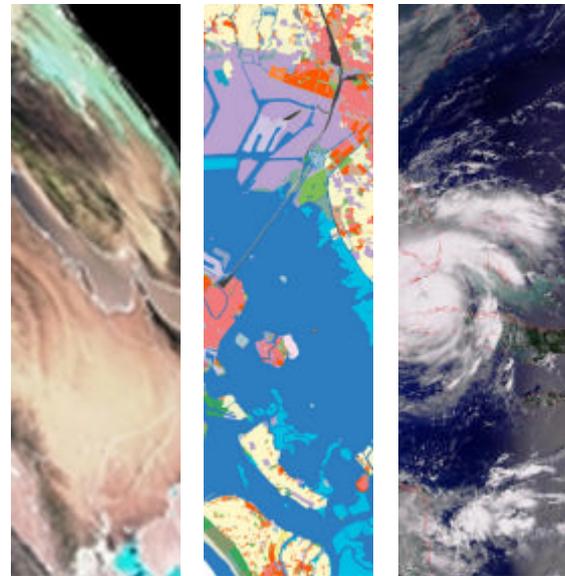
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VEGA is a specialist professional services company. We provide independent consulting, technology and managed solutions, based on 30 years' experience of specialist market and technological domains.

This enables us to offer independent expert advice and practical support services in the effective implementation of business strategy.

In the Aerospace sector we work with satellite and aircraft operators and aerospace manufacturers across the full mission lifecycle and multiple programme lines. We ensure that the research, development and operation of aerospace technology deliver against their mission goals.

VEGA has offices and operations throughout Europe, more than 200 clients worldwide, and employees from more than 20 nationalities. Our principal locations are in the UK, Germany, Holland and France. Additionally, we have a small office in Spain, and a small number of staff embedded in programmes at client sites in Italy and the US.



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