

SME4SPACE Position Paper regarding recent developments in the governance of space activities in Europe

THE EUROPEAN REPRESENTATIVE ORGANISATION OF SPACE SMEs

SME4SPACE
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INTRODUCTION

The space sector has been changing rapidly in the last decades. The arrival of new agile actors and disruptive technologies associated with the digital revolution of the economy results in a paradigm shift of its organisation. Equipped with new tools such as artificial intelligence, big data, cloud computing and supported by technological innovations in miniaturisation, robotics, additive manufacturing, private operators are claiming a more critical role in both the upstream and downstream segments. What started in the United States and Asia is now also a reality in Europe.

The results of this revolution are already being felt. The cost of putting payloads into orbit has drastically been reduced, and the lead time of space projects is optimised. More (small) satellites will be launched in the following years, offering affordable responses to new needs of companies, consumers and institutional actors.

The space sector is now providing attractive opportunities to investors taking advantage of the fast-growing market. SMEs will be at the forefront of this revolution with new technological developments relevant to businesses and society.

During the pandemic, the space sector – particularly the SME community – has shown to be flexible in responding to new challenges quickly. Thanks to this agility and the support of public authorities, space SMEs have demonstrated to be crisis-resistant and a crucial part of the European recovery. Market studies predict a further growth of the space market over the next twenty years, mainly driven by the massive use of space data, space technology and space infrastructure, offering even more opportunities for SMEs to succeed.

Europe sees the emergence of new start-ups throughout the value chain. This entrepreneurship is fundamental for the sustainability of the European space ecosystem. SMEs are essential in the development of many downstream services and applications. They are dynamic and have a great capacity for innovation and the development of breakthrough technologies.

Therefore, to allow Europe and its actors to face the global competition and further boost the European space economy, particular attention has to be given to the role of SMEs in space activities. Although increasing, SME participation in European space programmes has not yet reached its full potential due to a certain number of entry barriers. With this Position Paper SME4SPACE, as the representative organisation of SMEs active in space in Europe, underpins a certain number of attention points for the governance of space activities in Europe, increasing SME participation. The points are the following:

SMALL PROGRAMMING OFFERS OPPORTUNITIES TO SMES TO ACCESS SPACE MARKETS

The presence of SMEs in the value chain has already proved to be instrumental for knowledge transfer, innovation in the space sector as well as the development of products and services. EU and ESA programmes should allow SMEs to enter easily and to have complete responsibility for their execution, both in the upstream and the downstream segments. This can be achieved through small programming, not in terms of budget allocation or objectives, but in the way projects are set up, managed and made accessible to SMEs.

Small programming facilitates the access to space activities for SMEs and allows them to respond more directly to the new needs and challenges of the space community. Small programmes enable SMEs to take the lead, develop innovative technologies, and implement new business solutions. A welcome side effect would be that difficult contractual situations within consortia (e.g., liability) can be eliminated further.

The selection of a start-up to develop a solution to capture and remove space debris in the context of a major ESA space mission worth of 100M€ is an example of how small programming supports the development of cross-cutting technology by an SME. SME4SPACE would like to see more of such examples and pleads for more small programming also within existing initiatives.

REGULATIONS, RULES AND STANDARDS SERVING BUSINESSES

Small programming can only be successfully implemented when associated with a reduction of rigid, excessive or redundant regulations, rules and procedures. Although the situation is improving, SMEs are still often confronted with bureaucracy, administrative burden and multiple decision-making layers having a demotivating effect, especially on newcomers in the space sector. Red tape reduction is generally seen as a condition to improve the competitiveness of all economic actors. With New Space, there is a fast increasing speed, reactivity and volume challenge of the value chain of the space sector. Hence, programmatic rules and procedures should support this evolution.

A representative example case is the Horizon 2020 Annotated Model Grant Agreement, which is 846 pages long. Even though it is already simplified from the previous version of the FP7 Framework programme, the need is still to reduce its complexity further.

Another element in this context is the development of a coherent, single set of user-friendly standards for the European space community. The European Cooperation for Space Standardisation (ECSS) standards need to be simplified to reduce the number of the prescriptive and mandatory requirements to be accomplished by each space SME. With this regard, SME4SPACE is coordinating a consortium of 7 SMEs and 1 RTO to support ESA in performing this simplification, starting with the Space Projects Management Standards (M-Branch).

Finally, contractual arrangements with SMEs should be simple and easy to comprehend at the level of involvement. In particular, liability schemes should align with the role of individual SMEs in space projects and should reflect their financial capacity.

DEVELOP INITIATIVES WITH A DIRECT IMPACT ON THE FINANCIAL STRENGTH OF SMEs

The profitability of the industry has become a major topic. SME4SPACE has asked the KULeuven (Catholic University of Leuven) to study the economic performance of SMEs in the European space industry in the period 2014-2018. Concerning profitability, the study shows that:

- SMEs are very capital intensive: huge investments (higher than in other industries) have to be made by the SMEs to be able to compete successfully and to support their growth;
- SMEs in the European space industry have weak profitability. The study shows that the return on assets ratio is between 3.2% and 4.1% over the last five years covered (with the lowest ratio in the previous year examined).

The combination of these two elements (high capital needs with low profitability) offers a clear rationale for the development of initiatives that support the financial strength of SMEs, even before we consider the impact of the COVID crisis.

At a particular moment in their growth process, grants or R&D funding alone does not allow start-ups and scale-ups to support their scalability and introduce an innovative solution on the market. Access to finance remains an important bottleneck to space entrepreneurship in Europe. New initiatives like venture debt financing and the Space Finance Lab initiated by the European Investment Bank (EIB) are instrumental to supporting newcomers in their development. SME4SPACE would like to see similar initiatives emerging as well.

Actions that support the already established Space SMEs and encourage EIB to continue on this path of finding an instrument to tailor the size of the investments/loans with the needs of the Space SMEs (usually 200K€-1M€). At the level of the European Commission, the EIC Accelerator and EIC Pathfinder, replacing the former SME instrument, have the ambition to support SMEs in their growth and internationalisation strategy. However, recent figures show that the top 3 funded companies in the portfolio are active in the health, energy, and enterprise software sectors. Whilst the SME Instrument had a dedicated focus for the space domain; this is no longer the case in the new funding schemes. Indeed, due to the peculiar time to market and the extended return on investment, space companies could appear, in the short term, as less competitive. The longer lead times also give the impression that the economic impact of the activity is lower. Because of these reasons, private banks tend to grant loans to more traditional companies rather than space SMEs. In the private sector, this could be justified. However, for what concerns public R&D&I funding, this should not be the case.

AVOID THE VALLEY OF DEATH AND INCREASE IN ORBIT VALIDATION/ DEMONSTRATION MISSIONS

Developed space technologies should be used as much as possible in (institutional) space missions to avoid the valley of death for newly developed space technologies. Too often, ad hoc developments are contracted in a given call, while the already developed technologies remain without utilisation.

We also strongly plead for the extension of the possibilities offered by IOV/IOD¹ missions, granting the much-needed proof of concept in flight. A guaranteed flight opportunity, e.g. every semester, would considerably enhance the chances for such new developments to obtain their seal of approval.

Finally, the need for more flexibility in the approval process and rules for amending ongoing projects became even more stressful during the past crisis.

¹In-Orbit demonstration/Validation (IOD/IOV)

A CONSTRUCTIVE RELATIONSHIP BETWEEN ESA AND THE EU

SME4SPACE welcomes the agreement between ESA and the European Union on the Financial Framework Partnership Agreement. It provides a stable context for both institutions to work together for the benefit of the European space stakeholders.

A close collaboration between the EU and ESA is crucial for the competitiveness of the European space industry. It ensures coherence in the programming on both sides, stimulates synergies between the roadmaps and avoids duplication.

Therefore, SME4SPACE advocates a close interaction between the two European public partners on other aspects not explicitly covered by the Partnership Agreement, i.e. the programming of the space R&I under Horizon Europe and ESA's technology development programmes.

LAUNCH OF THE EU SPACE PARTNERSHIP

At the end of 2019, the European Commission invited five private sector stakeholders - including SME4SPACE - to discuss the setting-up of a Co-Programmed European Partnership on Globally Competitive Space Systems (cPPP) for space R&I under Horizon Europe. Today, the proposal has evolved from an ambitious programme with a considerable budget to a partnership with limited scope and a reduced budget of 250M€ for five years.

SME4SPACE believes that an entire administration and a dedicated governance scheme to manage the partnership may be irrelevant in the broader R&I-support ecosystem and is associated with high costs and low benefits for SMEs. In this context, the launch of the space partnership is no longer a must for our association. After two years of discussion, additional efforts are still needed to reach a common understanding between the potentially involved stakeholders, making its added value in the current Multi-annual Financial Framework highly questionable..

SME4SPACE

ABOUT US

SME4SPACE is a not-for-profit organisation registered in Leuven under the Belgian Law. Its aim is to voice Space SMEs' viewpoint in a coordinated way and facilitate SMEs' access to space activities in general, to ESA and EU programmes in particular. More in detail, the organisation pursues the following purposes:

- *defining and defending common positions, representing the SMEs towards public authorities, i.e. the European Space Agency, the European Union and its related agencies*
- *organising seminars and information sessions*
- *managing a network of SMEs in order to increase the possibilities to cooperate;*
- *carrying out research projects, participating at National, European and International calls in space and related activities.*

SME4SPACE receives funding from ESA SME Office and is involved in several EU-funded projects. The association has members in 25 different European countries and represents more than 650 space SMEs.

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