

# TOWARDS A NEW APPROACH TO COMMERCIALISATION, INNOVATIVE PROCUREMENT & INDUSTRIALISATION

RECOMMENDATIONS FROM THE EUROPEAN SPACE INDUSTRY FOR A MODERN APPROACH  
TO DO SPACE IN EUROPE

<b>Introduction .....</b>	<b>2</b>
<b>Executive Summary .....</b>	<b>3</b>
<b>What is to be understood as “Newspace”? .....</b>	<b>5</b>
An undefined phenomenon following different dynamics .....	5
An industry attempt to its understanding .....	6
<b>Industry recommendations to “modernise” the space sector in Europe .....</b>	<b>8</b>
Removing unnecessary barriers .....	8
<i>The particular issue of security requirements.....</i>	<i>9</i>
Supporting competitiveness and entrepreneurship .....	9
<i>Access to finance – a one size fits all approach?.....</i>	<i>9</i>
Service procurement on a case-by-case basis.....	10
The importance of business opportunities to complement development support instruments.....	11
Rewarding at fair levels the risks borne by the European space industry .....	11
Specific recommendations at ESA level .....	12
<i>Reduce “time to market” to simplify and adapt the requested documentation to the needs of the project size .....</i>	<i>12</i>
<i>Alternative review processes.....</i>	<i>12</i>
<i>ESA Newspace Advisory Board.....</i>	<i>12</i>
Specific recommendations at EU level .....	13
<i>How to stimulate market uptake.....</i>	<i>13</i>
<b>Annex 1 - Five frequent misconceptions in promoting “Newspace” in Europe.....</b>	<b>15</b>
<b>Annex 2 - The need for a European-wide Industrial Policy for Space .....</b>	<b>17</b>
<b>Annex 3 – Eurospace members status.....</b>	<b>19</b>

## Introduction

European institutional actors have expressed since a few years the political wish to “modernise the space sector”, or even to “change the mindset”, after having witnessed the pace of changes that have taken place in the US, and with the objective to promote also in Europe the effects induced by this new approach to commercialisation, innovative procurement and industrialisation.

The objective of this paper is therefore to provide European space industry consensual recommendations to frame European public institutions’ vision and perspective with regard to new industrial and commercial approaches to space system design, production and procurement, building on what is often referred to as the “Newspace” or “Space Commercialisation”.

The paper is divided into two main sections:

1. The first one aims at defining, from an industry point of view, what is “Newspace” and how it is transforming (or would transform) the sector in terms of financing, investing and procurements, by creating new business opportunities and by promoting evolutions in the industrial approach.
2. The second section contains recommendations for the evolution of European public procurement and management processes to enable European (and national) programmes to take advantage of the ongoing evolutions in order to support the competitiveness of the European industry on the world-wide scene.

In addition, two annexes have been added at the end of the paper to:

- put in perspective our recommendations in the light of the common misconceptions surrounding the “Newspace concept”, oftentimes promoted by the self-stated narratives of great success;
- explain that even though specific measures are needed and can be useful to deal with particular situations, those measures can only make sense and be fully efficient if they are part of a coherent and European-wide industrial policy, all the more as space is now considered a high stake for Europe security and influence in the world.

## Executive Summary

In the USA, the emergence of “Newspace” was concomitant with an evolution of the contractual approach of NASA and the DoD. From a contractual point of view, the main characteristic of this new approach lies in the implementation of different Public Private Partnership (PPP) schemes, focusing on a long-term public commitment for the acquisition of services offered by private operators. This new approach is reflected in particular by:

- A new distribution of costs and risks between public authorities and industry;
- A transfer of control of the design authority of the program from the public sector to the private sector.

The premise of the transition from an “infrastructure acquisition” approach to a scheme consisting in the “long-term commitment to the purchase of services” would allow private operators to further leverage their investments by selling additional services on secondary markets at marginal cost. **The existence of a potential reservoir of yet untapped commercial customers is a critical factor for the model to be viable.**

This is where the commercial dimension of the Newspace would meet its institutional dimension in a virtuous circle: the prospects for a new, large, commercial demand for a service or application enable to scale up the infrastructure requirements, which in turn enables to drive down the cost of the service by spreading the fixed costs onto a larger user base.

This new paradigm is expected to yield medium/long term effects, and in particular the diversification of technical and industrial responses. It could enable increased innovation, the emergence of new markets for services, of new players...

**The question now in Europe is to seek avenues for the institutions to adapt their procurement systems to foster more competition and make their activities more accessible, while at the same time contributing to maintain in the European industrial base the capabilities necessary to keep delivering strategic assets and services.**

**Hereunder is a number of suggestions (detailed in the document) from Industry:**

- Increase the level of public investment in space and recognise at once that the appropriate dimension to guarantee the "foundations" of any space policy is European, not national;
- Encourage the take up of space-based services by public authorities;
- Use procurement approaches that will allow the European private to redefine its role in system design, risk taking and the financing of space programmes;
- Ensure that institutional programmes stimulating industry innovation and competitiveness are dimensioned proportionally to the target markets that can reasonably be expected;
- Remove unnecessary barriers, based on the age or size of the industrial actors, which prevent them from selling their products, having a fair access to the market, or from having their developments efficiently supported:
  - it is also important that mechanisms are put in place to support smaller entities to obtain the required level of security accreditation, but also to protect these smaller entities from foreign takeovers, especially if they were supported by public investment.
- Supporting entrepreneurship:
  - Institutions could investigate if promoting investments would not be facilitated first by increasing initiatives to de-risk products and markets (when a business case is solid, it usually finds investors by itself);
  - Direct support to venture capital (VC) must be carefully assessed, and VC funding seems the least favourable solution to support strategic sectors;

- Accompanied by an adequate company screening, there could also be a strategy of creating specific financial tools to support strategic equipment suppliers enabling growth and anchoring their presence in Europe;
- It is worth noting that funding growth and innovation through equity raising is a strategy that is not available to legacy and established players.
- Service procurement:
  - Procurements for operational or pre-operational services could be applicable for activities with a certain predictability of commercial success. Anchor tenancy is considered an interesting approach to financially de-risk investment and development, and lead the way to operational services;
  - There will however still remain a need for public support for future developments/riskier technological acquisitions.
- Offer business opportunities:
  - For start-ups that are scaling, as much as for more mature companies, support instruments must be complemented by actual business opportunities for their products and/or services.
- Rewarding at fair levels the risks borne by the European space industry: profit is used for self-investment and innovation; profit is also key to attract and/or sustain the motivation of investors and shareholders. There is a need for:
  - Better link profit with risks on ESA programmes;
  - Reward subcontracting in order to incentivise the involvement of the whole supply chain.

## What is to be understood as “Newspace”?

### An undefined phenomenon following different dynamics

Newspace is a phenomenon with no unified consensual definition, the beginnings of which can be dated to the end of the 1990s with the development of private initiatives and private actors around markets and concepts perceived as “emerging”. This policy is even often linked to the heritage of R. Reagan’s space policy<sup>1</sup> in the 1980’s.

The perception of Newspace in its economic dimension was popularised by the publication, in 2016, of the “Start-up Space” report<sup>2</sup> by the consultancy company Tauri Group (now BryceTech) which highlights the new sources of financing for space start-ups and provides a measure of the funds (equity) raised by these new space companies. By revealing annual amounts of capital investment in space infrastructure firms exceeding in the range of 5-10B US\$ in recent years, the Bryce report has favoured an economic reading of the phenomenon, and its perception as a major trend. By end of 2022, it is estimated<sup>3</sup> that new space firms have attracted close to 45B US\$<sup>4</sup> in equity, with most of the funds raised in the past five years.

Extension of the field of applications of space solutions and technologies open to new private and public actors with all the ecosystem working together

Today, Newspace is generally “defined” (or described) as an environment characterised by new private initiatives, supposedly independent from the large traditional public markets constituted by the civil and defence space budgets typically allocated in space agencies and national MoDs, financially backed by venture capital and investment banks, sometimes linked to the giants of the Silicon Valley, and/or associated with a promise of disruption/innovation through e.g., the introduction of new technologies, system approaches and modes of production. This disruption/innovation is often presented as both the enabler and the consequence of the emergence of new services markets supported by a new type of customers for space systems. A major premise of the Newspace approach is the promise of a striking decrease of the costs<sup>5</sup> of access to space, the production of space systems (launchers and spacecraft) in larger numbers, taking advantage of, and benefiting from, economies of process and scale.

In addition, Newspace is also associated to a change of procurement approaches for some of NASA’s critical programmes, with service-based contracts open in competition to industry (both incumbent and emerging).

In light of this, Eurospace launched this initiative under the title “Commercialisation, Innovative procurement and Industrialisation”, in order to focus on the drivers of **the Newspace phenomenon, that equally affect new and legacy players<sup>6</sup>, rather than a focus on the sole perspective of the start-ups**. Indeed, any new underlying trends of the space business are relevant to all space actors in the whole supply chain.

<sup>1</sup> “The United States Government will provide a climate conducive to expanded private-sector investment and involvement in space activities, with due regard to public safety and national security.” July 1982 - <https://www.reaganlibrary.gov/archives/speech/fact-sheet-outlining-united-states-space-policy>

<sup>2</sup> [https://brycetechnology.com/reports/report-documents/Bryce\\_Start\\_Up\\_Space\\_2022.pdf](https://brycetechnology.com/reports/report-documents/Bryce_Start_Up_Space_2022.pdf)

<sup>3</sup> There are many sources for this data today, BryceTech (mentioned above), but also Space Capital Quarterly <https://www.spacecapital.com/quarterly> – Eurospace also keeps track of funds in its Newspace observatory.

<sup>4</sup> This 45Bn\$ equity raise fails to capture the fact that the largest funding rounds year after year for 5 years are those from SpaceX and (to a lesser extent) Blue Origin, both companies created in 2002 and 2000.

<sup>5</sup> Thanks to innovative production methods, or by not applying or descopeing space agencies standards

<sup>6</sup> While start-up firms have become emblematic of the newspace, many emblematic newspace projects see the significant involvement of legacy players alongside newly created ones (Oneweb Satellites that builds the Oneweb constellation is jointly owned by Airbus and Oneweb, e.g.)

## An industry attempt to its understanding

There are today two different, and not mutually exclusive, ways to approach the so-called “Newspace” phenomenon.

- First, **a promise for a massive growth in demand for satellites and launch services driven by “commercial” applications** (noting that 90% of that demand is driven by LEO broadband and mobile communications) – this demand is based on the prerequisite that the industrial actors in the sector can achieve very low infrastructure development and deployment costs<sup>7</sup> compared to current practice.
- Second, as we see with US space institutions, and NASA in the first place, **a change of procurement approaches for some of their critical programmes, with competitive service-based contracts** open to industry (both incumbent and emerging). This new procurement model supported the emergence of SpaceX as a major NASA contractor for the ISS servicing. It is now expanded to a wider range of NASA programmes, particularly for Moon and Mars exploration.

In the USA, the Newspace movement was concomitant with an evolution of the contractual approach of NASA and the DoD. From a contractual point of view, **the main characteristic of this new approach lies in the implementation of different Public Private Partnership (PPP) schemes, focusing on a long-term public commitment for the acquisition of services offered by private operators** (the DoD multi-year launch service purchasing launchers in “batches” was a pioneer in this regard). This new approach is reflected in particular by:

- **A new distribution of costs and risks between public authorities and industry;**
- **A transfer of control of the design authority of the program from the public sector to the private sector.**

Such an evolution had been made possible thanks to the maturity reached by the established/legacy US space industry (Boeing, Lockheed, ULA, Northrop Grumman, Maxar...), after decades of experience working on institutional and commercial space programmes, that has allowed it to achieve greater autonomy in the development and management of space infrastructures. US authorities keep on supporting their legacy actors, further promoting this evolution. **Today, despite the fact that they are considered emblematic of this new approach, the vast majority of Newspace companies have not yet reached this maturity<sup>8</sup>**, their credibility is often established on the basis of their capacity to raise equity rather than on the maturity of their products and services.

The premise of the transition from an “infrastructure acquisition” approach to a scheme consisting in the “long-term commitment to the purchase of services”<sup>9</sup> would allow private operators to further leverage their investments by selling additional services on secondary markets at marginal cost. **The existence of a potential reservoir of yet untapped commercial customers is a critical factor for the model to be viable** (which, so far, only exists in a limited number of domains of space infrastructure and services markets).

This is where **the commercial dimension of the Newspace meets its institutional dimension in a virtuous circle**: the prospects for a new, large, commercial demand for a service or application enable to scale up the infrastructure requirements, which in turn enables to drive down the cost of the service by spreading the fixed

<sup>7</sup> E.g. for satellite broadband infrastructure to be able to compete effectively with Earth based solutions a cost reduction of at least one order of magnitude may be necessary on both satellite and launch prices.

<sup>8</sup> Basically, only SpaceX, that has now a mature service offer, centred on the Falcon launcher and the Dragon spacecraft (cargo and crew versions)

<sup>9</sup> This transition is obviously easier to envisage in areas where technological maturity has reached a sufficient level and where risks are considered reasonable to afford

costs onto a larger user base. This virtuous paradigm is at the same time the justification and the consequence of the newspace arguments for better efficiency, lower costs, simpler designs and large market expectations.

**This new paradigm is expected to yield medium/long term effects, and in particular the diversification of technical and industrial responses.** It could enable:

- Increased innovation in industrial processes;
- Increased innovation in infrastructure and systems;
- The emergence of new players attracted by less risky market prospects;
- The emergence of new markets for services.

**The question now in Europe is to seek avenues for the institutions (EU, ESA, EUMETSAT, national agencies...) to adapt their approach to space programmes, and in particular their procurement systems, to foster more competition and make their activities more accessible to emerging and established players alike, regardless of their geographic origin in Europe (at least for the EU), while at the same time contributing to maintain in the European industrial base the capabilities necessary to keep delivering strategic assets and services.**

## Industry recommendations to “modernise” the space sector in Europe

While industry recommendations on an effective space industrial policy can be found in Annex 2, the objective of this chapter is to outline relatively “simple” measures to support a healthier, more modern, more agile, and more competitive and sustainable space industry in Europe:

- **Increase the level of public investment in space**, improve the consistency of these investments<sup>10</sup>, and recognise at once that **the appropriate dimension to guarantee the “foundations” of any space policy** (safeguarding the capabilities; strengthening the resilience, competitiveness and reliability of the industry; and enhancing the technological non-dependence, like all the major space powers are doing) **is European, not national**;
- **Encourage the take up of space-based services by public authorities** (for instance through norms and regulations, or a service-oriented policy), in order to create **a sustainable primary institutional demand that will enable/accelerate the emergence of profitable secondary commercial markets, notwithstanding nevertheless the need to fund space infrastructures to enable services**;
- **Use procurement approaches that will allow the European private sector** (whatever it may be: SMEs, start-ups, midcaps, or large groups) **to redefine its role in system design, risk taking and the financing of space programmes** (the micro management of geo-return and complex industrial policy rules – including shares per company type for which more flexibility is needed – imposed by ESA today represents the antithesis of this approach);
- **Ensure that institutional programmes stimulating industry innovation and competitiveness are dimensioned proportionally to the target markets that can reasonably be expected**, with larger – and more focused – budgets rolled out for markets having larger prospects.

### Removing unnecessary barriers

The general assumption on which this paper is based is the following: whether public institutions want to support the development of competitive products<sup>11</sup> or whether they want to buy competitive products<sup>12</sup>, in the end **about the focus should be on the product** and not who produced it. Provided it is European. And provided of course – and this is particularly important in the case of smaller entities – that the public customers can make **full use of all the competences existing throughout Europe**.

The question is therefore not, as it seems to be the tendency in European institutions<sup>13</sup> how to preferentially procure from start-ups or newer or smaller companies or support the developments of these companies, but, rather **how to remove the barriers that actually prevent those actors that are smaller and/or newer (and by extension, all types of actors) from selling their products, having a fair access to the market, or prevent them from having their developments as efficiently supported as others**.

There are indeed insuperable obstacles. Already 15 years ago the European Commission identified a list of obstacles in a communication entitled “European Code of Best Practices Facilitating Access by SMEs to Public Procurement Contracts”<sup>14</sup>. Amongst those obstacles that are, by the way, not only relevant for SMEs but also for small business units within large groups (as it is often the case for space), we find:

- Lack of knowledge about tender procedures;
- Excessive administrative burden;

<sup>10</sup> while supporting different types of technologies from different types of actors.

<sup>11</sup> For instance, in the frame of R&D programmes aiming at supporting industry competitiveness, such as Horizon Europe, or ARTES

<sup>12</sup> For instance, in the frame of operational programmes such as Copernicus

<sup>13</sup> See for instance the recent “Dynamic Purchasing System For Copernicus Contributing Missions”, where for Category 1, “the applicant must prove that its legal entity is **at most fifteen years old** based on its date of registration”

<sup>14</sup> SEC(2008)2193

- Too large size of the contracts;
- Too little time to prepare the tenders;
- The high cost of preparing the tenders (since many bidding costs are fixed, small companies face disproportionately high costs in comparison with larger enterprises);
- Excessive requirements for financial guarantees;
- Late payments by contracting authorities;
- ...

If understanding the way ESA or EC procurements works is valuable, a major showstopper for small companies in participating to institutional bids lies in their insufficient resources to manage the administrative burden; indeed, the efforts are sometimes not worth the low ROI, in particular for small companies, which have very small Business Development teams, and that prefer to put resources in e.g., engineering for the development and maturation of their products.

**Further investigating amongst the SMEs and space start-ups about their daily struggles would help prioritise the unnecessary barriers to remove**, and to have a direct positive impact on the sector, with little additional investments required.

Finally, promoting the access to start-ups in sizable contracts is very much welcome if the risk of start-ups failure/non delivery along the contracts is mitigated and factored in, i.e., by institutions.

### The particular issue of security requirements

With the significant increase of the ambitions of the EU in space, the institutional demand is today more and more driven by the political willingness to address geopolitical, societal and economic challenges with application-driven systems. The consequence is an ever-increasing importance for systems resilience and security.

The development of sensitive technologies and know-how in smaller entities is particularly critical given the relative easiness to acquire them, and the difficulties for smaller entities to implement security measures; **it is therefore important that mechanisms are put in place to support smaller entities to obtain the required level of security accreditation**, but also to protect smaller entities from foreign takeovers that would strip Europe from their newly acquired capabilities, especially if they were supported by public investment<sup>15</sup>.

### Supporting competitiveness and entrepreneurship

#### Access to finance – a one size fits all approach?

The European Commission and ESA today seem to focus much of their efforts on “access to finance”. **It would be necessary to check to what extent is access to growth finance hard to secure due to a failing VC/investment environment (i.e., lack of capital resources) or due to insufficient technological maturity and product readiness (lack of market and insufficient revenues prospects)**. The enthusiasm generated by new space ventures in the past decade has fuelled a growing flow of deals involving venture capital and private equity funds, that culminated in 2021, but it is now receding, probably under the influence of the catastrophic performance of the new space IPOs of 2021 through SPACs (Special Purpose Acquisition Companies). Investors are now looking more closely at products maturity and market uptake potential.

<sup>15</sup> The case of phased array technologies for satellite broadband terminals in Europe is an example of failure to protect European interest in a critical domain, with UK Phasor's takeover by Hanwha, <https://cordis.europa.eu/article/id/213237-a-new-antenna-for-a-mobile-world>

Institutions could therefore investigate if promoting investments would not **be facilitated first by increasing initiatives to de-risk products and markets**<sup>16</sup>. When a business case is solid, it usually finds investors by itself.

The philosophy of improving access to capital by supplementing venture capital with public funds driven by policy (i.e., make more funds available to space companies, than e.g., biotech ones) is an oxymoron as it creates a distortion on the investment market. On the one hand it creates windfall effects by giving the markets a fabricated signal of higher capital availability (i.e., at lower costs) despite not having any positive impact on de-risking the projects. On the other hand, it acknowledges the existence of a market failure, i.e., the ability of investors (and VC funds) to identify the best investment opportunities. In both cases, it invalidates the VC investing model/thesis, i.e., its capacity to attract investor money and creating value by curating a company portfolio driven by profit/growth vs. risk.

If the VC gets subsidised to invest in a given sector, it lowers its cost of access to capital, but does not de-risk its investments; thus, it does not incentivise the VC to take more risk (the public support to the VC can be considered as “free money” for the VC to increase its management margin). Using the same money to de-risk the investments (by providing support for R&D and maturity, or direct business opportunities to the companies) would probably yield more positive returns, and would incentivise more investment.

**There could also be a strategy of creating specific financial tools to support strategic equipment suppliers enabling growth and anchoring their presence in Europe** (e.g. Mynaric, Azur Space, Hemeria, GOMspace...); the European Investment Bank could establish a specific partnership fund to secure strategic long-term ownership (with presence at boards) with a view of achieving soft control over strategic suppliers. But suitable company screening is a must, because the majority of Newspace business cases are inherently very risky.

**Direct support to venture capital (VC) must be carefully assessed**, because VC funding is often feeding off corporate strategies, it incites exaggerated build-ups, promotes too fast growth, and does not contribute to strategic long-term partnership for the elaboration of viable market cases. VC funding is the least favourable solution to support strategic sectors, and the recent flurry over space investments is probably not conducive to sensible reasoning, while the VC community is riding this frothy wave, its recommendations should thus be taken with more than a few grains of salt.

**It is also worth noting that funding growth and innovation through equity raising is a strategy that is not available to legacy and established players.** Equity based support strategies are thus incomplete. Established players may benefit from other strategies, such as bonified loans, customer/export insurance and credit, and other such financial instruments, to facilitate the development of emerging business models, which they may develop and foster as much as start-ups.

## Service procurement on a case-by-case basis

**Service procurement (with, or without, anchor tenancy) is gaining traction for the provision of space programmes.** In this scenario, the definition of service level agreements (SLAs) and high-level service requirements (including considering risks or liabilities within those service levels) should be the focus, rather than providing detailed specification of the system design perspective. This is true across the value chain – launch, data/service delivery, and product development.

Procurements for operational (or pre-operational) services could be applicable for instance for activities with a sufficient level of predictability of commercial success.

Anchor tenancy is considered an interesting approach to financially de-risk investment and development, and lead the way to operational services. In the meantime, public investments will continue to be needed for

<sup>16</sup> European institutional actors could also need to check whether we are not simply trying to mimic in Europe a recipe that has worked in the US for the ICT sector, as the conditions are obviously not the same.

infrastructure providers, to develop strategic and sovereign assets and infrastructures that can enable or incentivise the development of new services, as well as for future development/riskier technological acquisition (e.g., reusability of launchers, Human Spaceflight...) as space remains a harsh environment. Institutional partners keep a critical role in this regard.

Continuity of programmes is key: it is very doubtful that one can switch from one extreme (fully funded R&D and initial infrastructure deployment by public sector) to the other (full anchor customer procurement of services when there is commercial potential) right away in one go. Transition periods must be considered and support for infrastructures funding needed, as mentioned above.

**The key problem is for ESA to create the conditions for ensuring the geo-return when it is not having design authority on the infrastructure providing the service.** This seems to be a showstopper. It also links to the recommendation below to ease the geo-return principles.

In this context, a point for further investigation concerns the extent to which the European space industry would be impacted by an extension of the key GATT, WTO and GATS principles and rules to other sectors than those of the satellite communication services industry.

### The importance of business opportunities to complement development support instruments

Mature companies as well as SMEs and start-ups need targeted support to develop their products. In the case of new companies, support to development and innovation (e.g., with research, development and technology support programmes and/or grants) in the early phase of the company lifecycle is very much welcome as it allows to kickstart a business.

In this regard, actual results (i.e., revenues, operational products, customers' base...) of companies claiming targeted support instruments should be used as a key selection criterion, as much as customer traction. In the end, customer traction enables competitiveness and growth for European companies while avoiding dependency on institutional subsidies.

For start-ups that are scaling, as much as for more mature companies, support instruments must be complemented by actual business opportunities for their product and/or services because customers are essential for companies to grow. In this sense, **having institutions as anchor customers is a sine-qua-non-condition for company development**, especially when they need to prove to commercial customers that the technology works (taken into account that a careful assessment of the commercial business potential is a pre-requisite for an institutional service procurement in a PPP scheme).

### Rewarding at fair levels the risks borne by the European space industry

Industry profitability is one of the key indicators, alongside cash generation, of its financial health, of the sustainability of its activities and of the ability to support growth since it supports its capability to invest in their future (e.g., creating innovation through R&D, and setting up new industrial infrastructures and processes) to be competitive on the global market, and, ultimately, to attract and/or sustain the motivation of investors and shareholders.

In its "Industry Manifesto for a new ESA Profitability Policy for Space procurement activities", published<sup>17</sup> in 2021, Eurospace proposed recommendations to address the issue of Industry profitability when conducting ESA procurement contracts, notably:

<sup>17</sup> <https://eurospace.org/eurospace-position-paper-manifesto-for-a-new-esa-profitability-policy-for-space-procurement-activities/>

- Better link profit with risks on ESA programmes;
- Reward subcontracting in order to incentivise the involvement of the whole supply chain when conducting ESA procurements;

Profit is used for self-investment and innovation which paves the way for the future of industry and supports the competitiveness of the European space industry on the international market; industry profit is also, obviously, key to attract and/or sustain the motivation of investors and shareholders.

## Specific recommendations at ESA level

### Reduce “time to market” to simplify and adapt the requested documentation to the needs of the project size

Process and management standards are at the core of the ESA current procurement and programme approach. **Removing formal obstacles to allow a leaner management and more flexibility in design and development** could probably be supported by other companies in the sector. The “micromanagement” of ESA over industry activities has often been cited by Eurospace members as a reason for reduced efficiency and competitiveness (and also higher programme costs, for which ESA could adapt their standards<sup>18</sup> – redundancy, quality, etc. – to the type of missions, accounting also for the flight record of the products proposed by industry).

### Alternative review processes

**ESA programme management process is often considered lengthy and bulky**, with its numerous review meetings and heavy documentation load associated to them. Eurospace members have often voiced the opinion that this approach would/could be simplified to allow more initiative on industry side, and reduce the administration and management burden on ESA programmes.

### ESA Newspace Advisory Board

As newspace approach encompasses all actors, Industry would welcome the setting-up of a long-term consultation body with Industry – involving all categories of industrial actors – whose focus should be, for clarity, on “commercialisation” rather than on the ambiguous term of “new space”

*Note: the particular issue of ESA “geo-return” rule*

**Removing or introducing flexibility into geo-return constraints for mission or development funding seems an easy way to prioritise competitiveness and technical quality** and could be tested in some selected programme areas (e.g., Moonlight, IRIS<sup>2</sup>, Space safety, operational EO programmes etc.). However, **easing geo-return constraint** is probably a hard discussion point for the Member States (and **may endanger the capability of ESA to levy the contributions**, and eventually reduce its spending power). Introducing lower prices for access of services/data for entities in their country could be an alternative way to motivate MS to subscribe to such programmes.

Geo-return is however a point often raised within the European Industry and ESA should start **reflecting about how to find a better balance between the contribution of this rule to levy contributions and its adverse effects on competitiveness and on the sustainability of supply chains.**

<sup>18</sup> It is worth noting that industry is promoting the development of a new family of ECSS standards provisionally called “Industrialisation” and aiming at proving a consistent PA and quality framework for series and volume productions, including automated production processes.

The introduction of service-based procurements (as in Moonlight e.g.) may provide a new avenue to release constraints on geo-return and assess its potential benefit in terms of cost, added value, and private sector efficiency.

## Specific recommendations at EU level

**The EU, as a key institution in the European space sector with an increasingly substantial weight in terms of programmes and budgets can obviously play a special role, and stimulate the commercial market.** Indeed, the EU has both:

- The capacity to achieve the necessary critical mass to ensure the initial profitability of a service and;
- The political weight and the means to promote its use, both through regulations (standards and norms) and through procurement, including with tools such as pre-commercial procurement and “innovation partnership<sup>19</sup>”.

## How to stimulate market uptake

Six promising lines of action that we recommend the Commission and EUSPA to further assess and deepen have been identified. These approaches can, in addition, complement and reinforce each other:

- **The EU as a “prescriber”:**
  - “Prescribing” the use of satellite data can be done through regulation and standardisation, it is even more true for what concern the data and signals generated by the programmes under its authority.
    - For instance, the Regulation (EU) 2018/746 of 18 May 2018 allows data from the EU’s Copernicus Sentinel satellites (“or other data with at least equivalent value”), to be used as evidence when checking farmers’ fulfilment of requirements under the CAP for area-based payments. It is obviously a step in the right direction, but elaborating a standard based on Copernicus data would be an improvement, and another improvement would be not to simply “allow” the use of Copernicus data but making it compulsory.
    - Another example could be offered with Space Traffic Management (STM) for EGNSS: the existing systems for tracking satellites are decades-old and optimised for military use rather than for the purposes of safety and commerce. A new approach to space traffic management could impose the use of EGNSS transponders to report a spacecraft’s position accurately, and with a very limited latency, to space-based receivers onboard on the new IRIS<sup>2</sup> constellation, hence offering a real competitive advantage to European space operators.
- **The EU as a driver to the emergence of sizeable markets:**
  - There are most certainly several public policies, as well as several B2B and B2C markets, that could rapidly benefit from (existing or rapidly deployable) operational space capacities or services that are currently inaccessible because the initial investments exceed the financial and technical capacities of any single Member State and, a fortiori, of any single user
    - therefore, mechanisms such as flexible and efficient “central purchasing organisations”, or pre-commercial procurements, or risk coverage through European Fund for Strategic Investments (EFSI), can be better implemented at Union level, to “mutualise” the costs and the risks and allow these potential users and markets to benefit from space-based services.

<sup>19</sup> Regulation 2018/1046, Annex I, Section 2, Art. 7

- Even the realisation of supporting space infrastructures able to deliver services to new space economy, in form of Infrastructure-as-a-Service (IaaS) or Platform-as-a-Service (PaaS), could be considered
- **The EU as a facilitator of cooperation between different industrial sectors** (logistics, agriculture, ...) and companies that develop new solutions, for example those based on Copernicus data, but also on all other components of the EU Space Programme.
- **The EU as a promoter of innovation** through its role as customer:
  - The EC has the possibility to use specific procurement procedures<sup>20</sup> stimulating innovative industrial solutions and capable to encompass design and manufacturing phase in one single procedure
- **The EU as a support to export:**
  - EU institutions could work together to facilitate access to new markets by the active promotion of European capabilities and the development of a strong European economic diplomacy.
- **The EU as a promoter of European strategic autonomy** (as well as of safety and security initiatives)
  - The EU is a strategic actor in political terms, and this should be reflected in the way it stimulates the development of space entrepreneurship in the whole space sector, which is in turn a highly strategic sector.
    - In this particular domain, it is worth noting that the EU has set in place a number of innovative tools (Cassini, EIC, EIB/EIF...) entirely dedicated to support start-ups and, specifically, companies legally identified as SMEs, with specific rules of eligibility; however, in some occasions, these rules can prevent delivering financial support to companies which could play an important role in supporting key strategic autonomy objectives of the Union (and sometimes be the only ones in that case); again, it is recommended that the focus is on the product or the capability rather than on the size or age of the industry that would deliver it.

---

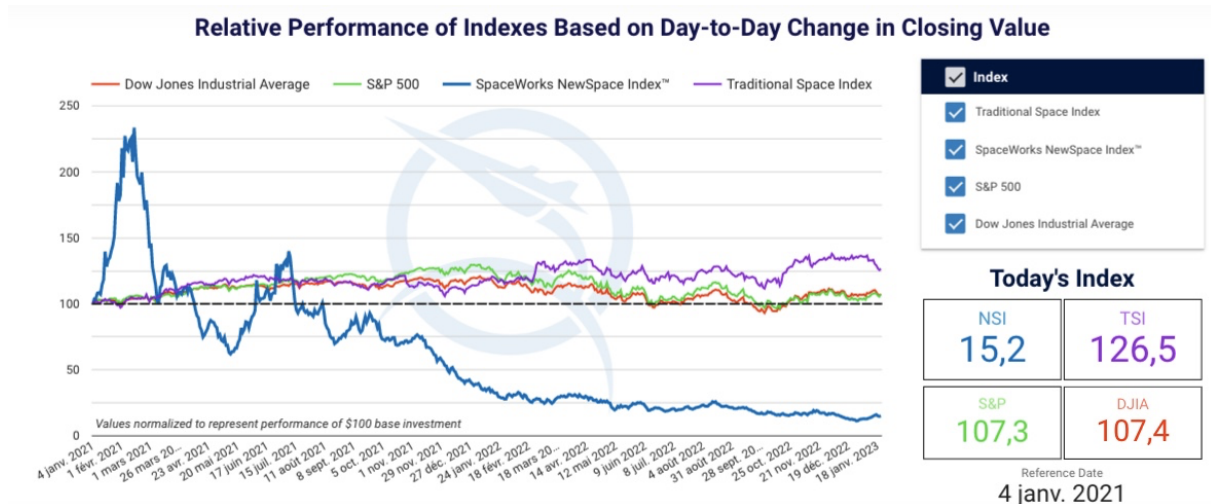
<sup>20</sup> "Innovation partnership", see EU Financial Regulation, Annex I, art.7

## Annex 1 - Five frequent misconceptions in promoting “Newspace” in Europe

European institutional actors have expressed since a few years the political wish to “modernise the space sector”, after having witnessed the pace, changes and steps forward that have taken place in the US, and with the objective to promote also in Europe the effects mentioned above. These intentions, while good in spirit, are however often based on assumptions that might not be entirely sound, and could be ultimately harmful to the European space sector’s future prospects, if not properly reassessed:

1. **Reducing the Newspace to the sole dimension of start-up funding** (or even the “age” of a company). It is not enough to stimulate venture/risk capital to support the emergence of a “European SpaceX”. It also requires a significant volume of public procurement sustained in the long term capable of creating the outlets favouring the development of companies.
  - **This mistake feeds on the systematic omission of the difference in the level of public funding between Europe and the USA** (by a factor of 6, at least), and also failing to realise that the “European” investment is essentially the sum of largely uncoordinated national investments that are giving much less freedom to entrepreneurial initiative, even if institutional actors in most countries are nowadays receptive to entrepreneurial concepts.
  - Differently than other new players aiming at developing new market segments (in broadband and observation e.g.), SpaceX originally emerged as a competitor to established NASA contractors for launch services making use of institutional technologies/patents, its in-house commercial ventures (Starlink e.g.) came almost a decade later.
2. **Considering the Newspace as a homogeneous sub-sector, united by the same priorities and concerns.** It should be borne in mind that within what are usually considered “Newspace companies”, there is a key difference between companies that are mature (characterised by actual customers, revenues and not subsidies, and a business model) and others that are still in early stage development and have yet to mature and scale.
  - In this regard, the usefulness/relevance of institution-led processes intended to consult so-called “Newspace companies”, or to offer them a voice in public consultations, should be carefully assessed against the diversity of new actors in space and the diversity of their ambitions and maturity. In other words, does it make any sense to consult industrial actors as a group based on ill-defined criteria? And if it does at some occasion, participation criteria should absolutely be made public.
3. **Forgetting the commercial heritage of the European space sector:** Commercial and export business has provided the European space industry with up to 50% of its revenues in the past two decades (and contributed up to 1.5B US\$/year to the European trade balance). The European industry is at the forefront of commercial space since the 1980s: Arianespace was the first private launch service operator on the market with a long-standing track-record in performing commercial launches onboard Ariane 5, Eutelsat is a spin-off of the ESA OTS-ECS programme, Spot Image is now a private company, Thales and Airbus are global leaders on the geostationary communications systems market, and 80% of commercial constellations deployed before Starlink and Kuiper were built in Europe. **Commercial space is nothing new to Europe**, but forgetting this heritage prevents the implementation of efficient, European-wide, measures to support and increase Industry competitiveness throughout the supply chain.
4. **Confusing a “success story” with sectoral trend and actual economic performance:** the highly publicised successes of SpaceX, Planet, and to a lesser extent Blue Origin (for example) do not necessarily create a trend. Furthermore, a series of technical achievement (landing a booster, deploying >300 cubesats, flying suborbital a few passengers) do not constitute a demonstration of a successful sustainable business case. This is an oversimplification related to the current focus of the political

ambition on a keyword (“Newspace”) without assessing its dynamics and economics, its technical fundamentals, and without consideration about the specific environment and public support that actually helped build the very few success stories (like SpaceX). The fact is that even with the help and contribution of institutional actors, the general trend of new space players is to exhibit very poor economic performance, highlighting the relatively low maturity of their business cases (and sometimes of their products). As a result, Newspace players have dramatically underperformed on financial markets (and SpaceX, considering its constant recourse to the equity market, with over 5B US\$ raised in the past 3 years alone, is probably still far from profitability).



5. **Underestimating the risk level of new space projects.** The past bankruptcies of Globalstar and Iridium, and more recently of OneWeb, have shown the economic damages caused by overly optimistic expectations about the viability of emerging markets supported by yet to be demonstrated technical or economic disruptions. The frothy speculative environment of space equity and fundraising have clouded the fragility of the proposed new approaches.

In this very sensitive context, we note a failure **to define with precision the policy goals and expectations of the re-elaboration of space policies to accommodate the new space trends and actors.** Is it about wealth creation? Is it about lowering the costs? Is it about lowering the amount of public investment? Is it to promote the emergence of new private sector players? From new countries? Is it to diversify the sources?...

**This lack of focus and design leads to a very real risk that public authorities in Europe may squander considerable budget and policy resources** without taking the structural measures that would enable the growth and modernisation of the whole European space sector, building upon the expertise of the last decades.

## Annex 2 - The need for a European-wide Industrial Policy for Space

The Space and Defence sectors in Europe share several commonalities:

- These are demanding industrial activities, whose products are used in **hostile environments** and which require a **high level of expertise**;
- **Industry represents a critical stakeholder** in both domains, instrumental to any credible policy and enabler of any sovereign action capability. Besides, as both the defence and space industries are addressing policy-driven strategic capabilities, they require **specific industrial policy measures**;
- The **internal institutional market** is **smaller** than in any other world powers, **too small** and **fragmented**, **obliging industry to be able to export in order to achieve a volume of activity** necessary to guarantee the “security of supply” and a critical mass for maintaining competences, thereby submitting its sustainability to uncontrolled external factors.

Industry insists that even though specific measures are needed and can be useful to deal with particular situations, those measures can only make sense and be fully efficient **if they are part of a coherent and European-wide industrial policy**, all the more as **space is now considered a high stake for Europe security and influence in the world**.

An EU-wide space industrial policy should be put in place, aiming at ensuring European autonomous capability to conceive, develop, launch, operate, and exploit space systems.

This EU-wide industrial policy should be structured along the following axes:

- **A tailor-made procurement policy** that takes into account:
  - **The space strategies of Europe’s direct competitors**: each country has its own specificities but the objective of independence, or even dominance, is commonly shared. Moreover, the **unequal situation of worldwide captive markets** creates a huge capability and technology gap between Europe and its direct competitors on the commercial and export market, and should be taken into account by the European public space procurement policy.
    - In other words, in order to ensure its security and to strengthen strategic autonomy across key technologies and value chains, **European institutional actors shall restrict the participation to their space programmes** – as well as the procurement of space-based services – to European entities
  - **The strategic aspects and the nature of space programmes**. Indeed, they are by nature long-term and risky;
  - **The guarantee of availability, continuity and quality of the services** (when entered in operational phases). This must become a key criterion in addition to cost and “value for money”;
  - The situation of oligopolies in the space sector<sup>21</sup>;
  - The need to ensure a fair access to procurement to all segments of Industry (whether large-scale integrators, mid-cap or SME).
- An **ambitious and efficient R&D**, aiming at:
  - **Maintaining the technological readiness** of the EU-owned strategic infrastructures and **preparing the development** of the new components of the EU space programme;

<sup>21</sup> which is characterised by a paradoxical situation: on the one hand, institutions seek the multiplicity of potential sources to stimulate competition for the benefit of their future procurements, but on the other hand, in a limited and relatively flat market where major long-term procurements are scarce, there is a push towards industry concentration, in order to attempt keeping the critical mass and ensure the continuity of the workload to preserve critical skills.

- **Ensuring the necessary technological leadership to enable the European industry to compete on open markets** (which is of particular importance given its dependence on the – rare – open markets);
- **Ensuring consistency among the various sources of funding** for space R&D at national and European level (European Defence Fund, Horizon Europe, European Defence Agency and ESA funded R&D and national agencies R&T programmes). Indeed, when answering (future) public authorities' needs, as it is especially the case in the frame of defence and security-related developments, space R&D activities should therefore benefit from the specific modalities adopted for the defence sector capability development (i.e., grants covering direct and indirect costs), in particular when correcting a technological dependence;
- Supporting **market uptake** of European-developed space technologies and services;
- Addressing the export markets, in particular through **economic diplomacy**.

In terms of hostile take-over, a harmonisation of the golden share regulation across all countries is advisable. EU institutions are very keen on anti-trust law, but the same level of control shall be put in protecting key technologies from non-European investors with an improved EU role in coordination of investment control.

## Annex 3 – Eurospace members status

Company	Country
Air Liquide Advanced Technologies	France
Air Liquide France Industry	France
Airbus Defence & Space Gmbh	Germany
Airbus Defence & Space Ltd	United Kingdom
Airbus Defence & Space Netherlands B.V.	Netherlands
Airbus Defence & Space Sas	France
Airbus Defence & Space Sau	Spain
ALTEC	Italy
ALTER Technology-TÜV Nord France	France
ALTER Technology-TÜV Nord S.A.U.	Spain
ALTER Technology-TÜV Nord UK	United Kingdom
AntwerpSpace N.V.	Belgium
APCO technologies	Switzerland
Arianegroup Gmbh	Germany
Arianegroup Sas	France
Arianespace	France
Avio Spa	Italy
Azur Space	Germany
Beyond Gravity AB	Sweden
Beyond Gravity Austria	Austria
Beyond Gravity Swiss	Switzerland
CGI France SAS	France
CGI Deutschland B.V & Co. KG	Germany
CS Gmbh	Germany
CS GROUP - France	France
CS Romania	Romania
Dassault Aviation	France
Deimos Engenharia	Portugal
Deimos Space	Spain
Deimos Space Romania	Romania
Deimos Space UK	United Kingdom
eGEOS	Italy
Elecnor Infrastrutture e Aerospaziale	Italy
GMV Aerospace & Defense S.A.U.	Spain
GMV GmbH	Germany
GMV Innovating Solutions B.V	Netherlands
GMV Innovating Solutions S.R.L. (B)	Belgium
GMV Innovating Solutions S.R.L. (RO)	Romania
GMV Innovating Solutions SARL	France
GMV Innovating Solutions Sp.z o.o.	Poland
GMV NSL Limited	United Kingdom
GMV Soluciones Globales Internet S.A.U.	Spain
GMVIS Skysoft S.A.	Portugal

Indra Sistemas SA	Spain
Kongsberg Defence & Aerospace	Norway
Loft Orbital	France
MOLTEK	Netherlands
MT Aerospace AG	Germany
Neuraspace	Portugal
OHB ITALIA	Italy
OHB Systems AG	Germany
Pangea Aerospace	Spain
REOSC	France
RHEA Group	Belgium
SABCA	Belgium
Safran Aero Boosters	Belgium
Safran Aircraft Engines	France
Safran Data Systems	France
Safran Electrical & Power	France
Safran Electronics & Defense	France
Safran Engineering Services	France
Safran Filtration Systems	France
SENER Ingeniería y Sistemas, S.A.	Spain
SITAEL S.p.A.	Italy
SpaceAble	France
ST Engineering iDirect Europe CY NV	Belgium
Telespazio Belgium SRL	Belgium
Telespazio Germany GmbH	Germany
Telespazio Italy Spa	Italy
Terma A/S	Denmark
TESAT Spacecom GmbH&Co. KG	Germany
Thales Alenia Space Belgium	Belgium
Thales Alenia Space France	France
Thales Alenia Space Germany	Germany
Thales Alenia Space Italy	Italy
Thales Alenia Space Luxembourg	Luxembourg
Thales Alenia Space Poland	Poland
Thales Alenia Space Spain	Spain
Thales Alenia Space Switzerland	Switzerland
TNO	Netherlands
TTTech Computertechnik GmbH	Austria