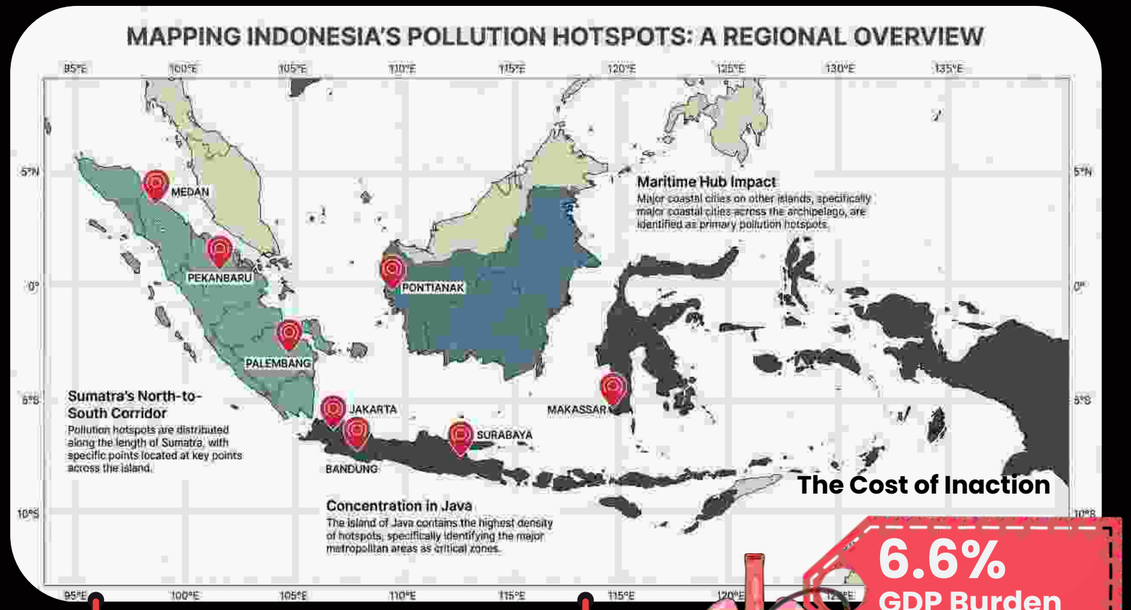


IP : IDS000005515 - Telkom University

Commercialization Air Pollution Problem



Jakarta's Safety Gap

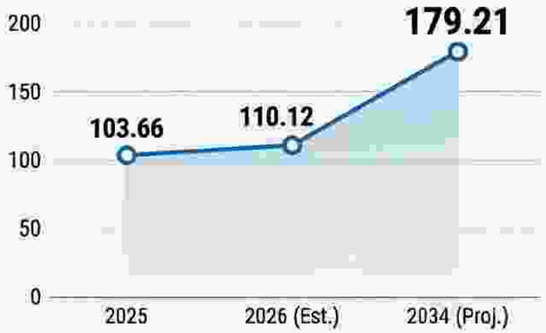
2.8x National **8x** WHO

The Cost of Inaction

6.6%
GDP Burden
USD 330B Health Costs

GLOBAL MARKET PROJECTIONS (2025–2034)

Global Air Pollution Control Systems (APCS) Market Size (USD Billion)



Indoor Monitors Lead the 2023 Market.
In markets like Indonesia, indoor monitors became the dominant segment in 2023 due to increased adoption in commercial office buildings and residential real estate.

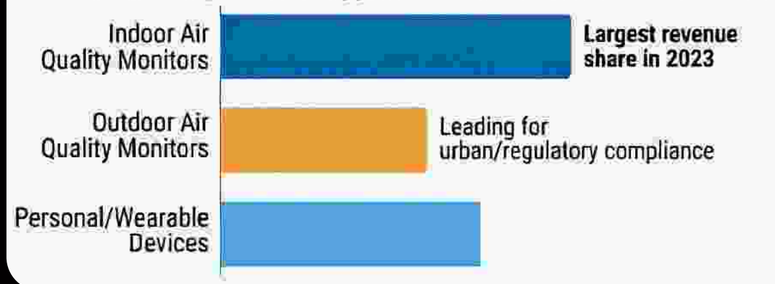
$6.2 Billion
Global Monitoring Market.
The global Air Quality Monitoring Syste (AQMS) market is expanding rapidly du to the integration of IoT and the deman for real-time data.

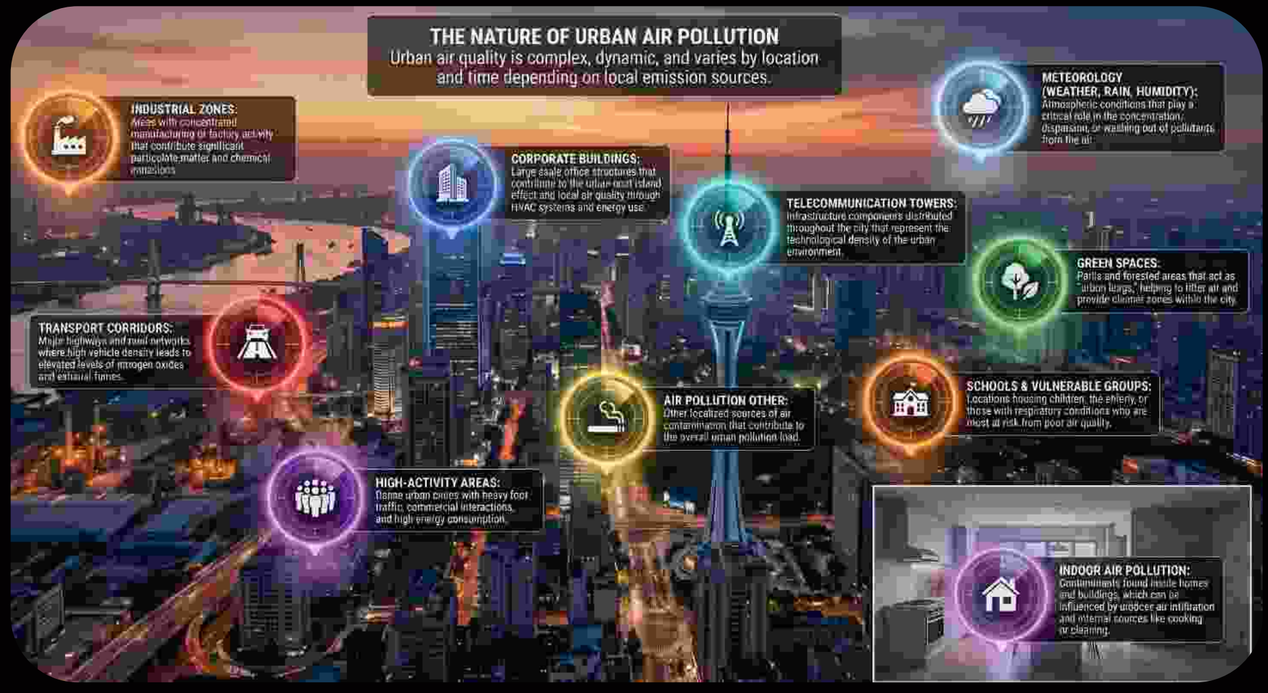


Asia Pacific Dominates the Industry
As of 2025, the Asia Pacific region holds a **38.20%** share of the global market, driven by massive Infrastructure Investments in China, India, and Southeast Asia.

THE INDOOR & PERSONAL MONITORING SURGE

Monitoring Product Type: 2023 Market Status / Forecast





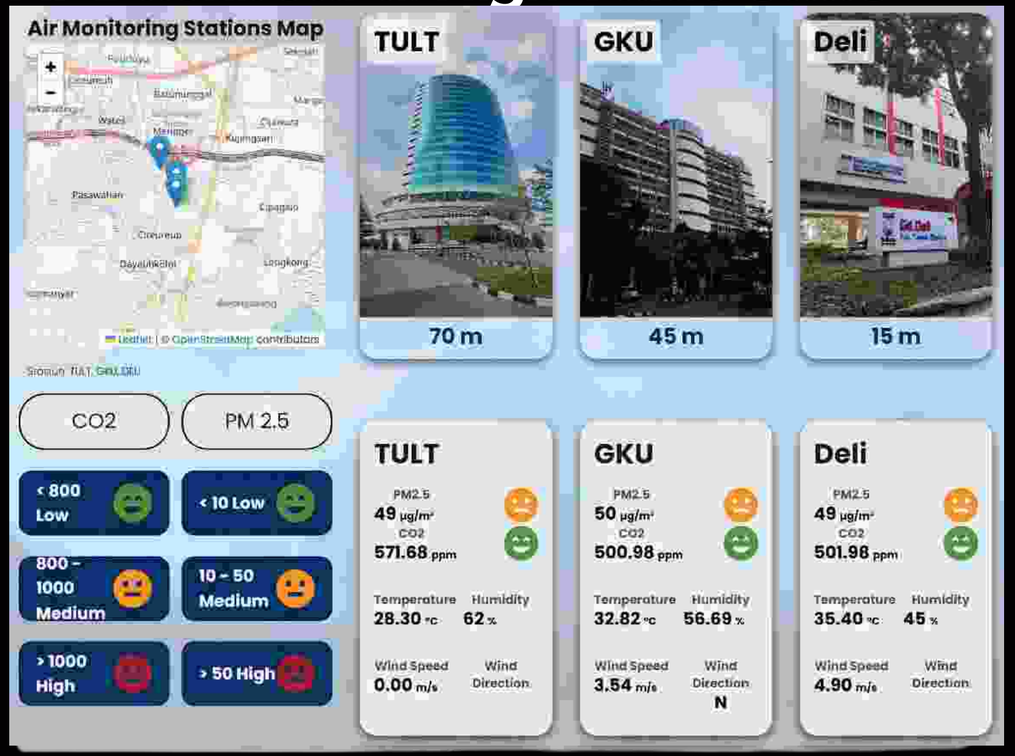
A Dual-Architecture Solution:
Low-Cost Edge Sensors Powering High-Margin AI-Intelligence

Hardware Deployment: Low Capex



- **Specs:** IDR 25M–67M/unit (70% CAPEX reduction).
- **Monitors:** CO_2, PM2.5, NOx, Heavy Metals.
- Engineered for Indonesia's extreme climate.

AI-Dashboard: High Value SaaS



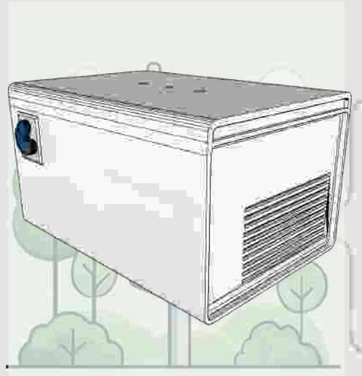
- **Features:** Real-time visualization.
- AI-driven predictive forecasting.
- Early Warning System (EWS).
- Automated ESG reporting.

Telkom University birulangit

Environmental Intelligence Pipeline:
From Acquistion to Insights

Telkom University | birulangit

Phase 1: Sensor Data Capture



Low-Cost Sensor (LCS)

Air Pollutant Parameter

- $PM_{2.5}$ — Particulate Matter
- NO_2 — Nitrogen Dioside
- CO_2 — Carbon Dioside

Meteorology Parameter

- RH — Relative Humidity
- Air Temperature

Environmental data is collected at the source, categorized into Air Pollutant Parameters and Meteorology Parameters.

Phase 2: IoT Transmission



Sensor

Internet Connection

IoT/Cloud

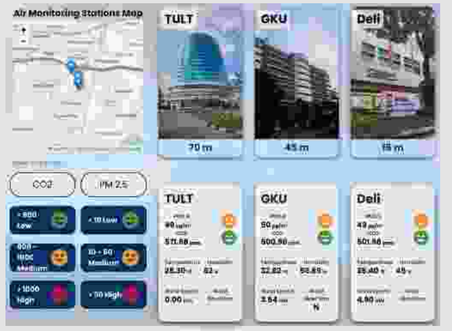
Captured data is transmitted from the sensor hardware to the IoT cloud platform via a stable internet connection.

Phase 3: Server & Database Processing



Data is received, processed, and securely stored within a database/server infrastructure for management.

Phase 4: Dashboard & API Visualization



Processed data is displayed in real-time on a web-based platform for monitoring.

Critical Pipeline Audit Points

- Rew Data/ Transmission Quality
- Valid Data checks
- API Integration to the DLH dashboard
- Data Imputation
- Valid Data Availability

The system monitors five key audit stages: Raw Data/Transmission Quality, Valid Data checks, API integration to the DLH dashboard, Data Imputation, and Valid Data Availability.

The Verification Workflow

Sensor → IoT → Server/Database → Data Verification → QA/QC → Dashboard/API → Final Analysis

The data follows a strict path from Sensor → IoT → Server/Database → Data Verification → QA/QC → Dashboard/API → Final Analysis.

Tracking our Product:
Deployment Intelligence Air Quality

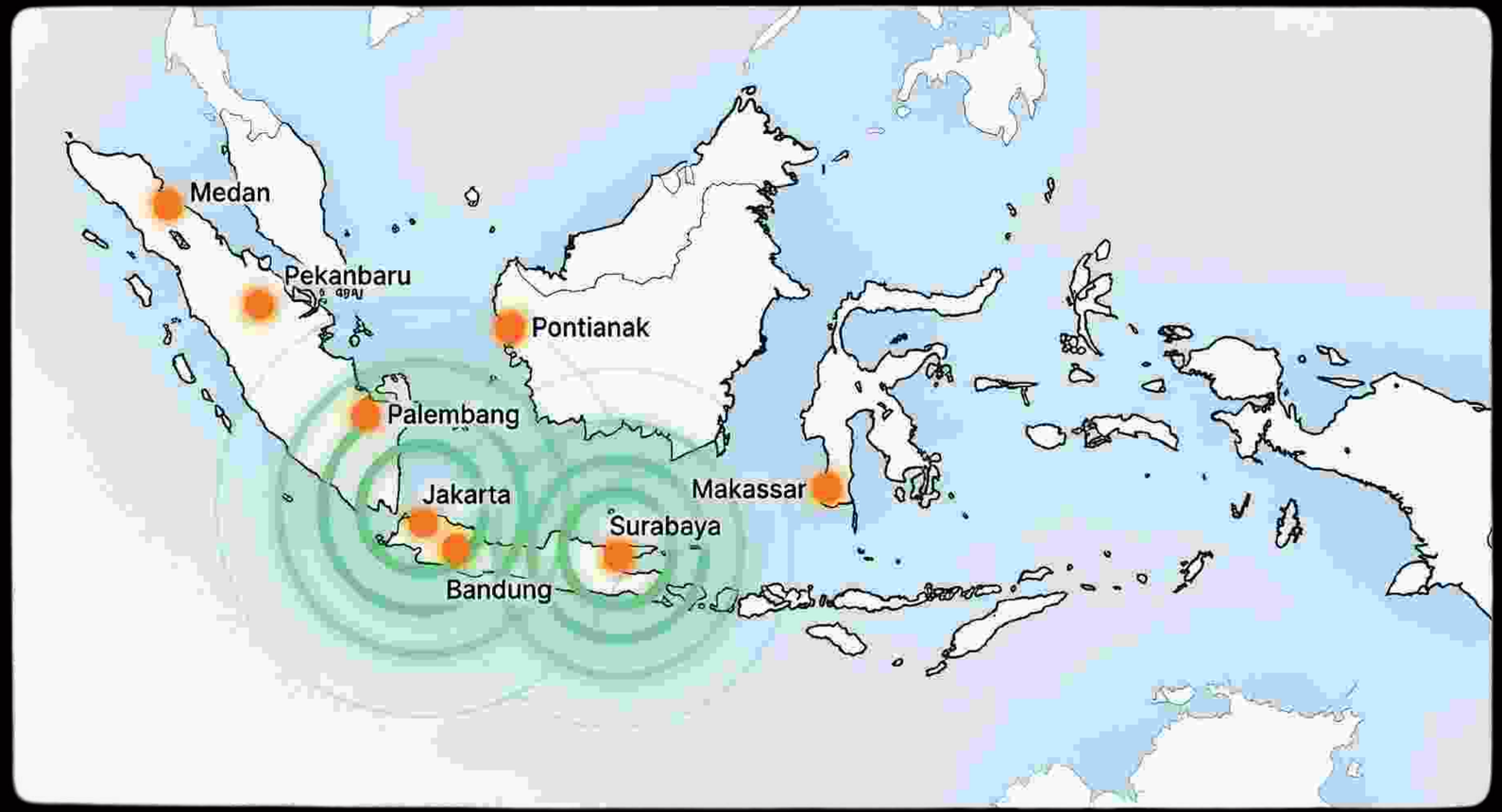
2018 Research Piloting

2022 Company Launching

2024-2025 Industry Adoption

2025-2026 End-to-End Ecosystem

Now Venture Readiness



70+

AQMS Systems Deployed

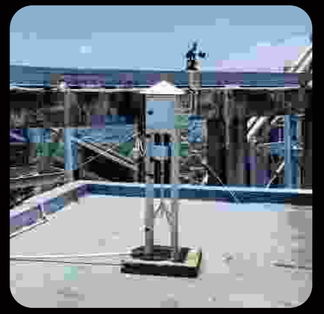
49

Devices operating in current pilot projects

Key Use Cases:

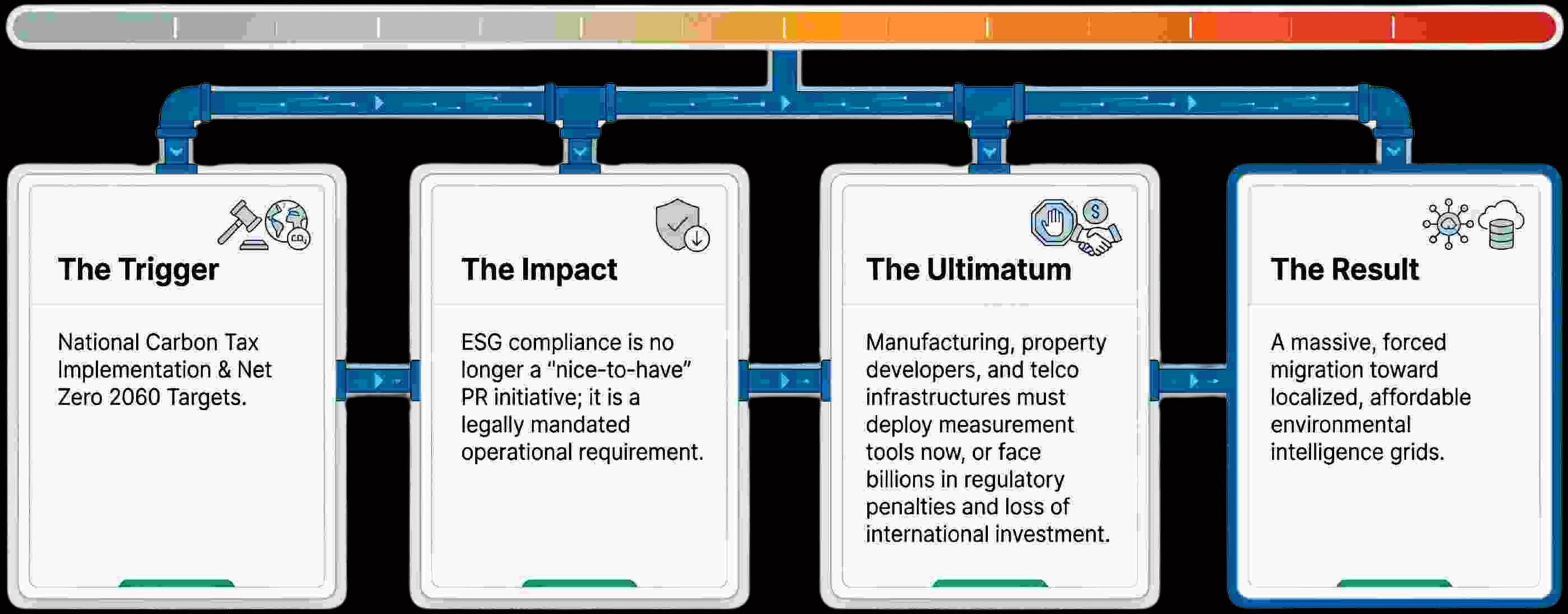
- Breathe Cities Jakarta
- Roadside Air Pollution
- Classroom IAQ



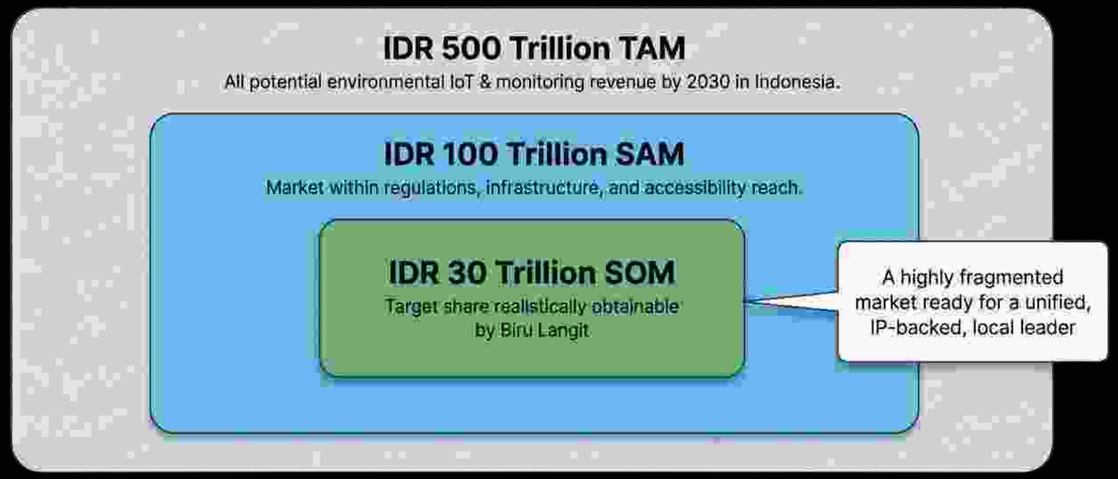




Unprecendented Regulatory Momentum is Forcing Immediate Enterprise Adoption



Market Gap and Traction Growth



The Beachhead Strategy

- **Industrial Parks:** High budget, intense regulatory pressure.
- **Smart Commercial Buildings:** ESG compliance, indoor air quality focus.
- **Eco-Tourism Hospitality:** Premium brand positioning (e.g., Hotel Gaia).

Why here? Short sales cycles and immediate ROI realization.

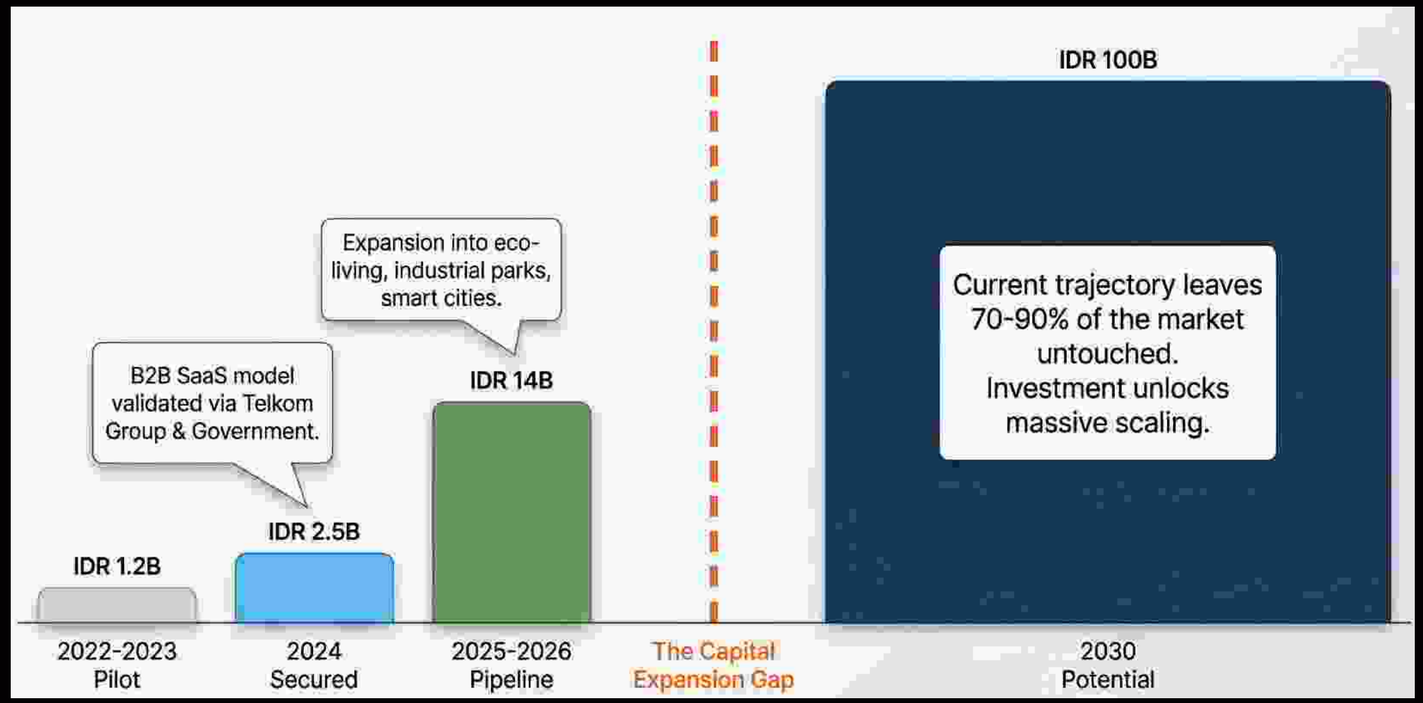
2024 Secured:

IDR 2.5 Billion

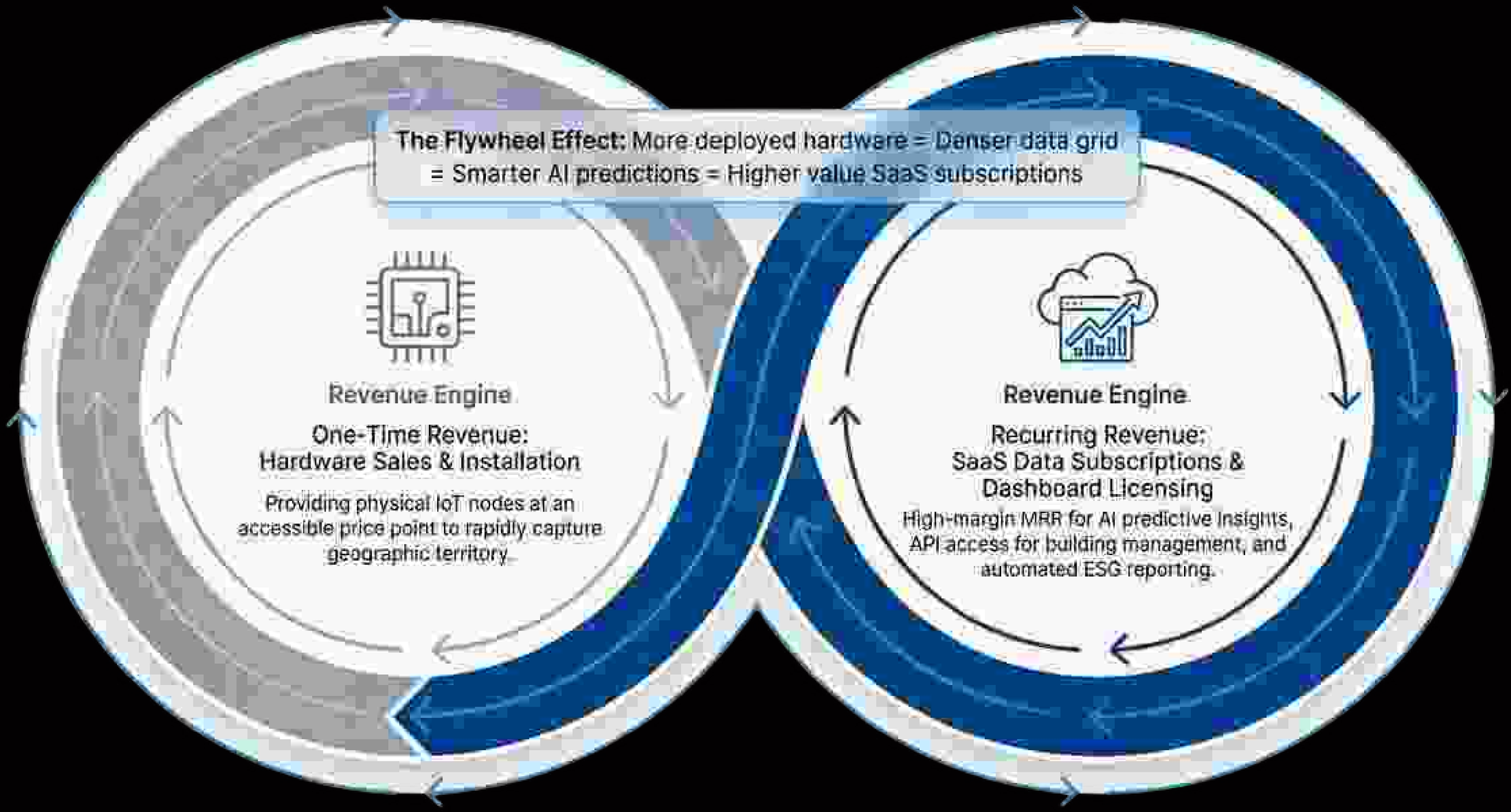
2025-2026 Secured Pipeline

IDR 14 Billion

(Driven by Telkom Group expansion and municipal Low Emission Zone policies)



Scaling Through Recurring B2B SaaS, Not Just Hardware Sales



Positioned to Dominate:
The Only Affordable, AI-Data Driven



	Biru Langit	Imported Products	Traditional Systems
Price / Unit Economics	**Affordable, IDR 25-67M**	High, IDR 100-150M	Medium-High
Data Ownership	**Full Local Control**	Limited	Varies
AI Integration	**Predictive Alerts**	None	Manual/Reactive
Local Customization & Support	**Proprietary IP, Rapid Maintenance**	Overseas Support, High Downtime	Costly & Intensive
Deployment Time	**Rapid / IoT**	Slow	Challenging Infrastructure

Telkom University birulangit

A Defensible Commercial and Scientific Moat:

Core Intellectual Property and 8+ years of R&D

Campus Testbed 2018
Foundational algorithm and sensor hardware prototyping validated in controlled environments

Living-Lab Validated
Multi-year deployment in complete urban environments ensuring extreme robustness and calibration logic

Published in Peer-Reviewed Journals
Underpinned by relentless academic security and global scientific standards

The IP Fault



Patent 1: IDS000005515
IoT-Based Indoor Air Quality Monitoring Device.



Patent 2: S00202010383
IoT-Based Outdoor Air Quality Monitoring Device.



Patent 3: P00202305200
Calibration Method for Characterizing Gas and Particulate Sensor Performance.



Patent 4: S00202407038
Air Quality Monitoring Equipment specifically engineered for Telecommunication Towers.



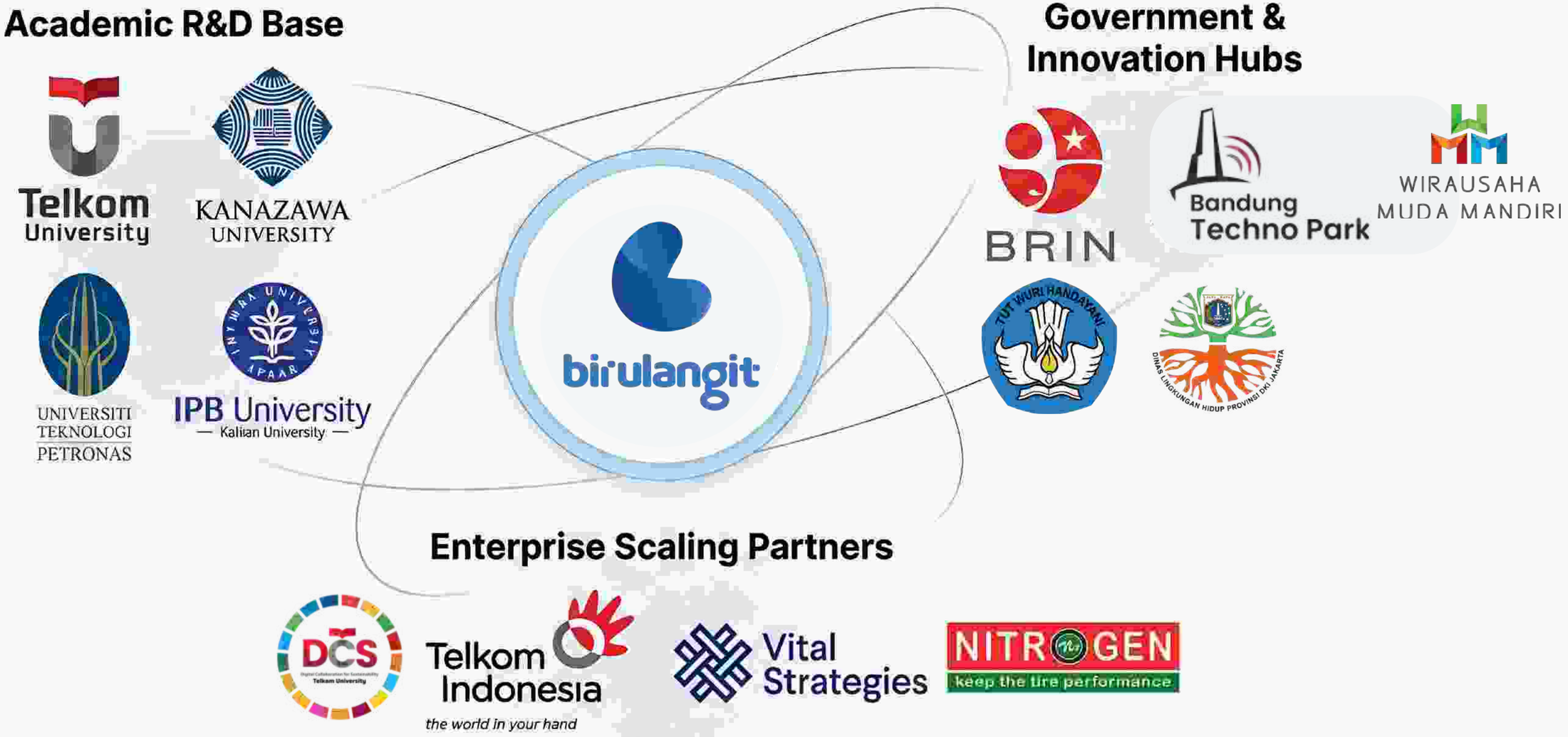
Patent 5: P00202208927
Rainwater Monitoring Equipment.



Patent 6: S00202111878
Automatic Cover for Rain Measurement Devices.

Telkom University birulangit

Supported by a World-Class R&D and Corporate Ecosystem



The Architects of Indonesia's Environmental Intelligence Network



Raihan AIP

CEO

Oversees business development, bridging technical expertise with market demand.



Indra Chandra

Founder

Developer of patented air/water systems, leading the strategic deep-tech vision.



Eka Sugiarto

CTO

Drives AI-predictive systems and ensures IoT technological robustness.



Junaidi Rahmat

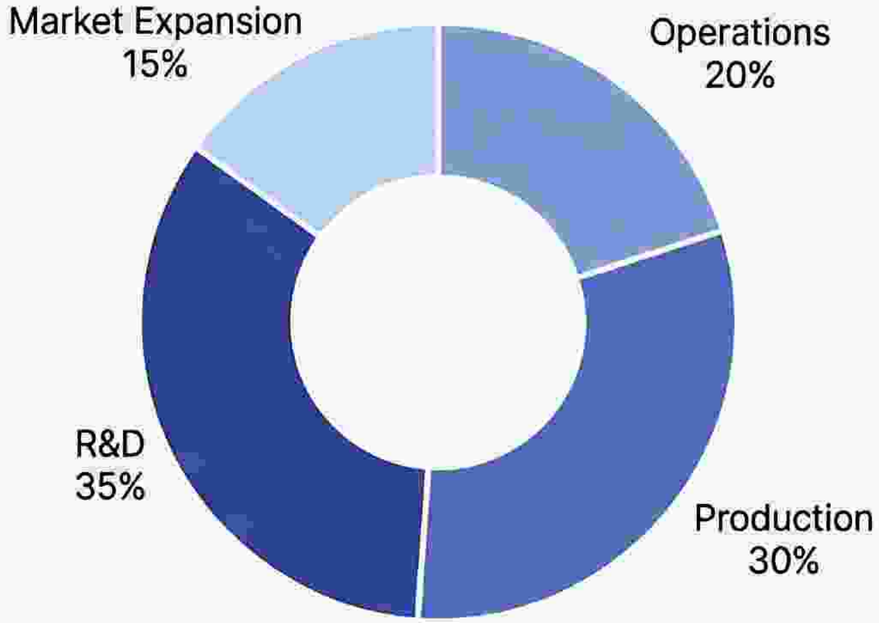
Software Developer

Architect of the seamless data visualization and DSS dashboard.

The Ask: Fueling Nationwide Go-To-Market

Raising USD 1.3M (IDR 20 Billion)

Use of Funds



Re-engineered for growth—prioritizing Sales, Go-To-Market expansion, and mass production scaling.

The Return Profile

Estimated Break-Even Point (BEP) by Year 4 (2028).

Targeting optimistic 10–15× returns by 2030, capturing the IDR 100B regulatory-driven market gap.

"Be the spark that scales a national solution."

“Join us in building Indonesia’s largest environmental monitoring network.”

birulangit

EKSHALASI LANGIT BIRU, LTD.

"INNOVATING ENVIRONMENTAL MONITORING FOR A SUSTAINABLE FUTURE"



birulangit

Our e-Catalog

Contact Us
raihanazwaribrahimpulungan@outlook.com