



# DEVELOPING THE INTERNET OF NATURE

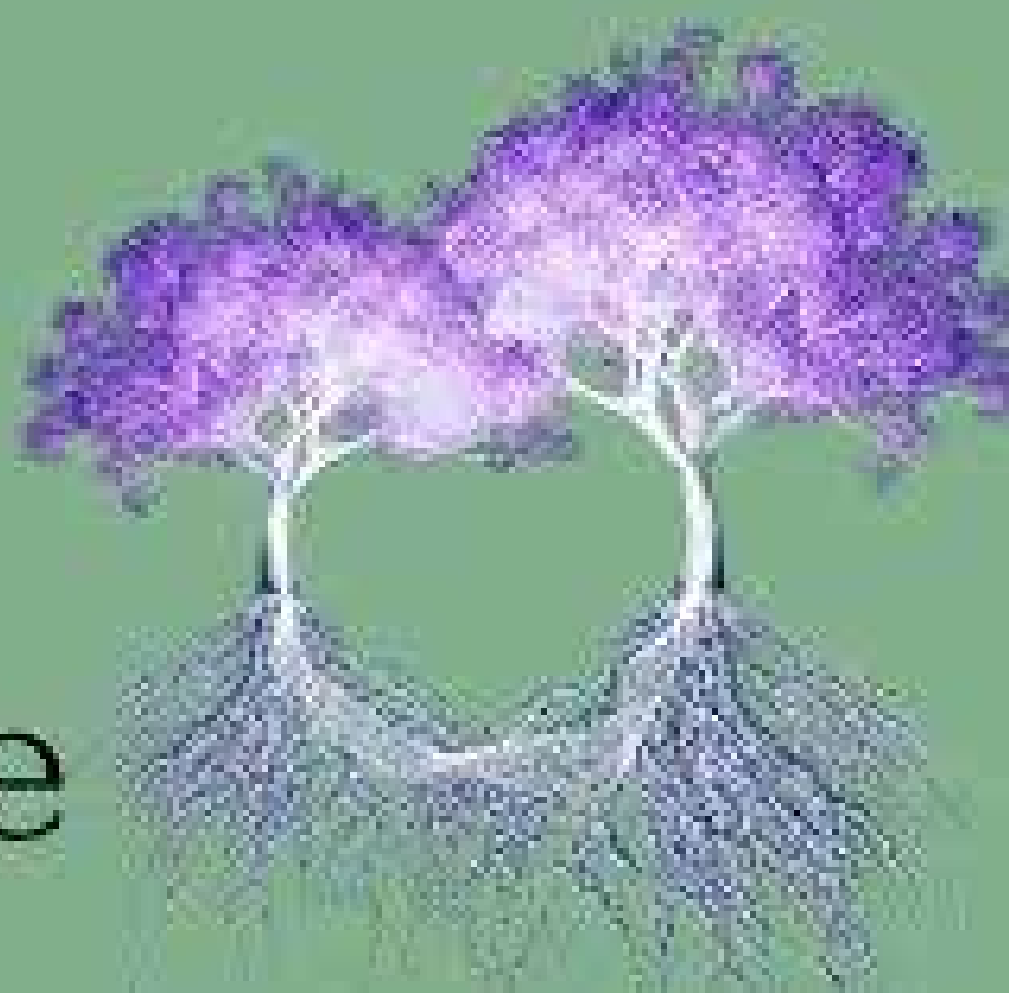
## **ANTÓNIO CÂMARA YDREAMS AND CENSE**

JULY 17TH, 2025



Dr.  
Nadina  
Galle

# Internet of Nature



Internet of Nature (IoN) uses sensors, satellite imagery, and algorithms to transform urban green spaces into data, enhancing our ecosystem management

*Nadina Galle*



## DEVELOPING THE INTERNET OF NATURE: A broader vision

We face climate, biodiversity, and health crisis risks that we must address

Nature services are increasing translated into new opportunities.  
“Nature” is already the largest market in the World

The IoN leverages AI, AR/VR, IoT, Digital Twins and Robotics  
to unlock a new nexus between Humans, Machines and Nature

IoN will be B2B, and citizen oriented





# HUMANS, MACHINES AND NATURE

## Intrinsic services

Agriculture, Forestry, Health...

## Offset services

Carbon and Bio-diversity Credits...

## Derivative services

Tourism, Virtual Landscapes for the Gaming and Movie industry

*Ecosystem Services: the Fundamentals*



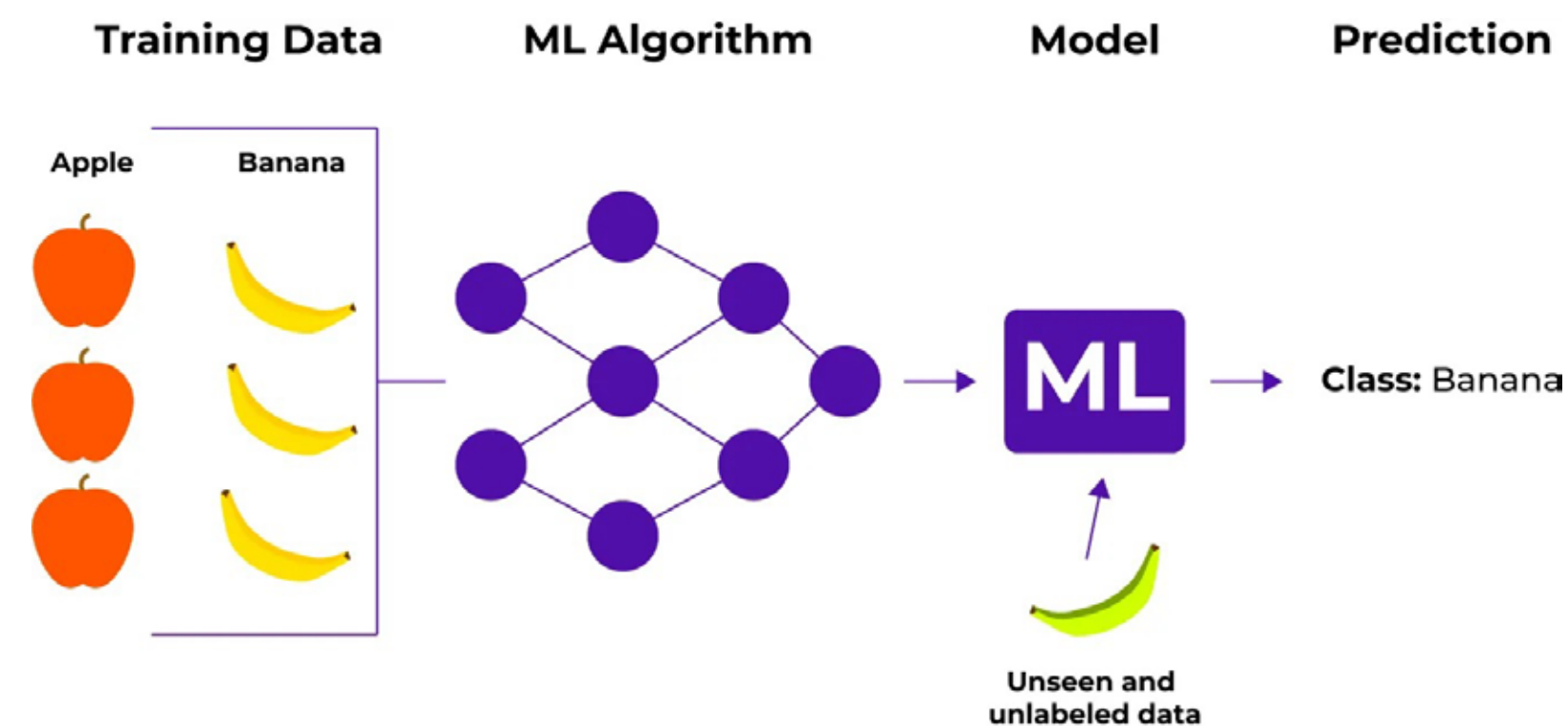
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# HUMANS, MACHINES AND NATURE

## AI fundamentals

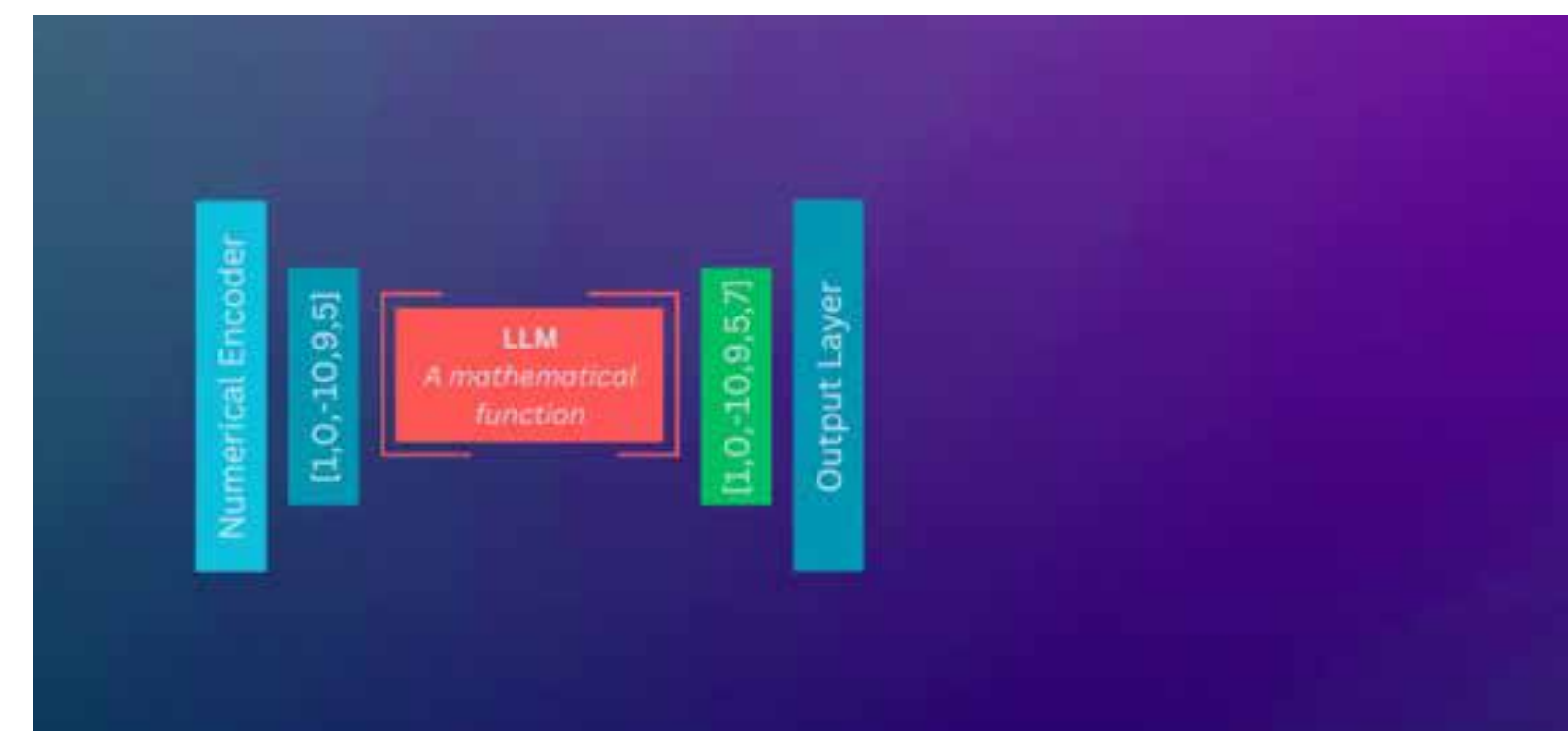
Biological inspired neural networks are replacing traditional modeling and symbolic AI



*An AI Engineer's Guide to Machine Learning and Generative AI*

## Generative AI

*Large Language Models* (LLMs) and *Large Multimodal Models* (LMMs) are the basis for a new Agentic AI







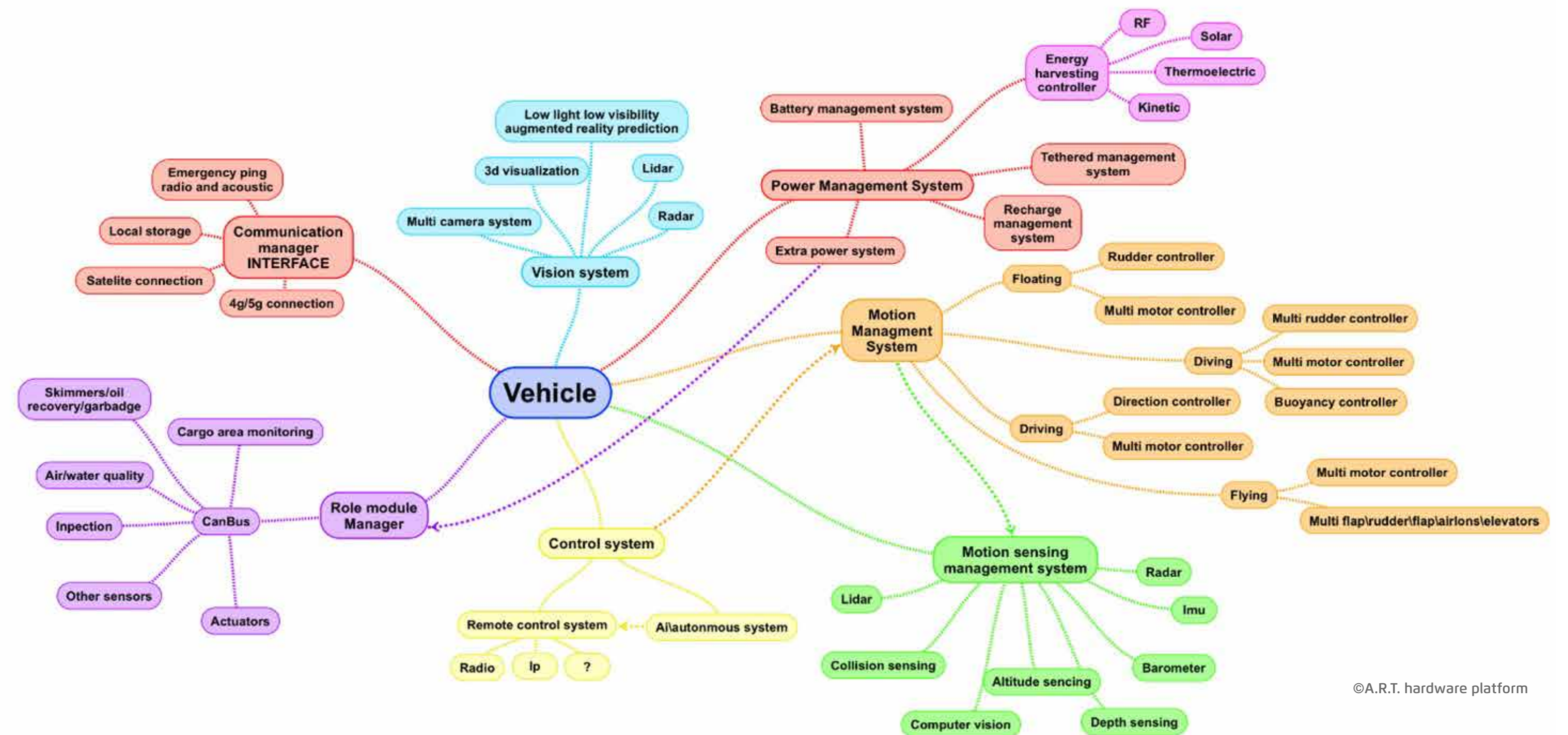
# HUMANS, MACHINES AND NATURE

Robotics/IoT and Nature

Data Collection

Human Augmentation

Automation



©A.R.T. hardware platform



# HUMANS, MACHINES AND NATURE

## AR/VR and Nature

The Augmented World

The Digitally Twinned World

The Virtual World



©Aromni AR/VR smart tags system



## INTERNET OF NATURE (ION): A Proposal for Disruption

### AI Agents will be central

Examples:

AA (precision agriculture)

AB (biodiversity conservation)

AC (carbon credits validator)

ASE (energy self-sufficiency for the home)

### Agents will access:

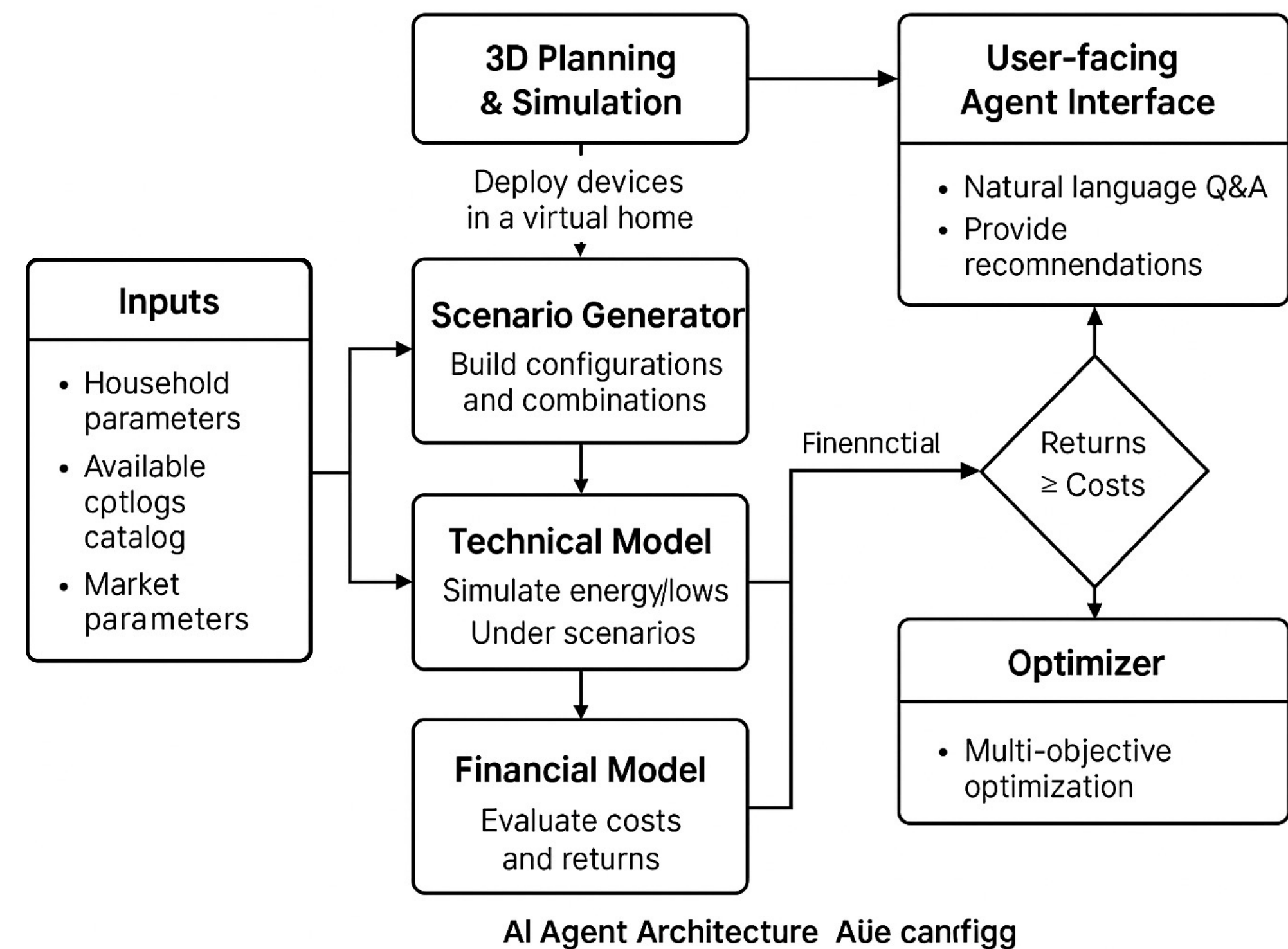
- Data infrastructure - Nature data obtained locally and remotely; legacy models
- Large Multimodal Models
- Agents will work in orchestration:  
*The EIA Example (AI generated)*





# INTERNET OF NATURE (ION): A Proposal for Disruption

ASE (energy self-sufficiency for the home, AI generated)





## INTERNET OF NATURE (ION): A Proposal for Disruption

### Robots and IoT will be pervasive

Autonomous Survey Drones: Equipped with multispectral cameras, LiDAR, and environmental sensors for detailed ecosystem mapping

Reforestation Robots: Autonomous planters and seeders for large-scale restoration projects

Invasive Species Hunters: AI-guided robots for targeted removal of invasive flora/fauna

Underwater ROVs: For coastal and marine ecosystem monitoring, including seagrass beds and marine protected areas

Sensor Network Coordinators: AI managing thousands of IoT sensors for real-time environmental data collection



## INTERNET OF NATURE (ION): A Proposal for Disruption







## INTERNET OF NATURE (ION): A Proposal for Disruption

AI/AR/VR will create digital “Nature Worlds” and will be IoN interface







## INTERNET OF NATURE (ION): A Proposal for Disruption

Early pilots IoN B2B

Orchards AR

Forest 3D Mapping with Affordable Tech

AR based Landscape Architecture

GrainChain

Watermellon Magic Hammer

*A desirable Agent list (AI generated)*







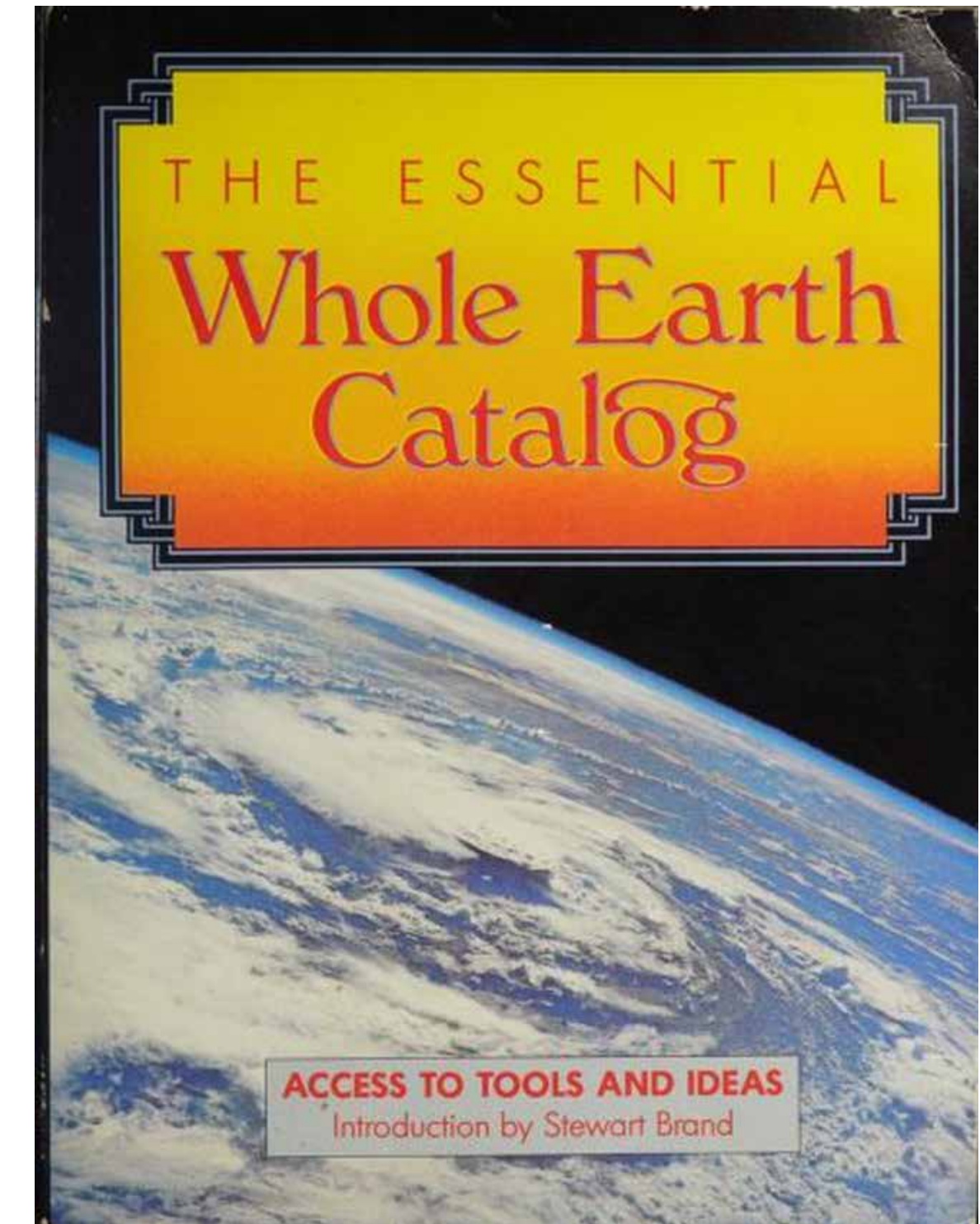
## INTERNET OF NATURE (ION): A Proposal for Disruption

### IoN B2C: The Citizens oriented project

A minimalist Whole Earth/Craigslist inspired Web project

Resources and tools created and to be used by everyone

*"A too early sample site"* (AI generated)



*"Stay Hungry, Stay Foolish"*  
Steve Jobs





## INTERNET OF NATURE (ION): A Proposal for Disruption

### Early Pilots B2C

Precision Agriculture DIY

Plume

Guideline

Safest Space

Kruka

Icupa

Sonosphere

Wise Lamp





## INTERNET OF NATURE (ION): A Proposal for Disruption

A moonshot IoN initiative

“Walled gardens”, a “communal park” and “skunkworks”

A global “launch Explora 1.0” event in March 2026

A mid-term in the end of October 2025

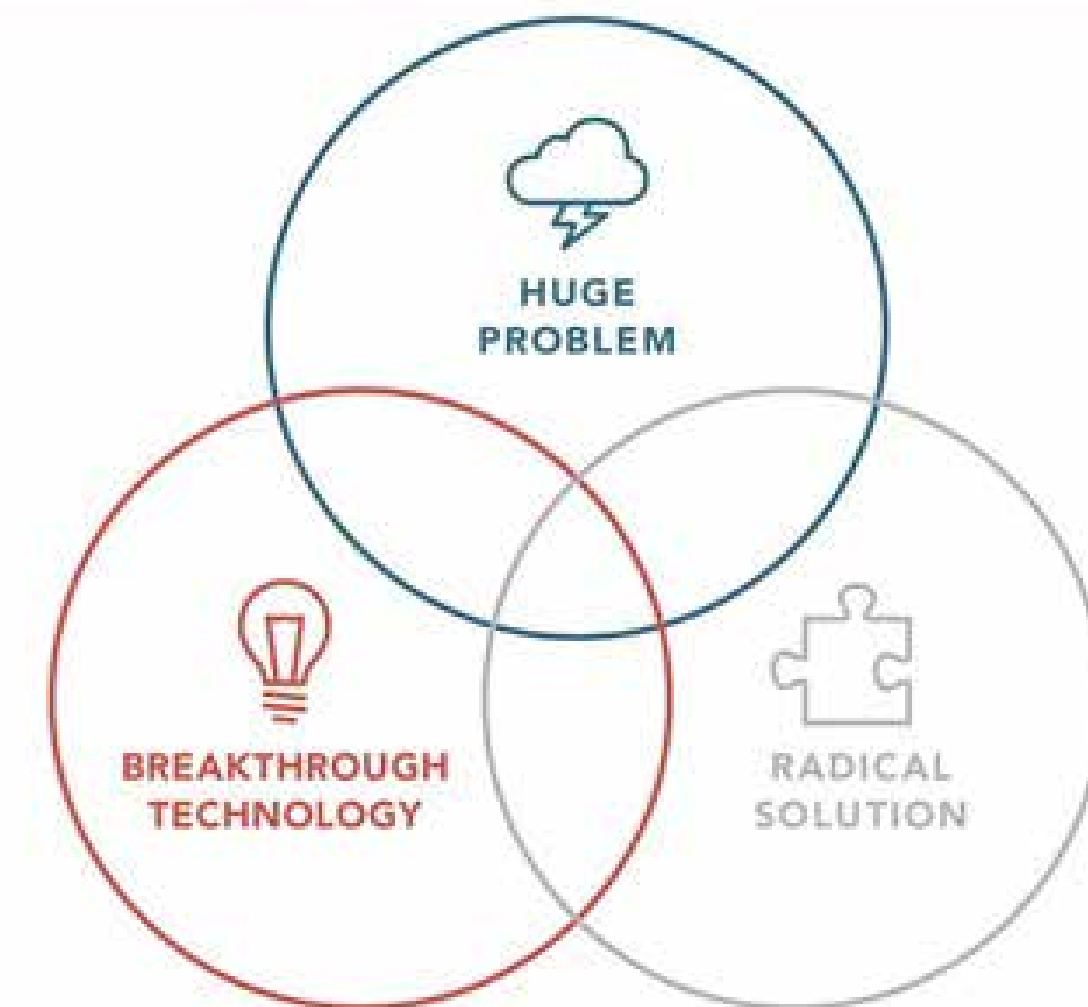
Portugal Natural Capital Consortium

Sovereign Models

IoN Publishing Model

A new ecological economy

### MOONSHOT BLUEPRINT



Source: X, [solveforx.com/about](https://solveforx.com/about)





## INTERNET OF NATURE (ION): A Proposal for Disruption

IoN will be disruptive for both institutions and citizens

Made possible through a disruptive education model.

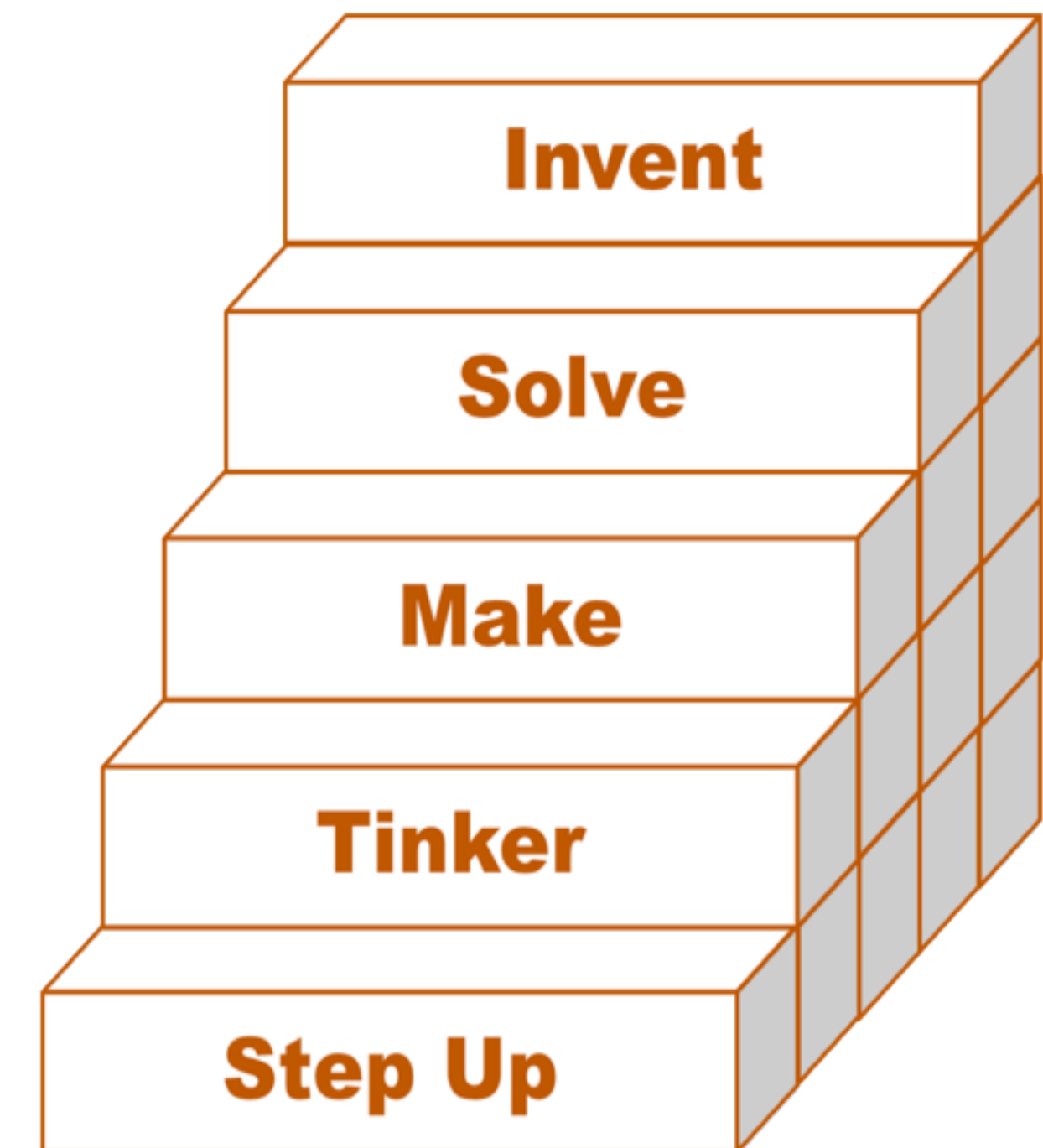
Integrated multimodal Agentic AI.

Embedded carbon/biodiversity markets.

AR/VR front ends for well-being.

Next-gen wellness and sensing devices.

Portugal Natural Capital Corporation as a scalable funding model  
(for Portugal)





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*Sunday News*

*The YDreams Collection*