

OrbitAI

decision-intelligence layer for a \$1.3T space economy

THE PAIN

THE NUMBERS OF FAILURE

\$500B

Value at risk due to orbital debris, conjunctions, and cascading collision events.

20%

Failure rate of SmallSat missions within the first 12 months.

\$100k+

Daily loss for a telecom satellite during "Operational Blindness"

400%

Increase in orbital congestion since 2020, with no unified risk-adjusted ROI tools.

0

Number of legacy systems that unify ROI, Physics, and ESG into a single, auditable stack.

SUSTAINABILITY & REGULATORY PAIN

25 Years

The UN/IADC deorbit guideline violated by ~35% of current LEO assets

\$50/ton

Rising cost of carbon offsets that operators either under-estimate or ignore in mission design.

Legal Risk

New FCC 5-year deorbit rules and emerging EU regulations create \$1M+ potential liability per non-compliant spacecraft.

Rep. Risk

Asset owners cannot prove to insurers and institutional investors that their constellations are truly “sustainable”.

THE SOLUTION Orbit AI

The only platform that turns orbital physics into bankable decisions.

Unified Mission Dashboard

Interactive map with 10 analytical modules for instant constellation scenario comparison.

Physics-to-Finance Engine

Automatically translates orbital maneuvers (Delta-v, coverage) into Capex, Opex, and ESG metrics.

ML Early Warning System

Proactive anomaly detection for subsystem failures and launch delays, tightly coupled with ROI.

Investor-Grade Reporting

Instantly generates data-room-ready PDFs that translate raw engineering telemetry into financial language.

THE IMPACT

Speed :

95% reduction in mission planning time (from months to minutes)

Safety :

72h lead time for failure prevention, saving \$10M–\$50M assets.

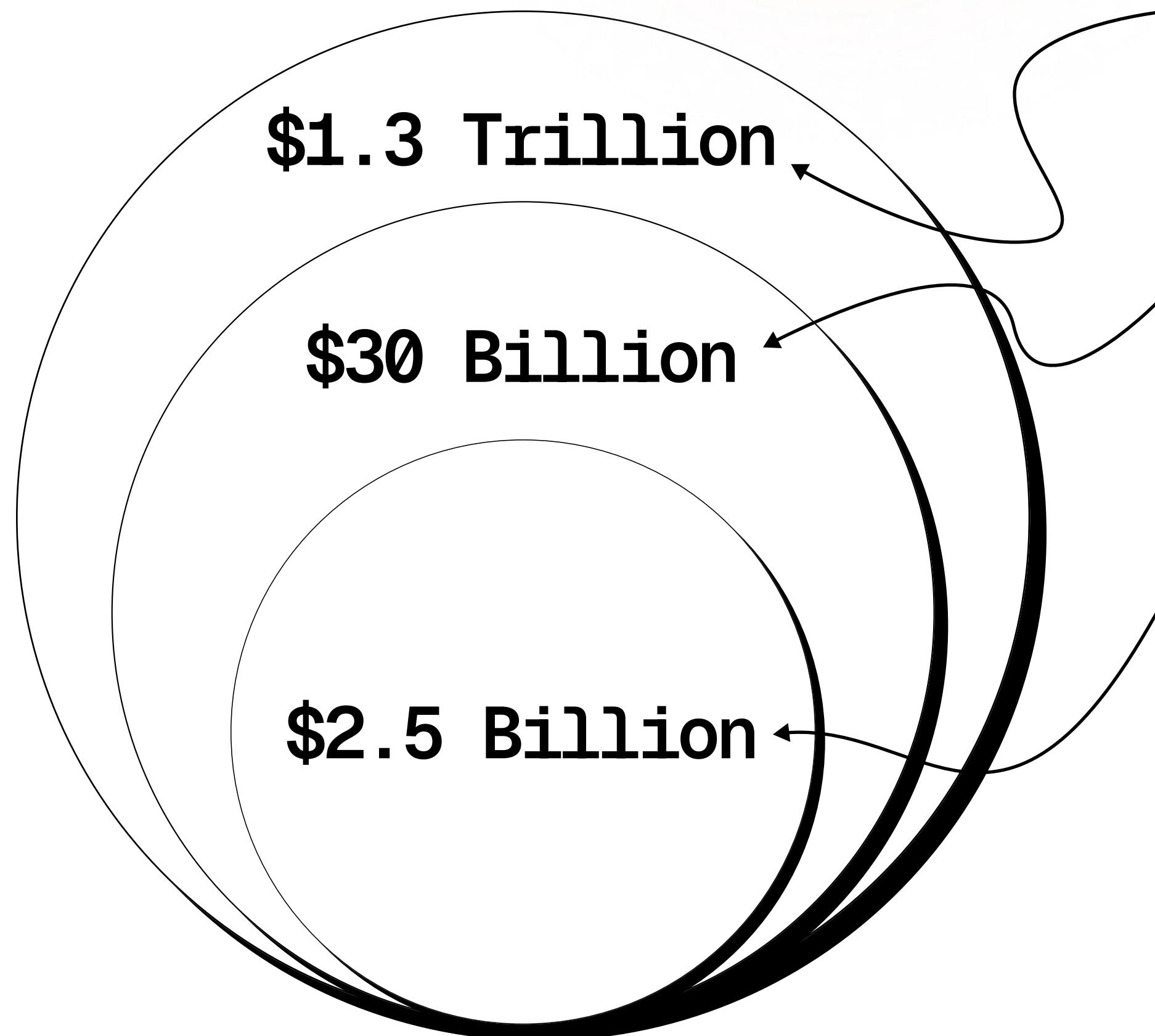
Precision :

10,000+ Monte Carlo simulations to guarantee P10/P50/P90 ROI forecasts.

Compliance :

Instant A+ to F ESG grading for insurers.

THE MARKET



TAM (Total Addressable Market) :
Space Economy by 2030

SAM (Serviceable Available Market) :
Mission Ops & Data Intelligence

SOM (Serviceable Obtainable Market) :
Commercial SmallSat Operators

Driver:

10x increase in active satellites. Every new asset needs ROI and ESG validation.

BUSINESS MODEL (SaaS)

Startup:

~\$1k/mo
(Core modules, base reporting).

Operator:

~\$10k/mo
(ML Forensics, ESG certification, scenario simulator).

Enterprise:

\$50k+/mo
(API access, custom risk models, deep integration).

orbit vs competitors

The only platform unifying Physics, Finance, and ESG in a single AI stack.

Feature / Platform	Global Legacy (AGI / STK)	Niche Trackers (LeoLabs, Debris tools)	Orbit AI (Our Edge)
Architecture & AI	✗ Desktop-bound & Legacy	⚠ Cloud, but Limited	✓ Full AI-Native Stack
Financial Intelligence (ROI)	✗ None	✗ None	✓ Built-in Economics
ESG & Compliance	✗ None	✗ None	✓ Automated Scoring
Anomaly Forensics	✗ Static Only	⚠ External Threats Only	✓ Live ML Forensics
Pricing & Accessibility	✗ ~\$50,000 / seat	⚠ Enterprise Contracts	✓ ~\$1,000 / mo entry

FRONTEND

Next.js 16 — Renders the UI using App Router and React Server Components.

Tailwind CSS & Shadcn UI — Provides a custom, high-contrast “space operations” theme.

React-Leaflet — Integrates maps and STAC-backed search directly into the dashboard.

Recharts — Creates custom visualizations for ROI distributions and anomaly timelines.

TypeScript & Zustand — Handles lightweight state management and type-safe code.

BACKEND

Node.js & Express.js — Acts as the orchestration gateway for request routing and middleware.

Zod — Provides schema-first validation for every payload end-to-end.

PostgreSQL & PostGIS — Stores multi-tenant data with Row Level Security (RLS) and handles geospatial logic.

Supabase — Manages JWT-based auth, data isolation, and telemetry storage.

Docker & Railway — Handles scale-to-zero containerization and multi-environment deployments.

ML

Python (FastAPI) — Runs the asynchronous, high-throughput API for heavy math and ML workloads.

Scikit-learn — Runs Isolation Forest and classical models for anomaly detection.

Pandas & NumPy — Processes telemetry events and runs vectorized Monte Carlo simulations.

OpenAI GPT — Handles mission reasoning, root-cause analysis, and report narratives.

ReportLab & Matplotlib — Generates binary PDFs, deterministic plotting, and fan charts.

NASA APIs & Open-Meteo — Provides external geospatial data and space weather context.

Team



Full-Stack Developer

Alimzhan Zhorabek alimzhan.xyz

nis shymkent, class of 2026

current **BDM** at QazTracker, a leading CIS Agritech & Fintech startup. Software engineer at **WIKI**, a platform powering operations for 2,300+ major retail businesses.

1. Law & Code Hackathon – 1st Place in 2 cases
2. HackCor Hackathon – 1st Place
3. HackTheBookshelf Hackathon – 1st Place
4. CodeVerse Hackathon 2025 – 1st Place
5. Freedom Hackathon – 2nd Place
6. MyExtra Case Competition – Finalist (Top 9 of 411 teams, 1685 participants)
7. World Space Olympiad 2024 – Finalist



Product Manager

Ayazhan Aitenova

nis astana, class of 2026

current Lead editor of NIS Times and founder of a Telegram blog with 2,300+ subscribers. Experienced in project management, having directed operations for national forums, case competitions, and research festivals involving 150+ participants.

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Test Credentials:

admin@gmail.com
12345678



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