



TerraFirma Robotics

Agent Drones, for Truth and Good

SEED ROUND DECK

SAFE · \$2.5M

Priced · \$10M

Presented by QC3 Ventures



Summary & Thesis

We are building the ground-truth data layer for Earth.

TerraFirma Robotics is designing, producing, and deploying a fleet of millions of highly efficient, AI-enabled agent drones that capture and tokenize precise multi-modal earth-science and built-environment data.

This real-time tokenized data is the foundation for highly accurate digital twins: the ground truth to inform, simulate, and solve Earth's greatest challenges across trillions of dollars in global markets, transforming the data layer from sparse to rich.

We are launching with a targeted California Ranchland use case, solving rancher's biggest problems and creating a wedge which will scale to tens of \$millions in ARR.



Millions

agent drones being deployed globally

Real-time

multi-modal ground truth

\$Trillions

in addressable global markets



Earth's Problem

We're Flying Blind on Earth Data

\$145T

in natural capital
managed on
outdated,
incomplete data

\$Trillions

lost globally each year
to poor decisions

Millions

Human/animal
lives lost every
year

Why today's tools fall short

- **Satellites:** too coarse and slow; boundary-layer physics permanently caps high-resolution capture.
- **Manual surveys:** too expensive, infrequent, and human-limited.

The gap: low-cost, sub-millimeter, real-time ground truth does not exist at scale.

AI can solve Earth's challenges, but only with high-resolution, tokenized ground truth to find patterns and simulate outcomes.

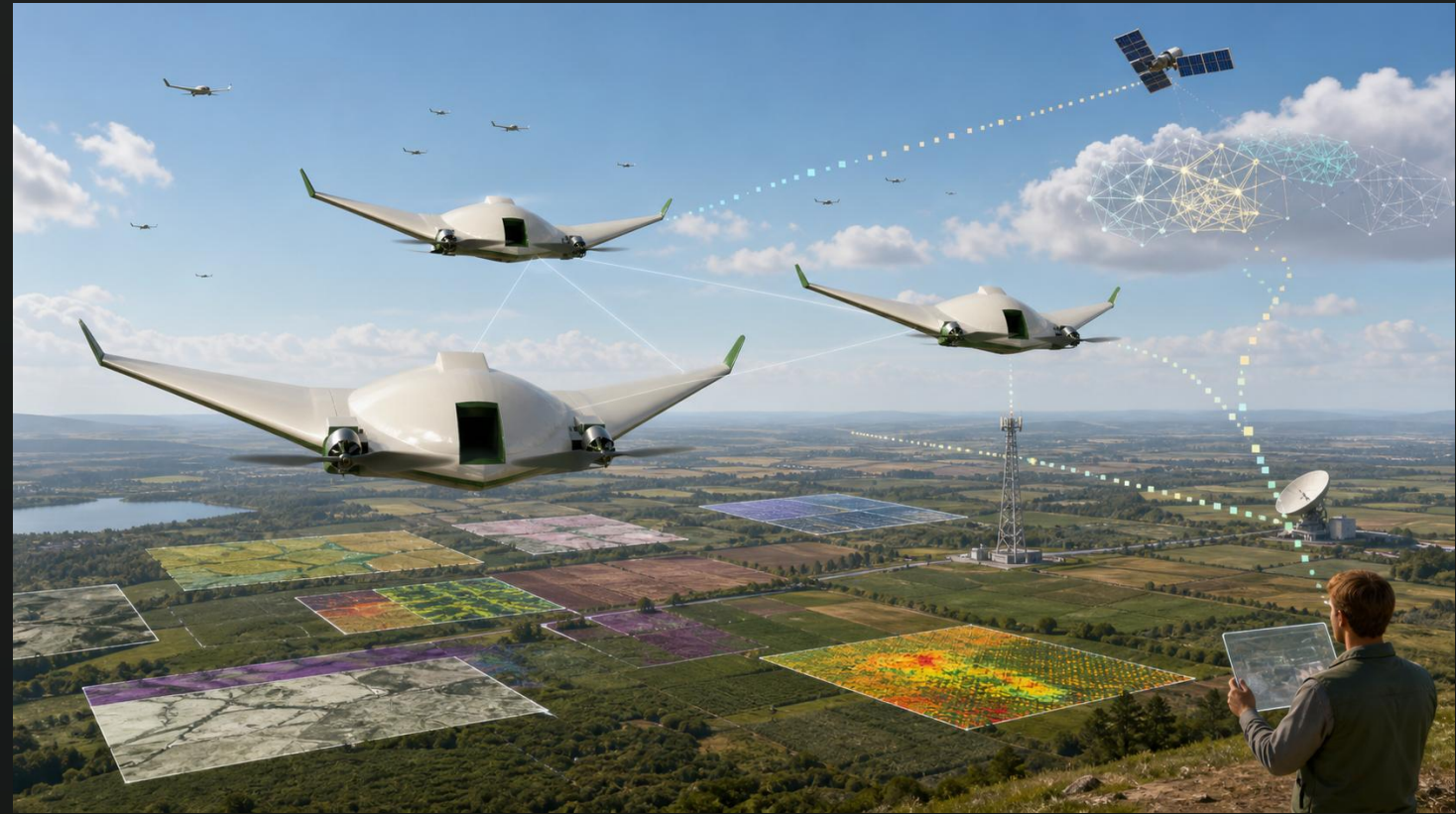


The TerraFirma Robotics Solution

Autonomous Fleets. Real-Time Intelligence. Global Scale.

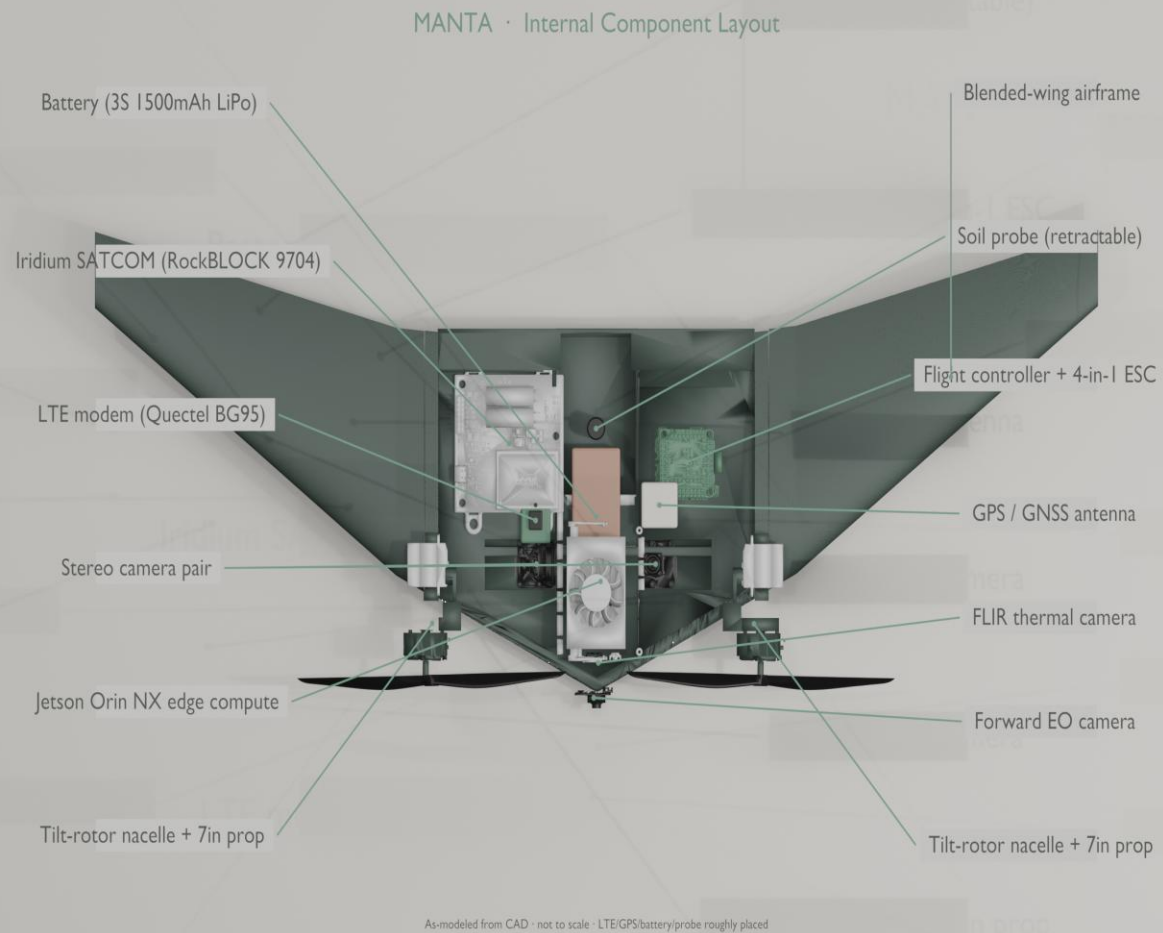
Your own agent drones, prompted in real time from anywhere on Earth: perceiving and delivering immediate ground truth, simulating solutions, and helping the planet and its people.

- **Physics-first design:** optimized for flight inside the boundary layer, tuned to energy required per acre.
- **Autonomous fleets:** mesh-networked drones with shared compute collect sub-millimeter, multi-modal data.
- **Edge tokenization:** dual-token edge AI transmits only what matters, 1000x leaner than video pixel processing.
- **Anywhere connectivity:** two-way LTE and LEO satellite, with edge infrastructure.
- **Digital-twin platform:** near-real-time models drive alerts, 3D renderings, and predictive simulations.



Our Agent Drone - MANTA

Proprietary and Optimized for Perception and Performance



Performance

- **Lowest weight, fewest moving parts:** just 2 servos and 2 motors.
- **Two-rotor system:** larger, efficient props and slower tip speeds, far quieter and 3x more efficient than quadcopters.
- **Target sub 500g:** optimal mass for nimble flight within boundary-layer physics.
- **Blended flying wing with hover:** 0 to 25 knots (12 knots best cruise), up to 70 minute endurance.

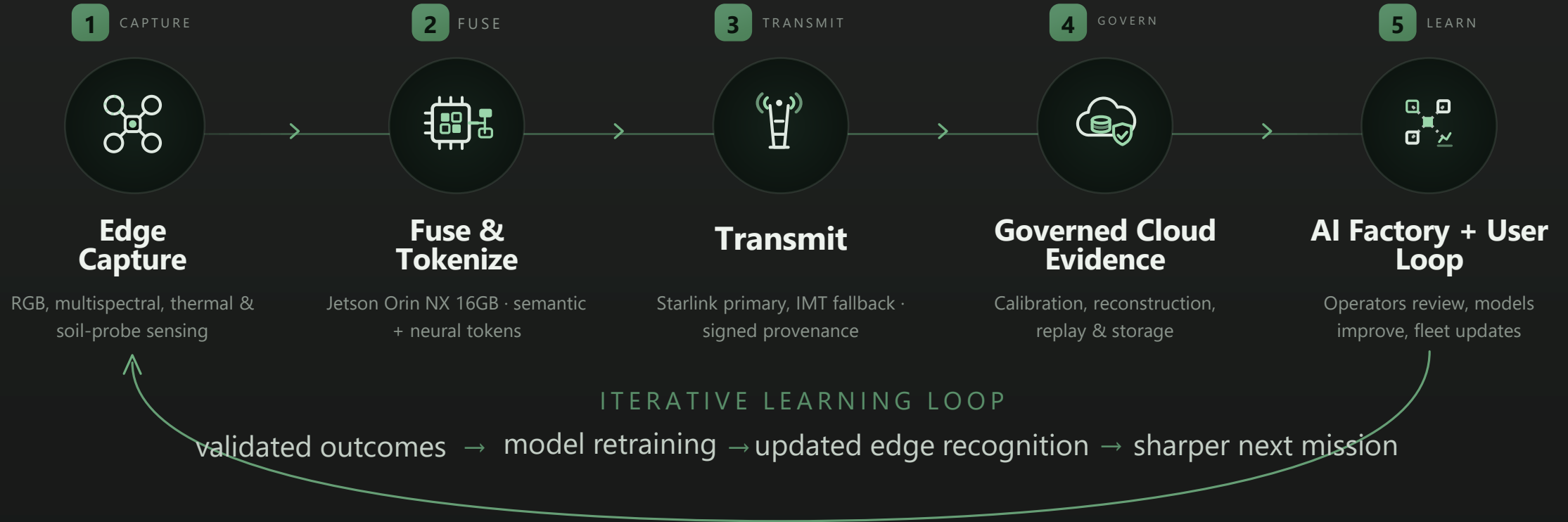
Perception & Intelligence

- **Sensor stack:** dual RGB plus microscopic vision, thermal, multispectral, ground and soil, acoustic, climate, and CO2 / methane.
- **Compute:** NVIDIA Orin NX, 100 TOPS for modality fusion, compression, and delta tokenization.
- **Connectivity and security:** Starlink and Iridium LEO; chip-level tokenization with blockchain provenance.
- **Unit cost:** \$2,000 BOM today, scaling to \$800 at production.



Edge-to-Lab Architecture

Iterative site intelligence, from drone to AI factory to user



Every signed observation, operator review, and validated outcome feeds the next mission: compounding intelligence across the fleet.



TerraFirma Robotics Lab & AI Factory, Santa Barbara

Rapid iteration through integrated R&D, model training, prototyping, scaled production, and fleet deployment.

Vision

- World-class integrated lab for prototyping and scaled assembly of optimized agent drones.
- Draws top talent from Santa Barbara (Raytheon, Google), Los Angeles and Silicon Valley.

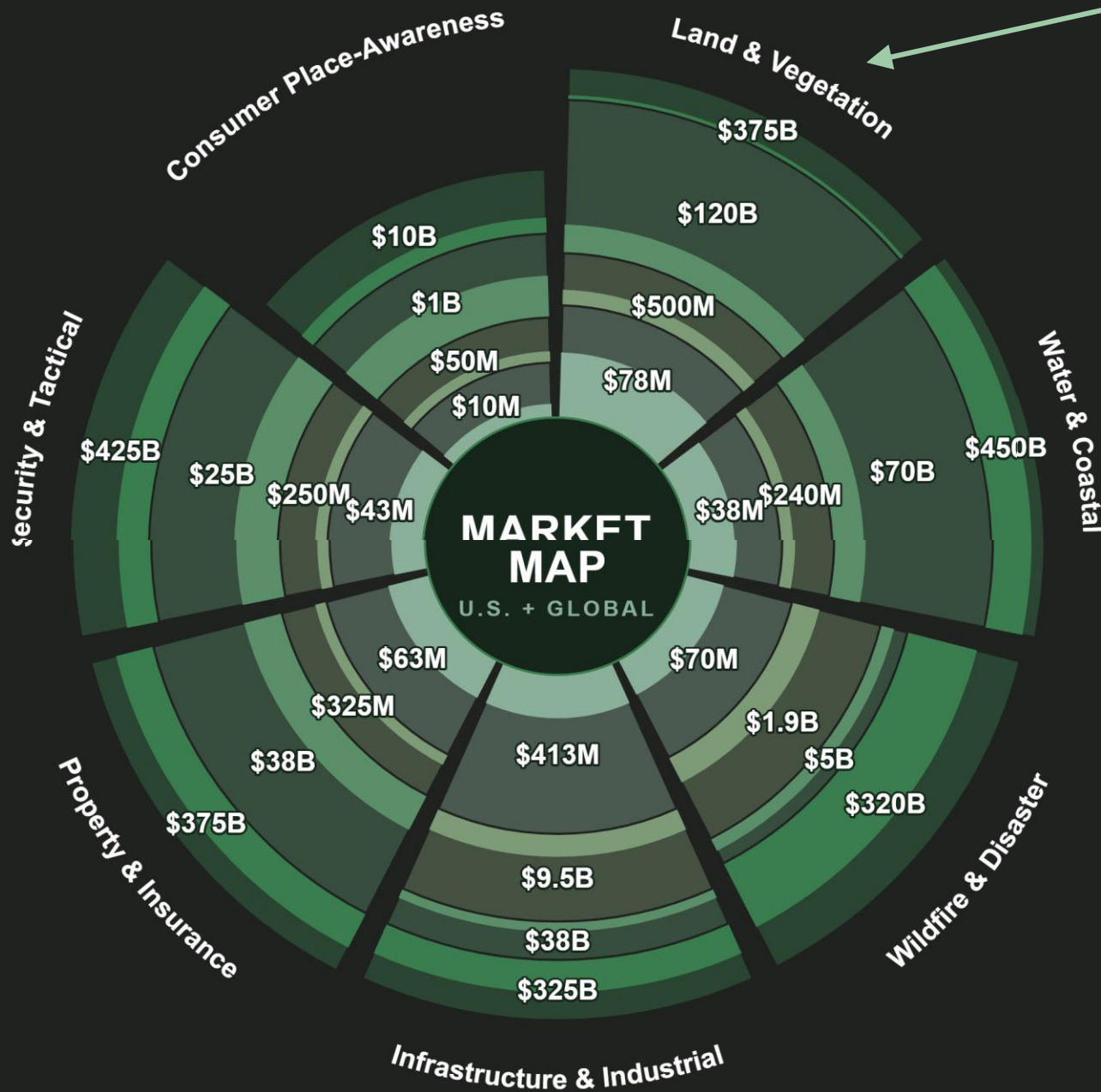
AI-Native Capability

- Agents run operations with humans-in-the-loop approval, a factory digital twin, a model-training data center, self-hosted domain LLMs and VLMs, and a simulation lab.



Targeted Launch Use Case

California Ranchlands · \$390M TAM · \$39M SOM



TERRAFIRMA ROBOTICS · MARKET ANALYSIS

Market Map

Seven solution families across four market layers, sized U.S. and global.

Problem	\$2.5T
Total addressable problem	U.S. \$1.4T
TAM	\$295B
Total addressable market	U.S. \$69B
SAM	\$13B
Serviceable available market	U.S. \$3B
SOM	\$588M
Serviceable obtainable · Year 3	U.S. \$244M

Solid = U.S. · **full ring** = added global

\$120B reach
Figure in each ring = global market size for that layer



Predictive Site Intelligence

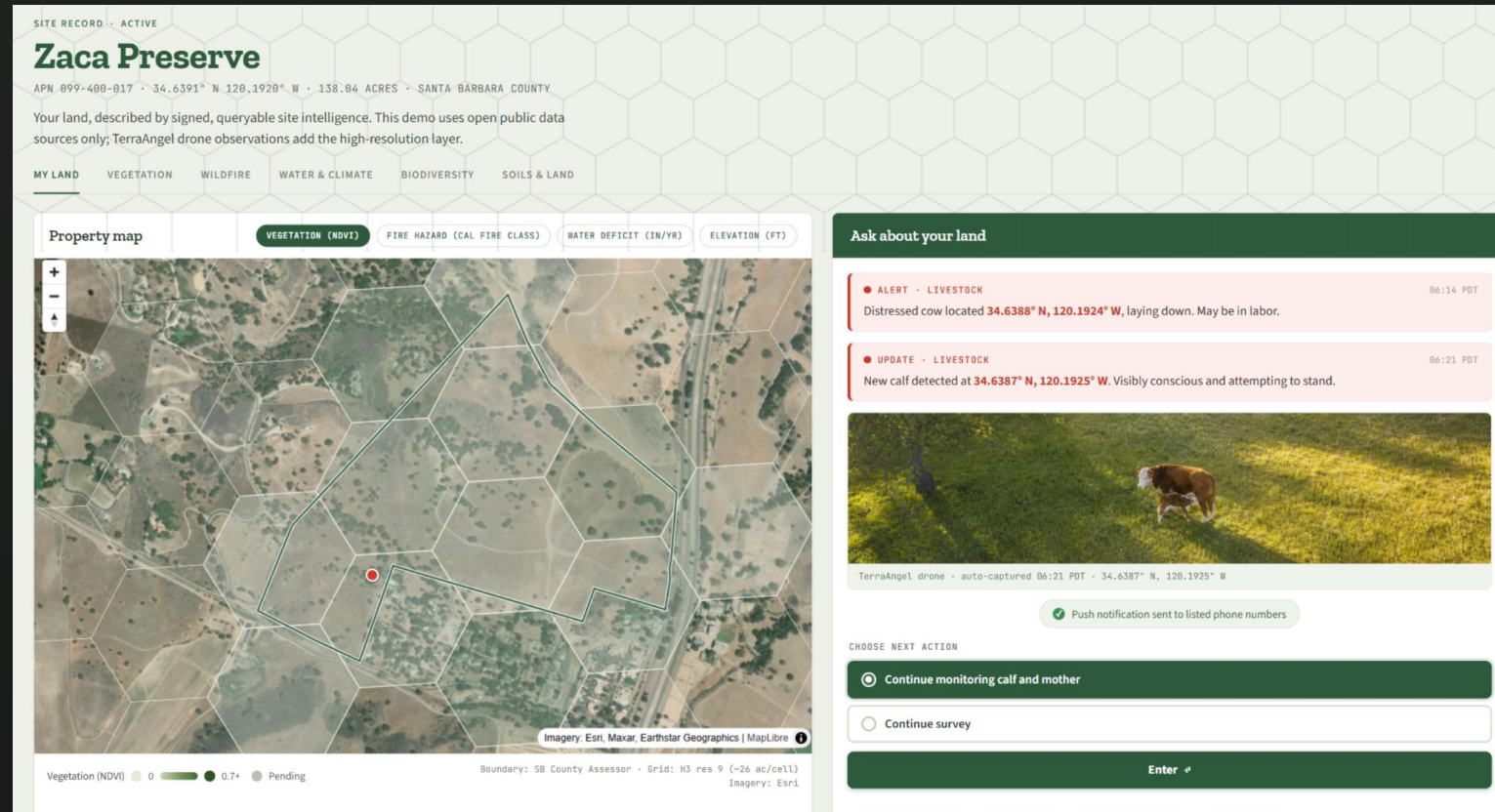
A living, predictive intelligence layer for any important place.

First wedge: California Ranchland / Land & Vegetation Condition Intelligence family

\$390M CA / \$240B US TAMS

TerraFirma Robotics delivers what changed, why it matters, what is likely next, and where to act first. Every signed observation sharpens the customer model, learning local baselines, seasonal patterns, and anomaly thresholds.

We set a site baseline (terrain, vegetation, soil, structures, drainage, slope, assets, and risk zones), then update each mission with tokenized observations rather than disconnected images.



Change simulation

Detect what changed since the last baseline, and why it matters.

Scenario simulation

Model what-if outcomes across seasons, weather, and interventions.

Operational simulation

Recommend where to act first and the optimal next mission.



Business Model

Vertically integrated, end to end

Design → Assemble → Deploy → Operate

HOW WE MAKE MONEY

RECURRING · PRIMARY

Drone Data as a Service

\$15–\$500 / acre / year

Subscription priced by vertical and mission count. Compounds with every acre under contract.

EXPANSION · PLATFORM

Platform & API Fees

- API access for partners building on our data.
- Omniverse digital-twin tier for enterprise customers.

WHY THE MARGINS WIN

Compute runs at the edge, not the cloud

Raw imagery is processed on the drone and never ingested. We move only 2–5 KB semantic plus 30–50 KB neural payloads on trigger, so cloud compute and raw-storage cost are eliminated, not merely reduced.

Transport & storage

Bandwidth and raw storage avoided.

Cloud compute

Edge removes GPU cost on raw imagery.

Data refinement

Validated intelligence becomes reusable Gold.

Answer token

Gold views cut retrieval and LLM cost.



The Value Stream

Field reality, compressed into trusted decision deltas

GOVERNS EVERY STEP

Metadata & catalog control plane

provenance · calibration · lineage · confidence · freshness · permissions · retrieval routing

ON THE EDGE

01
High-volume
field reality

raw signals,
sensors,
telemetry

02
Edge Delta
Token
Exchanger

send
intelligence,
not raw data

TRANSPORT

03
Compact
LTE
transport

LTE primary,
IMT fallback

GOVERNED CLOUD

04
ADLS Gen2
landing

governed
landing
zone

05
Bronze →
Silver →
Gold

packages +
provenance

06
Use-case
apps &
dashboards

customer
surfaces,
reports

INTELLIGENCE LAYER

07
Mission
Orchestrator
LLM

retrieval,
reasoning,
routing

08
Answer /
enrich / re-
fly

decision
delta or re-
collect

← Flight Planner & Deployment Agent · targeted re-collection closes the loop

RAW DATA · CLOUD COMPUTE · STORAGE COST

TRUSTED INTELLIGENCE · TRUST · MARGIN

Cost decreases at every step

Margin increases at every step

Each step downstream costs less to move and store and is worth more, that widening gap is our margin.



Go-to-Market: California Ranchlands

Phased rollout: VLOS to BVLOS to swarms to autonomous swarms and factory scale.

Phase 1: 6 months

Santa Barbara Launch

VLOS single-drone pilots with prototype drones achieving certification and pilot deployment to factory startup



Phase 2: 6 months

Scale Up: CA Ranchlands

BVLOS operations and multi-drone coordination with factory scale up to 1,000 drones per day



Phase 3: 12 months

Scale Out: US & Use-Case

Factory and operations reach 1,000 drone production and 10 counties per day deployment to penetrate the US market in 12 months.

US deployment goal

Launch county by county: with one operator and 100 drones per county. Secure early mover advantage by penetrating all 3,000 US counties in 12 months



California Ranchlands: Top 5 Problems Solved

Worst-case annual value per problem for a 5,000-acre / 500-head ranch



Herd health & disease

~5.5% calf death loss; respiratory disease is the #1 killer
Our drone: 0.05°C thermal flags fever, lethargy & isolation before an animal goes down

~\$110K/yr



Predator protection

~11% of calf deaths are predator-caused, coyotes leading
Our drone: detect & deter predators near the herd, with instant alerts

~\$55K/yr



Forage & grazing optimization

Drought ~1-in-3 years requires \$150-200/cow in supplemental feed
Our drone: multispectral imagery maps pasture biomass to guide rotation & early destocking

~\$160K/yr



Wildfire & fuel load

CA megafires burn tens of thousands of rangeland acres: fences, forage, structures
Our drone: thermal catches ignitions early; fuel-load maps guide grazing-as-firebreak

~\$200K/yr



Water & infrastructure

Down wells, broken pipelines, dry troughs, and trough location can cut cattle off from water fast
Our drone: checks trough & pond levels, spots leaks and breaks, and optimizes water location

~\$50K/yr

Top-Quartile California Ranchland

Representative ~5,000-acre, ~500-head ranch, worth ~\$17.5M (~\$3,500/acre)

Category	At stake	TFR fee	Ranch keeps
Cattle grazing	\$600K	\$56K	\$544K
Drought & forage	\$160K		
Disease (BRD)	\$110K		
Scouting labor	\$80K		
Pests & flies	\$65K		
Overgrazing	\$60K		
Predator loss	\$55K		
Strays & counts	\$40K		
Fence & infrastructure	\$30K		
Permanent crops	\$150K	\$34K	\$116K
Conservation & carbon	\$80K	\$15K	\$65K
Wildfire & fuel-load	\$200K	\$9K	\$191K
Water & infrastructure	\$50K	\$6K	\$44K
Total at stake (worst)	\$1.08M	\$120K	\$960K
Blended (typical yr)	\$355K	\$120K	\$235K

Targeted marquee customer:



Scale: 270K ac / 12K head / 540 drones
At stake: ~\$130/ac (~\$35M)
TFR fee: ~\$24/ac/drone (~\$6.5M)
Tejon keeps: ~\$106/ac (~\$28M)

- ~13,000 cattle ranches in California
- Top 25% (~3,250) = our wedge

Fixed fee vs exposure

Typical loss: ~\$71/ac/yr
Bad-year loss: ~\$216/ac/yr
Fixed fee: ~\$24/ac/yr

Per-acre: win-win

Land value: ~\$3,500/ac
At stake: ~\$71/ac/yr
Protected for: ~\$24/ac/yr
Coverage: 3.0x
Margin uplift: ~+24%

Our economics: California at 10% penetration

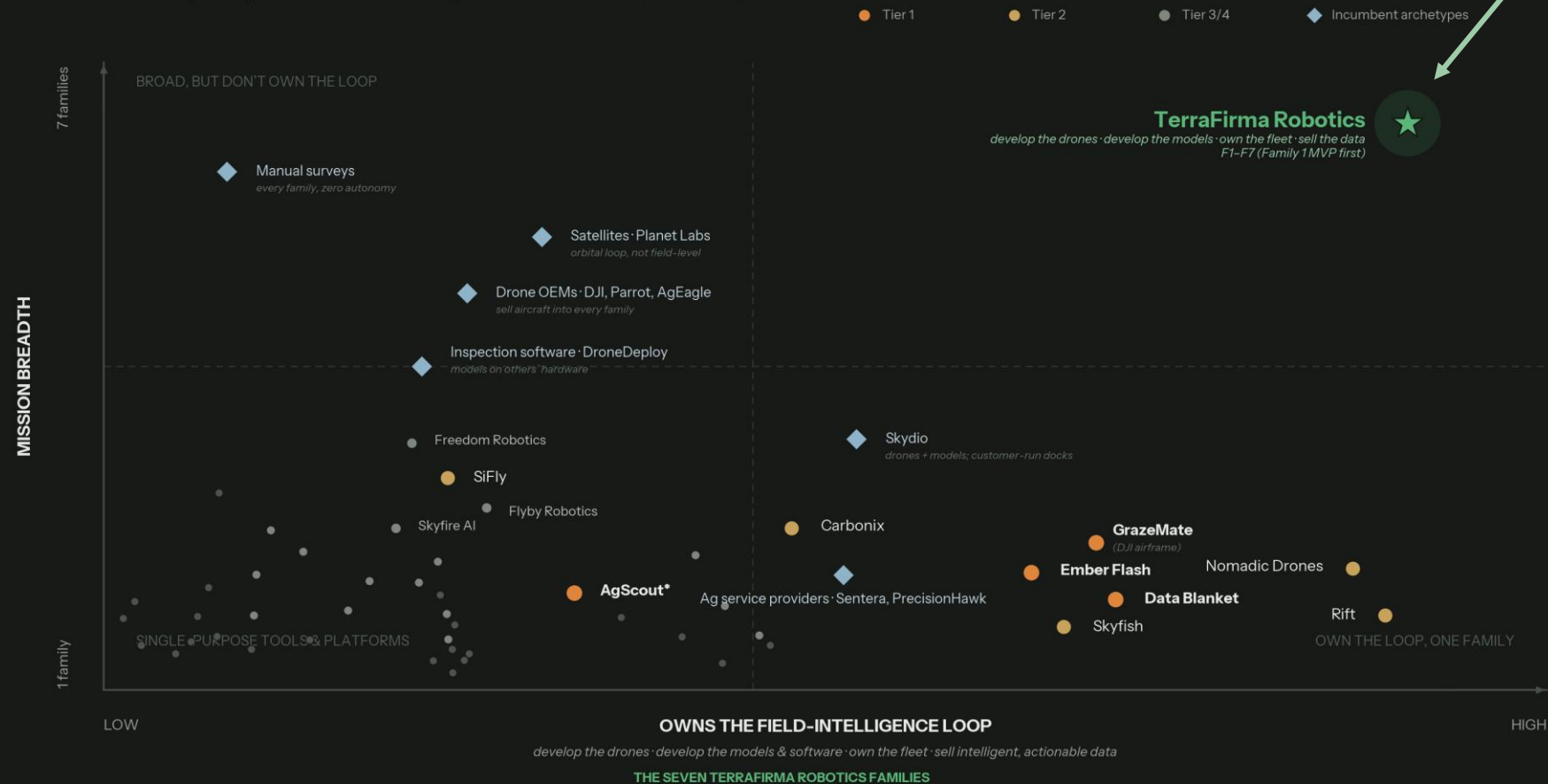
ARR: ~\$39M (325 ranches)
Loaded COGS: ~\$10.5M (73% gross)
Operating Expense: ~\$20M
Operating Income: ~\$8.5M (~22%)
Fleet: ~1,450 drones
Drone Payback: ~ 2 months

Competitive Landscape

Why We Win

Autonomous multimodal sensing and site intelligence platform

One company owns the loop across every family.



TerraFirma Robotics Unique Positioning

The only US vertically integrated drone company:

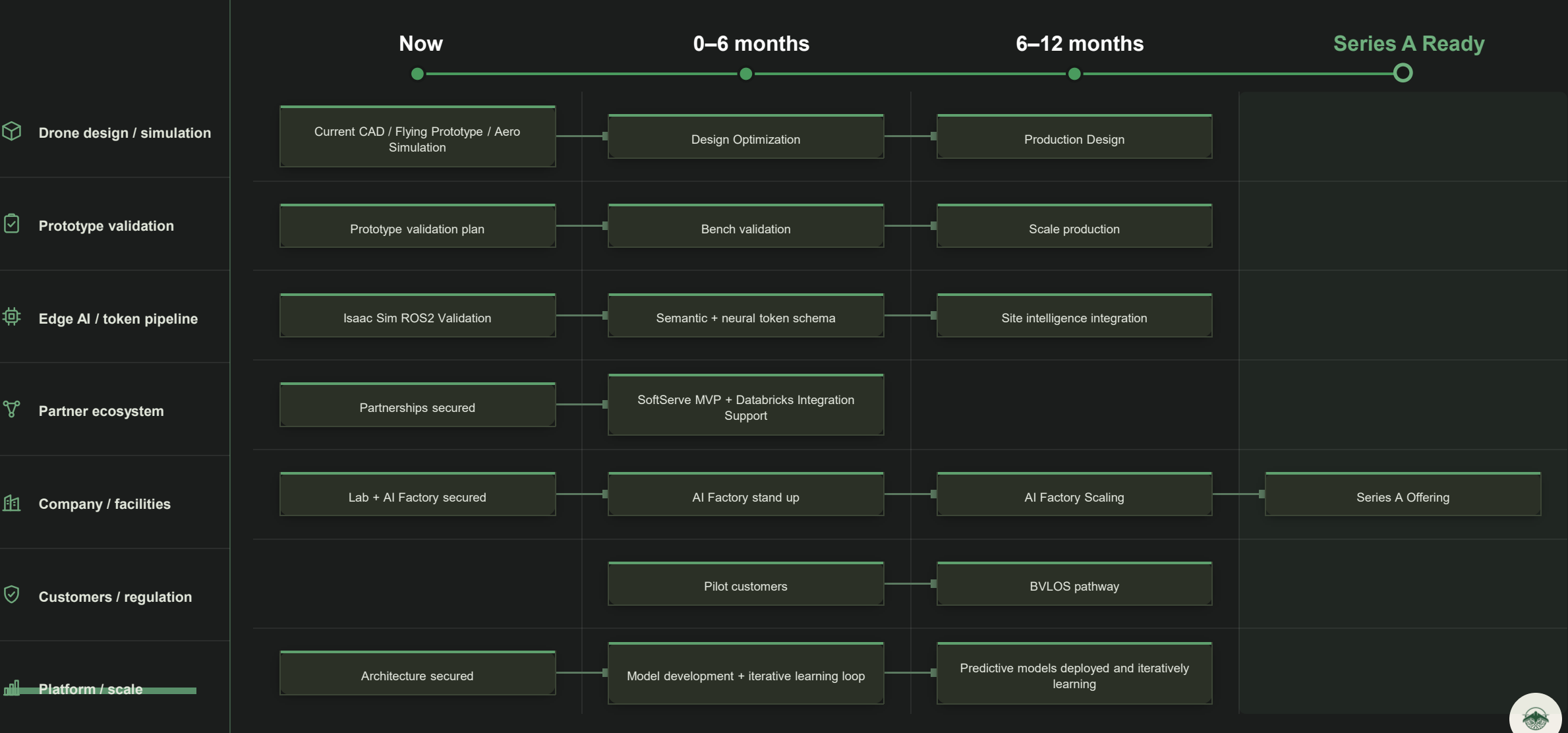
- dedicated to small, low cost, efficient perception agent drone production
- positioned to scale and secure early mover advantage
- Data as a Service business model

F1 Land & Vegetation (MVP) · F2 Water & Coastal · F3 Wildfire & Disaster · F4 Infrastructure & Industrial · F5 Property & Insurance · F6 Security & Tactical · F7 General Aerial Data



Traction & Milestones

From Concept to Capital-Ready



TerraFirma Robotics Team

Serial Entrepreneurs + Domain Knowledge + Great Partners



Lew Eisaguirre

Co-CEO & CFO

40-year serial entrepreneur with multiple exits; MBA in operations and business development.



Jake Eisaguirre

Co-CEO & CTO

MS Data Science; data engineer, data architect, and field ecologist from tech and research.



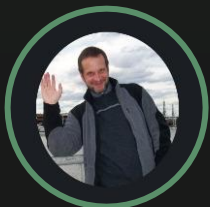
Joseph Eisaguirre, Ph.D.

CIO-Inference Modeling

PhD Biology, MS Statistics; federal research scientist with extensive publications.



A family venture office incubating Physical AI in the earth-science domain.



Viktor Chekh, Ph.D.

Computer Vision Engineer

PhD Computer Science; computer vision and ML for autonomy.



Vivek Mange

Robotics Software Engineer

MS Robotics; perception, sensor fusion, and ROS2 systems.

Strategic Partners



MVP Delivery Partner: SoftServe +10K engineers/architects

Nvidia Partner, AI & robotics engineering bench augmenting the founding team



Yaroslav Klochnyk

Agentic Engineering Architect

14+ yrs · agentic AI in the SDLC, iPaaS integration, AI enablement



Mariusz Janiak

Principal Robotics Architect

PhD · ROS2, NVIDIA Omniverse, C++/Python, embedded systems (ARM Cortex)



Leonid Molotiiievskyi

Solution Architect

15+ yrs · NVIDIA Omniverse, ROS2, Kafka/Kubernetes/AWS, computer vision & LiDAR



Nazarii Drushchak

AI Technical Consultant

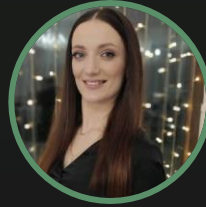
NLP, Generative, Agentic & Responsible AI · Python, SQL, PostgreSQL



Ihor Zhukov

Senior Product Manager

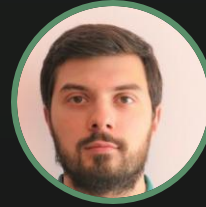
8+ yrs · GenAI & RAG, NVIDIA Omniverse/Riva/NeMo/Triton, digital twins & XR



Khrystyna Sychak

Senior Project Manager

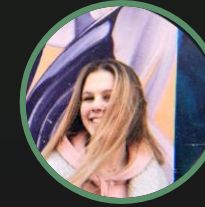
10+ yrs · NVIDIA Isaac Sim & Omniverse, ROS2, computer vision; teams of 4-30



Oleg Lukianets

Lead Business Analyst

14+ yrs · BA & product ownership · GCP/BigQuery, Power BI; autonomous systems



Solomiia Leno

Data Scientist

Computer vision & Generative AI · ML, Flask/Django, AWS/GCP/Azure, SQL



Organization: TerraFirma Team + AI Agent Scaffold

BUSINESS LAYER

Strategy · Capital ·
Orchestration



Lew

Rufo · Elena · Aitor

capital, ops, BD



Jake

Rufo · Elena · Aitor

data science, architecture



Ihor

Aitor

GenAI, RAG, digital twins



Khrystyna

Aitor

Isaac Sim, delivery



Oleg

Aitor

product, BigQuery, BI

Drone

Igor



Jon

materials, EE, 3D printing



Vivek

perception, sensor fusion, ROS2



Viktor

computer vision, ML autonomy



Mariusz

ROS2, C++, embedded

+

Key Internal Hire

Igor · Eve

Igor · Eve

Eve · Igor

Igor

Drone Deployment

Igor

Nemo



Lew

capital, ops, BD



Jake

data science, architecture

+

Key Internal Hire

Rufo · Elena · Aitor

Rufo · Elena · Aitor

Simulation

Eve

Igor



Vivek

ROS2, sensor fusion



Mariusz

Omniverse, embedded



Leonid

Omniverse, ROS2, LiDAR

+

Key Internal Hire

Igor · Eve

Igor

Ali · Nemo

Modeling

Sir Thomas

Eve



Joseph

inference modeling, stats



Viktor

CV, ML autonomy



Solomiia

CV, GenAI



Nazarii

NLP, GenAI, agentic

+

Key Internal Hire

Thomas

Eve · Igor

Eve · Thomas

Eve · Ali · Anton

Data Pipeline

Ali

Nemo



Jake

data architecture, engineering



Leonid

Kafka, Kubernetes, AWS



Nazarii

Python, SQL, Postgres

+

Key Internal Hire

Ali · Anton

Ali · Nemo · Anton

Ali · Nemo · Anton

UI / UX

Anton



Solomiia

Flask/Django, CV apps



Jake

data product, dashboards



Leonid

dashboards, AWS



Nazarii

GenAI apps, Python

+

Key Internal Hire

Eve · Thomas

Ali · Anton

Ali · Nemo · Anton

Eve · Ali · Anton

Factory / Mfg

Mikel



Jon

3D printing, materials



Mariusz

embedded, production

+

Key Internal Hire

Igor · Eve

Igor

CICD / DevOps

Anton

Eve



Yaroslav

agentic AI in SDLC



Leonid

Kafka, Kubernetes, AWS



Nazarii

responsible AI, Python

+

Key Internal Hire

Eve

Ali · Nemo · Anton

Eve · Ali · Anton

AI Agent Roster

10 agents — one Teams channel per domain



Aitor

Orchestration



Mikel

Factory Design



Rufo

Market Research



Ali

Data Architecture



Elena

Finance Modeling



Nemo

Satellite Comms



Igor

Drone Design



Sir Thomas

Bayesian Stats



Eve

AI / ML / Edge



Anton

Front-End

AGENTS RUN AS LIVE TEAMS CHANNELS

TerraFirma Robotics

AI-ML-design-Eve

Bayesian-Sir Thomas

Data Architecture-Ali

Drone-Design-Igor

Factory-Design-Mikel

Front-End-Anton

General-Aitor

Market-Research-Rufo

Satellite-Comm-Nemo

See all channels

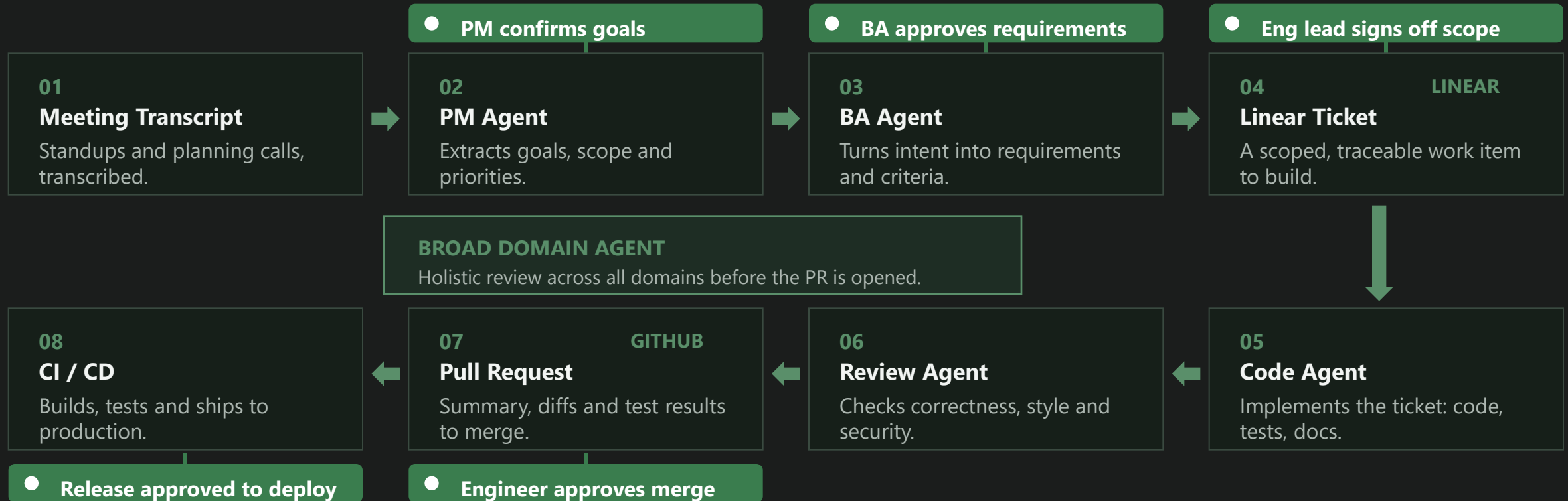


The Agentic SDLC

From a recorded conversation to a deployed change, with humans on the gates that matter.

WHERE THIS WILL RUN

Model Training · Flight Learning · UI/UX · Model Fine-Tuning · Error Logging · Learning Loop · Data Pipelines · Portal Feedback · 3D Diffusion



CENTRALIZED KNOWLEDGE BASE · THE TERRAFIRMA “BRAIN”

Every agent commits its artifacts into one persistent, queryable store: written, reviewed by humans, queried by every agent.

ITERATIVE LOOP

Production telemetry and lessons learned feed the next sprint.

2–3x
efficiency gains

+50%
faster cycle time

+30%
developer productivity

-10%
delivery cost

5 gates

human sign-off points

The Ask

\$12.5M Total Seed Round

Institutional check range: **\$500K–\$2M**
Angel check range: **\$25K–\$500K**

\$10M Priced

Priced Lead minimum: **\$3M**
Investor Minimum: **\$500K**

Milestones This Round Funds:

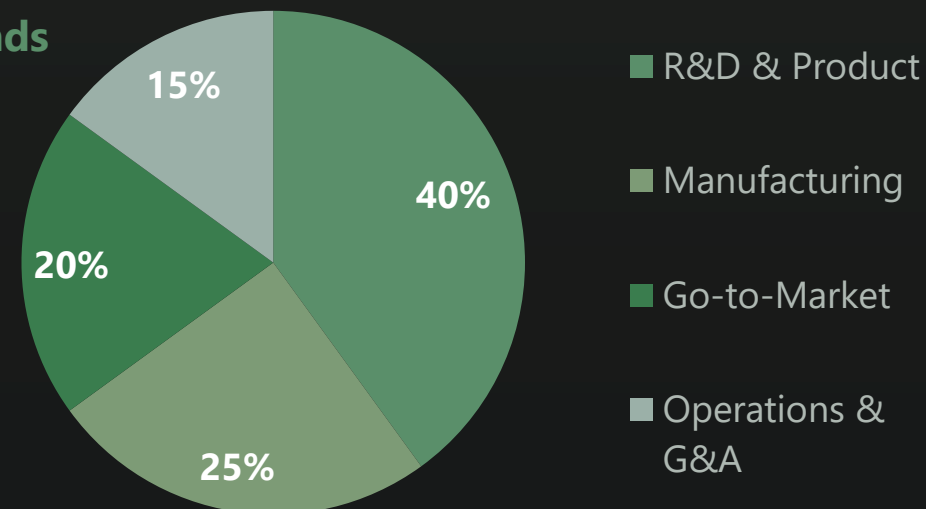
- California ranch land wedge
- Factory made perception agent drone prototype
- BVLOS certification
- Stands up R&D Lab and AI Factory
- Scale up to 1,000 drones per day
- Development of an earth-science AI/ML model stack
- Proprietary tokenized data mote.
- 18 months runway
- Series A Ready

\$2.5M SAFE 15% discount

Valuation Cap: \$37.5M post money

\$37.5M Pre-money \$50M Post-money

Use of Funds



The Vision

Earth Intelligence at Planetary Scale

BY 2030 · THE TERRAFIRMA SINGULARITY

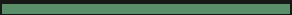
- Millions of agent drones deployed globally.
- A real-time digital twin of Earth's ecosystems and built environment.
- AI on the edge driving simulation and solutions.
- Solving Earth and humanity's greatest challenges.



We are building the operating system for Earth.



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TERRAFIRMA ROBOTICS · VALIDATION PHASE · \$500K DEPLOYED

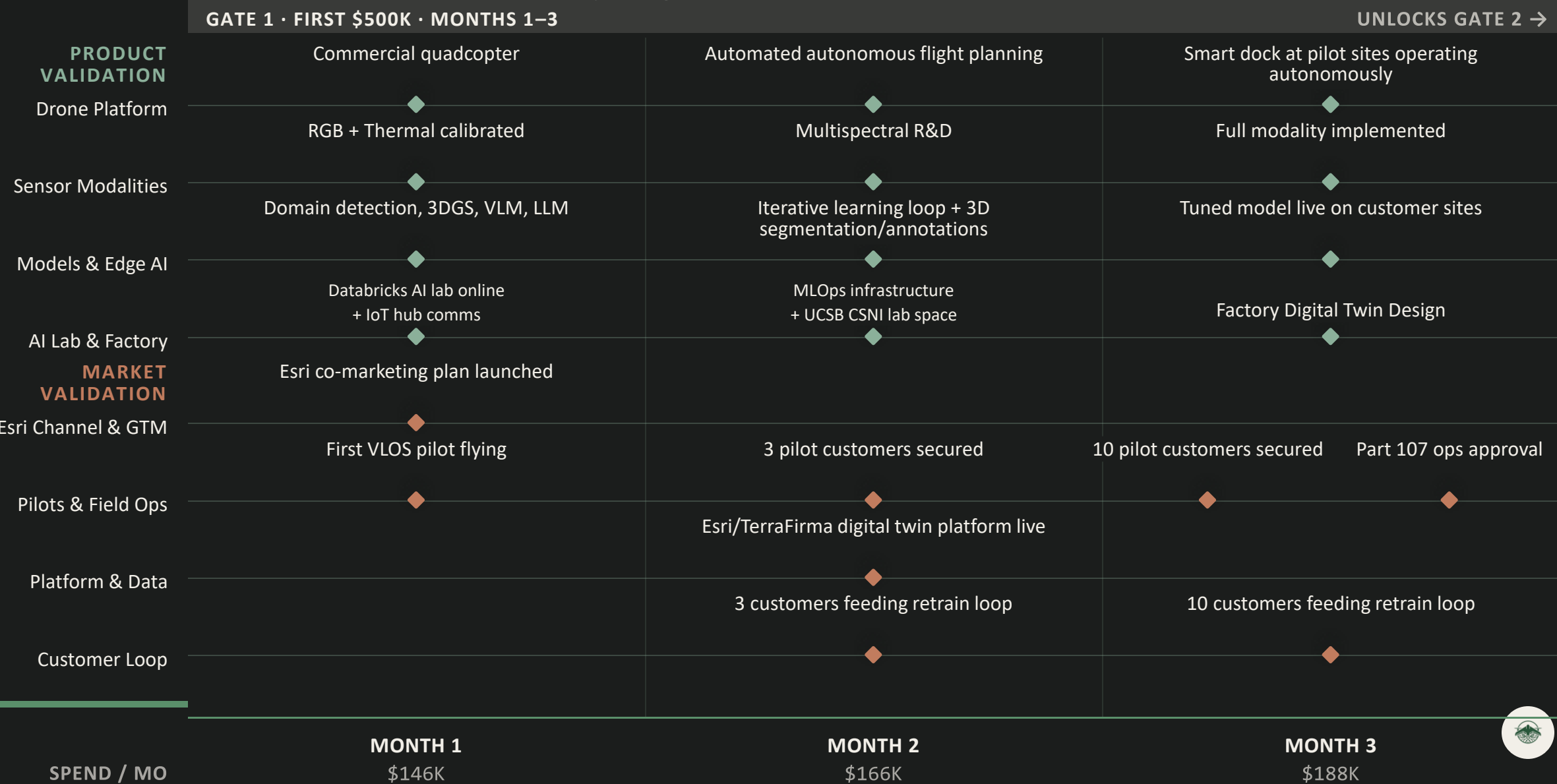
Product & Market Validation · Gate 1 — First \$500K

◆ PRODUCT VALIDATION

◆ MARKET VALIDATION



Months 1–3 · Platform airborne, cloud AI lab live, and the first ten pilots signed





A commercial drone with custom sensor modalities ,
autonomously deployed on 10 pilot customer sites , marketed
through Esri with the ArcGIS digital twin platform, and an iterative
learning loop improving every flight.

Each daily flight captures sub-cm resolution RGB, thermal, multispectral, gas and microclimate data that trains our domain detection, 3DGS, VLM and LLM models, compounding into proprietary geospatial intelligence that delivers actionable insights with rapid alerting , valued at 100x more than satellite and low-resolution stationary data.

Proving 10 customers' willingness to pay \$25/acre/yr, with a single drone monitoring 1,000 acres a day at 75% operating margins .



TERRAFIRMA ROBOTICS · VALIDATION PHASE · FIRST \$500K

3-Month Budget · Monthly Breakdown



What it takes to put the first drone on customer sites with the learning loop running

LINE ITEM	MONTH 1	MONTH 2	MONTH 3	3-MO TOTAL
Drones + smart docks · \$30K/unit Fleet ramps 1 → 3 → 10 units, matching pilot signings	\$30.0K	\$60.0K	\$210.0K	\$300.0K
Team · 2 FTE Full-time Data Scientist + Lead Engineer, ~\$200K/yr each fully burdened	\$33.3K	\$33.3K	\$33.3K	\$100.0K
Databricks compute contract \$100K / 6 months · includes Azure IoT Hub + web hosting	\$16.7K	\$16.7K	\$16.7K	\$50.0K
G&A admin Legal, accounting, insurance, workspace	\$2.5K	\$2.5K	\$2.5K	\$7.5K
Contingency buffer · ~9% Overruns, spares, field ops · rounds Gate 1 to \$500K flat	\$7.7K	\$10.4K	\$24.4K	\$42.5K
MONTHLY TOTAL	\$90.2K	\$122.9K	\$286.9K	\$500.0K

Databricks contract runs 6 months at \$100K total; \$50K lands in this window. Fleet reaches 10 drones + docks by Month 3, one per pilot site. Buffer is 10% of subtotal spend.



TERRAFIRMA ROBOTICS · VALIDATION PHASE · \$2.0M DEPLOYED

BWB Drone Optimization · Gate 2 — Next \$2.0M

◆

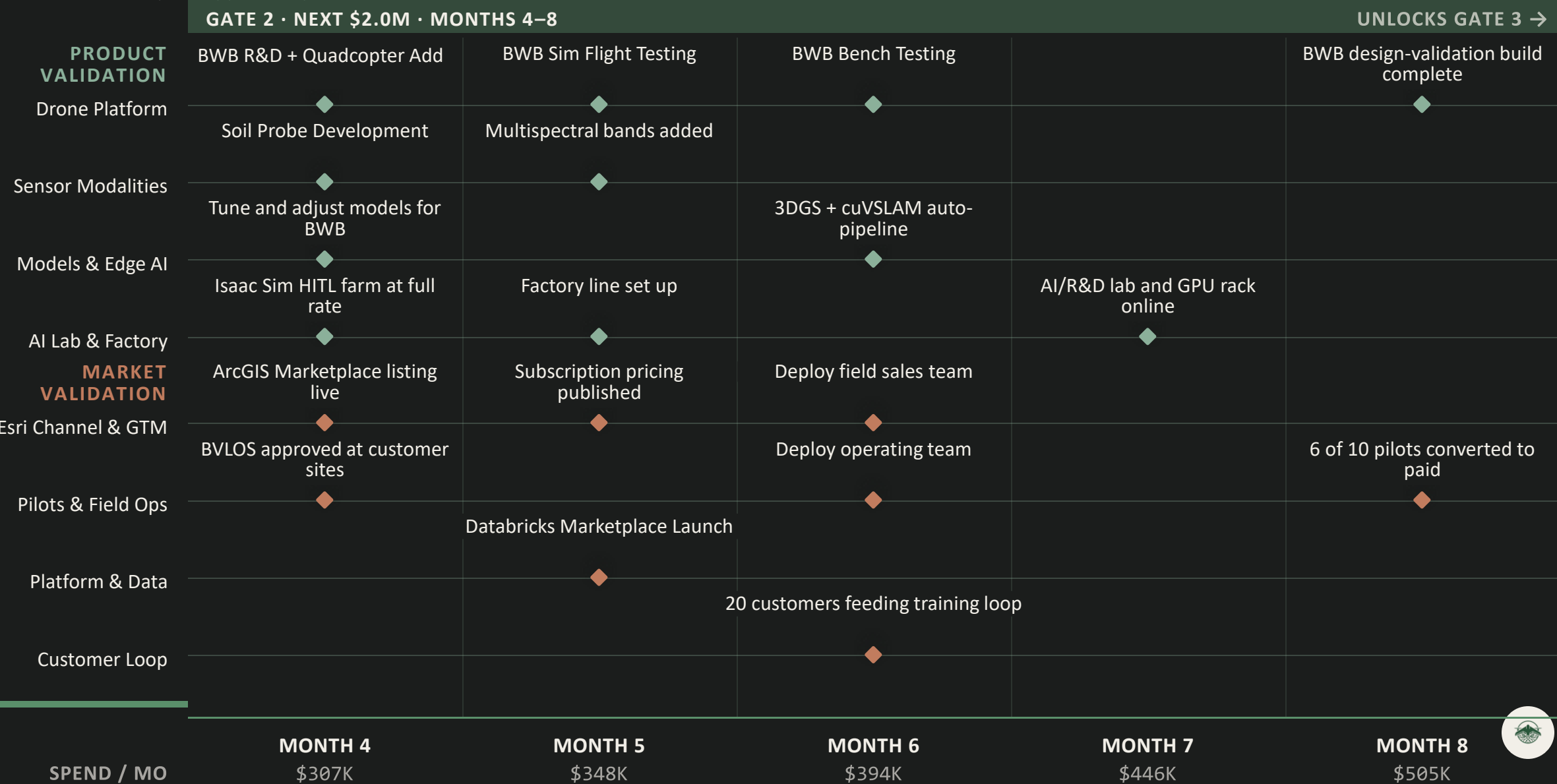
PRODUCT VALIDATION

◆

MARKET VALIDATION



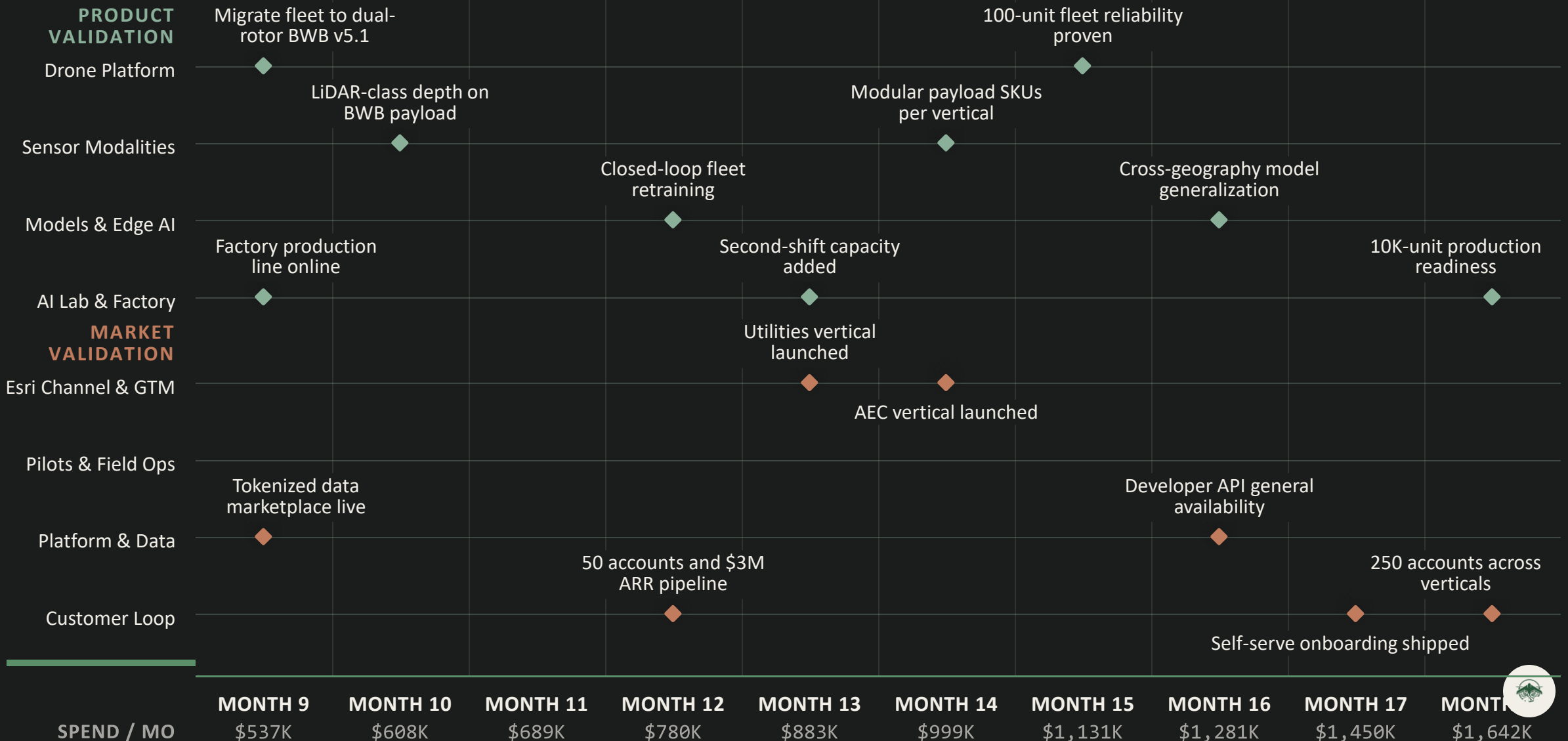
Months 4–8 · Airspace approvals, paid conversions, and the AI build-out





GATE 3 · \$10M SCALE TRANCHE · MONTHS 9–18

FULLY DEPLOYED BY END OF M18



18-month roadmap: the \$2.5M SAFE buys proof, the priced round buys production

SAFE-GATED BURN

\$2.5M SAFE stretches Aug into early Jan at \$125-775K / month; Oct includes the \$394K Hollister deposit. Priced round funds execution: burn peaks at \$1.35M in May at MVP completion, tapers to \$274K, fully deployed Jan '27.

FIRST 6 MONTHS · SAFE PHASE



PRICED ROUND PHASE



SoftServe MVP + SDLC

SAFE \$654K · total \$2.5M

TF AI / product team ramp

SAFE \$515K · total \$1.75M

Factory / lab readiness

SAFE \$660K · total \$2.75M

Hardware + sensor iteration

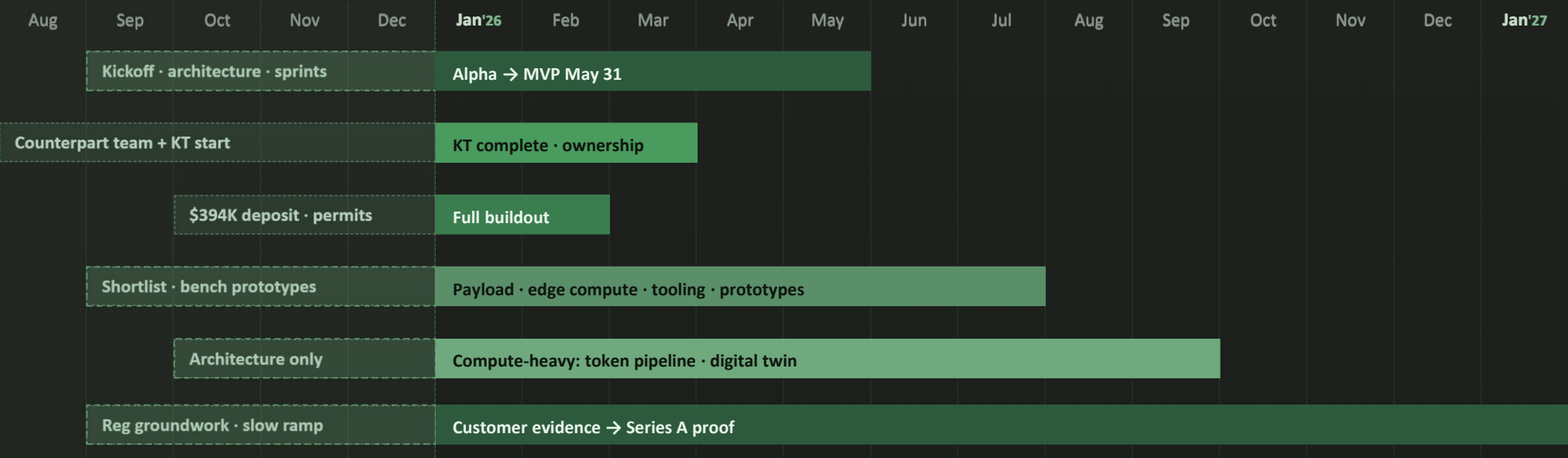
SAFE \$251K · total \$1.38M

AI / data / simulation

SAFE \$116K · total \$880K

Pilots / regulatory / GTM

SAFE \$85K · total \$2.25M

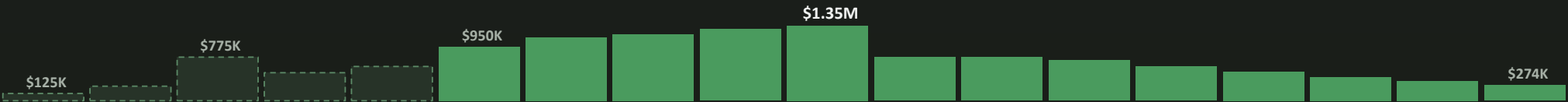


SAFE · \$2.5M INTO EARLY JAN

PRICED ROUND · \$10.0M · PEAK \$1.35M IN MAY

Monthly burn

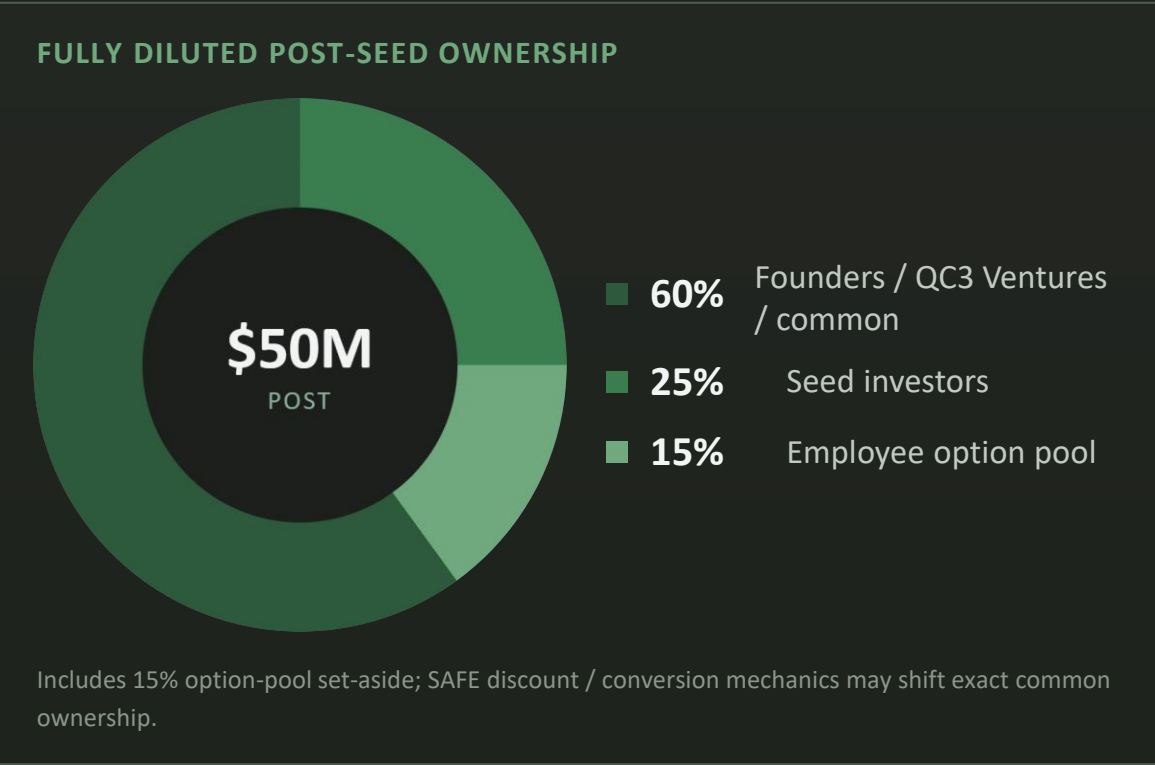
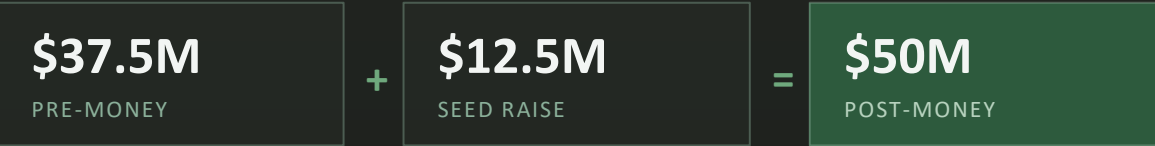
\$12.5M cumulative by Jan '27



\$37.5M pre-money is a premium seed, not a unicorn-priced round

QC3 / FOUNDER DE-RISKING ALREADY CONTRIBUTED

Substantial contributed investment, IP, architecture, partner development and market framing. **Seed converts incubated assets into validated Physical AI proof, not a cold start.**



SEED COMPS: PRE-REVENUE ROBOTICS + DRONES · PITCHBOOK

COMPANY	DEAL \$M	POST \$M	SOLD	COMPANY	DEAL \$M	POST \$M	SOLD
Config	35.0	200.0	17.5%	SafeWorld	12.0	49.0	24.5%
Watney Robotics	21.1	96.5	21.9%	Quintessent	11.6	36.6	31.7%
Foundry Robotics	19.0	110.0	17.3%	Westmag	11.3	40.0	28.4%
HYFIX.AI	15.0	46.0	32.6%	Pasteur Labs	10.5	40.0	26.3%
Eka Robotics	13.0	50.0	26.0%	ReSim	10.3	27.3	37.7%
Swarmbotics AI	13.0	56.0	23.2%	Abyss Defense	10.0	70.0	14.3%
Space Kinetic	12.9	50.4	25.6%	AndrenaM	10.0	29.0	34.5%
TerraFirma ask	12.5	50.0	25.0%	Aurelius Systems	10.0	60.0	16.7%
				DataShapesAI	10.0	35.0	28.6%

Cohort average: \$14.05M deal · \$62.24M post · 22.6% of post sold
TerraFirma: \$12.5M at \$50M post = 25.0% sold · deal at pack median · post below cohort average

SERIES A PLANNING CASE



Planning case: ~\$40M at ~\$200M pre. Milestone basis: MVP delivered, factory in production, field / customer evidence, validated sensing + token pipeline, regulatory path, repeatable GTM.

