

Dear Reviewer,

I sincerely thank you for your careful, balanced, and constructive review of my manuscript, *“Framing the Orbital Commons: Public Discourse and LEO Sustainability After the Starlink Gen2 Approval.”* I greatly appreciate the time and expertise you devoted to evaluating the study.

I am encouraged by your assessment that the manuscript addresses an important and underexplored area at the intersection of environmental communication, governance, and orbital sustainability, and that it is well motivated, theoretically informed, and generally well written. I am also grateful for your recognition of the manuscript’s effort to connect geoscience, governance, and communication research.

Your comments have helped me identify several areas where the manuscript can be made more transparent, precise, and methodologically robust. I have carefully considered each recommendation and set out below how I will address them in the revised manuscript.

1. Coding process

Reviewer comment

The coding framework is helpful, but greater clarity is needed regarding how coding decisions were made when multiple framing orientations appeared in a single post. In particular, the reviewer asks how Hybrid framing was distinguished from Technological Optimism when a post briefly acknowledged environmental risks.

Response

I thank the reviewer for this important observation. I agree that the manuscript should explain not only the coding categories but also the practical decision rules used to distinguish them.

I will expand Section 3.4 to clarify that each post was assigned a single dominant framing orientation according to its overall interpretive emphasis, rather than according to the simple presence of multiple themes. A post was coded as Hybrid only when technological benefits and environmental or governance concerns received comparable emphasis and neither orientation clearly dominated. By contrast, a post was coded as Technological Optimism when the primary emphasis remained on connectivity, innovation, progress, or technological benefits and environmental concerns were only incidental or briefly acknowledged.

I will also clarify that posts reporting regulatory decisions or institutional actions without explicit evaluative language were coded as Neutral, even where broader technological or environmental implications could be inferred by readers.

To make these distinctions more transparent, I will add a table of illustrative coding decisions containing paraphrased examples of Neutral, Technological Optimism, Hybrid, and Environmental Risk framing, together with the rationale for each classification.

Reviewer comment

Governance and Responsibility was coded in 196 of 207 posts. The reviewer requests clarification of the threshold used to assign this category and examples illustrating its application.

Response

I appreciate this observation and agree that the high frequency of this dimension requires explicit explanation.

I will clarify that Governance and Responsibility was assigned whenever a post explicitly referred to institutional decision-making, regulatory authority, organisational accountability, approval processes, or the responsibilities of public or private actors. Because the focal event was itself a regulatory decision by the Federal Communications Commission, references to the FCC, SpaceX, regulatory approval, institutional authority, or organisational responsibility appeared in a large proportion of the corpus.

For example, a post stating that the FCC authorised SpaceX to deploy an additional 7,500 satellites qualified for this dimension because it explicitly referenced regulatory authority, even if it contained no evaluative or environmental content. The revised manuscript will explain that the high frequency of this category reflects the event-centred composition of the corpus rather than an analytical preference for governance-oriented interpretations.

Reviewer comment

Because coding was conducted by a single researcher, the manuscript should acknowledge the subjective nature of qualitative coding and explain how coding consistency was maintained.

Response

I agree with this recommendation. The primary coding was conducted by me as the sole author and sole coder, and the analysis therefore necessarily involved qualitative interpretation.

I will revise the Methods and Limitations sections to explain the procedures used to enhance consistency. These included an initial pilot coding phase, refinement of category boundaries and decision rules, finalisation of the coding protocol before coding the full corpus, a predefined codebook, written coding memos, a documented audit trail, and a subsequent review of a subset of posts to verify the stability of coding decisions. This later review was undertaken only to assess consistency and did not modify the coding framework.

I will also state explicitly that the absence of a second coder means that reliability rests on procedural transparency and coding consistency rather than on a formal intercoder agreement statistic. Alternative readings may remain possible for a small number of posts, particularly where multiple framing orientations were present. This limitation will be acknowledged without treating interpretation as an error to be completely eliminated, since interpretive judgement is intrinsic to qualitative framing analysis.

2. Methodological transparency

Reviewer comment

The manuscript should provide additional detail regarding the search strings, combinations of terms, query settings, and collection dates.

Response

I thank the reviewer for highlighting the need for greater reproducibility.

I will expand Section 3.2 to explain that data were collected through NodeXL Pro's keyword-based Search Network import. Separate searches were conducted using the event-specific terms "Starlink," "FCC," "approval," "Gen2," and "expansion." NodeXL did not apply a user-defined Boolean AND/OR expression across all five terms. Instead, the keyword outputs were collected separately, merged into a single dataset, and deduplicated using unique post identifiers and URLs.

The revised manuscript will also state that the analytical window extended from 30 December 2025 to 19 January 2026, representing ± 10 calendar days around the FCC decision of 9 January 2026. Posts were then manually screened, and only those substantively referring to the FCC approval of the Starlink Gen2 expansion were retained.

I will ensure that the same dates, collection procedure, screening criteria, and corpus counts are reported consistently throughout the Methods, Results, figures, and conclusion.

Reviewer comment

The keyword strategy may have influenced the results because terms relating to approval, regulation, and expansion may naturally favour institutional or news-oriented discourse and may partly explain the prominence of neutral framing.

Response

I agree that the event-focused keyword strategy may have shaped the composition of the corpus.

The revised manuscript will explain that the keywords were intentionally selected to isolate discourse surrounding the FCC regulatory decision rather than general commentary on SpaceX, routine launches, or Starlink services. Sustainability-specific keywords were excluded so that sustainability concerns could emerge from the event-focused discourse rather than being built into the sample in advance.

At the same time, I will acknowledge that terms centred on regulatory approval and constellation expansion may have increased the proportion of institutional announcements, journalistic reporting, and descriptive posts. This sampling characteristic may therefore have contributed to the prevalence of Neutral or Informational framing.

This limitation will be stated in both the Methods and Limitations sections. I will also recommend that future studies combine event-based searches with broader thematic or sustainability-oriented sampling strategies to determine whether alternative approaches produce different framing distributions.

3. Results and interpretation

Reviewer comment

Only a very small number of posts occurred before the regulatory decision, making meaningful before-and-after analysis difficult.

Response

I agree with the reviewer.

The temporal analysis will be explicitly described as descriptive rather than comparative or inferential. The revised Results section will state that only three posts occurred before the FCC decision, while 204 occurred afterward. The temporal distribution therefore illustrates the concentration of public attention following the approval but does not support substantive conclusions about changes in framing between the pre- and post-approval periods.

I will reduce any language that could imply a meaningful before-and-after comparison and will repeat this limitation in the conclusion.

Reviewer comment

There is a numerical inconsistency between the final analytical corpus of 207 posts and a temporal breakdown of 204 post-approval posts plus 5 pre-approval posts.

Response

I thank the reviewer for identifying this discrepancy.

I rechecked the temporal classification against the analytical corpus. The correct distribution is 204 post-approval posts and 3 pre-approval posts, for a total of 207. I will correct this count consistently throughout the manuscript, including the Results section, figure captions, limitations, and conclusion.

Reviewer comment

Some governance implications go beyond what the discourse data can directly demonstrate. The manuscript analyses communication rather than governance outcomes, so these claims should be presented as implications or hypotheses rather than demonstrated effects.

Response

I agree with this important distinction.

I will revise the Discussion and Conclusion so that claims concerning governance, policy prioritisation, accountability, and regulatory outcomes are consistently presented as implications inferred from the observed communication patterns rather than as demonstrated causal effects.

The revised text will use cautious formulations such as:

- “may influence”;
- “may contribute to”;
- “suggests”;
- “has the potential to”; and
- “may shape the conditions under which”.

I will also add a clear qualification at the beginning of the implications section stating that the study analyses public discourse rather than governance outcomes and that the implications are therefore interpretive inferences, not evidence of direct policy effects.

Reviewer comment

The phrase “significantly more prevalent” may imply statistical significance even though no inferential statistical test was conducted.

Response

I thank the reviewer for this observation.

I will replace “significantly more prevalent” with “substantially more prevalent” or equivalent descriptive wording. I will also search the manuscript for any other use of “significant” or “significantly” that might imply inferential statistical testing and revise such wording where necessary.

4. Strengths identified by the reviewer

Reviewer comment

The reviewer identifies the Discussion as a major strength, particularly the interpretation of neutral reporting as a form of framing and the discussion of the communicative gap between scientific understandings of orbital sustainability and their public representation.

Response

I sincerely thank the reviewer for this encouraging assessment. I am particularly grateful for the recognition of the argument that neutral or informational reporting constitutes a form of framing through selection and salience rather than an absence of framing.

I also appreciate the positive assessment of the communicative-gap argument. I will preserve these central contributions while refining the surrounding language to ensure that the broader implications remain proportionate to the empirical evidence.

5. Minor issues

Section numbering

I will correct the numbering so that the manuscript proceeds from Section 4.5 to Section 4.6 without omission.

Numerical consistency

I will ensure that the total corpus size and temporal distribution are reported consistently as 207 posts, comprising 204 post-approval and 3 pre-approval posts.

Typographical issue

I will correct “progressoriented framing” to “progress-oriented framing.”

Grammar in the abstract

I will revise the sentence to read:

“Environmental risk framing, particularly relating to orbital debris and ecological impacts, appears comparatively limited.”

Data Availability Statement

I will revise the Data Availability Statement to clarify that the processed dataset, codebook, post identifiers or URLs, and derived coding variables have been prepared for deposition in Zenodo. The permanent DOI will be inserted when available. In accordance with ethical and platform considerations, the full text of user posts will not be redistributed.

Appendix formatting

I will correct the spacing, alignment, broken words, and column formatting in all Appendix A tables and ensure that the codebook terminology matches the Methods section exactly.

Closing response

I sincerely thank the reviewer for the thoughtful and constructive assessment of the manuscript. The comments have helped me strengthen four areas in particular: the transparency of the single-coder process, the reproducibility of the NodeXL data collection procedure, the consistency of the reported results, and the caution with which broader governance implications are presented.

I believe that the planned revisions directly address all concerns raised while preserving the manuscript's central empirical and theoretical contributions. I am grateful for the reviewer's careful evaluation and for the recognition of the manuscript's potential contribution to geoscience communication, orbital sustainability, and environmental governance.

Sincerely,

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