From Orbits to Ecosystems

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Walking out of the Bonn Future Lab on Strategic Foresight 2025, I felt that my entire mental map of space had subtly but profoundly shifted. I arrived thinking in terms of rockets, satellites and treaties; I left thinking in ecosystems, governance gaps, capital flows and the slightly unsettling notion that "everything is defense now." The event transformed space from a technical niche into a strategic environment that underpins almost every modern system.

Space as an ecosystem

Already in the digital kick-off, the description of a "hyper-transparent battlefield" created by real-time data fusion, signals intelligence and AI-

supported analysis made it impossible for me to see space as merely supportive. A senior military representative deepened this impression by framing space as an interdependent ecosystem of public and private actors whose realistic goal is not dominance, but resilience and interference-free operations. This was the moment I realized that anyone concerned with European security cannot ignore space.

Foresight as a strategic mindset

Equally impactful was how strategic foresight itself was presented. Instead of treating foresight as vague futurism, the workshop introduced it as a disciplined method built around uncertainty: scanning weak signals, constructing scenarios, sensemaking and strategizing. The futures cone, to distinguish probable, plausible and possible futures, subtly undermined the expectation that experts can predict what will happen. This methodological clarity made the subsequent workshop sessions feel purposeful rather than imaginative speculation. The transition we followed, from exploring alternative futures to designing desirable ones and charting pathways towards them, helped me understand foresight as more than a tool. It felt like a needed mindset shift.

On the economic side, one keynote pushed me into productive discomfort. Treating space unabashedly as a strategic growth sector, the speaker argued that Europe risks losing entire value chains if it remains slow and undercapitalized. Hearing about Europe's venture-capital gap and sluggish decision cycles made lofty talk of "strategic autonomy" feel suddenly concrete. It forced me to connect big geopolitical ambitions with very mundane issues like procurement rules, licensing procedures and industrial risk appetite.

Governance and structural gaps

Governance questions added another layer of urgency. The description of today's space traffic environment, essentially a crowded orbital arena without binding rules, made the Kessler syndrome feel less like science fiction and more like a daily operational risk. The current legal framework, both enabling and incomplete, suddenly appeared fragile in the face of dual-use technologies and commercial proximity operations. The idea that companies already shape governance through informal norms struck me as both pragmatic and a little unsettling. It highlighted that real-world space governance is messy, hybrid and driven by actors far beyond traditional diplomacy.

A broader theme that resonated with me was Europe's ongoing "space blindness." Space was repeatedly described as the invisible backbone of the digital and green transitions, yet almost absent from political and public debate. As someone beginning an academic and policy career, I interpreted

this as both a warning and a chance to shape a field still lacking institutional depth, dedicated chairs and long-term thinking.

Fragmentation and geopolitics

European fragmentation was another recurring concern. Compared to the United States' federal structure, Europe's patchwork of national space strategies, capital markets and industrial champions creates friction and slow coordination. The metaphor of "Transatlantic jazz", improvisational but often out of sync, captured this nicely. For me, this made the call for stronger European instruments and security coordination feel like a prerequisite rather than institutional tinkering.

The geopolitical discussions added weight to everything else. China emerged as the "elephant in the room," blending civil and military capabilities and aggressively using standard-setting as a geopolitical tool. Russia appeared more as a warning case: still dangerous but no longer shaping global norms. The concept of the "weaponization of standards" was one of the most illuminating takeaways for me; it connected governance, industry and security in a single idea.

Practice, people and takeaways

The social atmosphere – a mix of officers, industry representatives, researchers and students under the Chatham House Rule – made room for candid exchanges. Informal conversations about jamming in warzones, the integration of commercial constellations, or the realities of European procurement turned abstract concepts into lived challenges. These moments humanized institutions and showed me how deeply space already shapes today's security environment.

The two workshop days were intellectually intense. The "briefings from the future" and the "Shark Tank of the Futures" forced us to make our assumptions explicit and defend our strategies against practitioners who questioned feasibility and political realism. As younger participants, we were encouraged not to present polished solutions but to broaden the agenda: raising climate impacts, ethical questions around autonomy, or the role of universities in building long-term strategic culture. This openness to integrating "overlooked drivers" felt both empowering and necessary.

Key lessons

Looking back, several lessons crystallized for me. Space has become a strategic ecosystem, crowded, commercial, contested, and Europe must choose between dependency and design. Sustainability includes security, debris management, environmental impacts and governance structures. Governments are not just regulators but strategic customers shaping markets. Most importantly, foresight is not optional: in a sector defined by long

lead times and uncertainty, failing to think in scenarios may be the riskiest choice of all.

On a personal level, the Future Lab shifted how I think: from sectors to ecosystems, from forecasts to futures, from hardware to governance and standards. And with 2040 as the constant horizon, I felt a generational responsibility – those decisions will eventually be ours to make.

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