Through the Looking Glass

What NASA's Public R&D Data Reveals About Itself

20,152 projects · 77 programs · 100 autonomous research sessions

Portfolio analytics grounded in TechPort API queries. Some individual project profiles include supplementary context from public sources.
No internal or restricted NASA data was used.
Note: Public TechPort records may not reflect current project status or partnerships.

Knowledge base: TechPort Knowledge Base v0.1 · tobedetermined.github.io/agent-techport/techport-only/

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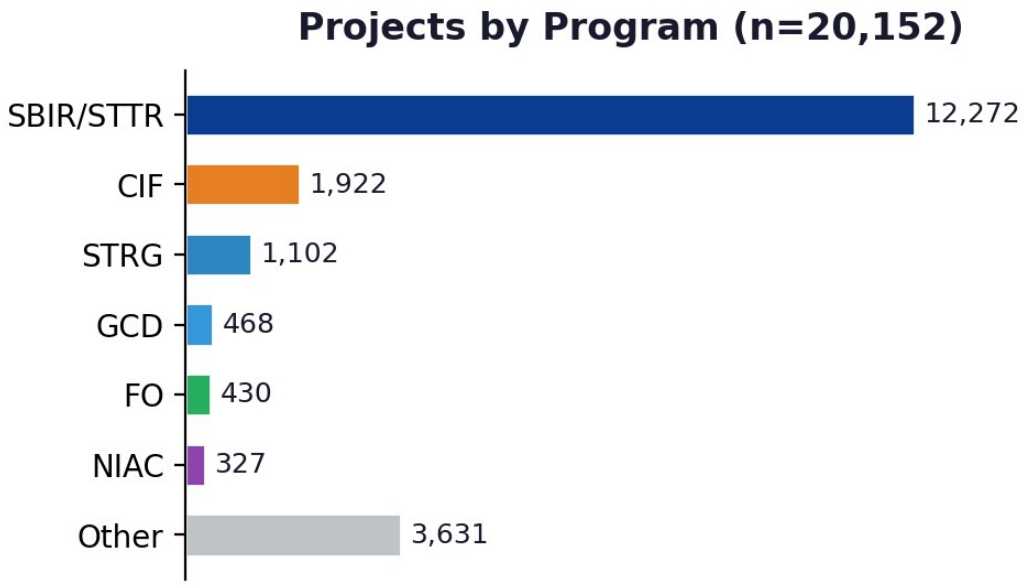
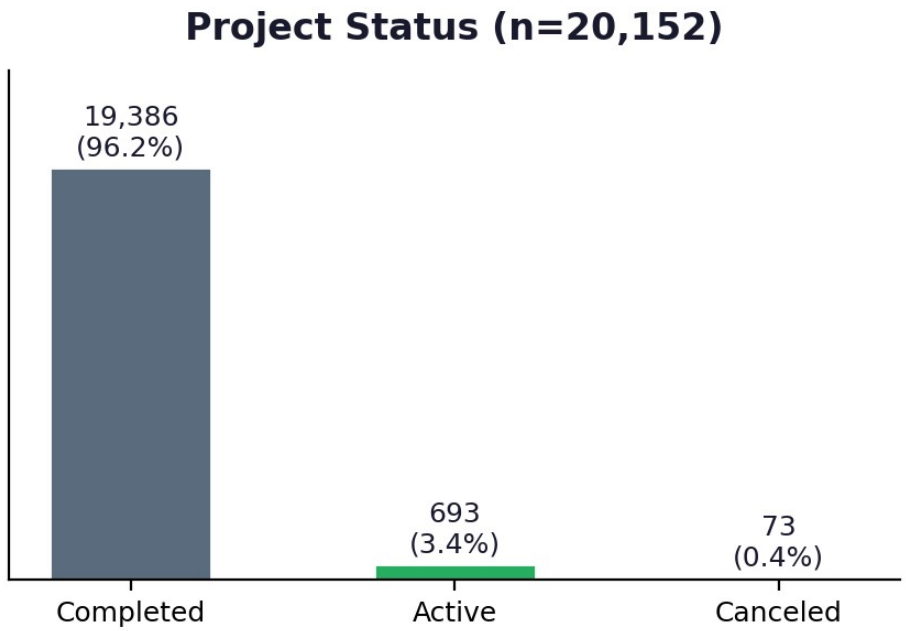
The Portfolio at a Glance

20,152 projects across 77 programs — but one program dominates





60.9%

SBIR/STTR share

83.5%

Under STMD

96.2%

Completed

3.4%

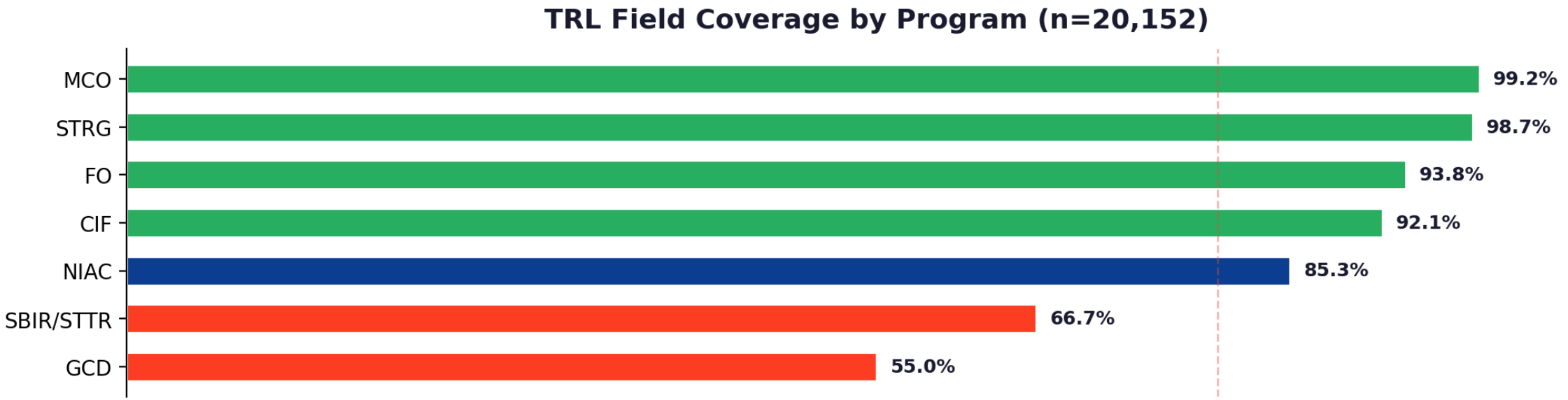
Currently active

Takeaway: SBIR/STTR is 61% of TechPort. Any portfolio-wide metric is an SBIR metric in disguise.

Source: TechPort KB overview.md. techport_portfolio_aggregate, April 2026.

TRL Coverage: The Confidence Map

Which programs can you actually trust for technology readiness data?



Best in class

STRG: 98.7% coverage — only 1.3% of projects missing TRL
MCO: 99.2% — newest program, best data discipline
FO: 93.8% — flight test focus drives TRL rigor

Data gaps

SBIR/STTR: 33.3% missing — ~4,085 projects with no TRL
GCD: 16.5% recorded as TRL-0 (NASA scale starts at 1)
GCD effective coverage: ~55% when TRL-0 excluded

Takeaway: STRG and MCO set the standard. SBIR and GCD data requires caution — 1 in 3 projects has no TRL.

Source: TechPort KB trl-distributions.md, field-completeness.md. techport_portfolio_aggregate by program.

The Outcome Tracking Gap

What happened after the project ended? In most cases, TechPort doesn't know.

49.1%
Closed Out
9,885 projects

→

3.2%
Transitioned To
639 projects

→

0.57%
Infused Into Mission
115 projects

Three mechanisms of undercount

1. Closed Out masking

174 SBIR projects at TRL 8-9 get "Closed Out" with no Transitioned/Infused record. Mature tech exits invisible.

2. Commercial masking

Companies sell into commercial markets. No NASA "infusion" event triggers a record. Success = invisibility.

3. Orphan completions

Projects complete at TRL 4-5 with zero terminal outcome. No Closed Out, no Transition. They simply vanish from view.

Takeaway: Only 3.8% of projects have any mission-impact outcome recorded. 96% of impact stories are invisible.

Source: TechPort KB outcome-tracking.md. techport_portfolio_aggregate by technologyOutcomeForm.

The Freedom Photonics Paradox

What does success look like when the system can't see it?

What TechPort shows

- 44 SBIR/STTR projects
- 9 distinct technology lineages
- TRL progression from 3 to 8
- Outcome: Closed Out × 44
- Transitioned To: 0
- Infused Into Mission: 0

What TechPort's own records say

- Description: "two customers investing funds"
- Documents: production-scale 3″ InP wafer
- GCD follow-on award (146992, active)
- GPON gas-sensing lasers at TRL 8
- 9 technology lineages, 12+ years
- NASA continued investing after Phase II

TechPort's own descriptions say commercial transition is happening — but the outcome fields record nothing.

Why this matters

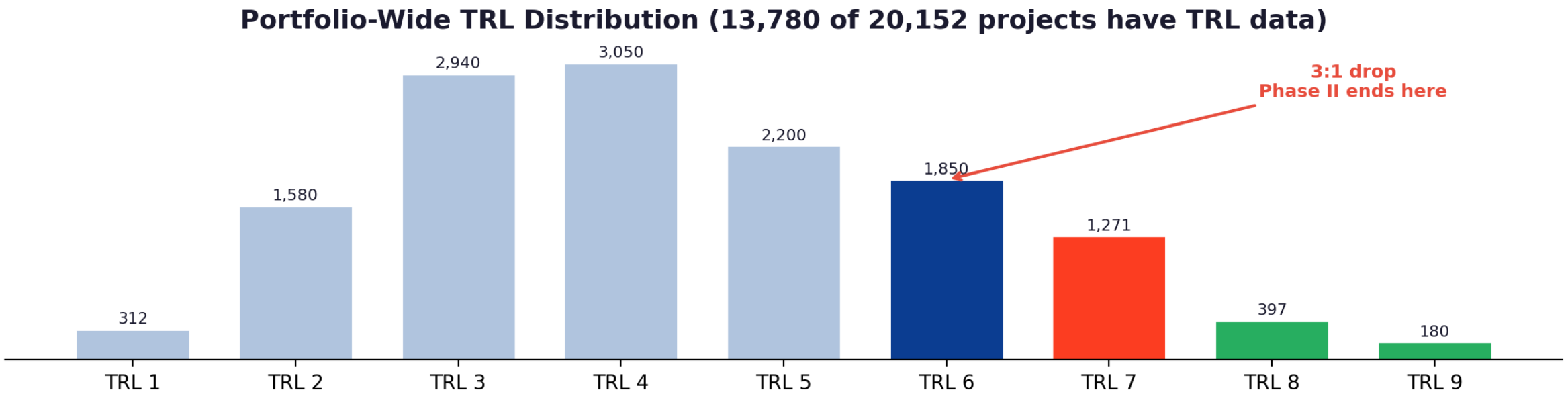
Freedom Photonics is not an outlier — it's the pattern. TechPort's project descriptions and documents describe commercial transitions that the outcome fields never record. The database's left hand doesn't know what its right hand wrote.

Takeaway: SBIR mission-impact metrics severely undercount commercial products serving dual-use markets.

Source: TechPort KB log.md (Freedom Photonics investigation). TechPort projects 113556, 146992, and 42 others.

The TRL 6’7 Cliff

The pipeline isn’t failing — it’s designed to end here



It’s structural, not failure

SBIR Phase II contracts are designed to end at TRL 5-6. Advancing to TRL 7+ requires a flight mission or NASA center integration — a different funding mechanism entirely.

But TX03 Power is truly stuck

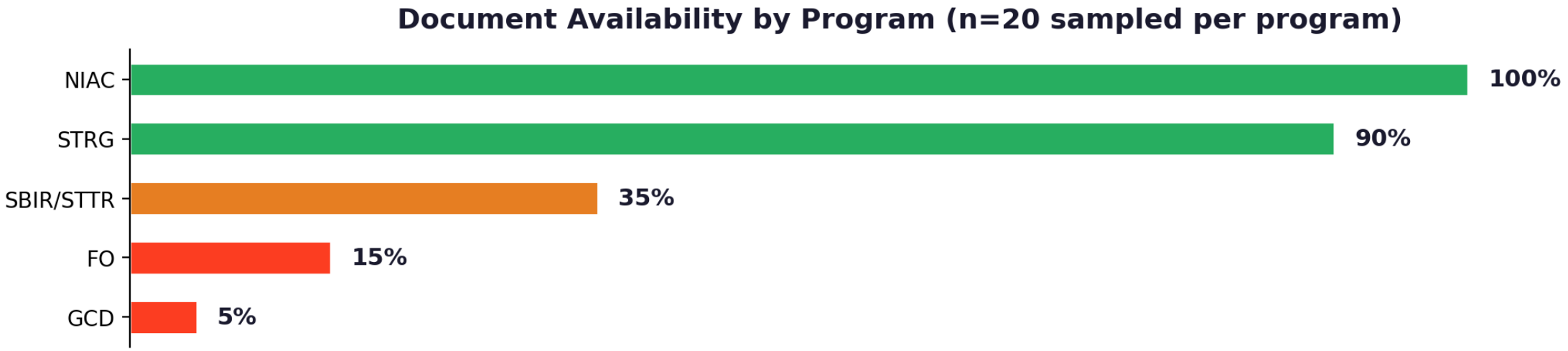
Power technology (TX03): only 3.8% advance to TRL 8. Novel power architectures complete Phase II prototypes but find no missions to validate on. The power desert.

Takeaway: The cliff is architecture, not attrition. But some domains (power, propulsion) have no bridge to TRL 7+.

Source: TechPort KB trl-distributions.md, sbir-sttr.md. techport_portfolio_aggregate by trlCurrent.

Document Availability: A 20× Gap

NIAC archives everything. GCD archives almost nothing.



NIAC: the gold standard

Every completed NIAC project has Phase I/II reports (1-6 items each). This is where the technology substance lives.

FO: post-2021 blackout

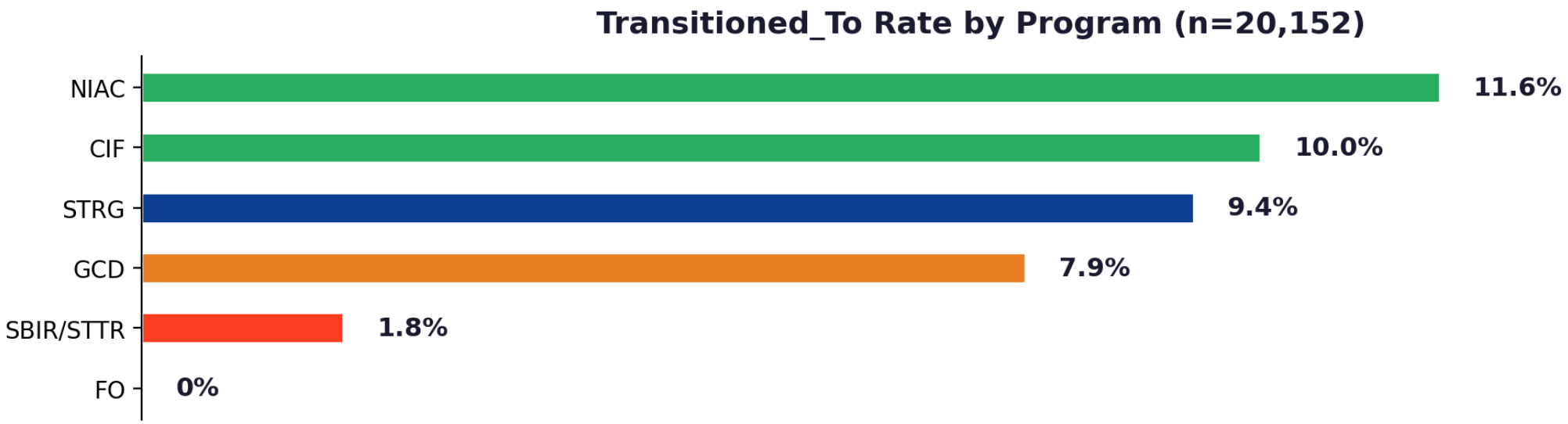
FO projects from 2015-2020 have docs (15%). Post-2021 projects: zero documents in batch. Policy change or pipeline delay.

Takeaway: Documents are where the real technology story lives. Only NIAC consistently makes them available.

Source: TechPort KB document-availability.md. Sampled 20 completed projects per program via techport_get_project.

Outcome Tracking by Program

Who tracks what happened, and who doesn't?



NIAC leads at 11.6%

38 of 327 NIAC projects show Transitioned_To.
Best per-project rate of any program.
5 projects (1.5%) show mission Infused_To.

FO: 0% tracked outcomes

Zero Transitioned/Infused for 430 projects.
95% of completed FO has no outcome at all.
Yet FO tech landed on the Moon 3 times.

Takeaway: FO has 0% outcome tracking in TechPort but 100% hit rate on CLPS lunar missions. The data tells the wrong story.

Source: TechPort KB outcome-tracking.md. techport_portfolio_aggregate by program + technologyOutcomeForm.

Data Quality Errors in the Wild

Specific examples found by an autonomous agent reading 20,000 projects

Test record in production

GCD project 183893: named "_TEST_REV A", zero-day duration, no TRL, no contacts. Has 633 external views. Publicly visible.

Geographic error

Project 113005: VisSidus listed as "Daytona Beach, Hawaii." Daytona Beach is in Florida.

10-year taxonomy misclassification

PPR nuclear pulse rocket (158619): classified as "Solar Thermal Propulsion" by both human AND ML. Undetected across 3 projects over 10 years.

Description contamination

Project 155247 (FAME): description contains appended text from a completely different technology (SEADS, project 155248). Copy-paste error across project records.

Spurious lineage links

NIAC project 13725 (PuFF nuclear propulsion) linked to FO project 91348 (ChargerSat-2 boiling experiment). Same university affiliation, completely unrelated tech.

Destination field: empty vs. null

35% of projects have no destination set. But 29.7% are empty strings ("") and 5.2% are null — two different bugs in the same field. Downstream users get confused.

These aren't cherry-picked. An autonomous agent found them in routine exploration.

Takeaway: Data quality errors compound. Each one is small; together they erode confidence in portfolio-level analysis.

Source: TechPort KB field-completeness.md (Issues 1-14). techport_get_project for individual records.

Why This Matters Now

AI agents are reading this data at scale

This briefing was produced by an autonomous AI agent that read 20,152 TechPort projects over 100 research sessions.

That agent found valuable patterns — but it also found gaps, errors, and missing stories. As AI systems increasingly consume public R&D databases to inform policy, investment, and technology scouting, the quality of that data determines the quality of those decisions.

For NASA programs

The story being told about your program's impact depends on what's in TechPort. If outcomes aren't recorded, they don't exist to the outside world.

For technology scouts

TechPort is ~80% complete for administrative tracking but 30-50% incomplete for impact and outcome tracking. Trust varies dramatically by program.

For data consumers

Cross-reference TechPort with USASpending, SBIR.gov, and public sources. The real impact story requires connecting dots across multiple databases.

Takeaway: What's missing from TechPort will shape the story that gets told about NASA's R&D impact.

Source: TechPort Knowledge Base v0.1. 100 autonomous research sessions, April 2026.

Agent TechPort

tobedetermined.github.io/agent-techport

Analysis based on NASA's public TechPort database. Project records may not reflect current status, partnerships, or outcomes.