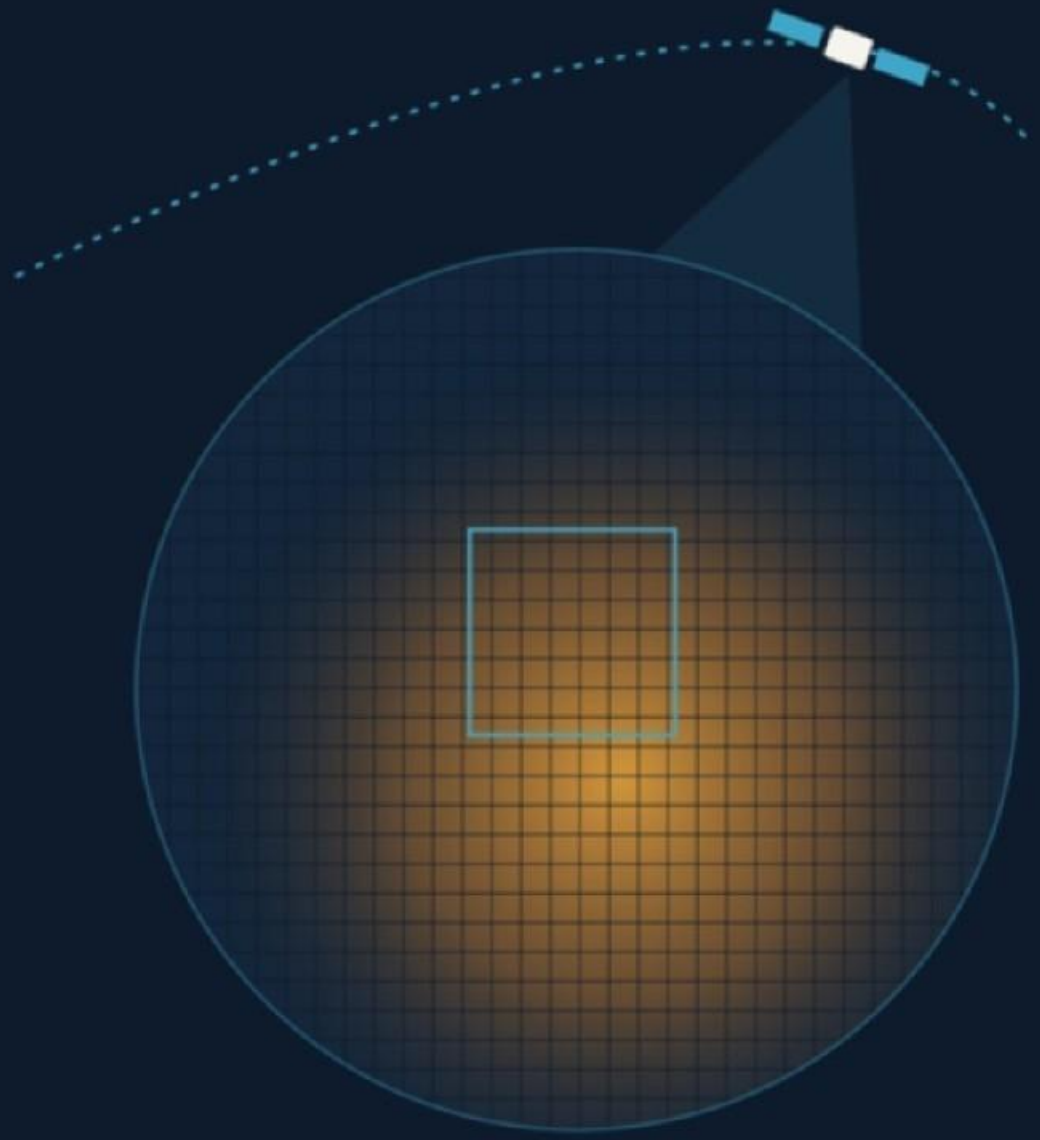
SPACE INNOVATION CHALLENGE 2026 · FINAL

Weav8 Breathing Twin Asia–Pacific

Every street, every hour: a space-anchored digital twin for accurate risk measurement and insurance integration

Dr Natalia Mykhaylova · Founder & CEO

26 October 2026





Thailand bears Southeast Asia's second heaviest economic cost from air pollution, behind Indonesia

By **VNA** September 23, 2026 | 02:00 pm PT

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2026 haze could cost Singapore up to S$3.9 billion, more than twice its 2015 losses: Eco-Business report

Singapore's 2026 haze could cost up to S$3.9 billion, more than double the losses recorded in 2015. With seven Indonesian companies issued legal notices, environmental groups are urging stronger enforcement of Singapore's transboundary haze law.

Southeast Asia's changing landscape is fueling a deadly air crisis that costs billions

by Nanyang Technological University

edited by **Lisa Lock**, reviewed by **Robert Egan** Editors' notes

THE SOCIETAL CHALLENGE

Air pollution is the world's second-largest risk factor for early death

7.9M

deaths attributable to air about 1 in 8 worldwide

90%

of air-pollution deaths occur in low- and middle-income countries

>2M

Asia is the epicentre

Clean air is a public-health service. Across most of Asia, it is still run blind.

Source: HEI / IHME, State of Global Air 2025 (data year 2023)



Environment Canada

SG NSCC National Supercomputing Centre

STARBURST

esa

14 years

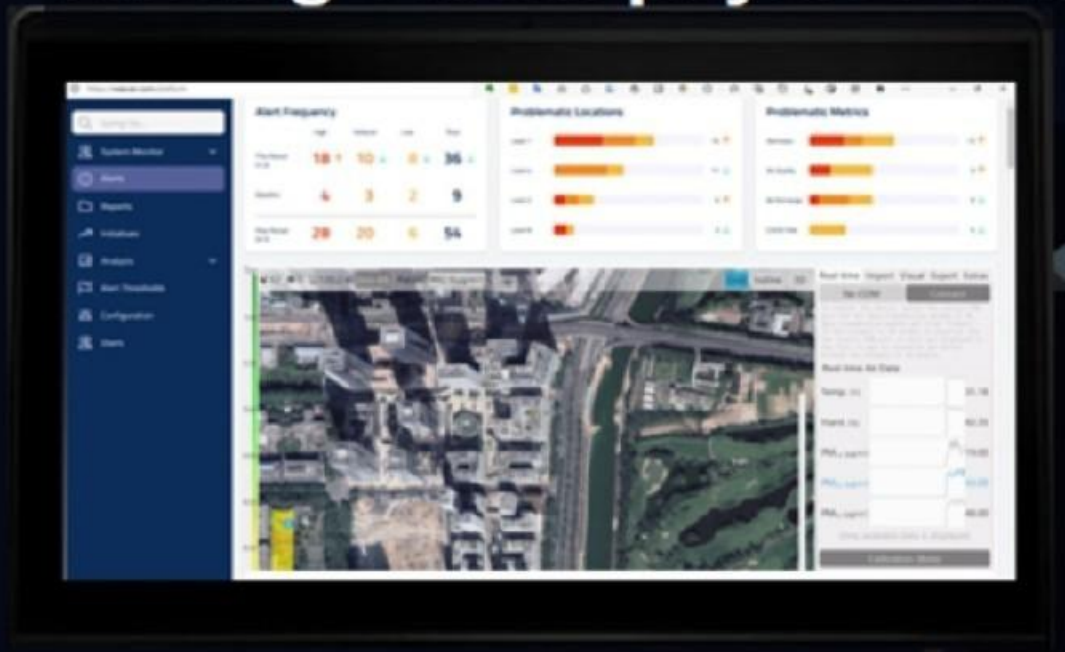
Emissions & air pollution analysis experience for 30+ international projects

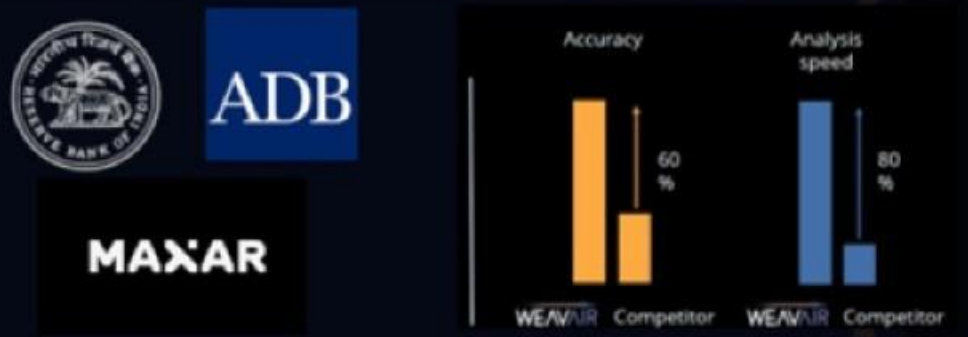
7 years working with advanced computing

PhD in Environmental Engineering (predictive AI models)



Turning orbital physics into underwriting certainty.





Satellite

Drone

Ground IoT sensors

Risks tracked: Physical Climate Operational Transition / Compliance

Turning orbital physics into underwriting certainty.

Neural asset fingerprinting
Edge AI tracks **20+ multi-modal signals** — micro-vibration, chemical & thermal signatures — enabling detailed risk analysis

Multi-spectral satellite fusion
Edge truth is fused with live satellite streams — correlating asset health with flood lines and urban-heat stress.

Temporal predictive models
Logic networks map precise **Time-to-Failure (TTF) deterioration & 96-hour alerts**

Weav8 performance **exceeded accuracy & speed benchmarks** securing **free access** to proprietary global datasets; fuelled 2 large satellite observation companies to invest



Risks tracked: **Physical** **Climate** **Operational** **Transition / Compliance**

INNOVATION

Proprietary technology



A living twin

3 orbits fused into one state of the air, tracking plumes across borders



Policy flight simulator

Burning ban vs truck limits, compared before public money is spent



Burn-free data

Plot-level proof for enforcement, trade and green finance

80×

up to 80× finer than raw pixels

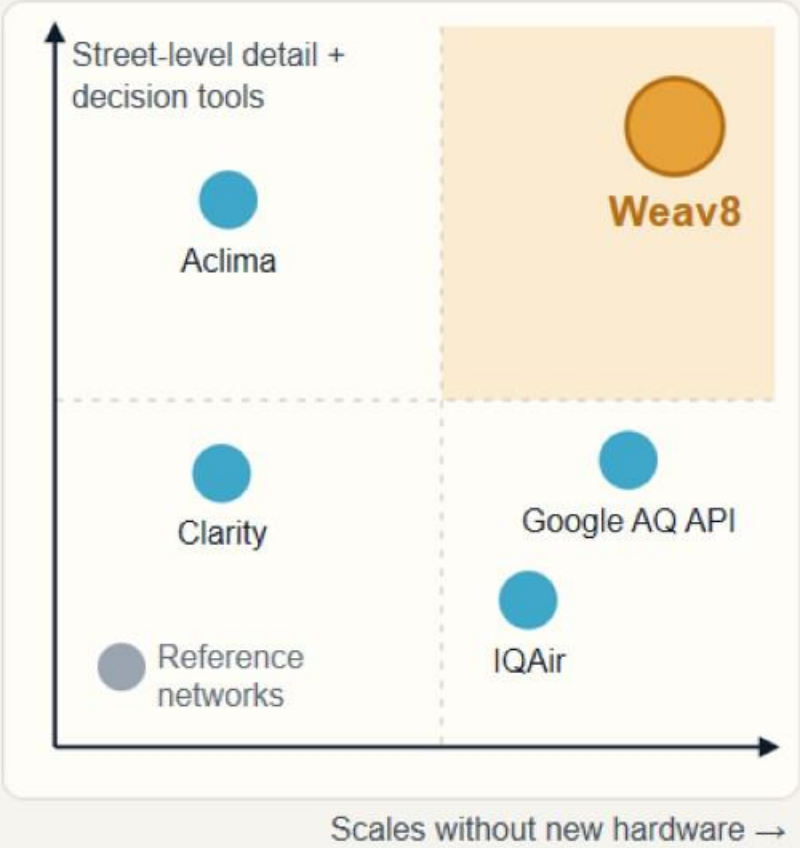
AI with physics

Constrained by transport and weather; audited hourly against sensors

Concept UI · illustrative values

COMPETITIVE ADVANTAGE

Competitive advantage



	Weav8	Google AQ API	IQAir	Clarity	Aclima
Resolution	100 m, hourly	500 m	Station points	Sensor points	Block-level
Coverage	5°S–45°N, any city	100+ countries	138 countries	85+ countries	US cities
New hardware per city	Optional sensors	None	Station feeds	Own sensors	Sensor cars
Cross-border attribution	Yes, daily	—	—	—	—
Burn proof + finance-grade MRV	Yes, plot-level	—	—	—	—

US$10K a year vs US$200K+ for manual audits · minutes, not weeks

Public product data, Oct 2026: Google, IQAir 2024, Clarity 2024, Aclima · Cost: Weav8 customer data

CUSTOMER CASE STUDY · ASEAN GRID AND SOLAR OPERATOR

US$1M+ ROI in under 8 months





$340M
financing unlocked

−180
bps cost of capital

−22%
insurance premium

3
failures pre-empted, 84 h warning

Business case

1.2 GW solar + storage, 6 sites. Lenders could not verify asset risk.

Pilot + indicators

All 6 sites · 20+ indicators: structure, output, wildfire, flood, emissions

Scaling plan

Whole portfolio, then 20 pipeline clients: ~US$6M ARR

> *"Weav8 gave our lenders an independent, verifiable proof of asset risk. The deal closed in weeks, not quarters."* Head of Asset Risk, client

Also in the field: 8,000+ vehicle transit authority, −30% emissions, €4.2M saved a year (EIT 2025)

MARKET TRACTION

10 customers in 6 months, US$3M ARR

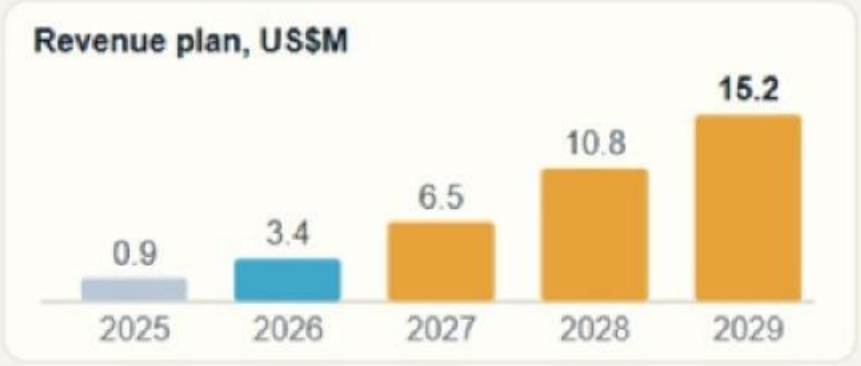
10
customers closed

20
in pipeline · ~US$6M

20+
partnerships

$3M
ARR · ~US$300K per contract

82%
gross margin · profit in < 18 months



$2.4B
insured value monitored

$340M
financing unlocked

135%
net revenue retention

<11
months CAC payback

STANDARDS BSI · Bureau Veritas · DNV · TÜV SÜD

accenture · CASSINI #EUSpace · AIRBUS · esa · McKinsey & Company · ADB

Weav8 company data, Oct 2026 · 2026–29 revenue is plan · DNV, formerly DNV GL

Within the last 6 months

Q4 2025

Weav8 founded
MVP developed
3 LOIs with System integrators

Awards form McKinsey, Accenture, ESA & Airbus

10 parametric insurance algorithms developed

Q2 2026

10 insurance brokers LOIs
Green Energy Solutions Award



Q3 2026

Top award form
ITC 2026 top insurance conference



Domain expertise, technical advantage & partner ecosystem

CEO, Dr. Natalia Mykhaylova, PhD



Singularity University

University of Toronto

Operations: Julie Huber, Bcomm, JD



BMO

University of Toronto

Marketing: Hyeonsuk Lim, MA



KAIST





NSCC National Supercomputing Centre

Validated by regulators

Strong partnership networks. 1st place recognition by MAS, RBI , ADB

MAS ADB

Validated by data partners & FI clients

Fast opportunity to embed risk code in core infrastructure.

bsi. accenture McKinsey & Company

CASSINI #EUSpace AIRBUS esa

Validated by investors & funders

Regulation expertise. ISSB · SGX · GDPR · PDPA ready fully automating the underwriting audit trail.

techstars_ BIMWORLD PARIS

MOBILE WORLD CONGRESS

COLLABORATION PROPOSAL · IQPS

iQPS × WeavAir: burn proof through smoke

iQPS brings

0.46 m
QPS-SAR resolution, day or night

36 sats
constellation goal, imaging every 10 min

SAR rights
high-resolution data award for SIC

WeavAir brings

Triggers
fire + PM2.5 anomalies: where to task, when

Plot links
burn scars matched to farm plots and buyers

30 clients
10 closed + 20 pipeline in insurance, finance

Joint pilot · targets

Anomaly-triggered SAR over northern Thailand's burn hotspots, Jan–Apr 2027

~150
tasked scenes per season

< 24 h
anomaly to SAR proof

≥ 90%
burn scars confirmed vs field checks

Value for iQPS: recurring tasking every haze season, resold inside burn-free certificates and insurance products; scales to 10 cities by 2028

First step: MoU at APRSAF-32

iQPS specs: company profile (DSEI Japan) · SIC 2026 award list · pilot figures are proposed targets

COLLABORATION PROPOSAL · SYNSPECTIVE

Synspective × WeavAir: every season

Synspective brings

10 StriX
SAR satellites in orbit (June 2026)

All-weather
imaging through haze and monsoon cloud

Singapore
Synspective SG, a base for ASEAN roll-out

WeavAir brings

$2.4B
insured value already monitored

2 twins
haze in the dry season, flood in the monsoon

Insurers
and lenders who buy verified risk data

Joint pilot · targets

Thailand, 12 months: burn scars Jan–Apr, flood exposure Jun–Oct

~150
scenes per season

0 days
lost to cloud cover

2–4×
longer flood-warning lead time

Value for Synspective: year-round demand instead of one season, sold to insurers and lenders already using Weav8

First step: MoU at APRSAF-32

StriX count: GeoConnexion, Jun 2026 · flood lead time: Weav8 flood product · pilot figures are proposed targets

COLLABORATION PROPOSAL · AXELSPACE

Axelspace × WeavAir: burn-free plot maps

Axelspace brings

2.2 m
GRUS-3 optical detail, 7 new satellites

2.3M km²
imaged per day by the GRUS-3 fleet

30+
countries served by GRUS-1 customers

WeavAir brings

Certificates
burn-free supply-chain product for exporters

100 m twin
uses 2.2 m urban form for downscaling

−40%
Thai burn-scar target the maps can measure

Joint pilot · targets

Map Chiang Mai province every 2 weeks, Jan–Apr 2027

20,000 km²
per pass, 8 passes

~7%
of one day's GRUS-3 capacity

1 registry
plot boundaries for the province

Value for Axelspace: recurring agri-traceability demand, paid by exporters per certificate, repeatable across ASEAN crop belts

First step: MoU at APRSAF-32

GRUS specs: SatNow / Axelspace · burn-scar target: ADB Thailand AQ program (Jun 2026) · pilot figures are proposed

COLLABORATION PROPOSAL · TELLUS GLOBAL

Tellus × WeavAir: one workspace, 3 fleets

Tellus brings

Tellus Pro
SatHub tasking, Drive, Pipelines

H100 GPUs
GRUS-3, QPS-SAR, StriX from Nov 2026

42,000+
registered platform accounts

WeavAir brings

Live twin
containerised pipeline, 8 data streams

ASEAN users
cities, regulators, exporters, insurers

$3M ARR
paying customers ready to consume data

Joint pilot · targets

Run the Thai twin on Tellus Pro, Nov 2026 – Feb 2027

3
commercial constellations, 1 workspace

≤ 30 min
from new image to API

1 layer
air-quality product listed on Tellus

Value for Tellus: a flagship ASEAN public-health app on Tellus Pro, and a ready-made air-quality layer for 42,000+ accounts

First step: workspace in Nov

Tellus specs: Tellus Award brief for SIC 2026 · pilot figures are proposed targets

COLLABORATION PROPOSAL · SPACE SHIFT

Space Shift × WeavAir: spot new sources

Space Shift brings

SateAIs Time

time-series change-detection AI

SateAIs Earth

disaster detection, delivered by API

10,000

SateAIs API credits for SIC finalists

WeavAir brings

156,900

street cells in Bangkok, refreshed hourly

Ground truth

sensors that confirm what changed in the air

Use case

for the planned SateAIs Kan environment line

Joint pilot · targets

Change alerts as source layers: construction, industry, burned land

≥ 70%

of PM2.5 hotspots tied to a source

< 24 h

from change alert to twin update

2 cities

Bangkok + Chiang Mai, Nov–Apr

Value for Space Shift: a proven air-quality use case for SateAIs, plus API demand from Weav8's 10 customers and 20 in pipeline

First step: API pilot in Nov

SateAIs: IT Business Today, Nov 2025 · credits: SIC 2026 award list · pilot figures are proposed targets

COLLABORATION PROPOSAL · ARKEDGE SPACE

ArkEdge × WeavAir: a 6U eye on street NO_2

ArkEdge brings

6U
satellite platform and constellations

Award
ONGLAISAT 6U EO: Small Satellite Mission of the Year

Mentors
SIC mentorship for selected teams

WeavAir brings

User specs
which pixel and revisit change decisions

Demand
cities, regulators and ADB-funded programs

Twin sim
tests the value of a new sensor before launch

Joint study · targets

Feasibility of a NO_2 smallsat for ASEAN megacities

≤ 1 km
NO_2 pixel, 7× finer than GEMS

≥ 3 / day
revisits, constellation sized

Q2 2027
concept, cost and funding bid

Value for ArkEdge: a mission with a paying data user from day one and a joint bid to Japanese space funds

First step: mentoring sprint

ArkEdge: arkedgespace.com · GEMS ~7 km pixels (ACP 2024) · study figures are proposed targets

THE ALGORITHMIC INFRASTRUCTURE OF TRUST

WEAV8

Capital cannot flow where risk cannot be measured.

We turn uninsurable climate & physical risk into priced, profitable risk.

$100T	95%+	98%
TRANSITION CAPITAL AT STAKE	ASSET VERIFICATION ACCURACY	PREDICTIVE COVERAGE

Extra slides. Appendices.

SUMMARY

WeavAir Solution Summary

Criterion	Our evidence	Slides
Significance	7.9M deaths a year; THB 301 bn Thai burden by 2037; ~1B people unmonitored	2–4
Contribution of space	1 pixel → 2,500 street cells; 156,900 cells hourly; sees across borders	5–6
Solution quality	Detect → predict → connect; proven science; MAS, RBI, MIT Solve	7–8, 10
Innovation	Living twin, policy simulator, burn-free data, AI with physics	9
Impact	THB 211 bn a year at stake; ADB, Accenture route to 12 countries	12–14
Future Observation Award	Quantified needs + five new space capabilities	11, 15

The haze crosses borders. Now the data can too.

natalia@weavair.com

HERE AND NOW: THAILAND, HOST OF APRSAF-32

The haze crosses borders. The data does not.

Satellite fire hotspots, mid-March 2025



Result: all 17 northern provinces at **25.6–143 µg/m³** PM2.5, against Thailand's new 24-hour limit of 37.5 µg/m³.

THB 301 bn/yr

projected PM2.5 health burden in Thailand by 2037 without new action (403,373 DALYs a year)

≥ THB 3 bn

Bangkok's opportunity cost from roughly one month of PM2.5 in January 2025

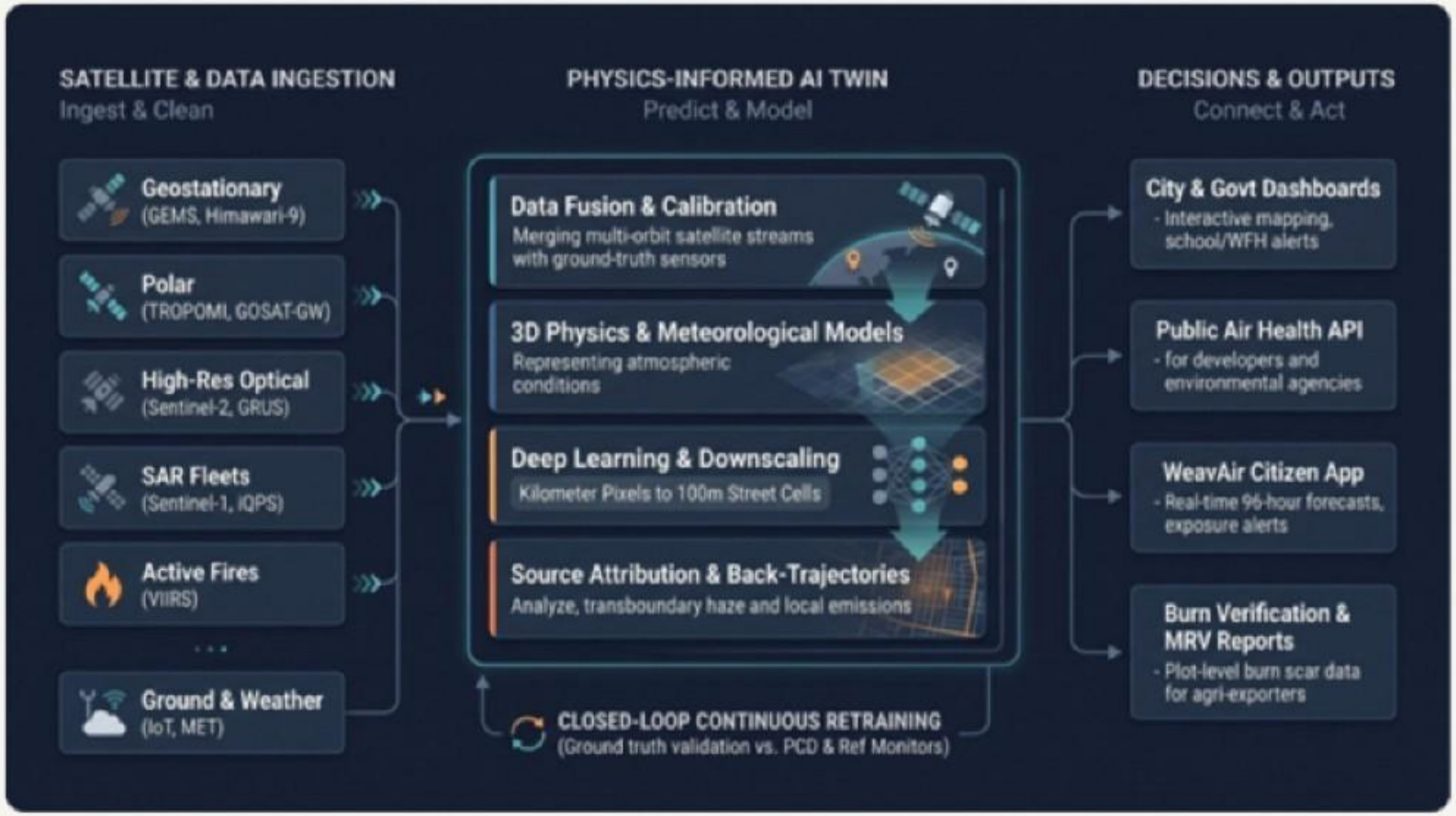
38%

of Thailand's PM2.5 health burden removable by ending agricultural burning

Sources: GISTDA/PCD via The Nation, Mar 2025 · Jumsai Na Ayudhya et al. 2026 · KResearch 2025

THE PROPOSED SOLUTION

How it works: detect, predict, connect



8
data streams in

100 m
cells, hourly

96 h
forecast horizon

$R^2 \geq 0.85$
vs reference monitors

Numbers on the right are pilot design targets, published openly against PCD monitors

THE SPACE STACK

Eight data streams, one twin

Korea

GEMS · GK-2B

NO_2, O_3, HCHO, aerosol · ~7×8 km · up to 10 hourly scans a day

Diurnal cycle; hourly emission inference

Japan

Himawari-9

Aerosol and smoke · full disk every 10 minutes

Live plume tracking and nowcasting

Europe

Sentinel-5P

TROPOMI NO_2, CO, aerosol · 3.5×5.5 km · daily, global

Calibration anchor and long-term trends

Japan

GOSAT-GW

TANSO-3 CO_2, CH_4 and NO_2 · whole globe in 3 days · since 2025

Links air pollution to climate emissions

United States

VIIRS

Active fires · 375 m · about two passes a day

Where burning starts, across borders

Europe · Japan

Sentinel-2, GRUS

Optical imagery · 10 m and 2.5 m

Plot-level burn scars; urban form for downscaling

Europe · Japan

SAR fleets

Sentinel-1, iQPS, StriX · sees through cloud and smoke

Burn evidence when optical is blind

On the ground

Truth and context

WeavAir IoT, PCD/OpenAQ stations, ERA5 weather, DEM, population, GNSS/QZSS timing

Training, validation, exposure

Specs: ACP 2024 (GEMS) · ESSD 2026 (TROPOMI) · NIES/NASA (GOSAT-GW) · NASA (VIIRS)

FEASIBILITY

Proven science, proven team

The science works here

All of Thailand mapped daily for PM2.5 and NO_2 from satellites + ML (Mahidol, 2025)

Hourly NOx emissions inferred from GEMS across Asia (2024)

8+
countries with WeavAir twins deployed

30%
emission cuts in deployments

Top 3
MAS Global FinTech Hackcelerator 2022, S$50k

Winner
RBI HaRBInger 2023 global hackathon

2025
MIT Solve climate semi-finalist

PhD
founder: air-pollution sensor networks

Sources: Mahidol 2025 · EGU24-3198 · MAS Nov 2022 · RBI Oct 2023 · MIT Solve 2025

ROADMAP

2 cities → 10 cities in 24 months

Q4 2026 – Q2 2027 · Pilot

2

Bangkok + Chiang Mai through the Jan–Apr 2027 haze season

Deals: PCD and BMA pilot users

H2 2027 · Scale

5

ASEAN cities; first attribution and burn-free reports

Deals: exporters (burn-free certificates); MAS and RBI finance-data pilots

2028 · Regional service

10

cities and 50M residents; city subscriptions + open citizen tier

Deals: ADB program investments (Phase 2, 2027/28–30); Accenture roll-out

EXPECTED IMPACT · CRITERION 5

What success is worth

211 bn

baht a year: Thailand's health-economic gain if its PM2.5 strategy is fully delivered (up to 70% less harm). The twin is its measuring stick.

330

lives and 21,495 hospital visits saved in one province, Ratchaburi, by meeting the new annual standard: US$146M.

1 → 10

cities: Bangkok and Chiang Mai in the 2027 haze season, then 10 cities and 50 million residents by 2028.

Economic: even a 5% share of that THB 211 bn, unlocked by better targeting and enforcement, is about THB 10.5 bn every year.

Regional: one pipeline for any city from 5°S to 45°N; 12 countries in ADB's clean-air program, rolled out through Accenture.

Sources: Jumsai Na Ayudhya et al., EIAR 2026 · Pengjan et al., KMUTT 2024 · 5% share is illustrative