

50 Years After Seveso: Governing the Soil-to-System Continuum

AI-Driven Precision Agriculture and
Nanotechnology as Dual-Use Pillars
of One Health Governance.

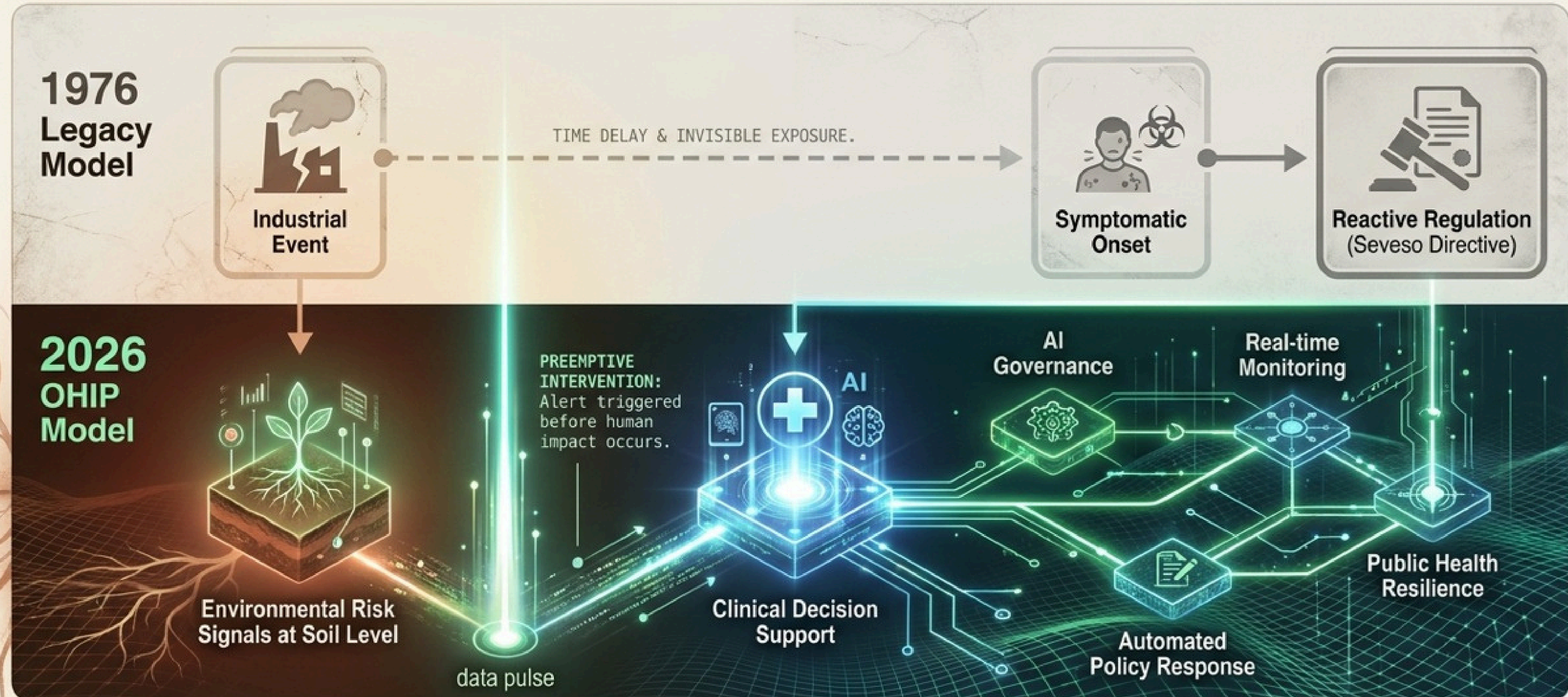


Dr. Pál Miletics
ReBuSch Technology

Presented at eGeH'26,
Ospedale Pio XI, Desio, Italy.

The Seveso Early Warning Concept Model

Fifty years ago, an industrial release of dioxin (TCDD) over Seveso triggered landmark EU environmental regulation. Today, technologies carrying dual-use and systemic risks demand a structural upgrade from reaction to prevention.



The Compounding Momentum of 'Combat to Care' Research

Synthesising five years of dual-use findings into a governance-grade architecture.

Jul 2026 | The Convergence

The presentation of the One Health Intelligence Platform (OHIP) today.

Jan/Jul 2025 | Trustworthy AI

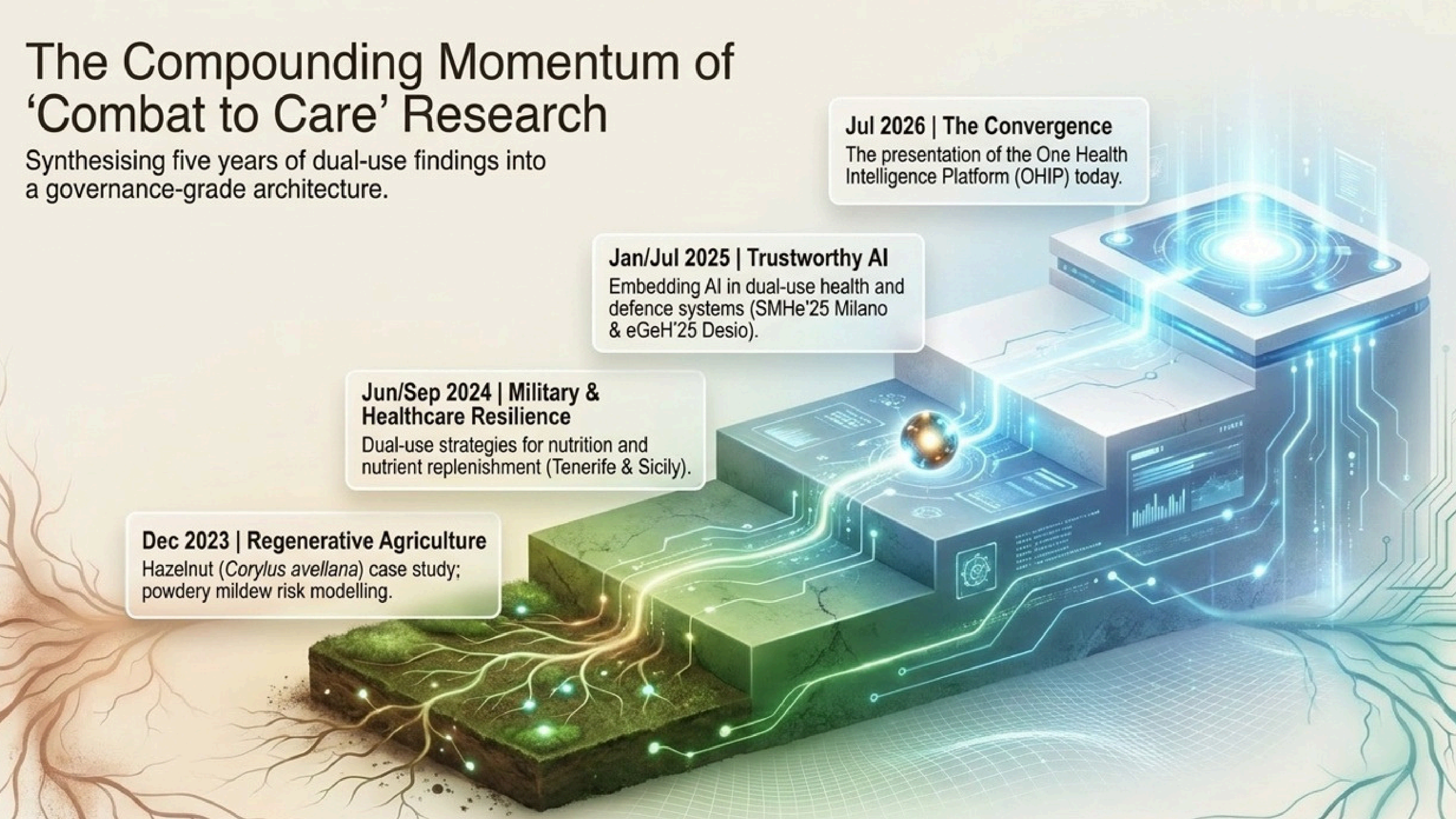
Embedding AI in dual-use health and defence systems (SMHe'25 Milano & eGeH'25 Desio).

Jun/Sep 2024 | Military & Healthcare Resilience

Dual-use strategies for nutrition and nutrient replenishment (Tenerife & Sicily).

Dec 2023 | Regenerative Agriculture

Hazelnut (*Corylus avellana*) case study; powdery mildew risk modelling.



Systemic Implications for Public Administration and Digital Health

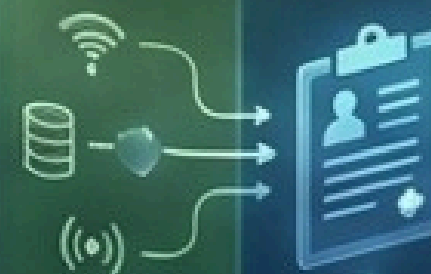
Public Administration & e-Government

OHIP provides a single,
auditable interface
for environmental,
agricultural, and
health-risk oversight.



Digital Nursing & Telemedicine

Clinical data streams
securely feed
telemonitoring
workflows, extending
resilience from the
field to the
hospital ward.



Citizen Empowerment & SDGs

Data-protection-by-design ensures GDPR compliance while granting citizens access to their exposure data.

Aligns directly with SDG 2 (FFood), SDG 3 (Health), and SDG 15 (Soil/Biodiversity).



The Shared Technological Bedrock of One Health

The continuum from soil health to human health is instrumented by two converging forces that demand unified oversight.



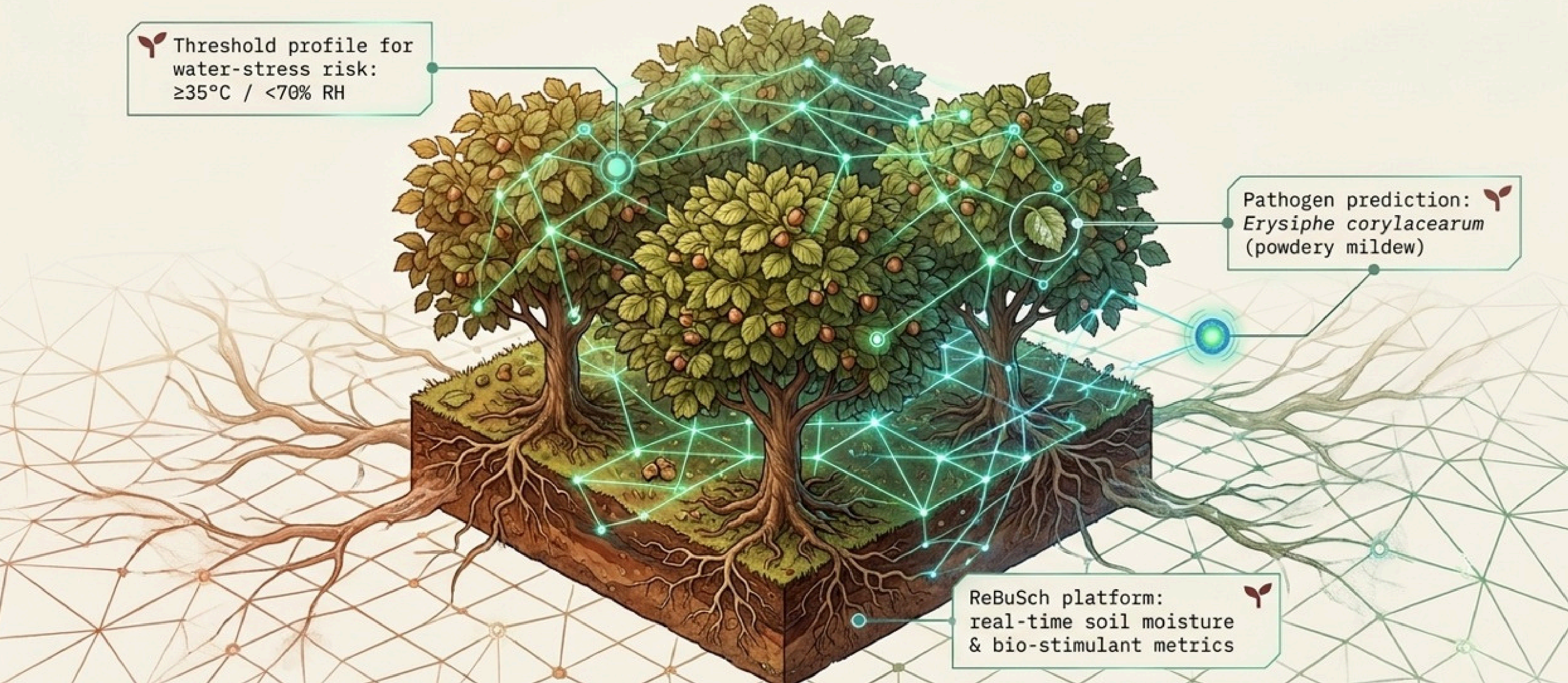
Pillar I: AI-Driven Precision Agriculture via ReBuSch

Restoring soil health and biodiversity (EU Soil Strategy 2030) through high-fidelity, AI-powered telemetry.
Validated through EIT Food Test Farm, #DATAGRI 2024 (Madrid), and IMIT@2024.

Threshold profile for
water-stress risk:
 $\geq 35^{\circ}\text{C}$ / $< 70\%$ RH

Pathogen prediction:
Erysiphe corylacearum
(powdery mildew)

ReBuSch platform:
real-time soil moisture
& bio-stimulant metrics



Pillar II: The IoT Field Diagnostics Continuum

Networked biosensors close the loop between soil, plant, animal, and human health data, enabling targeted delivery and reducing chemical load.



Soil/Crop

BIOLIMISSECT
NUTRIENTS

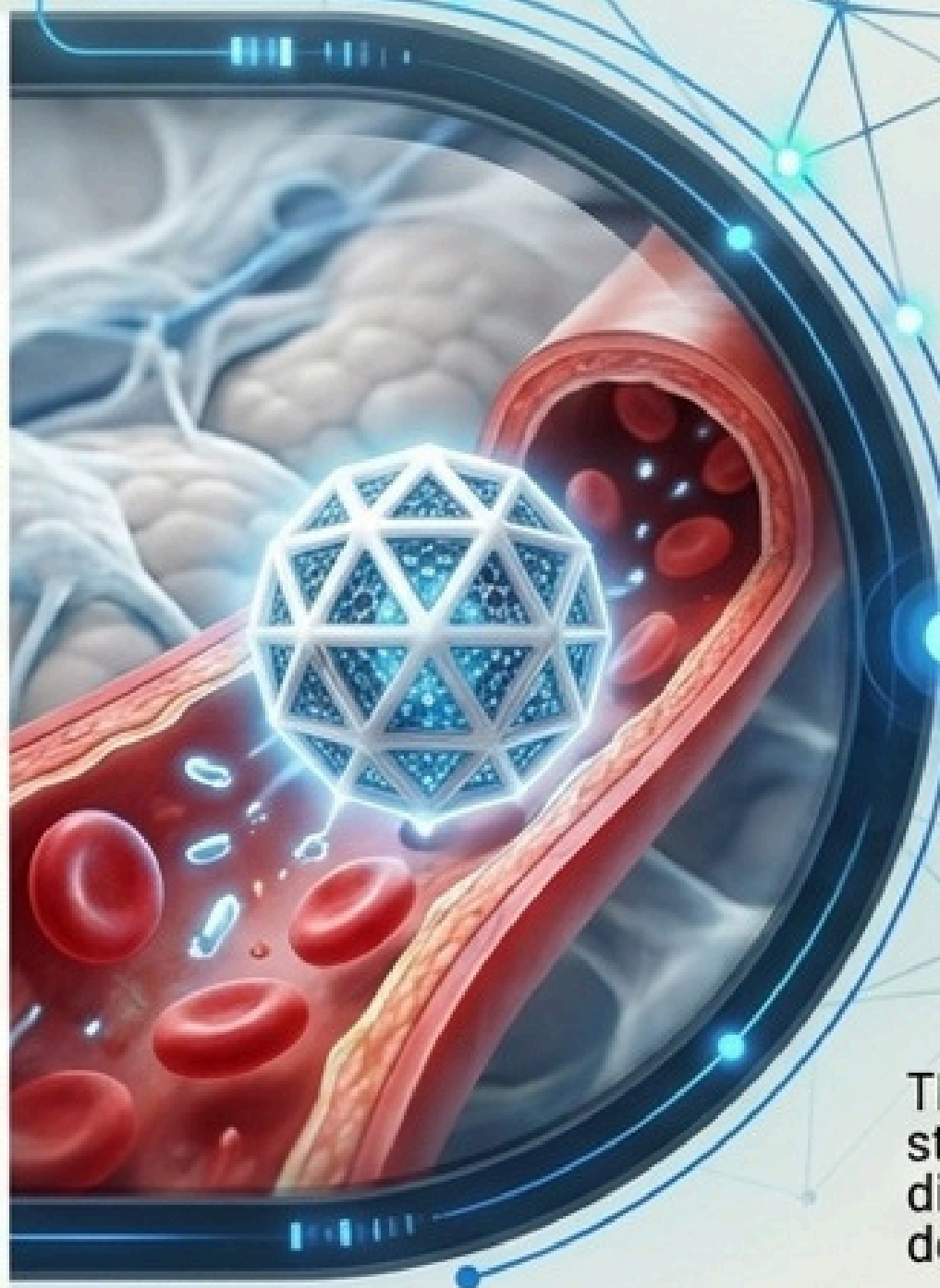
Nanotechnology enabling
targeted nutrient and bio-stimulant
delivery for organic farming.



Clinic/Field Medicine

UNIFIED
DIAGNOSTICS

The exact same nanocarrier
structure utilised for real-time
diagnostics and targeted drug
delivery in trauma-informed care.



CROSS-DOMAIN
SENSING

REAL-TIME
TELEMETRY

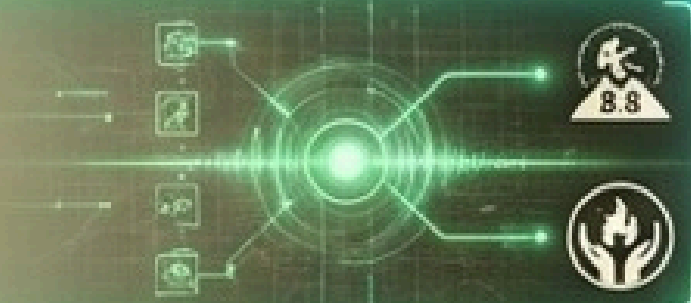
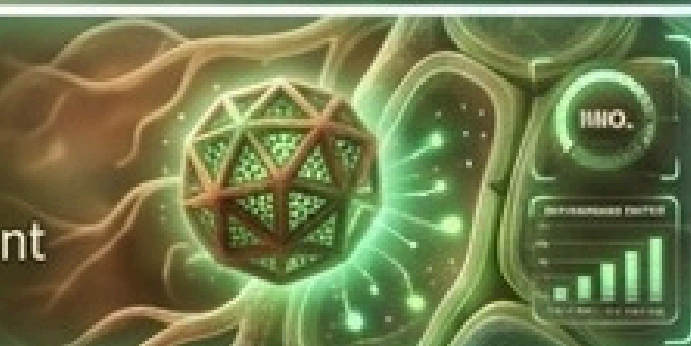
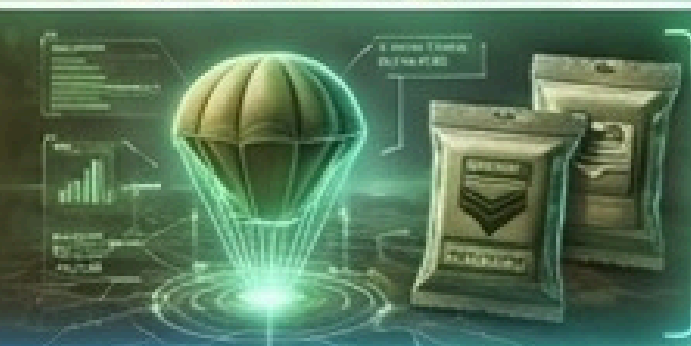
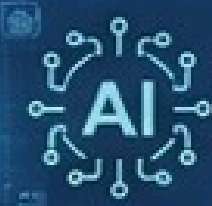
CROSS-DOMAIN
TELEMETRY

SHARED DATA
ARCHITECTURE



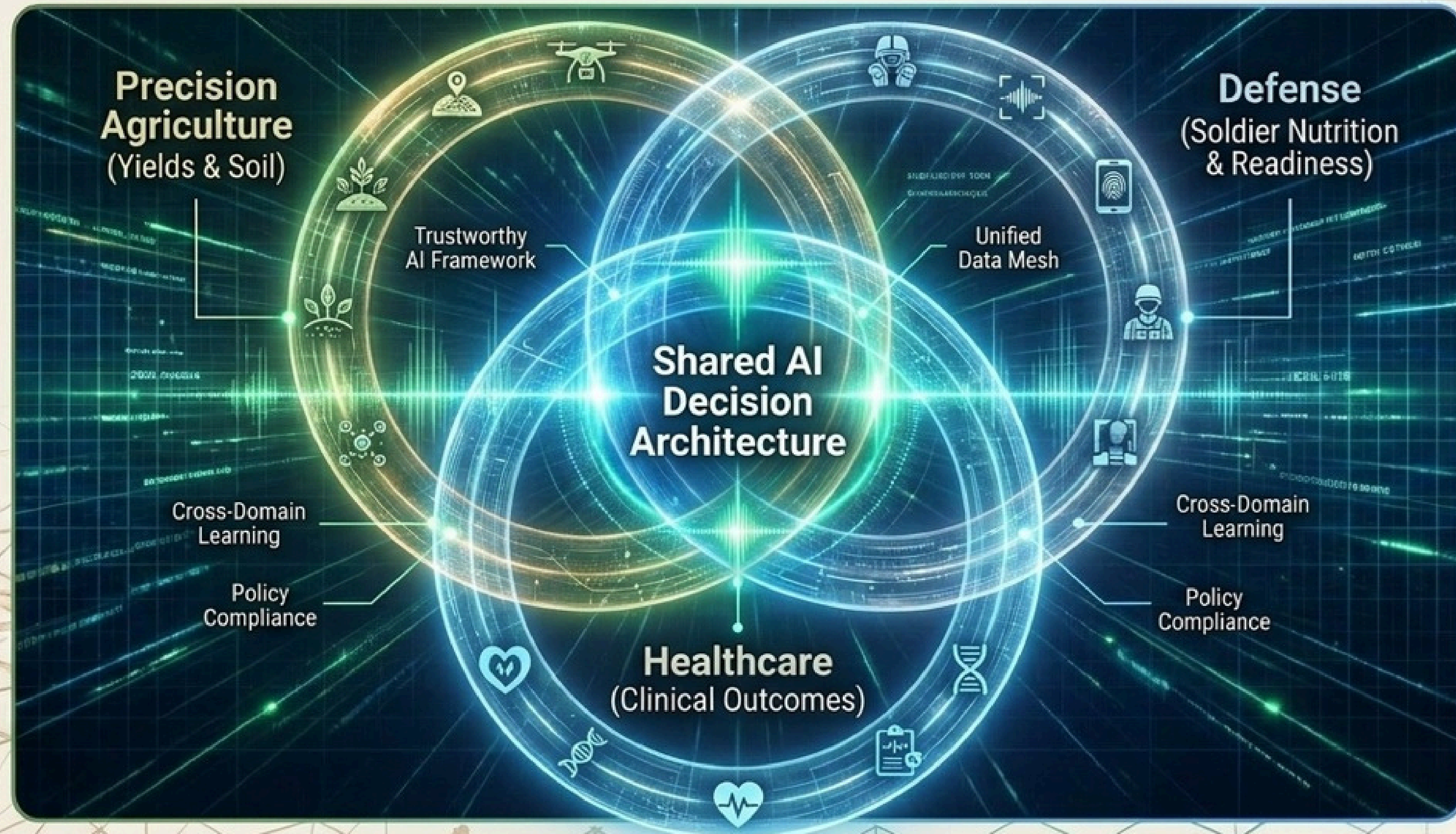
The Dual-Use Capability Matrix

Highlighting the structural parity between combat readiness and civilian resilience.

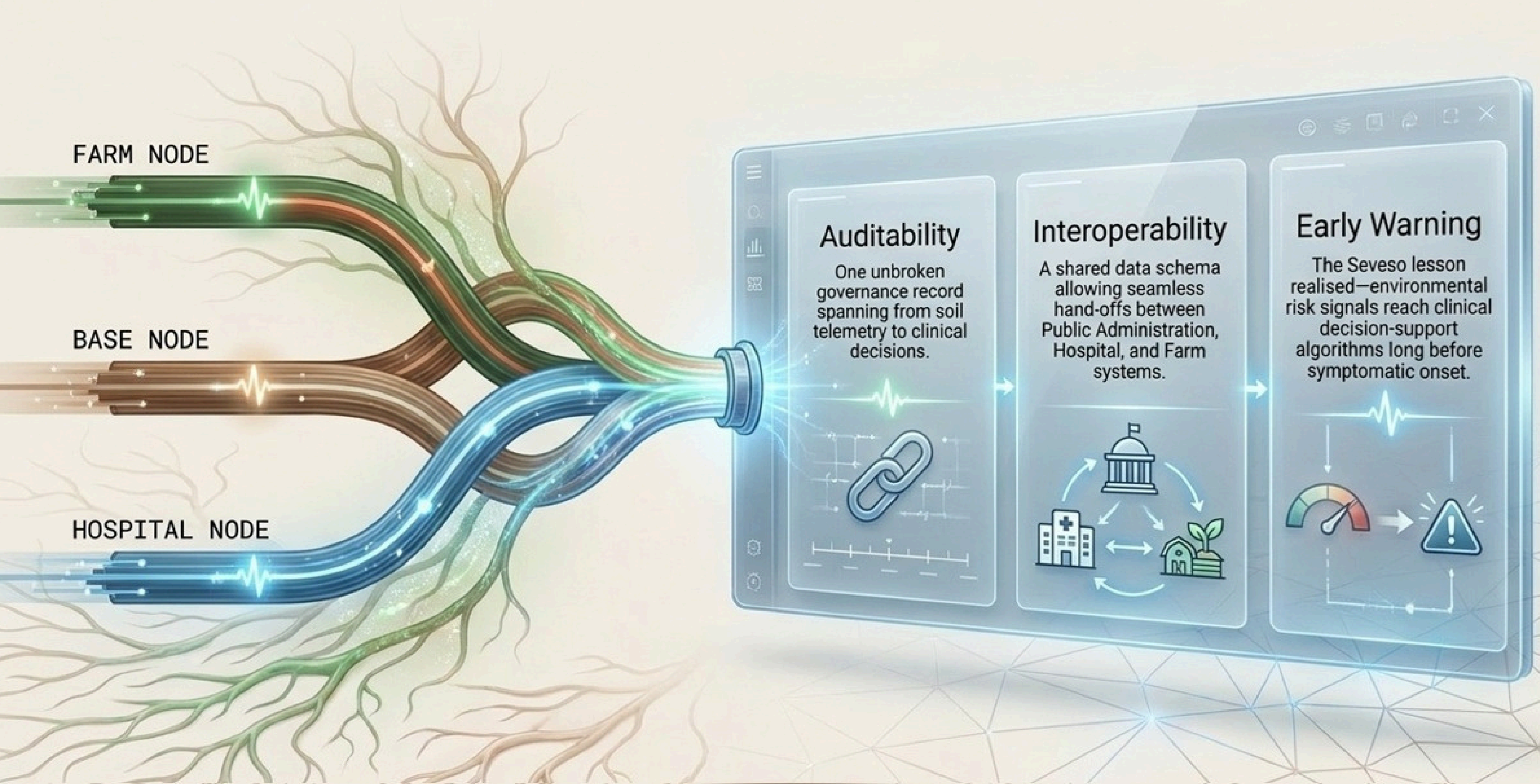
	Defense & Military Application	Civilian & Clinical Application
Operational Environment	Field & Force (Special operations, disaster response) 	Clinic & Citizen (Telemedicine, digital nursing) 
Technology Application	Performance Enhancement (Organic, legally compliant ReBuSch products) 	Telemetry & Healing (Trauma-informed care, nutritional tracking) 
Logistics	Special Ops Nutrient Replenishment 	Civilian Food Security (Scaling hazelnut and staple-crop production against climate/conflict risks) 
Governing Standard	 EDA TAID Lifecycle 	EU AI Act / GDPR 

The One Convergence Thesis

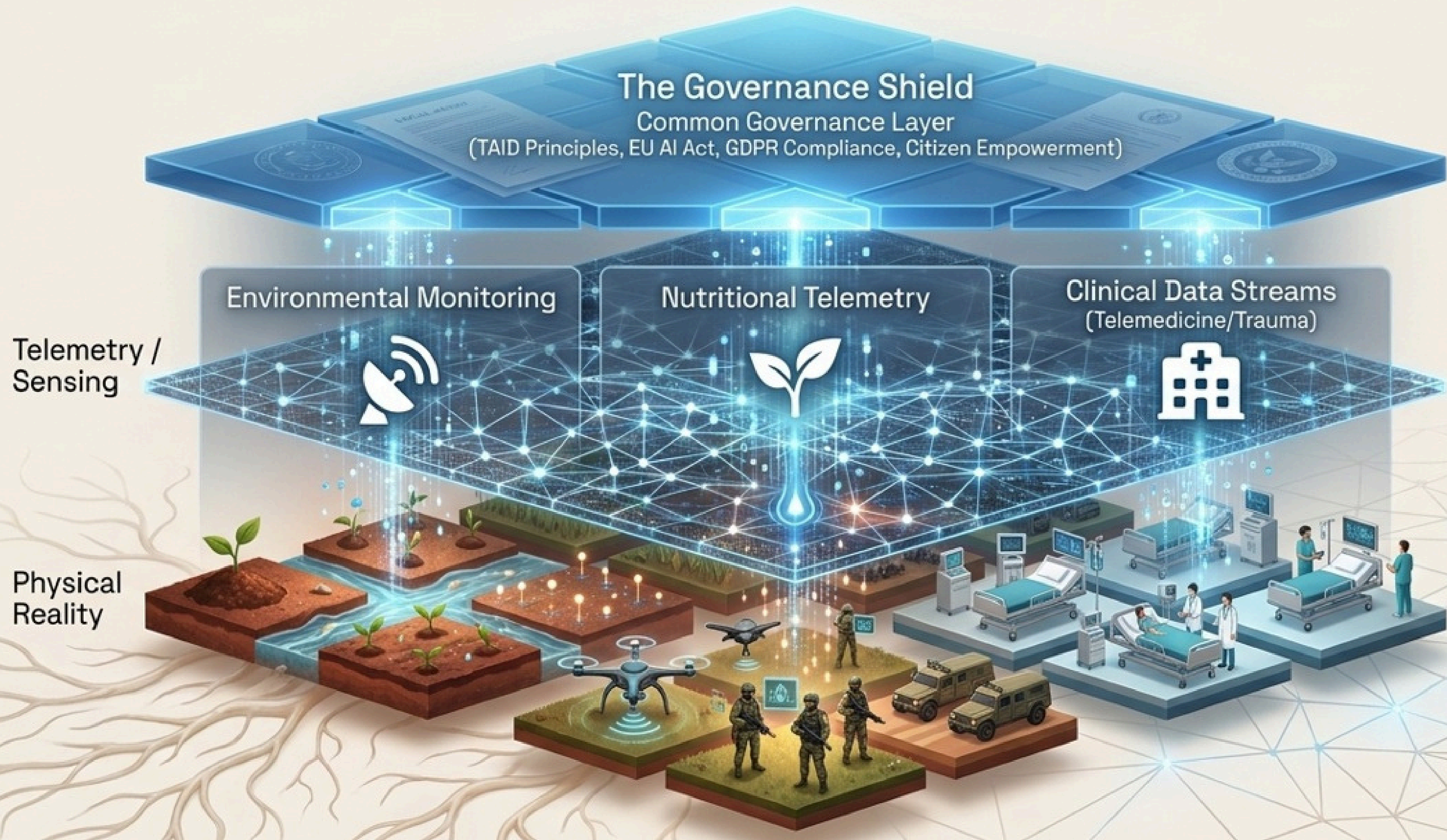
The exact same AI decision architecture that secures crop yields and soldier nutrition can—under a shared trustworthy-AI framework—secure clinical and environmental health outcomes.



Operationalizing the Seveso Lesson: Why Unify the Streams?



The One Health Intelligence Platform (OHIP) Architecture



Systemic Implications for Public Administration and Digital Health

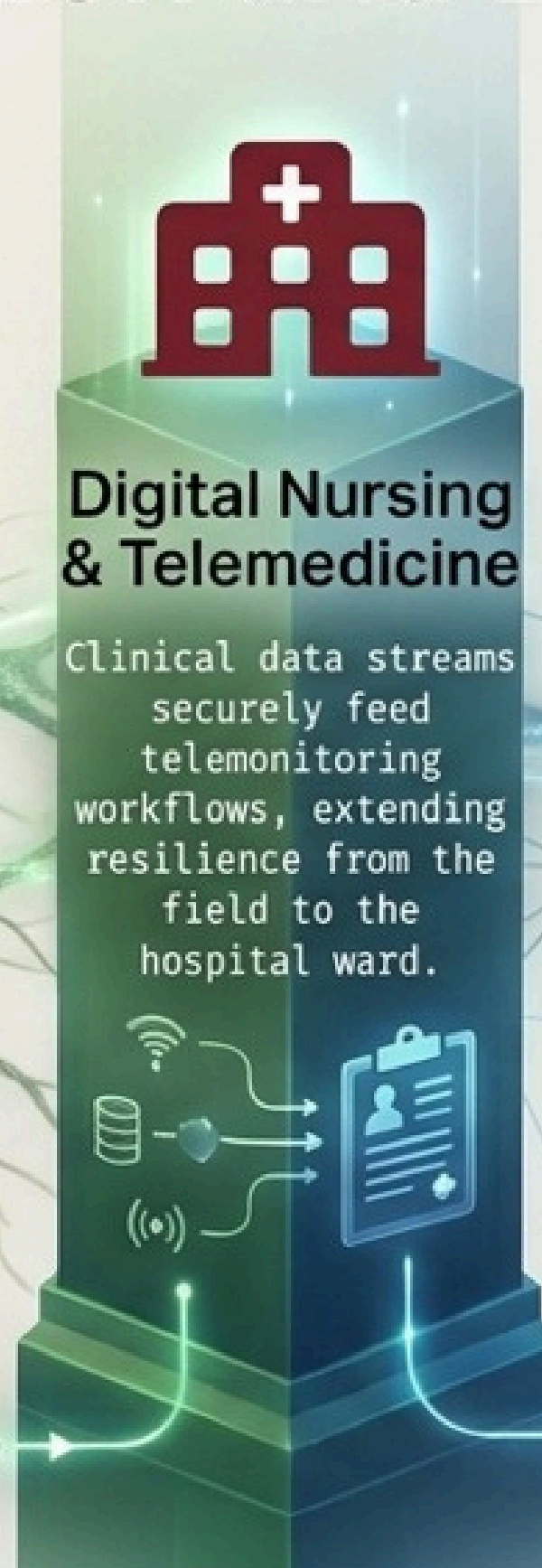
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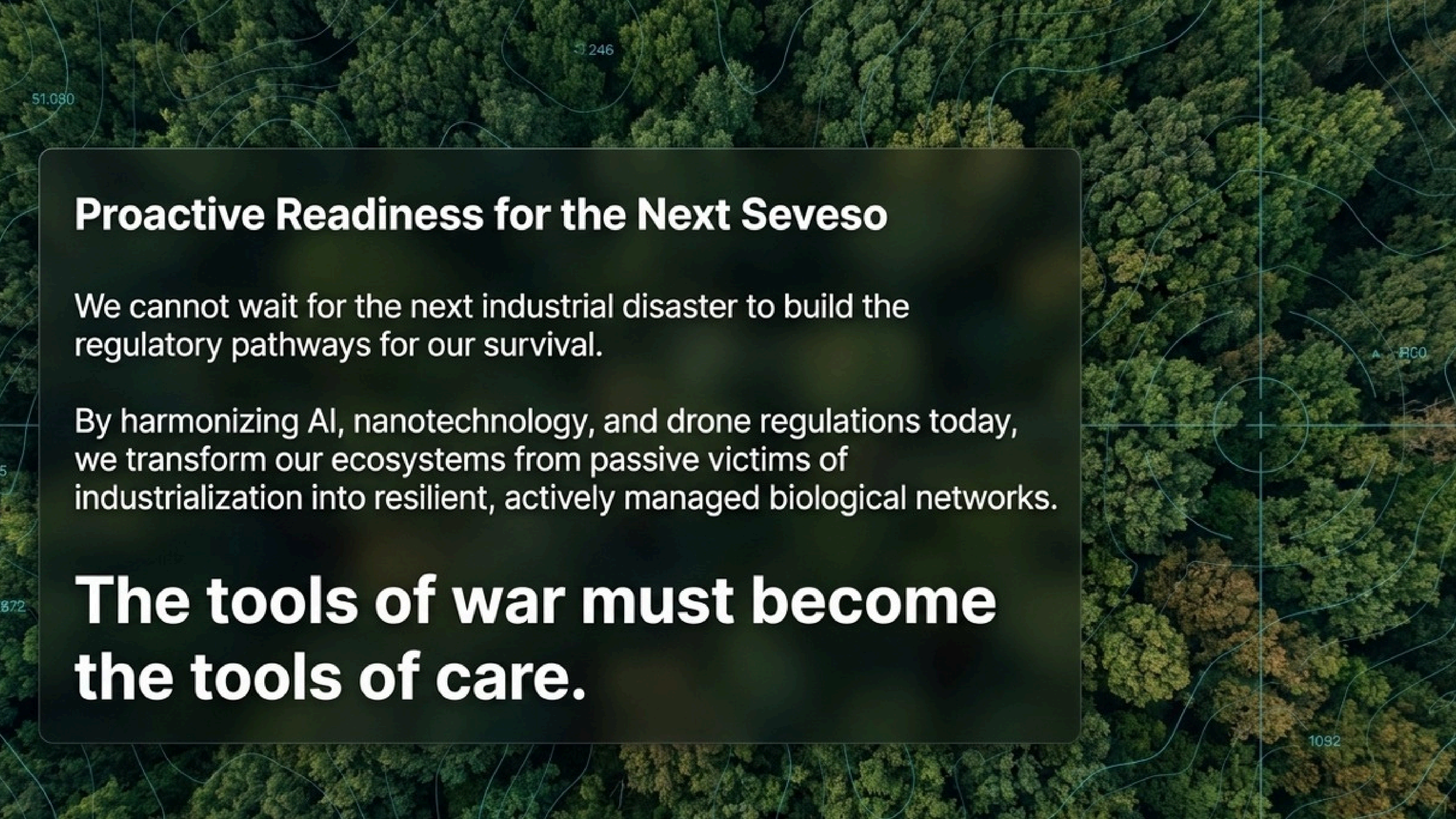


Citizen Empowerment & SDGs

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Aligns directly with SDG 2 (FFood), SDG 3 (Health), and SDG 15 (Soil/Biodiversity).



An aerial photograph of a dense, green forest. Overlaid on the image is a faint, light blue topographic map with contour lines and numerical elevation markers such as 51.080, 3.246, 872, 1092, and 100. The text is presented in white on a dark, semi-transparent rectangular background.

Proactive Readiness for the Next Seveso

We cannot wait for the next industrial disaster to build the regulatory pathways for our survival.

By harmonizing AI, nanotechnology, and drone regulations today, we transform our ecosystems from passive victims of industrialization into resilient, actively managed biological networks.

**The tools of war must become
the tools of care.**