

ASD-EUROSPACE

The Space group in ASD

facts & figures

17th edition, June 2013

The European space industry in 2012



About Eurospace

Eurospace - a non-profit organisation founded in 1961 - fosters the development of space activities in Europe and promotes a better understanding of space industry related issues and problems. Its members are the main space industry manufacturers and launcher service providers.

Eurospace members cover the whole span of the space industrial chain, are present in 13 European countries and represent more than 90% of the European space industry activity from both a turnover and employment point of view.

Since 2004, Eurospace is the Space Group of ASD (AeroSpace and Defence Industries Association of Europe, created from the merger of AECMA, EDIG and Eurospace activities) where it represents and defines the space viewpoint of the association. This new aggregated structure allows industry to benefit from existing synergies between aeronautic, defence and space industrial activities.

Since its creation, ESA has maintained formal links with Eurospace. The association provides an effective entry point for the industrial sector and is the preferred medium to discuss industry-wide issues. A frame contract between ESA and Eurospace was signed in 1987,

which allows the association to perform advisory work for the Agency. In 2001 a Memorandum of Understanding (MoU) was signed that officially recognised Eurospace as the representative body of the European space industry. The MoU covered all aspects related to new programmes, competitiveness, research & technology, and administration. In 2012

the ESA Eurospace MoU was renewed.

Eurospace plays a key role in the European Space Technology Strategy process, officially presenting the whole European space manufacturing industry views on technology evolution and harmonisation.

With 50 years of presence in the space policy arena, Eurospace has established and maintains a comprehensive network of contacts with the main national space agencies in Europe (ASI, UKSA, CNES, DLR,...) and with the relevant national ministries. As policy evolution required, Eurospace extended its reach to new institutions, such as the WEU, EDA or the French DGA for defence matters.

Over the past 15 years, the European Union has developed a strong interest in space, from the research and development point of view (with dedicated space budgets being included in the 6th and 7th Framework Programmes for example), but also as a user and promoter of space infrastructures (as with the Galileo programme or the GMES initiative, now Copernicus for instance). Indeed space services and applications are now recognised as efficient tools for policy implementation, environmental studies, situation assessments, etc. to support the European Commission actions as the executive arm of the EU.

Eurospace mandate includes the relevant EU bodies, including Commission Directorate Generals, the Council, the Parliament etc. and eventually Eurospace established a dedicated office in Brussels in 2001.

Eurospace is a recognised interlocutor to the European Union, and an active participant to EU led industry consultations on space, providing data, analysis and assessments on space industry related issues to relevant DGs as required.

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For more data and information

www.eurospace.org

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Foreword

by Jean Jacques Tortora: Eurospace Secretary General

In 2012, the overall turnover of the European Space industry peaked to 6.5 B€, slightly up from 6.3 B€ in 2011, which represents a 2.8% increase. Employment, with almost 36,000 full time jobs is back at its historical high reached in the middle of the nineties.

According to these two figures, 2012 has been a good year. However, the situation of the European manufacturing Space sector is particularly contrasted.

ESA remains by far the first customer of the European Space manufacturing industry, for about 43% of its total turnover, including the budgets delegated by the European Commission for the implementation of Galileo and Copernicus programmes. But the Agency is not only a key customer from a quantitative standpoint, it is also the main European source of funding for Space R&T activities, thus playing an active role in the preparation of industry to its future challenges, technological or commercial. It is also a key player in the shaping of the European Space industry through the continuous implementation of its industrial policy mission enshrined in its Convention.

On its side, the European Union - through the European Commission - is gradually implementing its Space competence. This starts to produce positive results on industry, particularly in the field of positioning and navigation with the preparation of the deployment of the Galileo constellation. The next Multi-annual Financial Framework, covering the 2014-2020 period, will hopefully bring additional resources for the operations and the continuation of Galileo, and of Copernicus in the field of Earth Observation, as well as through the next Research Framework programme - Horizon 2020 - which should address concrete development phases of technologies and products where needs of industry are huge to support its competitiveness.

The year 2012 has been very successful for Arianespace, with seven launches of Ariane 5, including one for the Edoardo Amaldi ATV to the ISS, and the maiden flight of the new VEGA launcher. Launchers activities, at 1.3 B€ (i.e. 20% of the total turnover of industry in 2012) are up from 1.2 B€ in 2011* and these good results contributed to the overall positive trend of

the sector.

On the commercial satellites side, the business of European manufacturers with commercial operators has been quite stable, worldwide as well as in Europe. This result must be saluted in an overall steady market where competition is fiercer with the strong come back of US providers and the emergence of newcomers, sometimes with non-traditional approaches.

The short-term evolution of this sector must be carefully monitored in the next few months, as this activity is key to the European Space industry.

Military systems sales have decreased by 25%. The total turnover of industry in this sector has been 636 M€ in 2012, down from 851 M€ in 2011. It now accounts for about 5% of the total activities of the European Space manufacturing sector. Furthermore, it is distributed almost exclusively among the four member States primarily active in this area, namely France, Germany, Italy and UK. These activities are in constant reduction, and it should be noted that they are partly funded through civil national agencies or private operators in PPP schemes.

With these evolutions, public customers have represented in 2012 some 52% of the total turnover of the European industry, 2 % down as compared to 2011. In the same time, the share of export sales out of Europe has increased from 1.2 B€ to more than 1.3 B€, accounting for 20% of the total turnover of the European Space industry. This share is way above the level of exports realized by any non-European competitor. Finally, it can be said that the European industry performed pretty well on export markets despite an ever-fiercer competitive context. On their side, member States have renewed their confidence to ESA and their belief in the long-term perspectives of the European Space sector at the occasion of the ESA Council at ministerial level held on 20-21 November 2012 in Naples.



* Please read perimeter changes at p. 19.

Overview

Constant economic conditions

The European space manufacturing industry is a strategic sector, embedded in the wider European AeroSpace and Defence industrial complex.

Two large industrial holdings (EADS and Thales) are directly responsible for about 57% of the total space industry employment. The largest dedicated space business units and industrial capabilities are located mainly in EADS Astrium and Thales Alenia Space. Smaller space units are found also within larger groups such as Finmeccanica, OHB, RUAG & Safran (they represent 19% of the employment (see p. 7)).

SMEs represent less than 8% of the total space industry manufacturing employment, whereas small space units represent almost half of all space units considered in Eurospace model (see details at p. 7).

The space manufacturing industry is an infrastructure supplier. The sector operates at the higher end of the space value chain, and supplies service providers and public institutions, spacecraft and launchers to meet their requirements.

Industry is distributed across all Europe, with the main industrial sites located in France, Germany, Italy, and, to a lesser extent, United Kingdom, Spain and Belgium.

Major significant changes have occurred in the European space industry over the past decades.

At the top of the value chain (systems integrators), mergers and acquisitions have restructured the manufacturing sector. Strategies of vertical and horizontal integration have continued on as well.

Industry restructuring explains some of the employment reduction endured by the sector since the mid nineties, but market factors apply as well. Indeed, with the take up of commercial and defence businesses, employment grew again in 2006 and has maintained a constant growth path since, backing sales growth in the same period.

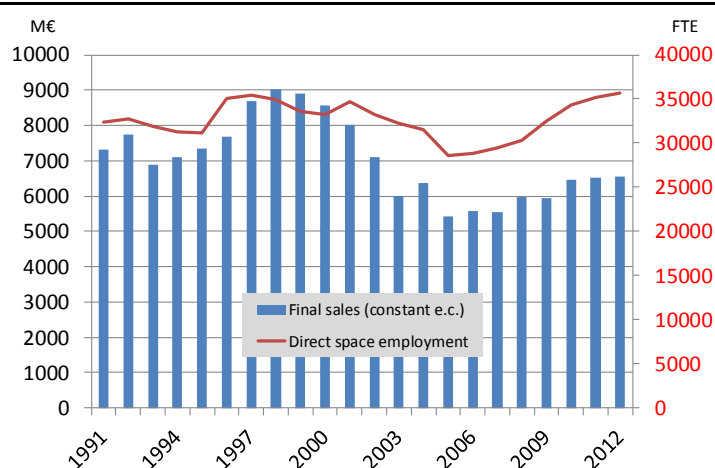
The variation in space industry sales is driven by business cycles and market evolutions in recent years.

| Final sales by procuring entity (Europe procurement details) | 2010 | 2011 | 2012 | Var. 2012/11 |
|--|------|------|------|--------------|
| Final sales (M€) | 6146 | 6375 | 6555 | 2.83% |
| European public customers | 3252 | 3438 | 3421 | -0.49% |
| European private customers | 1430 | 1662 | 1702 | 2.39% |
| Other European customers | 84 | 84 | 105 | 23.83% |
| Public customers RoW | 541 | 387 | 499 | 29.05% |
| Private customers RoW | 804 | 778 | 790 | 1.61% |
| Other customers RoW | 35 | 26 | 38 | 48.40% |

| Final sales by type of system (M€) | 2010 | 2011 | 2012 | Var. 2012/11 |
|------------------------------------|------|------|------|--------------|
| Final sales (M€) | 6146 | 6375 | 6555 | 2.83% |
| Launcher systems | 1070 | 1193 | 1308 | 9.62% |
| Satellite applications systems | 3108 | 3233 | 3385 | 4.71% |
| Scientific systems | 990 | 951 | 1086 | 14.16% |
| Ground systems and services | 878 | 877 | 734 | -16.35% |
| Other & Unknown | 100 | 120 | 42 | -65.03% |

| Main industry facts | 2010 | 2011 | 2012 | Var. 2012/11 |
|---------------------------------------|-------|-------|-------|--------------|
| Direct industry employment (FTE) | 34247 | 35144 | 35679 | 1.52% |
| Other personnel working on site (FTE) | 1020 | 1875 | 1777 | -5.23% |
| Total space industry employment (FTE) | 35268 | 37019 | 37456 | 1.18% |
| Final sales (M€ current e.c.) | 6146 | 6375 | 6555 | 2.83% |
| Final sales (M€ constant e.c.) | 6457 | 6531 | 6555 | 0.36% |

Final sales (M€ constant e.c.) & employment (FTE)



In 2012, the space manufacturing industry experienced again a slight growth of final sales (+3% in current terms, +0.4% in constant e.c.) supporting continued direct employment growth (+1.5%). As shown in the table above, space industry employment evolution follows the evolution of sales closely.

The core of space manufacturing activity lies in the design, development and manufacturing of satellites for operational applications, such as telecommunications systems and parts, Earth observation systems and parts, and navigation/localisation systems and parts.

The second area of business is launchers. Launcher activities include operational launch systems sales (mainly to Arianespace) and development and consolidation activities, in support of the Ariane and Vega systems. Launcher development and consolidation activities are growing again since 2009, after a decade of constant decrease.

Scientific activities include a wide variety of systems and technologies, with science systems and parts (exhibiting a marked growth from 2006), and Human spaceflight (and related activities, such as ATV, ISS contribution etc.) representing together the core of revenues in this area.

Ground systems and activities cover such diverse industrial activities as engineering and consultancy services, the development and production of ground stations and industrial hardware supporting development, production and test activities (EGSE/MGSE).

Long series

Constant economic conditions

The European space industry has access to two main markets: an institutional domestic market, with a civil and military component, and a market for commercial and export customers. Exports also include sales to institutional customers outside Europe, such as space agencies in emerging countries (South Korea, Algeria).

The European institutional market represented more than half of European space manufacturing industry's final sales in 2012. The main institutional customers are ESA (worth 2.27 B€ sales), other civil agencies such as CNES, DLR, ASI and others (worth 0.76 B€) and military agencies such as French DGA (worth 0.28 B€).

The commercial & export markets include a wide variety of customers.

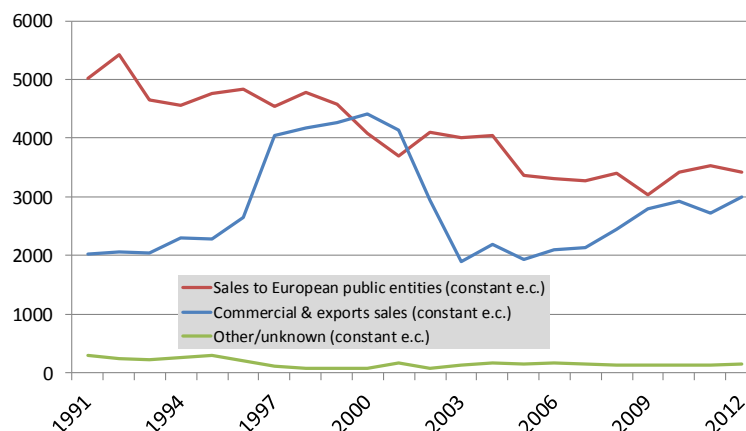
The main customers are **commercial satellites operators**, such as Eutelsat and SES in Europe, Arabsat or Globalstar outside Europe, that represent 1.3 B€ worth of sales. They are closely followed by launch service providers (i.e. Arianespace) that procure launch systems from industry for a total 828 M€ (+14% from 2011). Commercial markets have been driven for years by the activity of geostationary satellite operators, with a very marked cyclical component. The cycle affects the sales of geostationary satellite systems, as well as the sales of Ariane systems (to a lesser extent).

Export sales include a share of sales to institutions and governmental bodies outside Europe, as well as sale of **equipment and subsystems for integration in non-European spacecraft and launchers**.

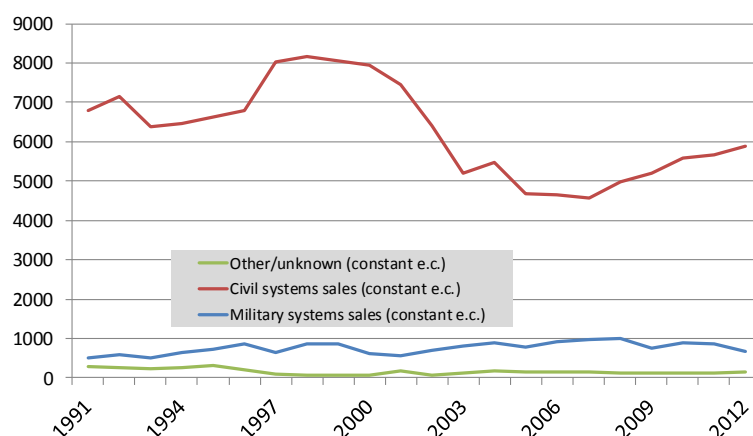
The sales of the European industry can also be split between civil and military systems. Interestingly, **the total value of military systems sold exceeds the value of sales to military entities.** This is due to the fact that military systems can be procured by some civil customers. This is the case of the Private operator Paradigm procuring the military Skynet 5 systems, and also of some civil agencies such as CNES, DLR and ASI, that procure military systems for defence authorities.

In the past two decades, only one market of European industry has really grown in a significant way: the market for satellite applications. The growth has been supported by two parallel trends: the improvement of European systems penetration into commercial and exports markets, and the growth cycle of satellite telecommunications applications. However, **market positions in this segment remain fragile, and cycle downturns require adaptation strategies.**

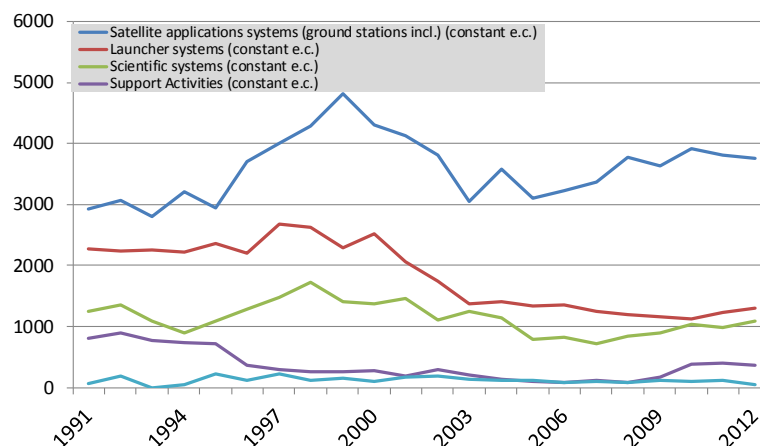
Sales by main customer (M€, constant e.c.)



Civil vs military systems sales (M€, constant e.c.)



Sales by main type of system (M€, constant e.c.)



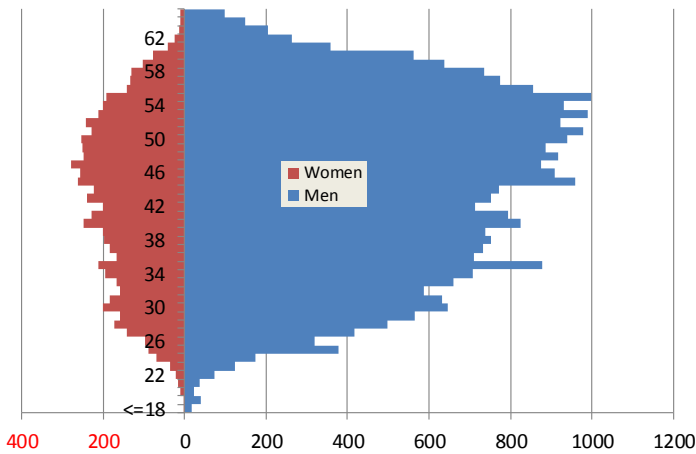
Sector Demographics

Age pyramid*

The European space industry is rather characteristic in terms of age and qualification structures. The industry maintains a rather stable age structure. The average age of employees is about 44, with a slight difference between women and men. The proportion of women in the industry is 20% in 2019 (a rather stable proportion over the years). The core of employment is in the 45-55 age range. A situation with potential impact in the coming decade, in terms of competence preservation in industry.

Population characteristics

| | |
|---------------------|--------|
| Average age (women) | 42.65 |
| Average age (men) | 44.38 |
| Average (all) | 44.04 |
| Women in % of total | 20.08% |
| Men in % of total | 79.92% |
| Total employment | 35679 |

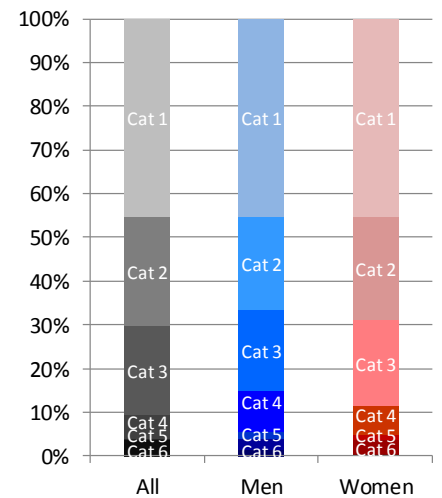


Qualification structure*

There is a rather high proportion of highly qualified workers in the European space industry (engineers and PhDs represent overall 65% of the employment).

Women in the space industry tend to have a slightly lower qualification profile than men, but only slightly.

| Qualification profile | All | Men | Women |
|----------------------------------|--------|--------|--------|
| 1. University (4-5 years and up) | 45.24% | 45.23% | 45.24% |
| 2. University (up to 3 years) | 23.79% | 25.13% | 21.54% |
| 3. Higher Vocational School | 19.56% | 20.26% | 18.39% |
| 4. Vocational School | 6.76% | 5.38% | 9.09% |
| 5. General School Only | 0.96% | 0.40% | 1.91% |
| 6. Apprenticeship | 3.23% | 3.61% | 1.23% |
| Not available | 0.46% | 0.00% | 1.67% |



Employment distribution by country and by segment**

The European space industry is distributed across all ESA countries, resulting in an important fragmentation, particularly in the smallest contributors to ESA. Yet, the 6 major ESA contributors (France, Germany, Italy, United Kingdom, Spain and Belgium) represent about 90 % of employment. In principle, personnel is allocated to the country of activity. This is particularly relevant to companies who provide engineering and other specialised services to space agencies and industry (e.g. Serco, Vega, RHEA, HE Space).

Note that country data in red is issued with a warning. The level of questionnaire return within a country is below 60% of total, meaning that the specific data point is based mostly on proxies rather than actual information. Please see also the release notes and survey information.

NOTES

* detailed age distribution and qualification structure is not available for all companies in the model. The data compiled here is based on 77% of total employment.

** please read our release notes (p. 19) to better understand national evolutions, Perimeter changes may affect significantly national figures.

| Country | F.T.E evolution 2010-2012 | | |
|----------------|---------------------------|--------------|--------------|
| | 2010 | 2011 | 2012 |
| Austria | 320 | 336 | 337 |
| Belgium | 1446 | 1474 | 1438 |
| Denmark | 231 | 216 | 212 |
| Finland | 150 | 177 | 164 |
| France | 12082 | 12736 | 13205 |
| Germany | 6112 | 5862 | 6425 |
| Ireland | 26 | 47 | 47 |
| Italy | 5095 | 5474 | 4711 |
| Luxembourg | 31 | 32 | 26 |
| Netherlands | 794 | 786 | 835 |
| Norway | 293 | 304 | 303 |
| Portugal | 118 | 134 | 126 |
| Spain | 2526 | 2505 | 2493 |
| Sweden | 760 | 778 | 758 |
| Switzerland | 796 | 756 | 821 |
| United Kingdom | 3554 | 3526 | 3777 |
| Europe | 34334 | 35144 | 35679 |

Sector demographics

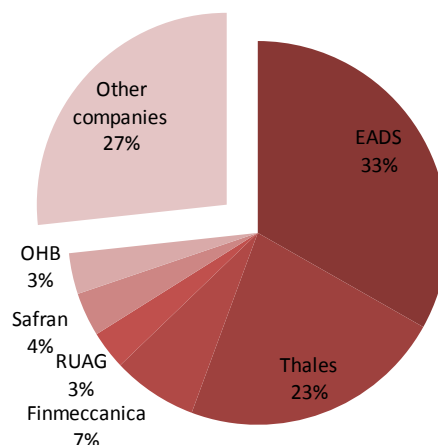
Employment in large groups

The space industrial sector is embedded in the larger aerospace and defence industrial landscape. Approximately half of the companies in the survey have ties with the main industrial conglomerates, such as EADS, Thales, Finmeccanica and Safran. As a result the vast majority of space industry employees are working in large aerospace and defence groups.

These groups may also create specific JVs to undertake specific industrial tasks (e.g. Europropulsion, Cryospace, UMS...).

With a view to securing supply of critical equipment, large groups also tend to extend their control in the space supply chain with the absorption of suppliers (and competitors). Thus the space sector counts a large number of small space units, but a rather limited number of independent SMEs.

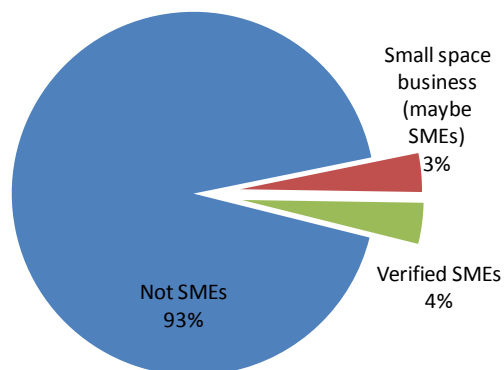
Note that for the sake of representation we have associated all Thales Alenia Space employees to Thales (67% control share) and all of the Telespazio group to Finmeccanica (67% control share). UMS space personnel instead was evenly split between Thales and EADS (50/50 JV).



SMEs in the space sector

In the Eurospace 2012 survey 30 companies formally qualified as SMEs (representing a total of 1300 employees), out of 91 small space businesses. Within this group, 61 small space businesses, worth 1227 employees, may be SMEs but have not identified themselves as such.

Considering the uncertainties described above, it is ascertained that **within the sector of space systems manufacturing and development in Europe, the proportion of SMEs is comprised between 3% and 8% of total employment.**



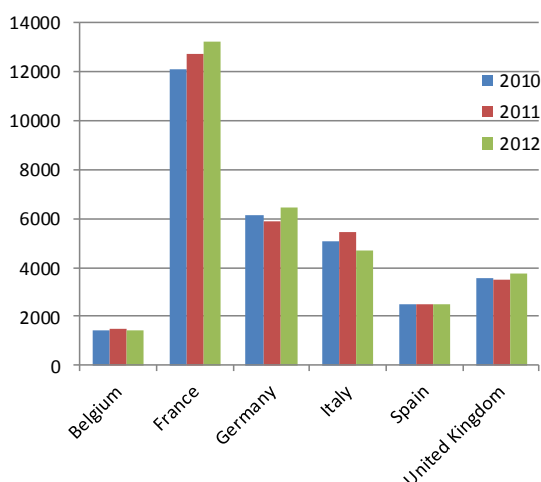
| SME Situation | Empl. Space (direct) | Empl. Space (%) | Total space sales (%) | Final space sales | Number of units |
|-----------------------------------|----------------------|-----------------|-----------------------|-------------------|-----------------|
| Not SMEs | 33152 | 92.92% | 96.23% | 97.67% | 117 |
| Small space business (maybe SMEs) | 1227 | 3.44% | 1.73% | 0.67% | 61 |
| Verified SMEs | 1300 | 3.64% | 2.04% | 1.66% | 30 |
| TOTAL | 35679 | 100.00% | 100.00% | 100.00% | 208 |

Note that total sales includes inter-sector sales, they are higher than final sales. Please refer to page 16 for explanations

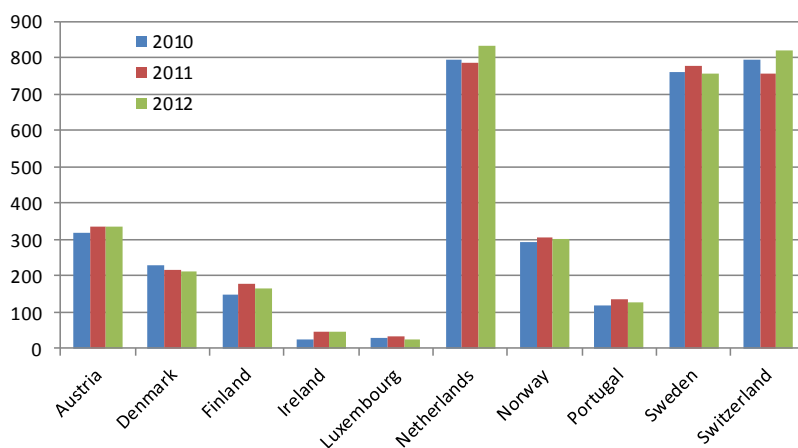
Employment distribution by country: 2010-2012 evolution

Only 6 European countries have **direct space industry employment** exceeding 1000 employees (below, left). Together these countries contribute more than 90% of total space industry employment. The remaining 10% are unevenly distributed among 10 countries (below right—for this group please read warning text in red on previous page).

Direct space employment > 1000 employees



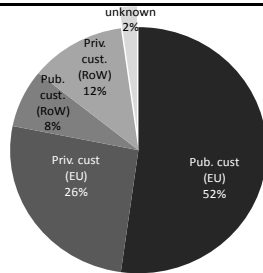
Direct space employment < 1000 employees



Final Sales by customer

Customers

Customers are organised by nature (public and private) and by geographical location (Europe and rest of the world).



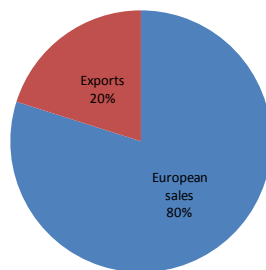
Public customers are all publicly funded institutions, such as space agencies (ESA, NASA, CNES...) or public satellite operators (Eumetsat, Arabsat...). This category also includes military entities. **Private customers** are all private entities, such as private satellite operators (SES Global, Panamsat, Globalstar...) and other companies in the sector.

European industry can access a large array of customers, public and private, in Europe and abroad, but its core business remains with European public customers (52% of Final sales in 2012).

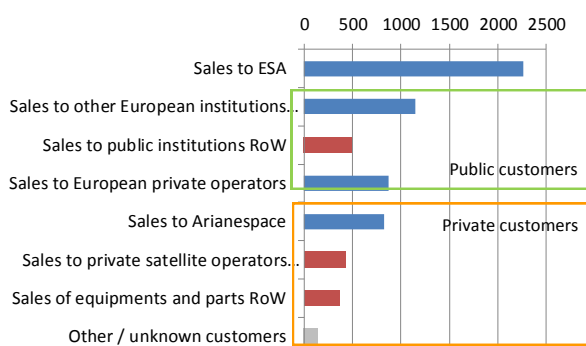
European sales vs. Exports

The sales of the European space industry are located mainly in Europe (80% of final sales). Exports represent a smaller, but significant share (20%).

European customers (5.2 B€) are dominated by ESA (2.3 B€) and Arianespace (0.83 B€). Together, European private operators represent an important share as well (0.87 B€).



Export sales (or sales to customers in the Rest of the World, 1.33 B€) are more or less evenly split between three categories, public operators, private operators and sales to other companies in the sector. It is interesting to note that exports are almost exclusively composed of telecommunications systems.

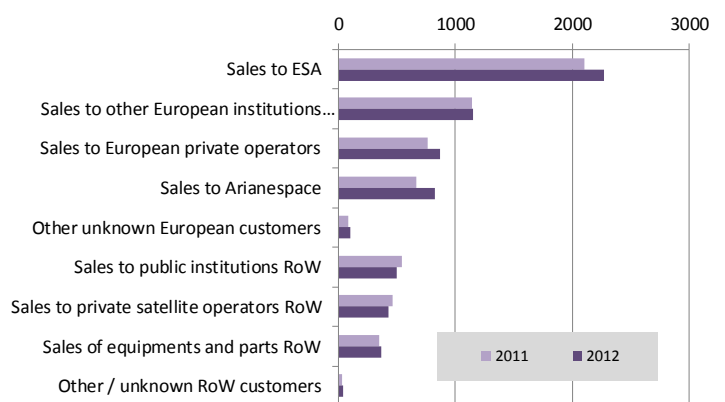


| Final sales by procuring entity | 2010 | 2011 | 2012 | Var. 2012/11 |
|--|-------------|-------------|-------------|--------------|
| Private vs Public procuring entity (M€) | | | | |
| Final sales | 6146 | 6375 | 6555 | 2.83% |
| Sales to ESA | 2106 | 2218 | 2269 | 2.30% |
| Sales to other European institutions (public) | 1146 | 1220 | 1152 | -5.56% |
| Sales to Public institutions RoW | 541 | 387 | 499 | 29.05% |
| Sales to European private operators | 760 | 947 | 873 | -7.80% |
| Sales to Arianespace | 670 | 715 | 828 | 15.89% |
| Sales Private satellite operators RoW | 460 | 362 | 426 | 17.95% |
| Sales of equipment and parts RoW | 344 | 416 | 364 | -12.59% |
| Other/unknown customers | 119 | 110 | 143 | 29.59% |

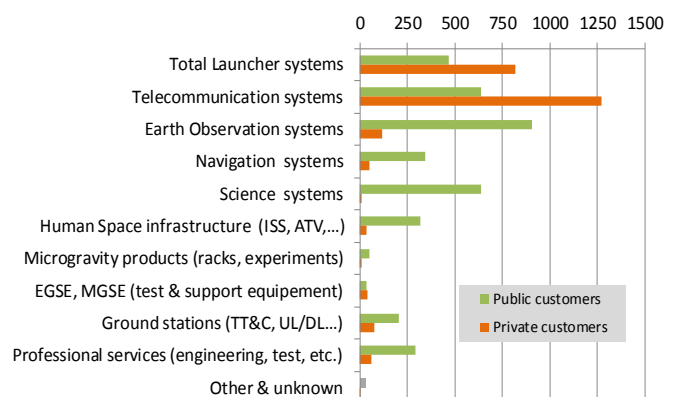
Matrix of Sales

| M€ | EU procuring entity | Rest of the world | Total |
|-------------------|---------------------|-------------------|-------------|
| Public customers | 3421 | 499 | 3920 |
| Private customers | 1702 | 790 | 2492 |
| Other / unknown | 105 | 38 | 143 |
| Total | 5227 | 1328 | 6555 |

Comparison 2011-2012



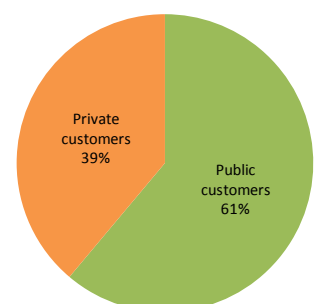
Public and private customers



Commercial (private) customers represent, as a whole, 39% of industry's sales (2.4 B€), in growth from 2010. They are composed mainly of private entities operating launchers or satellites, and as a result, their purchases are concentrated on telecommunications systems and operational launchers.

Institutional (public) customers are those government funded entities that pursue space programmes.

They represent 61% of industry sales (3.8 B€, stable from 2010), and procure a wide variety of systems, with the exception of operational launcher systems and parts.



Final Sales by customer

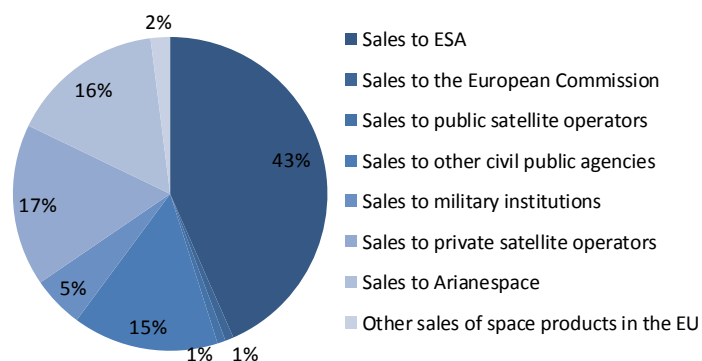
European procurement

European customers are, historically, the first customers of the European industry, and they are still the most important, both from procurement volume and diversity points of view. In this group, ESA stands out as the main contributor to European industry sales.

ESA, at 2.3 B€ (slight growth from 2011), is by far the largest customer of industry in Europe in 2012. Sales to ESA were in growth supported by increased output from the launcher development programmes and satellite applications, supported by **GMES and Galileo programmes budgets in delegation from the EC**.

ESA, as a technical agency, manages programmes of its own and programmes funded by third parties, such as Eumetsat (the Meteosat programme) or the European Commission (the GMES sentinels, and Galileo procurement). **These programmes are included in the ESA figure**. ESA procures the full spectrum of systems and technologies available today in Europe, and is the sole customer for Human spaceflight systems. ESA is by far the largest European institutional customer in all fields. Only in Earth observation systems, where the strategic dimension translates into the heavier implication of national programmes, other European institutional customers represent a sizeable market share.

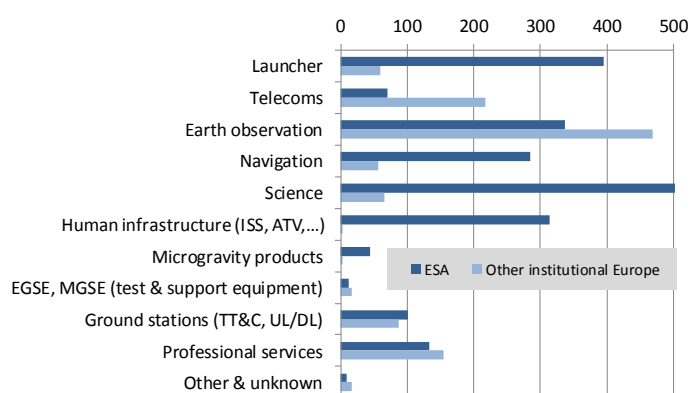
Within institutional customers in Europe, military entities represent less than 10% of final sales (278 M€, in decrease from 2011), but sales of military systems are higher (693 M€), since the procurement of defence systems is often delegated to civil agencies (CNES, DLR e.g.), or to private entities with PPP schemes (Paradigm, Milsat, e.g.).



| | 2010 | 2011 | 2012 | Var. 2012/11 |
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| Public customers RoW | 541 | 387 | 499 | 29.05% |
| Private customers RoW | 804 | 778 | 790 | 1.61% |
| Other customers RoW | 35 | 26 | 38 | 48.40% |

| | 2010 | 2011 | 2012 | Var. 2012/11 |
|--------------------------------------|------|------------|------------|----------------|
| Civil public agencies (Europe) | | 190 | 212 | 11.44% |
| Military institutions (Europe) | | 396 | 207 | -47.64% |
| Private satellite operators (Europe) | | 151 | 146 | -3.13% |
| Other customers (Europe) | | 21 | 17 | -20.95% |
| Military institutions (RoW) | | 14 | 14 | 2.31% |
| Private satellite operators (RoW) | | 61 | 22 | -64.13% |
| Other customers (RoW) | | 18 | 17 | -3.55% |
| Total | | 851 | 636 | -25.35% |

Sales to European institutions by system (M€)



Civil vs. military systems sales

European space industry products include military and civil systems. Civil system sales are still the vast majority of sales (89.4%), and military systems sales were decreasing in 2012.

With the evolution of public procurement practices, and in particularly the transfer of system ownership outside the public domain, the procurement of military systems is now spread across a variety of actors. This is why the sales of military systems (693 M€) exceed the value of sales to military institutions (222 M€). Military systems are mainly sold to European customers, export markets are still limited in this area.

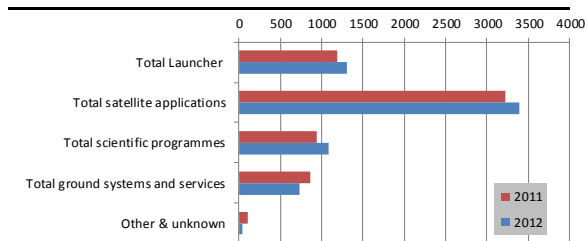
| M€ | Civil systems | Military systems | Total |
|--------------------|---------------|------------------|-------------|
| Civil customers | 5790 | 472 | 6262 |
| Military customers | 71 | 222 | 293 |
| Total | 5862 | 693 | 6555 |

Final Sales by system

Please refer to products definitions at page 17

Overview

2011 vs. 2012 sales (M€)

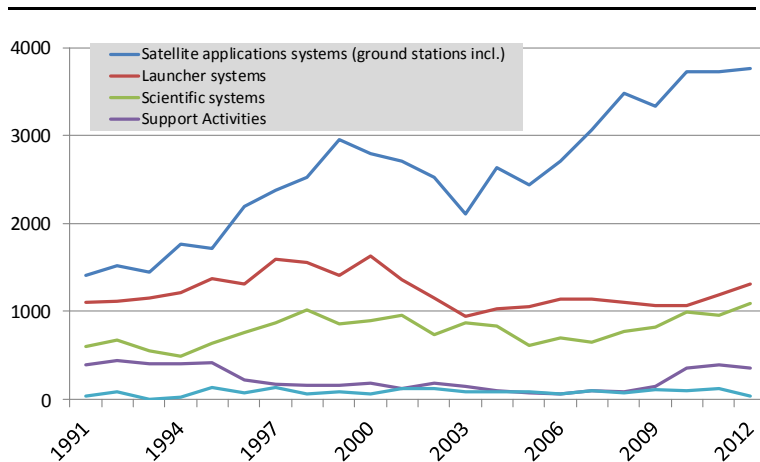


The European space industry is active in all areas of satellite applications, as well as in launcher and scientific programmes, including human spaceflight. Historically, European first ambitions in space were focused on scientific satellites and launchers. These were the two main areas of development of the industrial space sector in Europe.

With the gradual maturation of space technologies and systems, satellite applications have become the main source of revenue for the European space industry, and the main driver for business growth for the European industry, particularly within commercial markets for telecommunications systems.

However, again in 2012, the growth of sales was supported by sales to institutional customers mainly in the launcher and scientific segments.

Final sales by type of system (M€, current e.c.)*



* note that in long series ground systems are included in satellite applications systems. Thus values appear higher than in tables. See page 19: Release notes

Customer structure by system

All products and systems have different customer structures.

When considering exports and domestic markets, it is interesting to note that exports are almost exclusively composed of telecommunications systems sales. Nearly all other systems produced by the European industry are sold only to European customers.

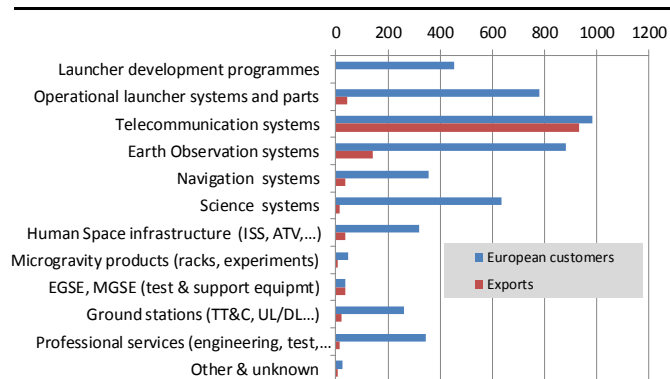
This said, only 34% of telecommunications systems produced by European industry were exported in 2012, the rest were sold on the European market.

Final sales by procuring entity & type of system (M€)

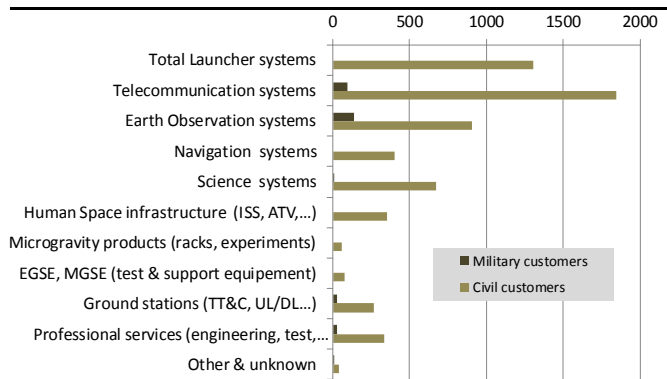
| | Launcher systems | Satellite application | Scientific systems | Ground systems | Other / Unknown systems | Total |
|---|------------------|-----------------------|--------------------|----------------|-------------------------|-------------|
| Sales to ESA | 395 | 693 | 926 | 247 | 9 | 2269 |
| Sales to other European institutions (public) | 60 | 743 | 72 | 259 | 17 | 1152 |
| Sales to Public institutions RoW | 11 | 452 | 6 | 28 | 2 | 499 |
| Other/unknown European customers | 19 | 31 | 31 | 13 | 10 | 105 |
| Sales to European private operators | 1 | 784 | 2 | 87 | 0 | 873 |
| Sales to Arianespace | 779 | 0 | 0 | 49 | 0 | 828 |
| Sales Private satellite operators RoW | 6 | 415 | 0 | 6 | 0 | 426 |
| Sales of equipment and parts RoW | 31 | 243 | 49 | 38 | 3 | 364 |
| Other/unknown RoW customers | 6 | 25 | 0 | 8 | 0 | 38 |
| Total | 1308 | 3385 | 1086 | 734 | 42 | 6555 |

Depending on the type of customer, the situation is slightly different: commercial (private) customers procure both telecommunications satellites and launcher systems. While institutional customers procure all types of systems, except operational launcher systems that are exclusively procured by Arianespace in Europe.

European customers vs. Exports (M€)



Civil vs Military customers (M€)



Final Sales by system

Satellite applications systems

Satellite applications systems are the main source of income for the European industry (3.4 B€ i.e. 52% of final sales), and are also the main domain of exports (with 1.1 B€, i.e. 17% of final sales and 32% of satellite applications sales). The two most important segments in terms of income are telecommunications (far beyond the other segments) and Earth observation. Within satellite applications, positioning & navigation is the segment with less export sales, it is today limited to institutional customers in Europe (Galileo programmes).

Telecommunications systems (e.g. Eutelsat 21B, Astra 2F, Yahsat 1B...) are the source of about 50% of the whole satellite applications revenue. Telecommunications systems are more frequently exported than other systems, and in 2012 exports in telecoms represented 50% of total telecommunications systems sales.

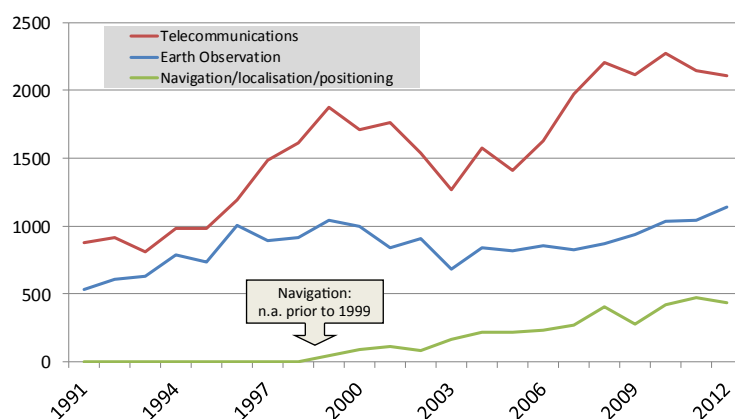
Main customers for telecommunications systems are private and public satellite operators worldwide (almost 1.4 B€ sales, of which 50% are exports, mostly public operators) while European public agencies procure as much as 288 M€.

Public satellite operators are the main export customers for telecommunication systems.

Earth Observation systems includes both satellite systems (e.g. GMES now Copernicus, Sentinels, Helios, Cosmo-Pleiades) and preparatory work (e.g. EOPP). Most of the Earth observation systems sales are with institutional customers, mostly in Europe.

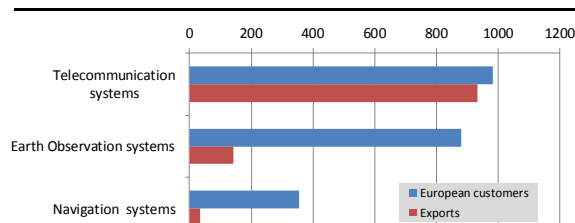
Navigation/localisation systems, despite being the less important satellite application in value, this application is gaining importance since a few years due to the ESA/EC EGNOS and Galileo programmes. Despite a rather important drop between 2008 and 2009, sales in this area have ramped up since 2010 with the Galileo system procurement.

Satellite applications systems (M€, current e.c.)*

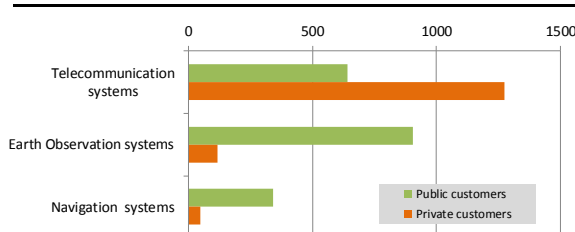


* note that in long series ground systems are included in satellite applications systems. Thus values appear higher than in tables. See page 19: Release notes

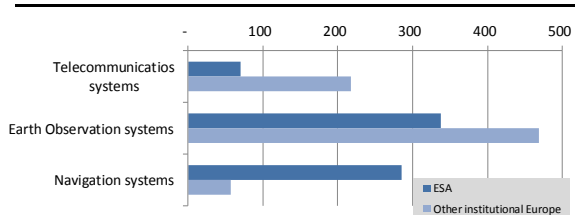
European sales vs. Exports (M€)



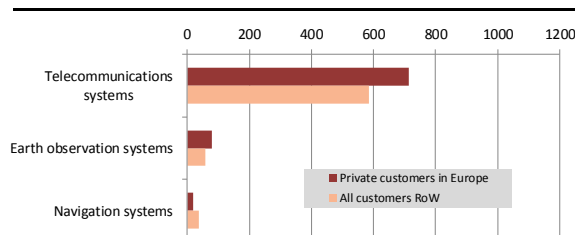
Private vs. Public customers (M€)



European institutional market (M€)



Commercial and export market (M€)



| European customers vs Exports (M€) - 2012 | EU | Export |
|---|-------------|-------------|
| Telecommunications systems | 983 | 932 |
| Earth observation systems | 881 | 142 |
| Navigation systems | 356 | 35 |
| Total | 2220 | 1109 |

| Private vs Public procuring entities (M€) - 2012 | Private procuring entities | Public procuring entities |
|--|----------------------------|---------------------------|
| Telecommunications systems | 640 | 1275 |
| Earth observation systems | 906 | 117 |
| Navigation systems | 342 | 49 |
| Total | 1888 | 1441 |

Final Sales by system

Launcher systems

Launcher activities include all operational launch system production (funded by Arianespace procurement) and all launcher development and consolidation activities (funded mainly through ESA). The trend on launcher business was flat to decreasing from the beginning of the decade. Launcher production reached a peak in the year 2000 (with the dual exploitation of Ariane 4 and Ariane 5 at CSG). Launcher development programmes were decreasing since 1993 but did ramp up again in 2009 supported by Vega development and Ariane 5 consolidation and evolution activities.

The European space industry produces the Ariane system operated by Arianespace. Ariane is the preferred choice of launcher for commercial customers worldwide (see below and page 15). In 2012 the European launcher family is further expanded with VEGA the small LEO launcher.

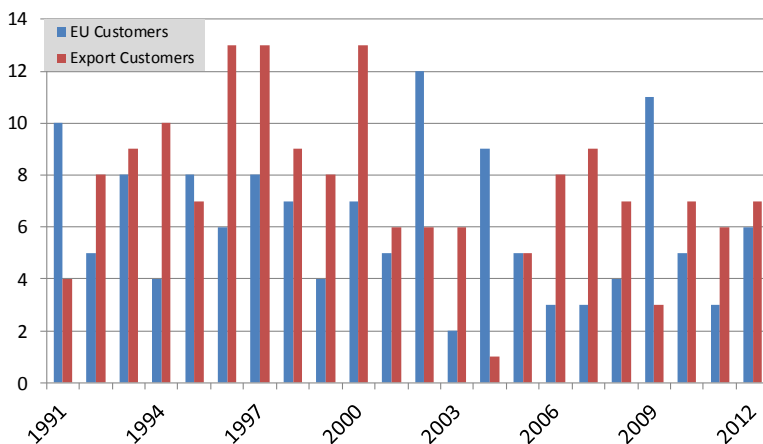
Launcher programmes include two very different, but complementary market segments:

(1) Operational launcher systems: the space industry produces and integrates the Ariane and VEGA launch systems for Arianespace. This is strictly a domestic market, although Arianespace services are sold to customers worldwide. Industry also exports launcher parts (e.g. fairings, nozzles) that are integrated to non European launchers (e.g. Atlas, H2). This export market is quite limited (2% of the total launcher sales).

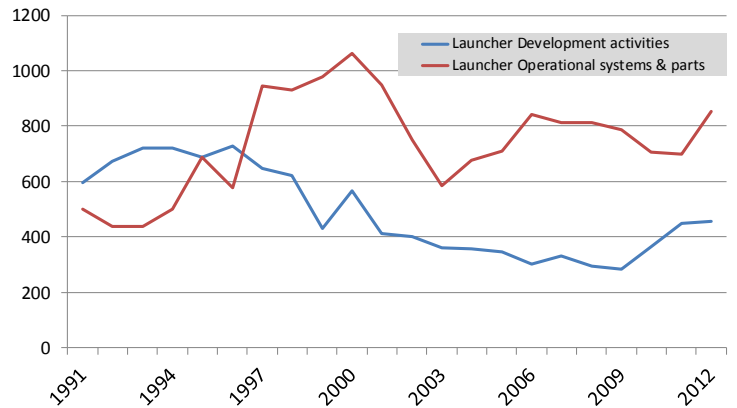
(2) Launcher development: development programmes are funded almost exclusively through ESA, they aim at preparing the future (e.g. FLPP) or at consolidating and improving existing technology (e.g. ARTA, VERTA). The current level of expenditure (slightly above 400 M€ again in 2012) includes activities related to the consolidation and evolution of the Ariane 5 system, and development activities for the small European launcher: VEGA.

The launcher business will be strongly affected by decisions to be taken at next ministerial council of ESA. A 2014 potential growth is expected from the start of Vega operations (maiden flight took place in February 2012). This was another important milestone for the launcher industry will be the qualification of Ariane 5 ME with the ECB/Vinci upper stage.

Satellites launched by Ariane, by customer

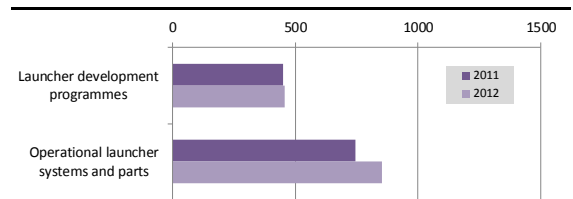


Launcher sales (M€, current e.c.)

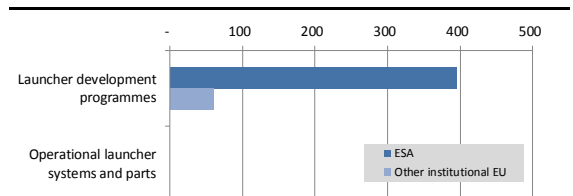


The share of development programmes has been decreasing since the early nineties, posing a challenge for the preservation of competences.

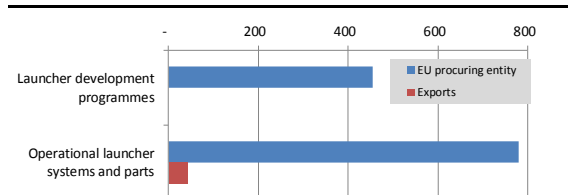
2011 vs. 2012 (M€)



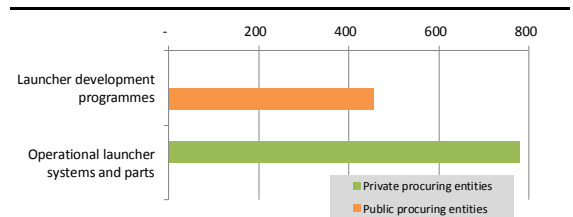
European institutional market (M€)



European vs Export customers (M€)



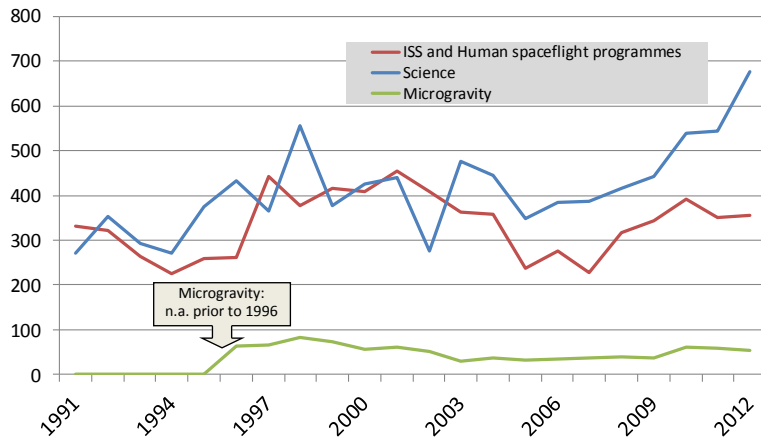
Private vs. public customers (M€)



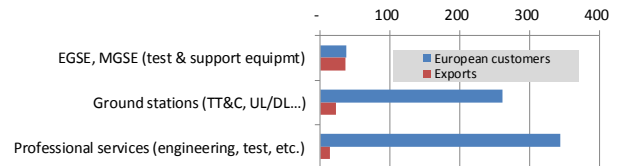
Final Sales by system

Scientific systems

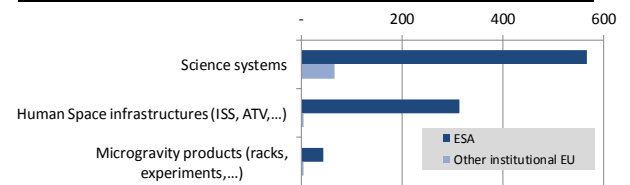
Scientific systems sales (M€, current e.c.)



European vs. export markets (M€)



European institutional market (M€)



Scientific programmes are promoted almost exclusively by institutional European entities, at the forefront of which is ESA. Three different types of programmes are included in this category :

- **Science programmes:** design, development and production of spacecraft often with unique features for science programmes, answering the requirements of various scientific missions. This business segment is mainly supported by ESA programmes complemented by national programmes.
- **ISS and Human spaceflight programmes:** they include systems mostly relevant to the ISS development and operations (sales of

systems such as ATV and the Cupola, are included here). Within this market segment, as in launchers, the trend is decrease or stability at best. This line of business is almost single-handedly driven by ESA at European level.

- **Microgravity programmes:** this is a small and specific area of business consisting mainly in the development of experiments (often in racks) to be performed in microgravity environment, either aboard the space station, with sounding rockets or in drop towers. This segment is by far the most confidential within the scientific programmes.

Ground systems

This product category was introduced with the new methodology in 2010, there are no long series associated.

It aims at clearly identifying three specific market segments of the space sector that are not relevant to space systems strictly speaking, but are still in the core competences of the space manufacturing sector.

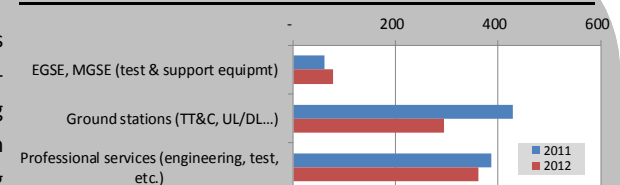
In 2012 Ground systems segment represented less than 15 % of total space industry sales.

The ground systems and services market is primarily a European market with a majority of public customers.

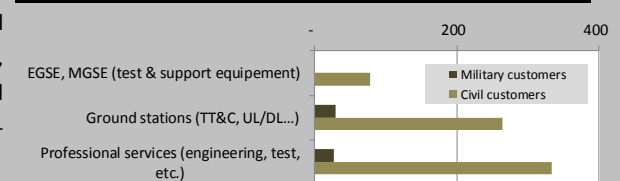
- **EGSE/MGSE:** this category includes all electrical and mechanical support equipment for manufacturing and testing of space systems in development and manufacturing processes.
- **Ground stations*:** the category includes all large professional ground stations for data downlink, TT&C, control centre hardware and software, and a control centre operations.
- **Services to industry:** this category includes the provision of services in engineering, test and operations, to industries and agencies alike.

* Note that all consumer-end ground stations sales (e.g. VSAT terminals, GPS handhelds, TV antenna etc.) are not included in Eurospace figures.

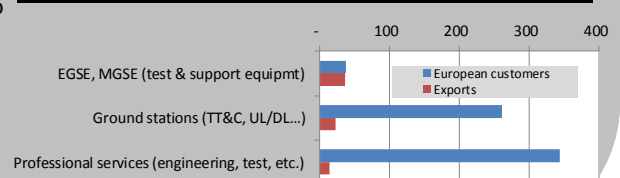
2011 vs. 2012 (M€)



Civil vs. military customers (M€)



European vs. exports markets (M€)



European spacecraft deliveries

European spacecraft launched in 2013

The European satellite industry was involved in the production of 22 spacecraft launched in 2012:

- 21 were built on a European platform and flew a European payload (fully European systems).
- 1 was built on a Russian platform and flew a European payload (Ekspress MD2).
- In addition, European industry produced the LARES support system launched in 2012 aboard VEGA.

The full 2012 list can be seen on the right.

| Customer region | Customer | Spacecraft | Mass (kg) |
|-----------------|---------------------------------|----------------------|-----------|
| Europe | ASI | LARES Support System | 960 |
| | | LARES | 387 |
| | Astrium GeoInformation Services | Spot 6 | 712 |
| | CNES | Pléiades HR 1B | 970 |
| | DLR | TET 1 | 120 |
| | ESA | ATV3 Edoardo Amaldi | 20050 |
| | | Galileo-IOV FM3 | 640 |
| | | Galileo-IOV FM4 | 640 |
| | Eumetsat | Meteosat 10 | 2000 |
| | Eutelsat | METOP B | 4085 |
| | | Eutelsat 21B | 5012 |
| | Eutelsat | Eutelsat 70B | 5250 |
| | | SkyNet 5D | 4800 |
| | Paradigm | Research Min (Italy) | 12 |
| | SES Global | Astra 2F | 5968 |
| USA | Star One | Star One C3 | 3200 |
| | Orbcomm | Orbcomm FM43 | 29 |
| Russia | RSCC | Ekspress-MD 2* | 1140 |
| | Gazprom | Yamal 402 | 5250 |
| China | APTS | APStar 7 | 5054 |
| | China DBSat | Zhongxing 12 | 5054 |
| Others | KARI | Kompsat 3* | 1000 |
| | ComDev | exactView 1 | 100 |
| | Yahsat | YahSat 1B | 6100 |

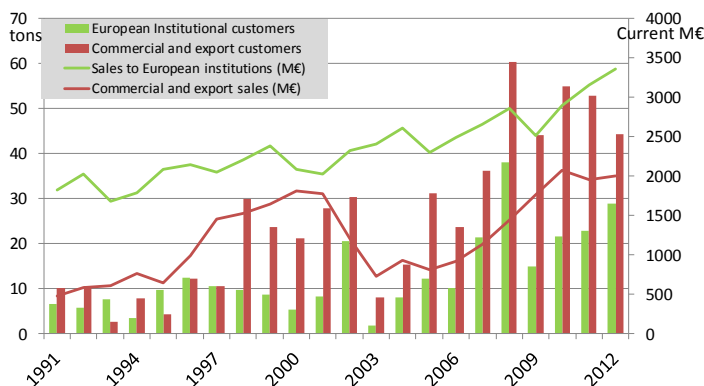
*European payload only

Quantitative spacecraft mass series

In the graphs below we present historic series of European spacecraft at year of launch. These series are presented in mass (spacecraft mass at launch, tons). Spacecraft mass is an imperfect indicator of spacecraft value, it is however quite correlated with industry revenues (as shown below).

European spacecraft sales, mass & value

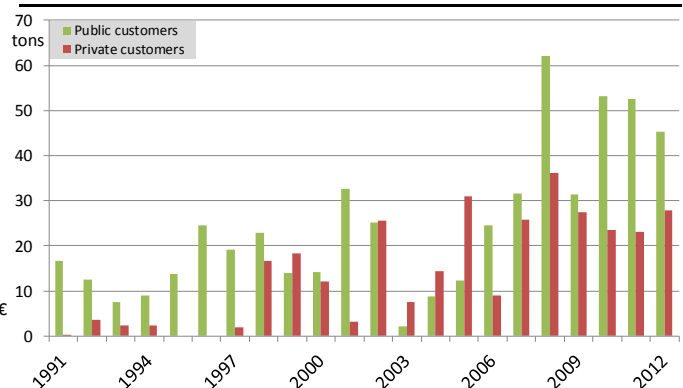
It is interesting to note that industry revenues related to spacecraft sales are correlated with the spacecraft mass measured at date of launch. This particularly true for commercial and export systems (mostly geostationary telecommunications systems), but is visible also on institutional sales patterns.



Definitions

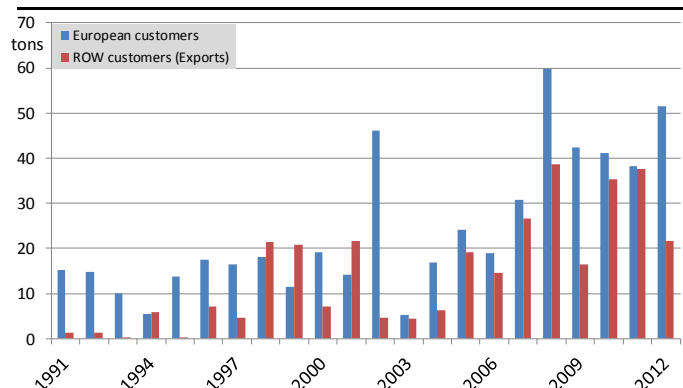
- **Commercial and export customers:** all private entities, plus public entities procuring internationally. Are included all satellite operators (Eutelsat, Arabsat, Intelsat etc.).
- **European Institutional customers:** all public institutions in Europe except public telecommunications satellite operators.

Institutional vs. Commercial spacecraft



Historically, European spacecraft were sold exclusively to institutions (and all of them in Europe) with ESA, National agencies and Eumetsat being the main customers. The first commercial customers for European spacecraft were also European, but they were soon joined by export customers.

European customers vs. Exports



Ariane launches

Ariane 5 and VEGA launches of 2012

| Launch date and spacecraft mass (tons) | |
|--|-------|
| 2/13/2012 (VEGA) | 1366 |
| LARES and Support System | 1347 |
| 8 UniCubeSat | 19 |
| 3/23/2012 (Ariane 5) | 20050 |
| ATV3 Edoardo Amaldi | 20050 |
| 5/15/2012 (Ariane 5) | 7497 |
| JCSat 13 | 4528 |
| Vinasat 2 | 2969 |
| 7/5/2012 (Ariane 5) | 8100 |
| Echostar 17 | 6100 |
| Meteosat 10 | 2000 |
| 8/2/2012 (Ariane 5) | 9405 |
| HYLAS 2 | 3311 |
| Intelsat 20 | 6094 |
| 9/28/2012 (Ariane 5) | 9403 |
| Astra 2F | 5968 |
| Gsat 10 | 3435 |
| 11/10/2012 (Ariane 5) | 8212 |
| Eutelsat 21B | 5012 |
| Star One C3 | 3200 |
| 12/19/2012 (Ariane 5) | 7850 |
| Mexsat 3 | 3050 |
| Skynet 5D | 4800 |
| Grand Total | 71883 |

In 2012 the European launcher industry delivered 7 Ariane-5 systems for launch by Arianespace, and for the first time 1 VEGA launcher.

The launchers were used to loft 12 geostationary telecommunications satellites and one ATV. All the satellites were successfully inserted in geostationary transfer orbit, and the ATV launch was successful as well.

The VEGA maiden flight was a success, and was the occasion to test the LARES support system and orbit 8 University cubesats.

Industry sales to Arianespace

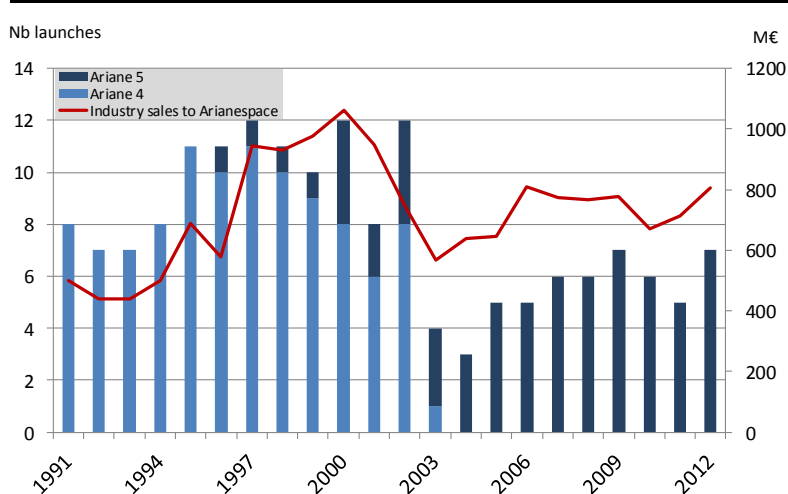
The value of industry sales to Arianespace is correlated to the number of launchers delivered to Arianespace in a given year. However not all systems are launched in the year of delivery; industry revenues from Arianespace also include a share of services provided at Kourou for launcher integration and launcher operations—thus the profiles of launches and payments are not perfectly aligned. The graph (top right) shows that, in average, Ariane 5 is more expensive than Ariane 4. **The two systems are indeed very different, with Ariane 5 offering a much greater (more than double) launch capacity than its predecessor.**

Ariane system users

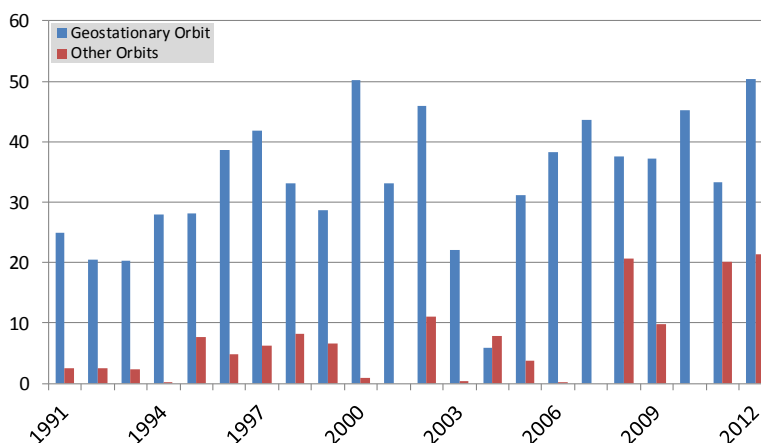
Between 1991 and 2012, a total of 171 Ariane launchers were delivered for launch in Kourou. 104 were Ariane 4 systems, and 67 were Ariane 5 systems. The Ariane system has been used mainly to launch spacecraft in geostationary orbit, although on occasions it was used to serve other orbits. The Ariane system has been used mainly by commercial customers. European institutional customers (ESA, Eumetsat and national Agencies in Europe) are not the main customers of the Ariane system.

It is interesting to note that only European institutional customers have used Ariane for non-geostationary destinations, such as the ATV launches of 2008, 2011 and 2012 (in low Earth orbit). European institutional customers also used Ariane for geostationary launches (e.g. Syracuse 3A in 2005).

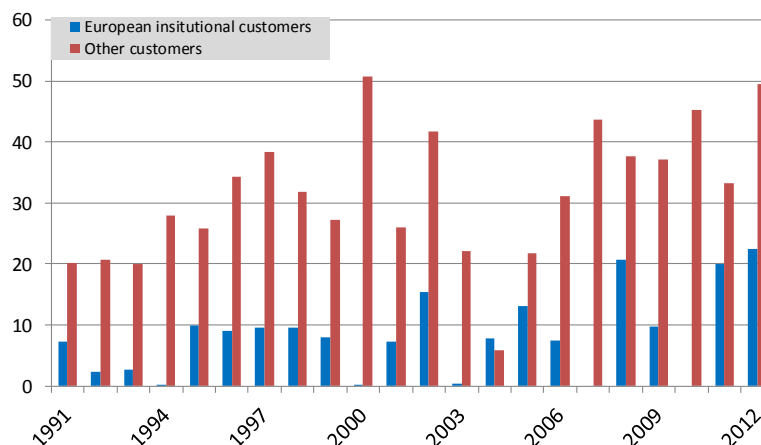
Ariane launches vs. industry revenues (current M€)



Ariane launched mass by orbit (tons)



Ariane launched mass by customer (tons)



Methodology & Definitions

Introduction to the survey

In June 2013, Eurospace, the association of European space manufacturing industry, issued the annual update of its Facts & Figures statistical series. This is the 17th edition of the survey.

Since its inception, the statistical collection aims at measuring **the value of the market for space systems design, development and production in Europe** (i.e. the space industry manufacturing activity). Space systems are defined in detail (see “products definitions”) in order to ensure an appropriate data collection and to avoid misinterpretation of the data sets.

This statistical effort is supported by two main driving principles:

- The focus on manufacturing activities (with the exclusion of all services related to the exploitation of space systems: launch services and satellite operations). Service activities associated to the manufacturing process of space systems (such as engineering and test services, consultancies etc.) are included in the perimeter of the survey. A share of ground systems operations are included also, when they are performed for Space agencies in Europe.
- The effort to measure the value of the end-market, with the elimination of all inter-sectoral business that could be counted twice or more.

Perimeter of the survey

The Eurospace facts & figures survey focuses on measuring the economic value of industrial activities associated to the design, development and manufacturing of space systems (also called the upstream sector) in Europe.

It does not consider non-space products (such as missiles or consumer-end terminals such as GPS receivers, Satellite TV receivers and dishes, etc.) nor the provision of services based on the exploitation of space assets. This means that the revenues and employment of such companies as: Eutelsat, Paradigm, Inmarsat, Arianespace, SES Global, and other operators are **not included in the perimeter of the survey**.

Data Collection

The data collection is supported by companies with space activities operating in Europe (not limited to Eurospace membership). Companies answer a questionnaire providing detailed information on their sales and employment relevant to space systems design, development and manufacturing. All information released to Eurospace is protected by a confidentiality agreement. The quality of the survey is only as good as the data provided by participating companies.

Most companies in the space manufacturing sector have participated at least once to Eurospace survey in the past. The main players (companies with more than 100 space employees) usually support the survey on a very regular basis, while smaller players may only support the survey sporadically. When a reply is missing from a company, it is supplemented by an estimate based on a previous reply received from that company, and/or publicly available information on the company.

The space manufacturing sector in Europe is at the same time very fragmented and very concentrated. The 30 largest space units in Europe make for almost 80% of total employment of the sector. The remaining smaller players representing barely 20% of employment. It is also interesting to note that all smaller players work almost exclusively as subcontractors to the largest players.

From a statistical point of view, this means that an efficient data collection shall focus on collecting at least the main replies (the large players, and particularly the prime contractors) that will provide a good assessment of final sales. Collecting additional replies from increasingly smaller players, adds a layer of detail to the survey and increases marginally the measurement of employment; but does not affect the overall value of final sales and has a marginal economic impact.

Deflators

Series in constant 2012 economic conditions (1991-2012) were produced by applying OECD EU27 consumer price index deflators.

Consolidation Model

In the Space sector, as with many other industrial sectors, the delivery of a complex system involves the participation of a large number of companies at various stages of the development and production processes. This translates into a complex contractual chain, where one prime contractor signs with the customer and then divides the work among itself and many subcontractors.

The need for consolidation

When considering the revenues generated within the whole supply chain by the production of one space system, with the mechanism of subcontracts the cumulated value of all contracts exceeds the value of the system itself. This is due to the fact that without consolidation, some subcontracts are counted twice.

Within a given perimeter, the consolidation of sales can be done in two ways: either by measuring the consolidated sales at company level (total sales minus the value of subcontracts), either by measuring the final sales at company level (total sales minus inter-sector sales, relevant to subcontracted work). Within a given perimeter the value of consolidated sales and final sales are identical.

Methodological update in 2011

Initially, the Eurospace survey was based on a methodology focusing on measuring the consolidated sales (i.e. the value of sales, minus the value of purchases within the sector). In 2010 Eurospace implemented a new methodology based on the accurate measure of final sales, including the identification of sales to other companies in the sector (not provided before). This methodological update was required because there were growing uncertainties with the data consolidation activities, due to missing, inaccurate or incomplete returns, particularly with regard to the measure of purchases within the appropriate perimeter.

All efforts have been made to preserve full data consistency throughout historic series, and the objective was achieved at the expense of corrections applied to previous years' data sets. These corrections have been rather minor.

Methodology & Definitions

Space systems and related products considered in the survey

Eurospace survey is product oriented, i.e. it measures sales of well identified products: space systems. Space systems are organised in three different categories: launcher systems and parts, spacecraft systems and parts, ground systems and parts. Each product/system category is split in relevant subcategories.

Launcher systems

The category only considers space launchers, all missile activity is excluded from the perimeter of the survey. Launcher systems are further split between operational launcher systems and parts (sold to launcher integrators and to launch services operators) and launcher development activities (funded by space agencies, so far).

Spacecraft/satellite systems

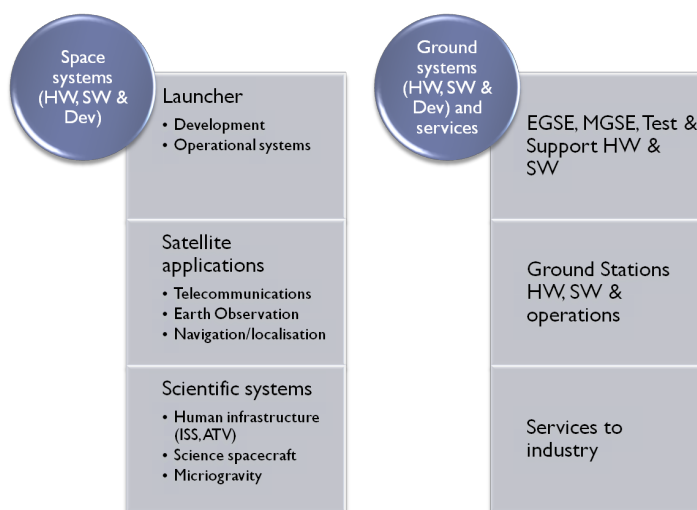
The category includes all items destined to leave the Earth atmosphere and operate in space, either to deliver operational services in Earth orbit (satellite applications systems), either in to perform scientific mission in Earth orbit and beyond (scientific systems).

- Satellite applications include: telecommunications systems, Earth observation systems (including meteorology) and navigation systems (e.g. Galileo)
- Scientific systems include: science programmes (such as Gaia, Venus Express), human infrastructure programmes (such as ISS contributions and ATV), and microgravity equipment (racks and experiment modules to perform microgravity experiments aboard the ISS and other microgravity environments).

Ground systems (and related services)

Ground systems include those equipment and services not destined to leave the Earth atmosphere that are nonetheless associated to space systems development and production as well as mission operations and support. They include:

- Specific manufacturing, integration and test equipment used by space companies (such as EGSE, MGSE, test benches...).
- Professional ground stations (for TT&C and Upload/Download operations) and ground control centres.
- Engineering, consultancy and other services to industry (including control station operations for ESA).



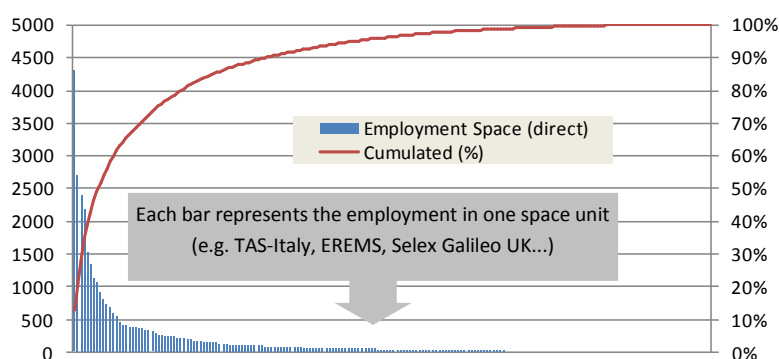
Sector concentration: employment in space units, employment by unit and cumulated %

The European space sector is at the same time very concentrated and highly fragmented. As a result, it is composed of a small number of rather large space units (notably at Astrium, Thales Alenia Space and Snecma) and a quite extensive number of very small space units.

Are worth noting:

- **The 10 largest space units in Europe represent 52% of the total employment.**
- The 20 largest space units in Europe represent 66% of the total employment.
- The 30 largest space units represent 75% of the total employment. All smaller space units have employment of less than 250.
- **The 100 smaller space units represent a total of 1380 direct employees, i.e. an average of 13.8 employees per unit.**

- **The average space unit size is 174 employees.** There are 42 space units with more than 174 employees, and 163 space units with less than 174 employees.



Survey information

Eurospace economic model

The Eurospace facts & figures economic model included 208 Space Units/Companies in 2012.

The companies listed below are those having provided updated sales and employment information for the year 2012. The regular contribution of major space players in Europe ensures the accuracy of Eurospace facts & figures economic assessment of European space manufacturing activity.

For all other companies, proxy data was used in the model. Proxy data is elaborated using information provided in previous years (when available) and/or information available from public sources, mainly the *European Space Directory* and company websites.

2012 Survey statistics: questionnaire return rate in % of units, sales, employment

The survey rate of return, measured in number of units was low this year, only 35%. But thanks to the good support of large players, the 73 questionnaires returned represent 91% of final sales data compiled and 77% of space employment.

| Survey statistics | Nb of units | Final sales M€ | Space empl. |
|----------------------------------|---------------|----------------|---------------|
| All units in the model | 208 | 6528 | 35679 |
| Questionnaires returned | 73 | 5938 | 27633 |
| Proxies | 135 | 590 | 8046 |
| Survey representativeness | 35.10% | 90.96% | 77.45% |

Companies having supported the survey in 2012

Austria

RUAG Space GmbH

Belgium

Antwerp Space
IMEC
QinetiQSpace NV
S.A.B.C.A.
Space Applications
SPACEBEL SA
Thales Alenia Space ETCA

Denmark

TERMA
TICRA

Finland

Patria Aviation Oy
Space Systems Finland Oy

France

Air liquide
Astrium SAS (Satellites)
Astrium SAS (Space Transportation)
Cap Gemini Technology Services
CS Communication & Systèmes
EREMS
Herakles
Intespace
SEREME
SNECMA
Sodern
Sofradir
Compagnie Deutsch
Telespazio Group (France)
Thales Systèmes Aéroportés
Thales Alenia Space France
Thales Communications & Security
Thales Electron Devices SAS
Thales Services SAS

Germany

Astrium GmbH (Satellites)
Astrium GmbH (Space Transportation)
Azur Space Solar Power GmbH
Kayser-Threde GmbH
IABG mbH
MT Aerospace AG
OHB System AG
SCISYS Deutschland GmbH
Telespazio VEGA Deutschland GmbH

Ireland

Moog IPS dublin

Italy

Avio S.p.A.
Compagnia Generale per lo Spazio S.p.A
IRCA div. RICA
Selex ES SpA
SISTEMI SOFTWARE INTEGRATI S.p.A.
TECNOMARE S.p.A.
Telespazio Group (Italy)
Thales Alenia Space Italia S.p.A.
Vitrociset S.p.A

Luxembourg

Eurocomposites

Netherland

Dutch Space B.V.
HE Space Holding BV
TNO

Norway

EIDEL
Kongsberg Norspace AS
NAMMO AS

Portugal

Critical Software, S.A.
EDISOFT

Spain

Computadoras, Redes e Ingeniería, S.A.U.
EADS CASA Espacio
Iberica del Espacio S.A.
Thales Alenia Space España

Sweden

RUAG Space AB

Switzerland

RUAG Space

United Kingdom

ABSL space products
Astrium Limited
CGI
COM DEV Europe Ltd
QinetiQ
SCISYS UK Ltd.
Selex ES LTD
Telespazio Group (UK)

The survey is only as good as the data available to populate the economic model.

Companies support to the data collection is thus essential.

We wish to express our thanks to all companies that have supported the survey this year.

Survey release notes

Release notes

Long series information

Long series are built by compiling data collected with two different methodologies.

From 1991 to 1995 only a few types of customers and products were considered. In 1996 the customer and products list were gradually expanded in order to provide additional details. The following categories were introduced:

For customers:

- The European Commission (in 1996): EC programmes can be managed directly by the EC (a small fraction of EC space budgets: FP6 and FP7 activities for space research) or delegated to ESA for implementation (the lumpy GMES, now Copernicus, and Galileo programmes).
- Eumetsat (in 2002): as with the EC, Eumetsat delegates all space system procurement (the Meteosat programmes) to ESA, whereas it procures only ground segment activities directly from industry.
- Civil multilateral programmes (from 2002 to 2008, now discontinued - before the data was included in National civil programmes).
- Private satellite operators, other commercial satellites and parts, Arianespace, and other launcher sales—before the data was bundled into one single category: commercial and exports.

For products:

- Navigation systems (in 1996) - before the data was included in telecommunications.
- Launcher development and Operational launcher systems (in 1996) - before all launcher activities were bundled together.

About ground systems and services:

- Before 2009, all sales of professional ground stations (TT&C and data stations, control centres) and related services (such as ground segment operations) were included in the associated product category (telecoms, science, Earth Observation, etc.).

A major methodological update was performed in 2009, that entailed some changes in the data series, and in particular:

- Military system sales are counted separately from military customers sales.
- All ground segment activities are clearly separated from the rest, this includes the sales of professional stations and control centre operations, as well as services to industry.

In all long series, the data is harmonised to ensure continuity.

Copyright policy

Eurospace facts and figures is an annual publication by Eurospace. The publication comprises a colour brochure (available as a PDF file and in hardcopy), a detailed presentation (available as a PDF and a PPTX file), guidelines for survey participants (available in PDF), an Excel file with the main data sets and an Excel file with the questionnaire.

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Perimeter changes

Tracking: When a new company is included or removed from the economic model we call this a *perimeter change*. Perimeter changes have an impact on figures since they may introduce a discontinuity with previous years. The details (and orders of magnitude) of these changes are provided below.

- 2012 / France: Three new companies were included in the survey perimeter: Cap Gemini, Sereme and Compagnie Deutsch. The addition of these companies in the model increments the employment figures by 240 FTE and final sales by 20 M€ over 2011. The inclusion of industrial activities at CSG (not previously included) impacts final sales data by more than 25 M€, all in launchers.
- 2011 / France: Two new companies were included in the survey perimeter: Altran & Telespazio France. The addition of these companies in the model increments the employment figures by 700 FTE and final sales by 60 M€ over 2010.
- 2011 / United kingdom: Two new entities were included in the model this year: RAL and ABSL Space productst. This addition impacted on the model with an additional 260 FTE in the direct employment figures. The impact on final sales was negligible.
- 2010 / Switzerland: Mecanex and HTS are now consolidated in RUAG. Space Units removed from Model. No impact on figures. RUAG changed segment, from launcher segment to spacecraft segment (impact -500 FTE in launcher segment, +500 in spacecraft segment).
- 2010 / France: correct allocation of Thales employment by geographical location: Impact -250 FTE (moved to Germany). Two new companies added to model: MAP and STEEL Electronique. Modest impact on employment +55 FTE.
- 2010 / Germany: New Space Unit added to model: Thales Germany, correct allocation of Thales employment by geographical location: Impact +250 FTE.
- 2010 / Netherlands: Three new companies added to model: Cosine BV, NLR and HE Space Holding BV. Significant impact on employment +180 FTE.

For information related to previous year's changes please refer to previous editions of Eurospace facts and figures.

Credits

Eurospace facts & figures is an annual survey by Eurospace.

Survey management, survey tools, economic model:

- Pierre Lionnet (Eurospace)

Additional programming , graphs and consolidation (17th edition):

- Jean-Charles Treuet

Support to publishing and editing (17th edition)

- Ippei Folliot

Transition to new methodology and additional programming (14th edition),
graphs and consolidation (16th edition):

- Paul-André Perrier

Additional programming (15th edition):

- Sébastien Moranta (Eurospace)

The survey is supported and monitored by Eurospace Space Industry Markets Working Group chaired by Florent Ferres (Astrium)

The survey would not be possible without the kind cooperation of participating companies (see list inside).

To all contributors: [Thank you for your support!](#)

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