

EUROSPACE POSITION PAPER ON THE PROPOSAL FOR A REGULATION ON THE SAFETY, RESILIENCE AND SUSTAINABILITY OF SPACE ACTIVITIES IN THE UNION (EU SPACE ACT)

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General comments

Protect European strategic autonomy and ensure a level-playing field within the internal market

The EU Space Act (EU SA) is a positive development in European leadership in space, targeting the safety, security, and sustainability of assets and operators providing services and space-based data to the European market. Industry considers that the EU SA will help prevent fragmentation of the internal market where the Member States may have different legislative requirements to address safety and security issues. Furthermore, since space activities are inherently global, the industry considers that an EU-level approach offers a better chance of promoting the interests of the European space sector in international forums. Europe can lead by example in enhancing Space Traffic Management, debris tracking, mitigating orbital risks, and safeguarding its space infrastructure with explicit cybersecurity rules for the space sector.

Concerns arise, however, from the equivalence regime and multiple derogations clauses, leading to concerns about whether the level playing field envisioned for EU operators will actually apply in practice, or rather result in EU operators being bound by stricter requirements than non-EU ones.

Industry calls to:

- Enforce a level-playing field in line with the Draghi report, by limiting derogations and equivalence decisions that may risk granting undue advantages to non-EU operators;
- Promote the EU preference principle, by enforcing a European preference for launchers and EU existing technologies, and put in place incentives to promote the use of EU launch services providers.

Within the EU internal market itself, the Act opens to a proliferation of regulatory easements that may weaken the very coherence the Act is meant to provide. For instance, the EU SA includes provisions to exempt certain satellites (e.g. *Research and education spacecraft*) from abiding to parts of legislation, particularly Art. 62; this provision lacks a sufficiently restrictive definition of applicability. In orbit, security and safety flaws in only one satellite may be detrimental to a lot of others. Industry supports proportionality, but not at expenses of creating risks, therefore:

- To be effective, high-level requirements (risk management and orbital safety) must apply equally across all mission types and all company types. Exceptions shall only be related to the associated risks;
- Smaller businesses' efforts to comply with the Act should be supported by capacity building and measures to help them meet standards (technical assistance, fee reduction, financial support...).

Finally, the industry believes that, unfortunately, with the proposal, the Commission has missed the opportunity to address the crucial issue of supply chain resilience as a sovereignty issue, beyond the general, sometimes vague, theme of "competitiveness". The European Space Act must contribute to strengthening Europe's autonomy over strategic technologies and suppliers.

Simplification, standardisation and coordination

The Act should ensure streamlined and not overlapping processes, which will be key to managing resources efficiently. For this reason, in the wave of simplification at EU level, the Space Act seems to lead for some aspects in an opposite direction. Industry warns that financial and procedural costs may be too high, especially for smaller entities, while administrative burdens may be too heavy and slow down time to launch, market, and revenue for an industry currently struggling to be profitable, with a large number of legal uncertainties due to secondary legislation. Industry also warns against unnecessary duplications between national and EU levels and

the work done at ESA level, for instance in resilience and Life Cycle Assessment (LCA). Furthermore, the articulation between cybersecurity, resilience, and operational safety remains insufficiently defined. While the Regulation establishes distinct pillars for safety and resilience, no mechanism is foreseen to ensure their coordination, despite the strong operational interdependencies between the two domains. Without a clear governance interface or methodological alignment, operators may face overlapping or even contradictory obligations when addressing cyber events with potential safety consequences. Additionally, the Regulation should clarify whether the scope of cybersecurity and resilience obligations extends to both intentional (malicious) and non-intentional (accidental, technical, or interference-based) incidents.

Industry asks institutions to:

- Avoid additional legal burden, and provide financial support to cover compliance costs, privileging coherence with existing technical requirements (e.g., ISO for Resilience, ESA for sustainability, FSOAS for safety/launcher safety); besides, Industry insists on the importance to prevent compliance overhead, as the EU SA proposal creates ample scope for audits and compliance checks, likely increasing reliance on external consultancies;
- Reduce secondary legislation, consult industry in the drafting of implementing acts and not impose technical and methodological requirements (while technical solutions may vary, they must remain proportionate and interoperable);
- Rely on existing ECSS and ISO standards, explicitly recognising the role of the ECSS;
- Provide clear alignment with NIS2, CER and CRA, and clarity on how responsibilities are distributed across multi-actor value chains; Industry expects a clearer “state of play” to implement.

Supporting innovation, new capabilities and the emergence of new profitable markets for the European space industry

The Act offers prospects for new technological solutions and market development and could be seen as a driver for innovation and new markets, particularly in areas like In-Space Operations and Services (ISOS) or Space Situational Awareness (SSA).

Improvements are needed on SST/SSA (for instance, by prioritising only Collision Avoidance services, the Act overlooks the broader potential of SSA providers) and the articulation between the role of the “EU SST Partnership” and that of the commercial actors of SSA/SST must be clarified to ensure complementarity of resources and preserve the complementary market of private actors.

Industry welcomes Art. 109 on capacity-building measures and R&I&D support, but it will be essential to back the provision with robust programmes, a competitive industrial base, and adequate funding to realise Europe’s ambition; in particular, it is expected that compliance costs shall be adequately included in the procurements for the EU space programmes.

The European space industry also welcomes the proposed EU Space Label, provided it is optional, based on clear, practical, and measurable criteria, and supported by meaningful incentives that justify its costs. The European space industry is ready to support the European Commission to jointly develop such EU Space Label in a way that is ambitious, pragmatic, and truly adds value for all stakeholders.

The Act’s objectives are welcomed, but the regulatory machinery risks outpacing innovation. A complex web of authorisations, secondary legislation, and new supervisory processes could slow projects and rapidly evolving commercial realities, requiring the European Commission to establish a communication channel to regularly consult industry regarding its implementation. Industry calls on the EU co-legislators to achieve, as quickly as possible, a compromise on the most urgent aspects of the EU SA and insists that the EU’s regulatory cycle and Industry’s technical maturity must evolve together.

Eurospace Position Paper on the proposal for a EU Space Act

Impact assessment report

Industry finds the Impact Assessment accompanying the Regulation perplexing and lacking in sources, as:

- The regulation introduces costly compliance obligations (up to 10% for satellites manufacturing costs, EUR 1.5M surcharge for heavy launchers (undefined basis), and unrealistically low EUR 4–8k estimates for environmental assessments (e.g. PEFCRs cost are estimated to be ~ 10 to 100 times higher):
 - PEFCR4Space rules will be more demanding in terms of data quality and granularity; today's cost, at LSI level, for executing a LCA (in the frame of ESA programmes as per ESA guidelines and ISO standards) is in the order of magnitude of EUR 1M, including the LSI activity and the LCA practitioner activity but excluding induced costs for the supply chain;
 - Industry is concerned about the impact of these costs, not consistent with the objective of enhancing the competitiveness of the European space sector.
- The lack of transparency on key metrics used for the Impact Assessment prevents industry from anticipating investments, while SMEs may face entry barriers;
 - It would be advisable to deepen the preliminary study on impact assessment to evaluate the recurring cost of compliance for service operators and suppliers within the value chains.
- Further, industry strongly disagrees with the hypothetical gain of 20% more revenue, considering the following points:
 - It is unrealistic to expect a 50% reduction in space debris by 2034. The EU Space Act will only become applicable after 2030, leaving too few satellites subject to its provisions. Moreover, a four-year timeframe is insufficient to generate measurable environmental benefits. Lastly, European spacecraft represent only a small fraction of the total satellites launched worldwide. Europe alone will not achieve this objective;
 - Then, even if industry could achieve a high reduction in the number of Collision Avoidance Manoeuvres (CAM) to be performed, the deltaV (= propellant consumption) for CAM is much lower with respect to the deltaV for the station keeping. Therefore, even if performing less CAM, this would lead, at most, to a lifetime increase of few days/months (and not years).

Entry into force and implementation timing

With the Act not expected to enter into force for satellite operators before 2030 (with easements for specific actors until 2032 for the Sustainability Pillar, and ISOS requirement's applicability from 2034), it poses risks such as:

- The business opportunities linked to the EU Space Act may remain dormant for several years or result in strategic and commercial uncertainty;
 - The Commission should consider, for specific actions such as STM, early alignment measures and incentives, which should not, however, create a two-tier market.
- The Regulation risks being outpaced by rapidly evolving commercial realities; therefore, it will prove essential for the European Commission to establish a communication channel to regularly consult industry regarding its implementation;
- By the time the new rules take effect, several large constellations will likely already be operational:
 - It is necessary to clarify how the EU SA will apply to the evolution of constellations already in operation when the EU SA enters into force, as well as to constellations that are in advanced design phases.
- Particular attention should be paid to missions and constellations that will add satellites based on designs that have already been authorised under existing national regimes, in accordance with Articles

7 and 119, in order to mitigate retroactive compliance burdens and ensure operational and legal continuity;

- The ISOS timeline is very ambitious, considering that the EU's ISOS pilot is planning to launch in 2030. Industry recommends to support the development of ISOS, to enable sufficient time to test and mature (in orbit) ISOS technologies and services, and to enable their commercialisation. It is also essential to support spacecraft operators' adoption of those technologies and services;

Scope, definitions and legal clarity

Industry recommends clarifying definitions and their applicability, mainly to provide greater clarity and legal certainty to the various players in the value chains and to avoid potential loopholes that could allow the Regulation to be circumvented.

- **Art. 1.1** provides that the Regulation concerns the *"internal market of space-based data and space services"*. Does the Commission confirm that this Regulation is not about the internal market of space products (spacecrafts, equipment, sub-systems...)?
- **Art 2.2** provides applicability lower than GEO: this is too restrictive, as there are missions in HEO or Lagrange which shall fall under the scope of this text; the GEO graveyard referred to in the text is above GEO. It is weaker than current regulations, therefore, it is suggested to limit the text to Earth Bound orbits (excluding de facto Lunar and Escape missions);
- **Art. 3** allows Member States to *"impose stricter requirements"* when issuing the authorisation. Industry asks for clarification on the limit and exceptions to preserve a common playing field in the EU market;
- **Art. 5 (Definitions)**: it is strongly suggested to use the definitions which are adopted and shared at international level, such as ISO 10795 *"terminology"*:
 - **(3)** under this article, it is unclear why a *"constellation"* is such only if it consists of *"at least 10 satellites"*, why not 7, or 5...?;
 - **(2)** the definition of *"spacecraft"* includes *"launcher upper stages"*, which is confusing, as they correspond to different set of requirements. It is suggested to define separately the *"launcher upper stages"*;
 - **13 (f)** defines space activities (inter alia) as *"operations involving the monitoring of space debris"*; however, effective STM/STC also requires monitoring of the full space environment, including active objects;
 - **14 (b)** should include re-entry services, maintenance and operation of launch facilities, as it is the case in the definition under Art.5.13 (c);
 - **(14) (e)** defines as space services (inter alia) *"Collision avoidance space services"*, leaving out any other SSA services. A more comprehensive definition, including SSA services (either in Art. 5.14 or 5.13 (f)) would be advisable. A proposed definition for SSA services is the following: *"Union SSA service provider' means any entity established in a Member State that offers data or services to enhance space safety related to space object detection, tracking and characterisation, collision avoidance, orbital data analysis, fragmentation and re-entry of space objects into the atmosphere, space weather events, and near-Earth objects, and is recognised by the Agency or a national competent authority"*. Moreover, SSA also encompasses actions to identify and characterise RSOs (Resident Space Objects) that are not specific to CA but contribute to it;
 - **(16)** the definition for *"space operator"* needs to be revisited to ensure that there is a clear delineation between the operator and the owner of the space asset. In some cases, the operator may not be the owner and, as such, will not be in a position to dictate some of the technical requirements stipulated in the Act. The spacecraft operator in this scenario should not have the obligation to ensure compliance with the EU Space Act. The recommendation is that this obligation should fall upon the owner of the space asset, as the legal entity able to make technical demands during the purchase of a

- spacecraft. For example, in the case where an EU-operator operates a non-EU satellite to provide services in the EU, will the EUSA apply to the third country satellite owner as well?
- **(17)** defines a “*Union space operator*” as “*a space operator established in the Union, or controlled by a person [...] established in the Union*”: does this definition include possible non-EU operators that would have established themselves on the territory of the Union?
 - **(31)** definition of “*launch service*” should include re-entry, recovery and reuse of stages;
 - **(45)** the notion of “*lunar exosphere*” is very uncommon and should be clarified. Its utility there is questionable as Article 2.2 limits the Regulation to orbits below GEO. It is therefore suggested to clarify or remove this definition;
 - **(63)** defines In-Space Operations and Services (ISOS) assuming a high-degree of autonomy for the servicing vehicle and, while this is the end goal, it will be difficult to achieve it within the desired timeframe. Autonomy should be defined to consider the stage of development and feasibility of the technology. A proposed revision of the definition should be taken into consideration as follows: “*in-space operations and services (ISOS) means activities carried out in space (on orbit and in outer space), with a view to support a shift towards a circular economy in space by providing services on assets in the space segment and which include the performance of tasks such as inspection, rendezvous, docking, capture, repair, refuel, reconfiguration, manufacturing, assembling and disassembling, re-use, refurbishment, recycling, removal and transport of operational, non-operational and defective objects (debris) in space, with a servicer spacecraft with a high degree of autonomy, including platforms or larger structures*”;
 - **(proposed new): Art. 5 shall include a definition of Standardisation Organisation or Standardisation Body**, as European standards are adopted by the European standardisation organisations, namely CEN, Cenelec and ETSI¹. For space systems development and manufacturing, CEN signed an MoU in 2013 with the ECSS (European Cooperation for Space Standardisation), giving it mandate to develop, publish and maintain a consistent set of applicable standards. Moreover, the development of a new Upstream Standard shall be led by ECSS. CEN-CENELEC shall indicate whether it is interested in developing the Proposed Standard jointly with ECSS, in which case ECSS shall involve CEN-CENELEC.
- **Art. 10.2** states that “*operators that are education or research institutions or that carry out research space mission*” are subject to a special regime, as defined in **Art. 62**:
- First, how to define a “*research space mission*”? (especially if conducted by an entity that is not an education or research organisation)? Would Horizon Europe activities qualify as it? Is there a TRL above which missions cannot be considered as research missions?
 - Then, if one looks at the definition of what is an “*education or research organisation*” (**Art.5(25)**), it means “*a space services provider which carries out space activities for experimental purposes, whether or not exploiting the results of that research for commercial purposes*”; in this context, does the Commission not believe that there is a risk of creating a loophole allowing any entity to apply for the special regime on the grounds that it is carrying out research?
 - One can certainly imagine that some companies will be tempted to qualify market demonstration activities as “experimental”;
 - Moreover, can a prime manufacturer launching an In-Orbit Demonstration (IOD) mission be considered within this definition?
 - Clarifications are also needed for what constitute “*critical assets and critical functions*”, as mentioned in Articles **10 (3)** and **78**.
- **Art. 27**: obligations are ambiguous, liability of primary data providers should end at point of delivery, not extend downstream.

¹ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012R1025> (L 316/12)

Exemptions and regulatory easements

The Regulation excludes military satellites from its scope; however, this exemption could be misused by Member States to circumvent the EU launch preference. Moreover, the military exemption clause, combined with the lack of clarity on “*temporary military control*” and dual-use systems, creates an additional loophole that could be easily exploited:

- Industry recommends to clarify and delineate the conditions of “*temporary military control*”;
- Moreover, given the current trend of MS acquiring services rather than infrastructures, commercial missions that are dedicated to serve MS military needs should be afforded the same treatment as institutional missions.

Under the exemptions, the Regulation also includes “light regimes” (Art. 10) and flexibility in certain provisions for (i) “research and education institutions” (Art.5 & Art. 10.2) and “research and education spacecrafts” (Art. 62), (ii) small sized enterprises (<50 staff, <10M turnover), and (iii) “entities applying a simplified risk management”. Industry raises the following concerns:

- Any exemption will consequently add vulnerabilities into space systems which would add risks and jeopardise the inherent objectives of EUSA;
- Instead, the profile of the mission (and level of associated risk) should dictate any acceptable exception, rather than the size of the company or entity, as incidents with small satellites show the need for consistent rules across the whole ecosystem; therefore, the “high-level requirements” for safety and resilience shall apply across all mission types and all company sizes;
- Recognising that smaller actors may face barriers, the Commission should put forward instruments and incentives to overcome limitations at company levels to be compliant with the legislation.

Industry recommends to adapt and clarify the proposed exemptions and easements by providing rationale and associated risk, and to clarify the applicability of Articles 10, 62, 76, and 78 with their respective definitions (Art. 5), where entities/missions are subject to these easements.

Derogations and equivalence decision: risks of undue advantage for non-EU operators and jeopardisation of the EU preference principle

The European space industry is concerned about several provisions in the regulation that appear to open up possibilities for circumventing the law (equivalence, emergency clause, explicit derogations for launch services provided by third country entities, implicit derogations such as non-parallel authorisation processes through Commission decisions for data provision and for third country dual-use entities, international agreements), in particular:

- Member States can ask for derogation if their “national security” is at stake (Art. 4), invoking it to contract non-EU services providers not subject to EU standards;
- Derogations are also foreseen (through Commission decisions) for reasons of “public interest” (Art. 19) and under an “urgency clause” (Art. 21). However, the wording is overly broad and vague (i.e. in Art.19 “*no readily available substitute, or realistic alternative*” or “*technological capabilities of strategic importance*”, or “*where an emergency or crisis occurs, or an incident or attack causes disruption*”) making it too permissive and potentially enabling Member States to easily resort to non-EU launch operators that are not bound by EU standards; moreover, considering the cumulative conditions to be met (Art. 19) to use a third country launch services provider, what is the “demonstration” by the MS that these cumulative conditions are met? How are they evaluated and by what entity? Is there a possibility to appeal and how?
- Art. 20 allows Commission (through Commission decision) and upon request of a third country public entity, to allow the latest to provide space services or space-based data in the Union, or upon a Member State request, leaving room for circumventing the rules applicable to the EU operators; moreover, it

remains doubtful that requirements for third-country “public entities” would be different from those for third-country space service providers.

- The Commission’s “Equivalence Decision” (Articles 105 & 114) raises concerns about whether the level playing field intended for EU operators will truly apply at global level. In particular, the procedure in Art. 114 could allow the Commission to grant “equivalent” status to non-EU services providers that operate under lower safety, environmental, or cybersecurity standards, thereby distorting fair competition, when European operators and space service providers will have to comply with stricter rules.

Therefore, industry recommends:

- o Following the approach of Art. 106 giving priority to the “mutual recognition” approach, through bilateral agreements for international cooperation with third countries: if equivalence decisions are still to be granted, it should at the very least ensure equal access for EU companies and ensure that EU authorisation or fulfilment of European standards is accepted in third-country jurisdictions;
- o Third-countries should be asked to achieve the same level of ambition and intent as EUSA but equivalence should also ensure access for EU space operators to the respective third countries (this should go in both directions);
- o The equivalence clause and the derogation clauses for third-country operators must be carefully monitored to prevent competitive disadvantages for EU companies;
- o Bilateral agreement with key partner nations will need to be concluded as soon as possible, in order to avoid business interruptions, significantly increased costs and loss of international competitiveness. Rapid alignment is welcome with key international partners for the European space industry such as the UK, Norway, Switzerland, Canada and Japan.

Expected burdens for industry

Governance

The EUSA confers (Title III) the European Commission and EUSPA extensive supervisory and enforcement powers. The proposed changes to governance, although necessary to ensure the application of the legislation at EU level, must be carefully assessed, in particular:

- o Significant increase of powers to EUSPA raises concerns about its overload of responsibilities and concrete financial and human resources availability;
- o It establishes additional bodies (e.g., creation of a Compliance Board, with further subdivision in Safety Board, Resilience Board and Environmental Board and of an Appeal Board), raising concerns about their functioning, particularly in relation to the European Space Programme committees and their oversight;
- o It remains unclear how penalties will be applied and to what extent the Commission will be able to enforce compliance across Member States and non-EU actors (extraterritoriality);
- o According to Art. 41, EUSPA costs incurred in carrying out tasks pursuant to the regulations shall be fully covered by the operators, however, authorities currently do not charge a fee for licencing and authorisation services. Industry covers its own costs, but does not incur additional fees for processing. Moreover, it remains unclear whether LSIs that also act as operators will be subject to these costs;
- o According to Art. 50, the Commission and EUSPA may launch investigations with extensive access to sensitive data (“*the powers to seal any business premises, books or records for the period of, and to the extent necessary for, that inspection*”), with limited safeguards;
- o Articles 51 & 56 empower the Commission and EUSPA to impose significant penalties on operators without prior oversight or validation by Member States, raising concerns over due process and national sovereignty;

- Art. 56 empowers EUSPA with excessive and not proportionate powers to impose fine up to the 2% of worldwide turnover of the company, or “*twice the amount of the profits that have been gained or twice the amount of losses that have been avoided because of the breach, where those can be determined*”;
- According to Art. 56§2: “*An infringement shall be considered to have been committed intentionally if objective factors demonstrate that a person acted deliberately to commit that infringement*”. What does intentionally mean, and how will it be evaluated? If an EU-established entity is a branch of a global, non-EU company, would the fine apply to the whole company?
- Unclear supervisory tasks (Articles 29 & 48) raise concerns about duplications between National authorities, EUSPA, the Commission and ESA;
- The Act refers to Member States laying down rules on penalties for the infringement of the Regulation (Art. 31), which is clearly not aligned with a single market approach.

Industry recommends:

- To ensure legal clarity and predictability regarding governance processes and the new administrative procedures to which businesses will be subject, and streamline the governance-related provisions of the text;
- A clear division of responsibilities and due process guarantees, particularly around data access and penalty enforcement;
- Ensuring that any additional roles and responsibilities assigned to public entities are matched with adequate resources, in order to avoid multiplying delays;
- While Article 41 foresees that all Agency costs related to the implementation of the Regulation shall be covered by operators, industry opposes any mechanism that would indirectly transfer these new administrative costs to the industry, including through the financing of national Qualified Technical Bodies (QTBs). The establishment and operation of these entities must remain the responsibility of public authorities, as they act under a regulatory mandate.

Administrative burdens

Industry is concerned about the authorisation process (Articles 6 & 7), which is considered lengthy (up to 12 months) and duplicative, as two separate authorisations are required when launching and operating in different Member States, or when operating EU-owned assets. While some Member States’s authorisation processes are known to be faster (for example, Italy, in the newly adopted “DDL Spazio” is announced to be faster, as it would take 4 months instead of the 12 months fixed by the Act, or in the already established processes of CNES, where it takes up to 5 months). For purposes of legal certainty, the article should clarify from when the process formally starts: from application date, or from when discussions with authorities start? Moreover, how will uniformity of technical assessment by QTBs across Member States be ensured?

Industry recommendations:

- **Art. 6(3)** provides that a second authorisation may be requested from the Member State where the company is established; however, it should be granted solely by the Member State where the spacecraft is launched, or where it is operated, so as to avoid overlapping authorisation schemes;
 - the authorisation process for space activities should (i) ensure a single lead competent authority (for a true implementation of a single European market), (ii) follow a “one-stop-shop” approach at the level of each Member State, ensuring consultation of all relevant national and international bodies, (iii) not being required in the Union where an international agreement has been reached, (iv) and foresee a six-month maximum timeline (as extended processes undermine market agility).
- **Art.9** requires satellites to be launched as part of a constellation to be “*identical and perform the same tasks in the same manner*”, while satellites are designed to be identical, in practice, variations may occur between batches (e.g. design improvements or corrections).

- The current wording (“*identical, same tasks*”) may not be appropriate. Would any design change require a new authorisation? Moreover, since constellations are often launched with multiple launchers/sites, does this mean one authorisation per launcher? Would it not be preferable to cover all launchers under a single constellation authorisation? The authorisation should hinge on design similarity and deployment plan, not launch logistics.

At this stage, Title IV contains many unclear requirements (e.g., in the pillars of safety, sustainability and resilience) that risk discouraging innovation and entrepreneurship, particularly in a sector where speed and risk-taking are key to growth, in particular:

- Industry considers that additional burdens may arise from the transmission of required data: companies must provide extensive documentation and engage with new stakeholders (e.g., the QTB);
- The full extent of this burden remains unclear, as many implementing provisions for “technical requirements” (Title IV) are left to the Commission:
 - Industry recommends minimising secondary legislation and clearly indicating the industry's role in the development and adoption of implementing acts in the text, particularly for Title IV (Articles 58 to 104, technical standards);
- A certification framework for SSA and CA service providers should be established, enabling their formal recognition and integration into the EU space safety ecosystem. While excluding CA commercial services providers from certification saves them from administrative burdens, it also raises the question of the legitimacy of these entities to support the safety pillar of space operations. This recognition would reassure Union operators and third-party operators without closing the door to innovation and new entrants.

Financial burdens

As already noted, much of the impact of the Act remains difficult to assess, but compliance costs are expected for all three pillars. One example could be the Environmental Footprint Declaration (EFD) as part of the “authorisation application” – to be supported by studies and data, including gathering data from suppliers. Additional costs, possibly really consistent, will derive also from the fees required to “*fully cover the necessary expenditures by the Agency in carrying out tasks pursuant to this Regulation...*” (Art. 41), with such fees to be proportionate to the turnover of the respective space service provider. Industry recommends the following:

- All the budget invested in the implementation of these requirements (in particular the needs linked to the new tasks entrusted to EUSPA) must not compromise the continuity and strengthening of the space components;
- EU budgets for the space sector under the MFF must be allocated appropriately, taking into account the new burdens;
- The Commission should take appropriate measures to support the industry at a time when there are concerns about the profitability of the space industry.

Standardisation and normative consistency with existing standards

Chapter VI (Article 104) empowers the Commission to request European standardisation organisations to draft standards or adopt implementing acts, to lay down common specifications for certain technical requirements.

The analysis of the EUSA under the prism of standards and standardisation does not reveal any specific issue arising for the European space industry. The EUSA calls for standardisation of a variety of areas where such are legitimate, and recalls that there are already existing reference frameworks for international, European and national standards. In this context, Industry recalls that the European Cooperation for Space Standardisation (ECSS) is the official standardisation body for EU's space systems development and manufacturing.

The European sector is organised to develop, adopt and comply to the ECSS standards, that govern Engineering principles, Product Assurance and Management practices for the sector. The ECSS standardisation system enables the supplier industry (embodied by Eurospace and SME4Space) and institutional customers (embodied by ESA, Eumetsat, the European Commission and a few national agencies) to define together the norms that mitigate contractual and technical risks for both customers and suppliers. These norms also contribute to a healthier supply chain relationship by providing certainty and traceability throughout the multi-tier supply/procurement process of European space systems.

The ECSS organisation has signed an MoU with CEN (the official standardisation body of the European Union) giving it full mandate to develop and implement space systems development and manufacturing standards. The MoU signed in 2013 is still enforced as recalled by DG DEFIS Director-General Timo Pesonen in 2024.

The Space Act Annexes II and V include provisions for space debris mitigation, that are recalled respectively in Articles 61 (launcher generated debris) and 70 (spacecraft generated debris) of the Act. These provisions mimic the ones stated in the ISO Standard 24113 adopted in 2023 (and translated into ECSS in 2024) but are not identical. The legislator is invited to reflect on these differences and determine whether they are intentional (i.e. is the ISO/ECSS adopted standard considered insufficient?) or not. However, considering the wide adoption of the ISO/ECSS standard on debris mitigation we would recommend to remove any requirement on this subject in the Space Act and rather refer to the ISO adopted standard. This should be the spirit for all technical standards, where ISO/ECSS standards exist.

Therefore, industry recommends:

- EU SA should align with ECSS, CEN CENELEC, ETSI and ISO rather than duplicating or significantly deviating from internationally agreed norms; deviations could undermine the competitiveness of Europe's space sector. This should be clearly outlined in the proposal to reduce the number of proposed implementing acts and ensure normative consistency with work carried out within existing standard-setting organisation;
- Where there are not sufficiently developed guidelines in line with the EU SA objectives, the Commission should define technical requirements, with clearly stated industry involvement;
- The adaptation of standards into technology and products must remain in the hands of the industry. A too-prescriptive approach could stifle innovation, as technology development and market development cycles are rapid and frequent; policymakers would struggle to keep pace, leading to outdated regulations, limiting industry's ability to innovate and hampering the development of new business models. EU SA should focus on harmonising and developing standards, leaving the implementation of product design to industry.

TITLE IV: Technical requirements

Safety Pillar

Although the Proposal is consistent with observed trends and best practices in the recent evolution of space debris mitigation tools, such as increased focus on STM, tailoring requirements to mission risk profiles, and preparing for object removal, it also presents some criticalities to be improved:

- The pillar does not provide explicit reference to existing standards at international level (ISO) and introduces some new definitions that diverge from established terminology;
- The pillar lacks of numerical requirements (duration in orbit, casualty risk, collision avoidance); for instance (i) collision at launch is defined against any object -active or debris- which appears unrealistic, (ii) at launch, the impact on air traffic is required to be "minimised," which is far more demanding than merely "informing" (the current rule);

- The derogations identified will impact the Pillar and present a risk of competitive disruption (for example the equivalence may be questionable as numerous Falcon9 upper stages re-enter randomly despite total non-compliance with casualty risk on ground);
- The definition and rationale of the Special regime for research and education spacecraft is unclear, mixing size and functions (see Art. 62 below);
- The request to justify the choice of orbits, as a function of orbital congestion, is unpractical and unrealistic as: (i) there are no recognised tools on orbital congestions, Space Sustainability Ratings (MIT, EPFL) are not mature; (ii) there is very significant potential impact on commercial competitiveness (US or Chinese operators will not follow these rules) – (see Art. 69 below).
- Auditing power given to EUSPA and EC appears excessive;
- The mandatory subscription to EU Collision Avoidance services, while explicable for the strategic need of space traffic management coordination purposes, should not exclude SSA services providers/. Moreover, the Commission must consider that the successful implementation of this centralised approach depends on regulatory access to the volume of space traffic, which today is largely non-European in origin.

Art. 62 – Special regime for research and educational spacecraft

Similarly, Article 62 establishing a “special regime for research and educational spacecraft” opens the door to too many exemptions, lacking a consistently restrictive definition of “research and education spacecraft” (Art.5). All spacecraft shall abide to the whole of the Safety pillar and support safe and responsible use of space, the exemption identified here lead to a weaker document than existing regulations and laws, and do not appear justified – (see Art. 62 below).

Art. 73 – Constellations

Art. 73 suggests that specific rules for debris mitigation should apply to large constellations that would not be applicable to other satellites or smaller constellations. Industry believes that the rules for debris mitigation are important enough to have no exception, and shall be applied to all spacecraft (and launcher upper stages), whether large or small, whether working alone or in a constellation, in LEO. This also aligns with the existence of an ISO standard on this subject since 2023. Moreover, the notion of “orbit justification” and “orbit congestion” (with acceptability threshold?) is dangerous for competitiveness if no equivalent requirement is applied by competitors. The notion of orbit congestion is subjective and not shared at international level (see SSR for instance), leading to a strong risk of competitive distortion.

Collision Avoidance and SST Services

Art. 64 – the Union CA Space Services Provider and the SSA commercial services

Industry supports the position of EU SST as the central provider of collision avoidance services (Art. 64). Yet, the EU SST should also promote competitiveness of the European SSA industry by leaving space for private actors supporting market diversity, innovation, and resilience. Industry needs clarification on the interplay between the role of EU SST and that of commercial actors in the field of SSA/SST. The prioritisation (and mandatory subscription) of EU SST services for Collision Avoidance, while strategically justified for space traffic management coordination, should not exclude capable private SSA/SST providers. The framework of the EU SST partnership shall evolve if it is made mandatory to use those services. Accordingly, it is important to consider SSA from a broader perspective, and not only the CA market, and foster and create additional opportunities beside (or on top of) the free CA services, such as supporting in-orbit manoeuvres, ISOS activities, in-orbit transfer, space event analysis and refinement and characterisation. Therefore, the European space industry proposes that:

- The Commission shall establish a certification framework for SSA and CA service providers, enabling their formal recognition and integration into the EU space safety ecosystem. For this reason, the

following recital is proposed – Recital (22a): *“Union SSA service providers, including industrial actors, play a strategic role in ensuring the safety, resilience, and sustainability of space activities. Their capabilities in orbital tracking, collision avoidance, and risk mitigation are essential to the functioning of the Union’s space ecosystem. To foster innovation, operational reliability, and European autonomy in space traffic management, these providers should be actively involved in the development of technical standards and implementing acts under this Regulation.”*

- Moreover, a definition of SSA in Art.5 is necessary (as proposed earlier in the Paper) to clarify the scope and eligibility of SSA actors for participation in implementing acts and consultations;
- The Union CA entity shall develop and invest in the means to support and foster coordination among European space service providers (e.g., extend EU Space ISAC to SSA service provider). With regard to Annex IV, and considering Articles 15 and 64, the role of the EU SST could be more precisely defined as a coordinator among CA service provider, acting through a single dedicated platform managed by the European Commission;
- It is therefore proposed to be included in Art. 40, that Agency *“shall establish protocols for integrating SSA data from certified European industrial providers into public orbital traffic systems and high-interest event alert mechanisms”*, in order to promote interoperability and data sharing between public and private SSA systems; this will enhance situational awareness and reduces duplication;
- Moreover, *“The Commission shall establish a certification framework for SSA and CA service providers, enabling their formal recognition and integration into the EU space safety ecosystem”* (suggested under TITLE IV), responding to concerns about lack of accreditation pathways.

At the same time, non-European operators are allowed to use public or commercial CA services of their choice, raising concerns about effective implementation of Annex IV. Operators shall be granted access to certified European SSA services providers, regardless of their country of establishment, to ensure consistent orbital coverage and risk mitigation. This is also key in order to promote high quality standardised SSA services for EU and non-EU operators, and to strengthen the internal market for European SSA commercial providers.

Analysis of Specific Provisions

Launchers (Art. 58 to 62)

- **Art. 58:**
 - It is suggested to use the FSOA report as reference, and add the delta requirements in a specific chapter.
- **Art.59:**
 - Require real-time monitoring of the launch vehicle position, tracking of the orbital stage “as precise as possible” and telemetry system for monitoring the launch vehicle performance data. However, a pre-launch collision risk assessment should be considered sufficient to ensure launch safety and to provide the final orbital parameters. Requiring real-time tracking of the launch vehicle and orbital stage is disproportionate, as it creates higher costs without delivering significant additional safety benefits. Moreover, the proposal should clarify which launch vehicle performance data are required, without imposing a mandatory telemetry system. The necessary data can be provided through other means;
 - It is recalled that there is currently no possibility to apply LCOLA to any catalogued object, even when limiting to “active” ones, which explains the current limitation to “inhabitable” ones. The extension of LCOLA to spacecraft and debris has to be discussed, as it may not be practically feasible;
 - The Commission identifies a new method to calculate the LCOLA; it is recalled here that such a process is routinely performed for every flight from GSC (Annex I.1.2.3). It is suggested to consider the methodology specified in ISO 21740.

- **Art. 61 & Annex II on space debris mitigation**

- The Article refers to Annex II, which provides extensive requirements for space debris mitigation. At the same time, the Act refers to existing ISO standardisation for space debris mitigation (Recital 58), creating legal uncertainty. It is recommended to refer explicitly to the ISO standard on debris (that is already adopted in the ECSS system as ECSS-U-AS-10C Rev.2 in February 2024) and avoid duplicating or adding requirements in the Act itself (Article 61 and Annex II), unless the current ISO/ECSS Debris standard is deemed insufficiently defined or not consistent with the expectations of the Act;
- It is suggested to consider the Mitigation Standards for Launchers ISO 24113 and ISO 20893;
- 3(b) MEO Protected zone has to be discussed, as it should not interfere with the other GNSS constellations;
- 3(e) It is suggested to discuss this requirement in the view of the trade-off between casualty risk, and atmospheric pollution.

Spacecrafts Safety (Art. 62 to 74)

- **Art. 62:**

- This provision lacks a sufficiently restrictive definition of applicability, and cannot be supported as is. Globally, it retracts from principles of Sustainable Space: (a) There is no reason to relieve the LCOLA capabilities to above 600 km altitude instead of 400 (Art. 66), leading to potential problems to inhabited stations; (c) Reasonable operational time is not defined; (e) reads as there is no need for redundancy of passivation, which is not acceptable. The successful passivation shall follow a specified numerical probability. It is here reminded that a non-passivated spacecraft has a very high probability of exploding (there are roughly 100 fragmentations per year).

- **Art. 64:**

- It is proposed to add a new paragraph: *“Operators shall be granted access to certified European SSA services providers, regardless of their country of establishment, to ensure consistent orbital coverage and risk mitigation.”* This will promote high-quality standardised SSA services for EU and non-EU operators, and enhance the SSA market.

- **Art. 66:**

- Requires the spacecraft to be designed, produced, and operated in a way that allows the spacecraft to have and enable manoeuvrability capabilities. However, EU SA does not provide a specific definition of “manoeuvrability”. Moreover, the requirement is stricter than other standards and was already debated within the FSOA, which eventually adopted 600 km. At 400 km, two main issues arise: (i) no current launch opportunities for CubeSats, and (ii) very limited orbital lifetime.

- **Art. 69:**

- Requires Union spacecraft operators to give and analyse the reason of the orbit’s choice, considering existing S/C and debris. On this point, the industry holds that some missions, in particular EO and scientific ones, must be performed in a certain orbit for proper functioning of the instruments and sensors to deliver data. Orbit selection and any restrictions should be based on the collision avoidance analysis.

- **Art. 70 & Annex V on space debris mitigation**

- The Article refers to Annex V of the Act., which provides extensive requirements for space debris mitigation. At the same time the Act refers to existing ISO standardisation for space debris mitigation (recital 57). This creates a legal uncertainty. It is recommended to refer explicitly to the ISO standard on debris (that is already adopted in the ECSS system as ECSS-U-AS-10C Rev.2 in February 2024) and avoid duplicating or adding requirements in the Act itself (article 70 and Annex V), unless the current ISO/ECSS Debris standard is deemed insufficiently defined or not consistent with the expectations of the Act;

- §2 requires Union operators to draw up three separate and unique space debris mitigation plans, however: current ESA practices require a single debris mitigation plan. An increase may cause an increase in efforts, overlap with existing procedures and provide limited additional value in terms of debris management;
 - §3 prescribes restrictions on projected debris releases by number and duration in orbit, however: current ESA/ISO practice only sets thresholds and verification methods without prescribing the equation;
 - §4 mentions the order of preference laid down in point 3.3 of Annex V for the removal of spacecraft in LEO. The method of removal of a spacecraft should be left at the discretion of operators, who are in the best position to decide what best suits their needs, and to identify the most suitable method for spacecraft removal.
- **Art. 72:**
 - Establishes a critical threshold for light and radio pollution, which should not be a hard requirement but should be implemented on the basis of “best effort”. In certain mission phases (e.g., post-injection, orbit raising, or disposal), meeting the 7-magnitude visibility threshold may prove challenging. It is proposed to address this requirement through an implementing act, also taking into account the upcoming EISMEA call on Dark Skies.
 - **Art. 73:**
 - Clarification is required regarding §2(c) with respect to “*proportionate to the number of spacecraft*”;
 - The notion of “*orbit justification*” and “*orbit congestion*” (with acceptability threshold?) is dangerous for competitiveness if no equivalent requirement is applied by competitors. The notion of orbit congestion is subjective and not shared at international level (see SSR for instance). There is a strong risk of competitive distortion.

Resilience Pillar

The Resilience Pillar moves in a direction consistent with general trends in industry to improve security and represents a positive step for risk management and cybersecurity in the space sector, providing explicit rules, and building on the EU existing horizontal frameworks, namely the NIS2 Directive (cyber risk governance), and the CER Directive (all-hazards resilience).

Industry asks for an explicit reference to the Cyber Resilience Act (Regulation 2024/2847) as such a reference would help avoid duplication of product-level cybersecurity requirements, provide legal certainty for manufacturers, and ensure that CRA-compliant products are automatically recognised as compliant with the relevant EU Space Act cybersecurity provisions.

Although no major contradictions with current cyber practices in industry have been identified by the industry at this stage, the following concerns have emerged:

- Greater complexity (and costs) in implementing and monitoring compliance (extra reporting paths) is expected; the requirements will affect not only products but also companies’ digital ecosystems (engineering systems);
- The Pillar’s requirement stack on top of other EU horizontal regulations and national rules: while NIS2 lets Member States manage cybersecurity internally, the sector-specific (vertical) provisions in the Pillar are addressed directly to the entities. Consequently, operators face a cumulative compliance stack: NIS2 + EU SA + CRA + CER + national requirements:
 - To avoid inconsistency and overlapping compliance narratives with inconsistent KPIs, the Regulation should make this articulation explicit and require a simple mapping between product-level controls (CRA), system/operator-level controls (NIS2/ISMS), and entity-level resilience capabilities (CER/EUSA).

- The definition of requirements via implementing and delegated acts brings uncertainty in the overall security principles, processes, and compliance. The acts are likely to introduce additional standards and possibly prescriptive requirements;
- There is a lack of recognition of existing common standards (ISO, ECSS), alongside proposals to develop new ones (via implementing and delegated acts);
- The readiness gap needs to be addressed, as the processes and resilience requirements envisaged in the proposal are not always applied by industry, in particular by small businesses;
- By allowing deviations for the “size” of company (Art.76/Art.79) and not only risk profile, it risks creating weak points when those components are integrated into larger systems (system-of-systems), across ground and space segments, undermining end-to-end security;
- CER might generate different requirements in Member States similarly to the current situation with NIS2. It would be beneficial to the European space industry to align CER requirements at least in the development of harmonised standards;
- The role of the manufacturers is missing in several provisions (e.g. Art. 78; Art.88), and the operator will not be able to select secure products that they will operate in a secure manner.

Art. 76 & Art.78 – Risk management through the lifecycle of space missions and Risk Assessment

The intent of Article 76 (Risk Management) is welcome, on the condition that it remains methodology-neutral and does not mandate a specific risk analysis approach (as referenced in Article 78 §d). Established frameworks such as ISO/IEC 27005 already provide procedures consistent with the Article’s requirements and are widely adopted, with trained practitioners and mature tooling. Security risk analysis methodologies based on the ISO/IEC 27005 standard (such as EBIOS-RM) enable the integration of a common basis for supply chain risk management with appropriate countermeasures depending on the target components of the supply chain; but they need to be adapted in the context of spacecraft and safety perspective. Industry supports a risk-based (and preferably scenario-based) approach, which should be adopted to ensure a comprehensive security framework for supply chain risk management.

The Regulation should therefore set outcome-based requirements and allow operators to apply any recognised method that meets them and which can be then transposed. If the methodology is to be developed by the Commission, industry warns that defining a new methodology would necessitate to develop specific supporting tools and entail new burdens for industry. The law should set what outcomes and evidence are required, not how to do risk analysis.

Art.79 – Simplified Risk Management

It is paramount to ensure that the exemptions approach to risk management (Art. 79) do not jeopardise the safety, resilience and sustainability of EU space activities. Security loopholes can be exploited and cause safety issues, ultimately creating more vulnerabilities into space systems which would add risks. Moreover, it should be noted that the ground segment often represents the highest cybersecurity exposure, and therefore, risk management measures should remain stringent regardless of the size of the actor involved.

Industry recommends that this Article should be deleted and that support should instead be given to smaller entities to improve their safety requirements, given that it is essential that these requirements apply equally to all players in the space sector, regardless of the mission being carried out. Moreover, the risk analysis itself is not the major cost driver as the significant costs arise from the resulting measures (design, operations, maintenance). Skimping on analysis yields minimal savings while increasing systemic exposure.

Art. 92 and Annex VII – Supply chain resilience

Industry welcome the consideration given to supply chain resilience (Art. 92) and the efforts undertaken towards the identification of non-EU assets (Art. 80) to strengthen European sovereignty, provided that the related mapping and disclosure obligations do not require the transmission of sensitive industrial data, and that companies retain full ownership and control over their proprietary information.

The Article focus on the supplier risk is mainly on the supplier digital infrastructure and not on the capability of the supplier to provide secured product (the first one does not imply the second one). Moreover, the Article does not provide explicit obligation for supplier compliance, for example contractual assurance of security-related requirements towards third parties. Therefore, to be effective, the Article should be completed with a decisional logic for sensitive procurements with a clear definition of “sensitive procurement” (potentially to be tailored by EU space components).

Industry recommendation is to operationalise the proposal through a tiered, proportional, contract-cascaded model. The issue can be managed through supplier management rules. However, two challenges arise: (i) differing levels of supplier maturity; and (ii) the combinatorial complexity across supply-chain tiers (Tier 1, 2, 3, ...), which makes direct oversight and overall synthesis by the prime impracticable. The effective solution is contractual flow-down: cascading requirements tier by tier, with proportionate obligations and evidence. Moreover, the article should address the “*information... and cybersecurity*” (as information security is not sufficient) and mention the Cyber Resilience Act covering the supply chain.

Safety & Resilience Coordination

Furthermore, the articulation between cybersecurity, resilience, and operational safety remains insufficiently defined. While the Regulation establishes distinct pillars for safety and resilience, no mechanism is foreseen to ensure their coordination, despite the strong operational interdependencies between the two domains. Without a clear governance interface or methodological alignment, operators may face overlapping or even contradictory obligations when addressing cyber events with potential safety consequences. Additionally, the Regulation should clarify whether the scope of cybersecurity and resilience obligations extends to both intentional (malicious) and non-intentional (accidental, technical, or interference-based) incidents. The current wording appears to focus on deliberate cyberattacks but does not explicitly cover unintentional events, which may equally affect mission integrity and service continuity. Such clarification would ensure consistency with the cause-agnostic risk management approach of the CER Directive and ICAO’s safety frameworks.

The following recommendations should be taken into account for the Resilience Pillar:

- Provide clear alignment with NIS2, CER and CRA, and clarity on how responsibilities are distributed across multi-actor value chains. Industry expects a clearer “state of play” to implement a simpler mapping between product-level controls (CRA), system/operator-level controls (NIS2/ISMS), and entity-level resilience capabilities (CER/EUSA);
- Include clear criteria (*shall/should*) to distinguish the critical factors on the stringency of applicability (as risk acceptance and treatment may be different), bearing in mind that the difference in treatment should not come at the cost of the objective of the Regulation to ensure space safety, sustainability and resilience:
 - authorities and operators to determine when all requirements apply strictly or if they are non-binding recommendations;
 - the supply chain, manufacturers, and operators have the ability to provide the security measures that are most appropriate to the identified risks and to be addressed (for example, a large secure-telecommunications constellation should face stricter obligations than a scientific probe leaving Earth orbit).
- Adequately recognise the full product lifecycle, including operations performed on behalf of customers;

- Include cyber compliance costs in EU funding programmes, especially for smaller actors;
- Align and adapt the resilience provisions to existing standards (ECSS and ISO, in particular ISO/IEC 27005) and create new ones to cover spacecraft safety perspective;
- Recognise the cybersecurity processes carried out at ESA level, leveraging the existing expertise;
- Prevent compliance overhead: the text creates ample scope for audits and compliance checks, likely increasing reliance on external consultancies. Evaluations and audits should only be performed by independent, impartial and accredited 3rd party Conformity Assessment Bodies accredited according to ISO 17025;
- Create coordination mechanism between the safety and resilience pillars;
- Provide a cause-agnostic definition of cyber-related incidents, encompassing both intentional and non-intentional disruptions;
- Flexibility (implementing acts) is important as cybersecurity is a dynamic field and the regulator needs to be able to react accordingly, however it needs to be outcome-based and not prescriptive;
- From a cybersecurity perspective, it is usually considered that the greatest benefit comes from requiring Security-by-design and Security-by-default, together with technical and organisational measures based on state-of-the-art security technologies.

Analysis of Specific Provisions

- **Art. 75: Relationship with NIS 2 and CER Directives**
 - Reference to NIS2 and CER will not be sufficient as an operator is not able to secure his operations if his assets are not cybersecure. Moreover, Art. 11 of Annex I of NIS2 only mentions the ground aspects of space infrastructures, which represents only a small part of the complete picture. Only the CRA will ask the manufacturer to follow cybersecurity requirements related to their products with digital elements which will become part of the network of the operator of the critical infrastructure.
- **Art. 76: Risk management throughout the lifecycle of the space missions**
 - While the intent is clear and appreciated, substantiating the full set of requirements is a separate undertaking. The article appears to assume a seamless alignment between theory and operational reality; in practice, this can be challenging;
 - Regarding the criteria, the size of an entity should be no criteria as also products from small manufacturers will be part of a bigger space system and therefore any vulnerabilities might put whole missions at risk;
 - 76.3 (c): a guideline describing what societal and economic impact could mean would be beneficial;
 - Cybersecurity evaluation and certification with differentiated assurance levels shall be used as a means to demonstrate conformity to requested measures;
 - 76.6: associated test methodologies shall be defined.
- **Art. 78: Risk Assessment**
 - The article is welcome if it remains methodology-neutral and does not mandate a specific risk analysis approach (78 §d); moreover, the current text applies to EU operators leaving third countries free to use their own assessment. In the same goal of being able to compare risks assessment (as stated in (d)), the Commission should then mandate the ECSS to provide a set of methods/tools guidelines that may be used for spacecraft security processes, also to third countries operators;
 - The threat modelling method (78 §c) changes over time; the analysis will thus refer to the model available at a given point in time. This is time and efforts consuming as there is no tools available underneath. A more pragmatic approach would be to require for a domain CTI (managed by the Agency), and it would be up to operators to perform impact analysis on the risks for the systems (homologation impact);

- Avoid a fixed annual review and tie reassessments to change management and material events: during engineering, risk assessment should be updated at major maturity gates. In operations, it should be revised regularly or in sync with the change control board.
- **Art. 79: Simplified risk management**
 - Industry recommends removing this article to ensure consistent risk management across all entities. Carve-outs risk creating vulnerabilities, and assets treated under simplified procedures may subsequently become part of wider systems, undermining end-to-end security;
- **Art. 83: Detection and monitoring of incidents**
 - Should acknowledge that security events cannot always be transmitted to the ground in real time, as transmission is constrained by visibility windows and available bandwidth. Moreover, on sold systems, the operator may not be the holder/owner of the system.
- **Art. 85: Cryptography and encryption**
 - Art 85.4 requires the use of certified (EUCC) equipment to implement cryptography. While CC certified equipment are good ones, they are costly and will dramatically increase the cost for all space missions, and probably add delays;
 - Furthermore, it is recalled that, currently, the cryptography and encryption solution depend on the national policies; making them a legal requirement will probably prove difficult;
- **Art. 88: Testing**
 - The Threat Led Penetration Testing (TLPT) instead of usual pen-tests will add a lot of costs that may not be useful for most (non-governmental) missions;
 - The Article should address also “manufacturers”. Testers shall be accredited by the National Cybersecurity Certification Body (NCCA) of a Member State as referenced in Regulation (EU) 2019/881. Cybersecurity Certification Bodies shall comply to DIN EN ISO/IEC 17065.

Environmental Pillar

The Regulation has the opportunity to introduce a European Environmental Footprint (EF) methodology and rules for the space sector, creating a database mastered by EU public authorities; however, several criticalities are posed by the current ambition. While industry is relying on the Life Cycle Assessment (LCA) and has invested extensive resources within the ESA framework to enrich the LCA database, the European Commission is working on a proprietary approach, the PEFCR4Space, which should supersede LCA for the EF Declaration (Art. 97).

The PEFCR4Space methodology will require industry to invest on financial and human resources to adapt (1) industry IT tools; (2) industry’s methodologies to take into account new requirements (e.g., regarding circularity and more thorough requirements in terms of environmental impact analysis); and (3) industry databases, and data transfer from one referential to another. In light of these factors, the Regulation’s economic impact assessment, estimating the cost of implementing the PEFCRs at EUR 4,000-8,000, is significantly underestimated, with actual costs expected to be 10 to 100 times higher, depending on the complexity of the system to be assessed. Moreover, this could ultimately lead to unnecessary, costly duplication and overlaps between ESA and EU, or worse to obtain different values from one method to another (e.g., on carbon footprint, raw material consumption, etc.). Overall, this leads to concerns that the EU methodology may not reflect the operational reality of the entire industrial sector and, as with the CSRD Directive, this approach risks creating a parallel consultancy economy around both rule-making and compliance.

Currently, the Regulation only requires for the operators to assess their impact and to submit an EFD, therefore not linking this obligation to concrete objectives, which raises questions as to the purpose pursued. Moreover, the pillar requires established companies to provide sensitive ecodesign and life-cycle data developed at their

own expenses, which less experienced entrants could exploit, raising confidentiality, IP protection, and competitiveness concerns. Specifically, while Articles 99 and 100 establish obligations for data submission and use, it remains unclear how aggregated, disaggregated, and derived datasets will be managed in practice, and how the data transfer from one referential to another will take place (as the EF assessment will be made based on “reference products”). This is especially sensitive where the contributor base is very small. For example, in the launcher segment, EF represents a novel initiative and only a few providers currently supply data. In such circumstances, an “aggregated” dataset may be statistically indistinguishable from the dataset of Provider A (or Provider B), and the treatment of derived datasets is not specified, as the EF assessments will be made based on “reference products”.

A strict interpretation of the EFD reporting, based on the current proposal only, while waiting for the details to be specified in the implementing act, would place European space operators in a situation of operational and financial risk. Industry warns that the PEF4Space initiative seems to be at early stage of development, and its metrics are not sufficiently harmonised with existing practices to serve as a regulatory baseline. Premature adoption could lead to disproportionate costs and increased administrative burden without measurable environmental benefits.

To maintain the competitiveness of the European space industry, the space sector invites stakeholders to ensure that the application of these requirements is not detrimental to EU industrial players. The following recommendations should be taken into account:

- Define an equivalence between the current methodologies and the EFD: The Commission should rely/work closely on ESA’s expertise, ESA’s reference database, and existing LCA procedures if new technical requirements under the EUSA/future EUSA implementing acts are to be defined;
- Align ESA and EU to make sure the requirements do not overlap and ultimately select one unique methodology to assess all programmes;
- Provide flexibility to actors according to size, maturity and risk profile of projects, following the current ESA handbook and process, whereby requirements are determined at different stages of the project’s life cycle;
- Allow EFD to be dependent on the maturity of the programme (e.g.: TRL);
- Reduce some of the administrative burden and cost, as full and immediate enforcement for start-ups and SMEs would create high compliance costs;
- Challenge the way EFD is reviewed by third parties in order not to create a consulting ecosystem;
- Ensure that there is no loophole for non-EU operators to go through the same process;
- Remove any reference of the use of disaggregated datasets. Explicit use of aggregated datasets will protect sensitive data and IP;
- Protect the data of actors that have contributed to the PEF database;
- Consult the industry on the way the derived datasets will be used for policy-making purpose.

Union Labelling Scheme and Union Space Label (Art 111 & 112) – in relation to the Environmental Pillar

The Union Space Labelling Scheme could serve as a valuable instrument for fostering more sustainable technologies, as it could drive investments in more sustainable industrial approaches; however, its functioning and scope remain difficult to evaluate. The Regulation does not specify whether the future Environmental Label (or Labels) covers all environmental impacts (e.g. debris or also carbon footprint), how it will be conceived, assessed and delivered (competences left to Implementing Acts and to EUSPA), and which criteria will be used. It is also unclear whether the label applies at mission level or operator level. Crucially, the “handprint” (net societal and environmental benefit of a mission) is missing: a space-tourism flight could score well on process metrics despite questionable benefit, while an earth-observation mission may have higher manufacturing/launch impacts yet deliver substantial environmental gains.

Industry warns that this initiative risks being premature without a consolidated sector-specific methodology for applying and evaluating LCA results, due to missing studies and research on the impacts of space activities (e.g., atmospheric re-entry), as well as the impact of the current highly competitive international landscape on the space sector. The following recommendations should be taken into account:

- Keep the ambition but add clarity and methodology: define explicit scope and criteria, make the unit of application mission-centric, and publish transparent mappings to guide the Commission's Implementing Acts;
- Integrate the "handprint";
- The Labels must remain optional and early alignment incentives should not create a two-tier market and avoid any distortion of competition.

Analysis of Specific Provisions

- **Recital 94**

- The shift towards a circular economy in space is wider than the development of new products. It induces a change in the way space assets are designed, operated and managed at end of life with the emergence of new concepts of operations, new actors, new value chains and the development of associated enabling systems. A revision for Recital 94 is proposed: *"towards new concepts of operations, requiring the development of new systems and the evolution of the way space assets are designed"* instead of *"towards new products with reduced environmental impact"*. The following sentence should be added: *"Furthermore, circular economy should also apply to ground segments and space specific test means, starting by maximising the reuse of existing facilities, e.g. through the development of a digital market place."*

- **Art. 96: Environmental footprint of space activities**

- **§3:** the prime contractor cannot force suppliers to disclose confidential information; obligations of data provision shall not require disclosure of proprietary or confidential manufacturing information beyond what is strictly necessary for mission-level assessment;
- **§4:** the level of details of the EF study and associated certificate (EF Declaration) shall be aligned with ESA practices; moreover the *"competent authorities"* shall be institutional or audited bodies demonstrating full transparency in the acceptance criteria and their implementation;
- **§7(d):** as the EF performance class is not defined yet, this shall not create unfair competition nor restrictions to innovation.

- **Art. 97: EF calculation and verification of the space activities**

- **§4:** as of today, the EF is calculated directly by the manufacturing industry. The Regulation could include the possibility to proceed the same way. A revision is proposed: *"or, alternatively, to calculate themselves the EF of their deliveries and transmit the aggregated and disaggregated datasets directly to the Commission"*. Moreover, the *"method of calculation and verification of the EF of space activities"* should make direct reference to ESA practices.

- **Art. 98: EF certificate**

- **§2:** unclear if the qualified technical body (QTB) tasked to deliver the EF Certificate is an institutional actor. Moreover, it is unclear which entity bears the cost of the QTB.

- **Art. 99: Transmission of datasets to the Union EF-related database**

- **§1:** requires industries to transmit EF related dataset, which will be stored and used by the Commission to “inform policy makers”, as per **Art. 100**, posing risks of leaks of critical technological information, and costs due to transmission and collection. Moreover, the disaggregated datasets correspond to confidential data, meaning that the improper circulation of such information could cause harm to the industry. Nonetheless, the transmission of only aggregated data should be thus considered by the regulator, and the exact borderline between aggregated and disaggregated datasets should be further clarified in **Art. 5** definitions **(59)** and **(61)**.
- **Art. 100: Use of disaggregated datasets informing policy making**
- **§1:** the need for creation of derived datasets from disaggregated dataset is unclear, posing significant risks of data leakage: especially knowing that PEFCR methodologies are strictly framing and harmonising the scope and methods, aggregate dataset should be sufficient for policy-makers activities;
 - **§2:** operators are not the only dataset owners, all the value chain own datasets; manufacturing industry shall retain ownership of data it shares;
 - **§3:** it is not acceptable to fully and freely transfer the ownership of derived datasets. Most disaggregated data can directly contain or reveal industry confidential information (technologies, processes, etc). The data should not be disclosed or made available to third parties;
 - The article does not address the industry’s right to use derived datasets.

TITLE V: Supporting measures and capacity building measures

The industry welcomes Article 109 on capacity-building measures and support for research, innovation, and development. While this long-awaited commitment is appreciated, the article lacks clarity on some key aspects:

- The article should make reference to which funds will be allocated, if they will they come from Horizon Europe or the future EU Space Programme;
- The following item should be added as a new recital in Article 109 (2): *“the development of technologies supporting the reduction of the environmental footprint of space activities, including through the support of in-orbit demonstration”*;
- The reference to circularity in space should be added in Article 109 (1) (c). Here is thus a proposed revision: *“and more widely of in space circularity enabling products (including the way space assets are designed) and systems and associated concepts of operation”*;
- This article mentions that *“the Commission shall fund: the development of standards for launcher neutralizers”*. One wonders why this specific requirement has emerged and whether it would not be more appropriate to mention it in Art. 72 or Art. 104;
- Supporting measures shall encompass measures for innovative SSA ground/space-based systems;
- Funding should support emerging technologies and services, such as in the field of ISOS, and in general the technological challenges proposed by EUSA, in order to achieve its objectives, rather than scaling back its ambitions with carve-outs and exemptions.

TITLE VI: The Union space label framework

Industry has put forward its concerns regarding the lack of clarity about the implementation of the label, its functioning, and timing (it is not clear whether it applies at space mission level or at space operator level, i.e., for all its space missions), which are the concrete incentives associated with the adoption of this label) and regarding how the label will be established (if there will be thresholds and how the data will be transformed into the database to make thresholds).

The labels are intended to be optional, which industry welcomes. However, industry understands that the labelling framework will in practice be used to rank and reward products or missions (basic / substantial / high). Industry calls to avoid the risk that the Union Space Label could open the door to differentiated market access, primarily benefiting companies able to invest more resources in obtaining the label and disadvantaging others. It is essential to ensure that the label remains strictly voluntary and does not undermine equal access to the EU market or to EU contracts. The label should therefore remain optional and avoid in the future becomes de facto enforceable in procurements.