

Strategic Messaging on Capabilities for Space Missions and Policies

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I. Introduction

The modern space race is marked by a resurgence of global interest in space exploration and competition between not only nation-states, but also commercial companies and international organizations. There is a growing emphasis on the advancement of technological capabilities in space such as scientific experiments and discovery, defense, and economic exploitation. As entities strive to establish themselves as leaders in these domains, strategic communication on capabilities becomes a critical tool in shaping global perception, mitigating risks of national security, and supporting international cooperation in the pursuit of space exploration. The purpose of this paper is to open up the conversation to the role and impact of strategic messaging on space capabilities in the context of an ever-evolving landscape. Furthermore, the paper aims to provide insights into how future space policies and missions can benefit from enhanced communication strategies to align with national and international objectives.

II. Key Considerations of Strategic Messaging on Capabilities

In shaping the future of space policy and capabilities, strategic messaging must carefully navigate the challenges of balancing transparency and security, inspiring global and public engagement, and promoting international collaboration. A thoughtful approach to strategic messaging on capabilities can enhance global cooperation, ensure a positive public buy-in, and mitigate risks associated with militarization of space, national rivalry, public mistrust, and other potential concerns (U.S. Dept. of State, 2023).

Transparency fosters trust, both with the public and among international stakeholders. Having openness to the public helps to demystify space programs, boosting support and promoting a sense of shared human achievement and national pride (Launius, 2003). Space exploration has historically been a source of wonder and fascination for many. By emphasizing the narrative of space as a frontier for human advancement, cooperation, and peace, space agencies can foster a sense of global unity and purpose. For example, the way that NASA's Artemis program captures the imagination and nostalgia of the public by returning astronauts to the Moon and projects a vision of human achievement by laying the groundwork to eventually explore Mars (NASA, 2024).

However, not all information can or should be openly shared. Space capabilities often intersect with national security interests, as dual use technologies for both civilian and military applications. Over sharing details in some cases could expose vulnerabilities that adversaries could exploit, compromising national security and possibly inducing an arms race in space. A recent example of this is the Russian cyber attack on U.S. critical infrastructure. The destructive WhisperGate malware was deployed against multiple organizations and nations, with the intent to cripple their target's operations. The Cybersecurity & Infrastructure Security Agency (CISA), states that to mitigate this malicious cyber activity one of the main actions you should take in your organization is to remediating known exploited vulnerabilities (CISA, 2024). Revealing too much about space-based communications or military systems can expose vulnerabilities. Therefore, emphasizing transparency of peaceful and scientific achievements, while protecting esoteric or sensitive details, is a precarious but necessary balancing act that must be considered in the modern space race (Colglazier, 2023).

Messaging should aim to emphasize cooperation and reduce conflict through promotion of a collaborative narrative. Since space exploration increasingly involves multiple countries, as well as private and public entities, crafting an environment that emphasizes partnership, peaceful exploration, and shared goals, will mitigate the risk of geopolitical tension and competition. Private and public partnerships will also create new economic opportunities and advance human presence in space, for example, space tourism, in-space manufacturing, and resource utilization (Signe, 2023). Private companies now play critical roles in space exploration and technological advancement, and the importance of partnership between nations and private entities should be highlighted in messaging in order to portray a narrative of collective progress (Rausser, 2023).

III. Importance of Strategic Messaging on Capabilities

In relevance to space policy, strategic messaging is of the utmost importance when establishing trust and credibility within the international community and the public. The approval of the international community and public is heavily dependent on how projects are advertised in such a way that the prospects for their success are put into the limelight. Messaging that emphasizes innovation, scientific progress, and peaceful exploration often boosts a country's global standing. International cooperation fosters ambition and innovation, and public approval fosters inspiration (Journal of Science Communication, 2023). In addition to receiving validation from the international community, stakeholders and investors must have a high level of trust. A large deal of investment is required to make the plethora of space projects still on the design board a reality. The space industry is projected to reach a whopping \$1.8 trillion by 2035, the key drivers of this revenue being satellite-enabled technology, defense, resources, and connectivity (World Economic Forum, 2024). However, this figure will only be attainable if global investors, ranging from robust venture capital firms like Lux Capital, Andreessen Horowitz, and Founders Fund to the private sector aviation giants Boeing and Northrop Grumman, are assured that they will have a satisfying return on investment.

From a political standpoint, public support for any major government undertaking is a make-or-break factor. Any space project may serve as a risky endeavor, and at first, may incur public disapproval. To mitigate issues, space agencies and private sector firms use a vast amount of media campaigns to propagate themselves as institutions that people can trust. 70% of

Americans think it is essential to remain a world leader in space, and 65% of American adults say that NASA should continue to be involved in space exploration (Pew Research Center, 2023). Missions that tend to be aligned with public concerns are usually the missions that appeal to the people through their promising prospects for success. In addition, public perception is heavily influenced by geopolitical events of a time period. Positive public perception of any government undertaking is a key factor in the underlying success of that project. This is exemplified in the Apollo project during the 1960s, a tumultuous decade that saw the Space Race reach its climax. The USSR was seen as an enemy to the American people, and NASA and the Department of Defense saw to it that the public was convinced by the success prospects of the Apollo projects. After the miraculous Apollo 11 landing in 1969, 65% of Americans described it as the most important achievement of the US Space Program (National Aeronautics and Space Administration, 2023) Through public engagement strategies and appeasement, missions have been reformed to contain clear, tangible benefits that are in compliance with international law and resonate with societal priorities (Research and Development Corporation, 2021).

Space messaging as a means of communication can be utilized to either deter geopolitical escalations between nations or aggravate them further. Nations like Russia and China have slowly been shifting their Space Policy from exploration to that of militarization through military rhetoric, showcasing anti-satellite systems, and cyber capabilities. These policies show a desire for global dominance rather than international cooperation, and this is communicated through the political agendas of these nations' respective leaders and agencies (NASA, Pew Research Center, 2023). Western Agencies like NASA and the European Space Agency (ESA) use a more diplomatic approach when it comes to boasting their capabilities, and through their cooperative initiatives, highlighting their commitment to neutrality (U.S. Department of Defense, 2020). Space agencies need to boast their capabilities to establish that they will be willing to defend themselves if under threat, and advocate for cooperation to avert any crisis. This is the importance of messaging for seamless cooperation and a stable space industry.

IV. Potential Policy Implications

Strategic messaging plays a pivotal role in the future success of international space agreements and alliances. Now entering an era of space being a critical domain for national security, diplomacy, and commercial ventures, nations' communication of their space capabilities, policies, and strategies significantly impacts multilateral agreements, alliance building, and public engagement. The success of U.S. Space Force initiatives depends not only on technological prowess but also on the strategic messaging used to forge strong international partnerships, influence public opinion, and secure policy backing.

Strategic messaging is instrumental in influencing the formation and effectiveness of international space agreements. Clear, consistent, and persuasive communication can build trust among nations, facilitate cooperation, and encourage the adoption of shared norms. The perfect example of international cooperation through effective communication is the Outer Space Treaty of 1967, which remains the cornerstone of international space law, was shaped by effective diplomatic communication that emphasized the peaceful use of space and mutual security interests. Nations involved in drafting the treaty effectively conveyed their commitment to space as a domain for the benefit of all humankind, which helped secure broad support for the agreement (Schreiber, 2023). Similarly, the signing of the Artemis Accords in 2020, led by the United States, have used strategic messaging methods such as the reinforcement of the Registration Convention, the Rescue and Return Agreement, as well as best practices and norms of responsible behavior in space to promote the peaceful exploration of the Moon and beyond, and successfully garnering support from the most active space-faring nations of today (NASA, 2023).

Building and sustaining alliances in space exploration also depend heavily on effective strategic messaging. Successful alliances are built on shared goals, trust, and transparent communication. The Combined Space Operations (CSpO) initiative, involving the United States, Canada, Australia, the United Kingdom, France, Germany, and New Zealand, demonstrates the power of strategic messaging in fostering collaboration. By clearly articulating the benefits of shared space operations, such as enhanced situational awareness and collective defense, the United States has strengthened its alliances with these nations. This has led to coordinated efforts

in space domain awareness, joint training exercises, and shared threat assessments, all of which have reinforced the collective security of these allied nations (Schreiber, 2023).

Another critical component of policy formulation in space exploration is public engagement. Strategic messaging is essential in shaping public perception and building support for space policies. The U.S. Space Force's recent announcement of its new mission statement, "Secure Our Nation's Interests in Space," illustrates how messaging can be used to engage the public and convey the importance of space for national security. By highlighting the role of space in everyday life—such as GPS, satellite communications, and national defense—the Space Force effectively communicates the relevance of its mission to the general public (U.S. Space Force, 2023).

V. Conclusion

Strategic messaging is pivotal in shaping the future of space exploration by guiding policy decisions, ensuring national security, and fostering international collaboration. As the space domain becomes more involved with defense, technological innovation, and economic growth, effective communication is essential for establishing trust, credibility, and cooperation among stakeholders. Additionally, the ability of nations and organizations to articulate their capabilities, goals, and intentions will play a critical role in the success of their missions and determine their leadership in the space domain.

Tactical communication on space capabilities ensures that endeavors are presented in ways that emphasize cooperation and shared human advancement, while simultaneously safeguarding national security. This is especially important as space exploration expands beyond state actors to include government agencies, multinational organizations, and public-private partnerships. Strategic messaging not only facilitates diplomatic engagement but also manages competition and tensions in the increasingly contested space environment. The future of space policy and exploration will be defined not only by technological advancements but also by the narratives and communication strategies that accompany them. Nations and organizations that excel in strategic messaging will be best positioned to lead in the new space era, promoting collaboration, advancing human presence in space, and ensuring that space remains a domain of opportunity and peace for all.

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