DAO IPCI

Blockchain ecosystem for carbon markets, environmental mitigation assets and liabilities

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The world faces global environmental risks, climate change-related threats, which affect life of individuals, their health and well-being, businesses (including physical risks, financial, liability and regulation risks), and natural environment

Mexican Bay Hurricanes

#CarbonCredits

DAO IPCI

Climate change – global challenge caused by human economic activities

Mexican Bay Hurricanes

#CarbonCredits

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Assessment and offsetting of carbon footprint becomes universal business custom

#CarbonCredits

The carbon footprint of indoor *Cannabis* production

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ARTICLE INFO

ABSTRACT

The emergent industry of indoor *Cannabis* production – legal in some jurisdictions and illicit in others – utilizes highly energy intensive processes to control environmental conditions during cultivation. This article estimates the energy consumption for this practice in the United States at 1% of national electricity use, or $6 billion each year. One average kilogram of final product is associated with 4600 kg of carbon dioxide emissions to the atmosphere, or that of 3 million average U.S. cars when aggregated across all national production. The practice of indoor cultivation is driven by criminalization, pursuit of security, pest and disease management, and the desire for greater process control and yields. Energy analysts and policymakers have not previously addressed this use of energy. The unchecked growth of electricity demand in this sector confounds energy forecasts and obscures savings from energy efficiency programs and policies. While criminalization has contributed to the substantial energy intensity, legalization would not change the situation materially without ancillary efforts to manage energy use, provide consumer information via labeling, and other measures. Were product prices to fall as a result of legalization, indoor production using current practices could rapidly become non-viable.

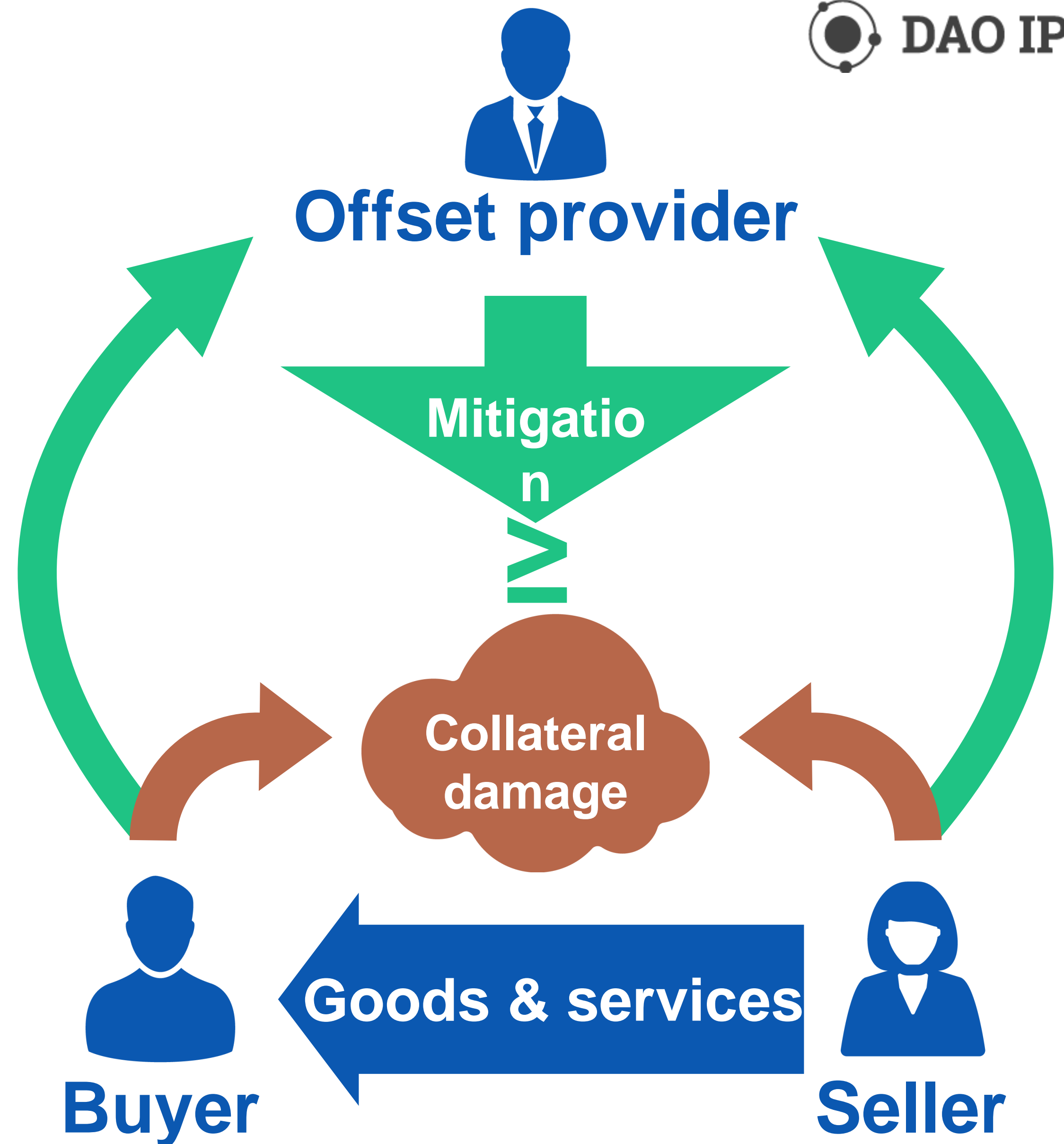The U.S. Department of Energy's Lawrence Berkeley National Lab study:

- energy expenditures of $5 billion
- 1% of national electricity consumption
- The yearly greenhouse-gas pollution equals that of 3 million cars
- 1kg indoor cannabis = 4.6 tCO2e
- => offsetting and legalization of outdoor production needed

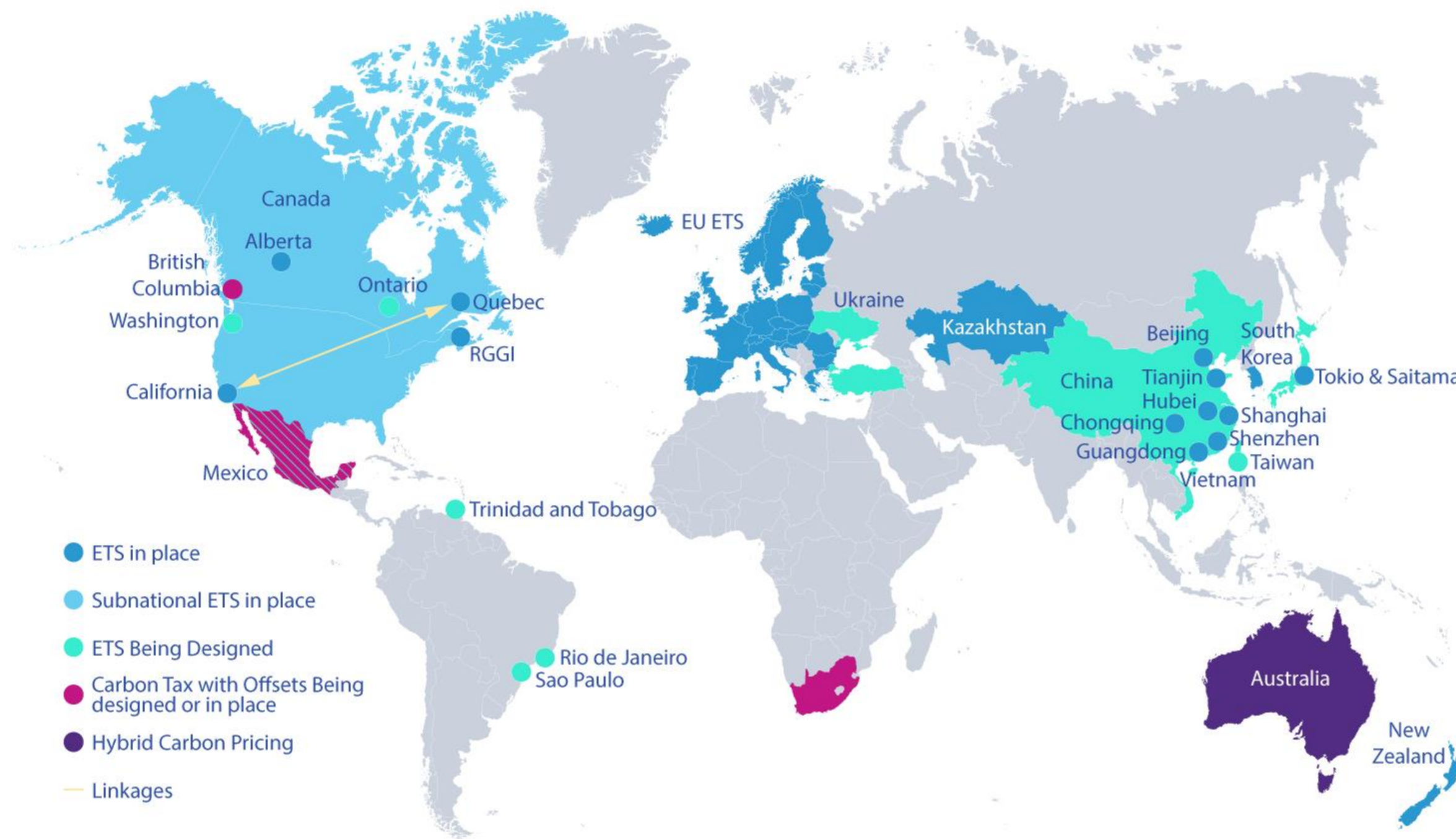# Transaction-based mitigation scheme

Environmental damage is a result of economic activity, i.e. deals and transactions

DAO IPCI fundamental concept is balancing environmental damage (liability) with environmental mitigation outcomes

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Offset provider

Mitigation

≥

Collateral damage

Goods & services

Buyer

Seller

One and the same basic asset and liabitity fragmented into pieces, dozens of markets and instruments

ETS in place
Subnational ETS in place
ETS Being Designed
Carbon Tax with Offsets Being designed or in place
Hybrid Carbon Pricing
Linkages

Carbon markets global perspective:

- Probably the largest global commodity market in the foreseeable future (global carbon market volume at maturity ⩾ **USD $10 trillion**).

- Carbon pricing, mainly market-based models, introduced in 54 jurisdictions, covering **40% of global GDP**.

- Around **40 different carbon compliance units** representing fundamentally similar basic asset – the right to emit 1 tCO2e under different jurisdictions and programs; **dozens of platforms**: registries, tracking services systems, exchanges, auctioning platforms.

- In 2017, **20 to 25% of global GHG emissions** shall be covered by carbon pricing.

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DAO IPCI

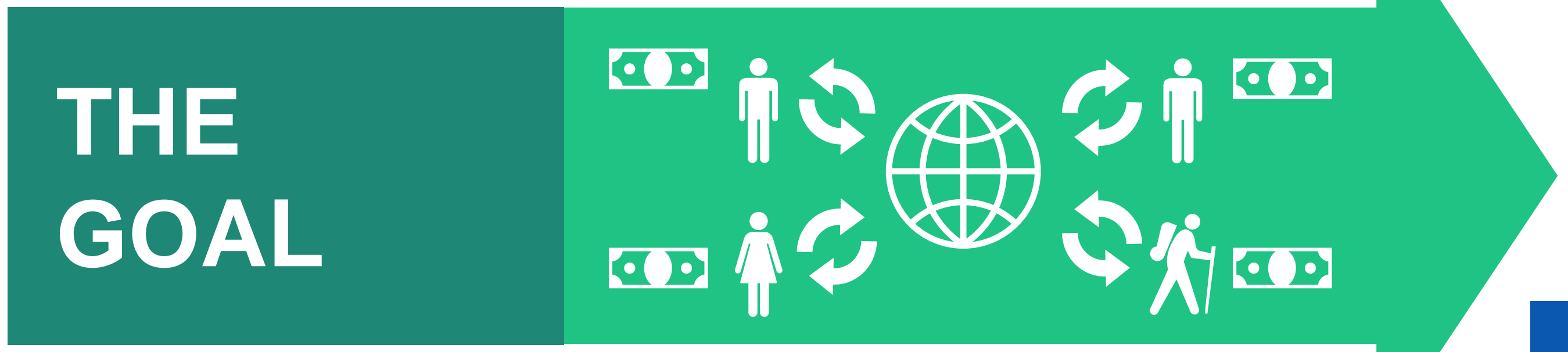# DAO IPCI background and rationales

NOW

Global environmental risks, climate change-related threats, damages and liabilities affect everyone but only selected stakeholders are admitted to the markets

THE GOAL

The goal is to afford the opportunity to overcome the barriers and bring together pieces of the Market

- External: between the markets
- Internal: in the markets

DAO IPCI

DAO IPCI provides common space, common space fabric, financial instrument/ecosystem that is universal, reliable, easy-to-use, transparent and allow both businesses and individuals to register and invest environmental damage mitigation projects, to offset carbon footprint, acquire and trade the outcomes of mitigation activities.

DAO IPCI – truly decentralized public blockchain ecosystem – is authentically private nonprofit project, independent of government, corporate, business or green NGO particular interests
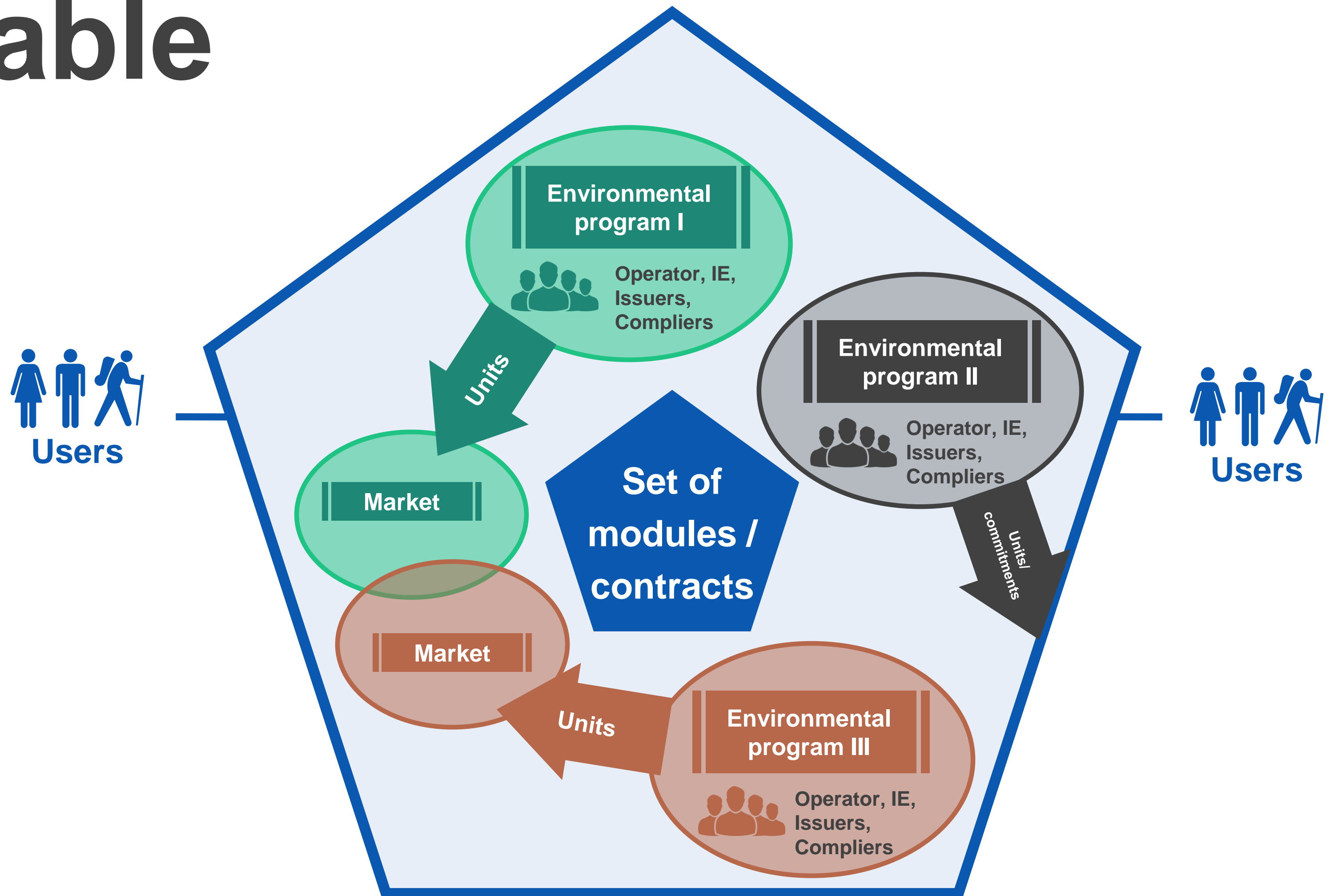
DAO IPCI – fully decentralized public and programmable

Environmental Programs' Operators, Independent Entities (IE), Issuers and Compliers :

Are operating under independently sustained program rules   and may interact within the integral digital ecosystem,

Register assets, rights and liabilities and issue asset-based environmental units using common set of adjustable and ready-to-use modules and smart contracts.

DAO IPCI provides unlimited access of the Users to DAO IPCI data and markets

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Users

Users

Environmental program I

Operator, IE, Issuers, Compliers

Environmental program II

Operator, IE, Issuers, Compliers

Units

Units/ commitments

Set of modules / contracts

Market

Market

Units

Environmental program III

Operator, IE, Issuers, Compliers

DAO IPCI

DAO IPCI transactions

DAO IPCI

Pilot transactions:

>200,000 units issued

Participants:

Operator of the Integrated Program
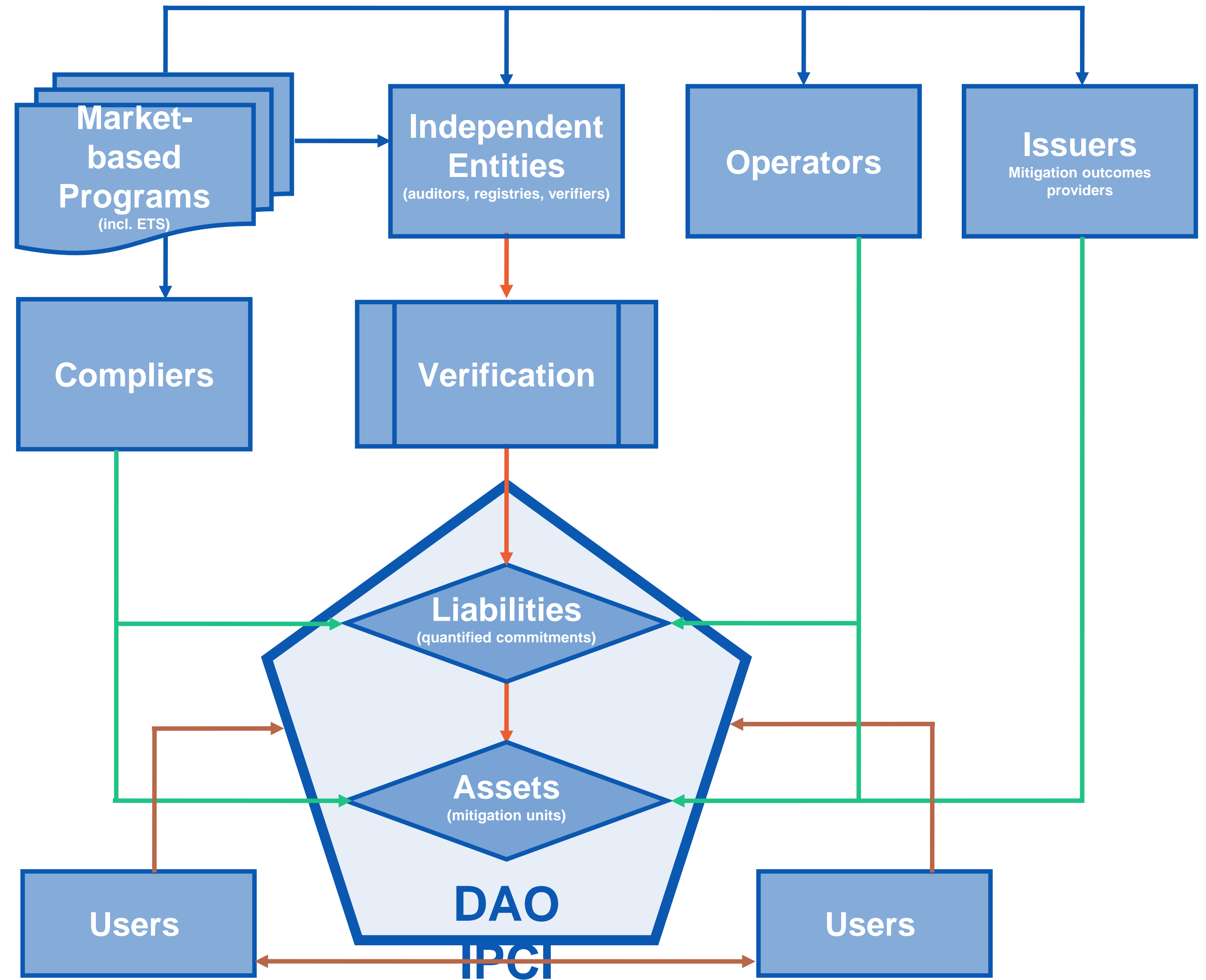   for Climate initiatives

Independent Entities — Causa
   Privata Law Firm, KPMG

Issuer— Aera Group (France),
   Khimprom (Russia)

Complier — Russian Carbon Fund

User — ECOPOLIS (Russia)

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DAO IPCI decentralized application

Searching for projects and units in the blockchain

To comply (offset)

To trade

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DAO IPCI

Cryptocurrencies' carbon footprint = millions of TCO2E

- Bitcoin network carbon footprint = Cyprus
- Ethereum network carbon footprint = Moldova
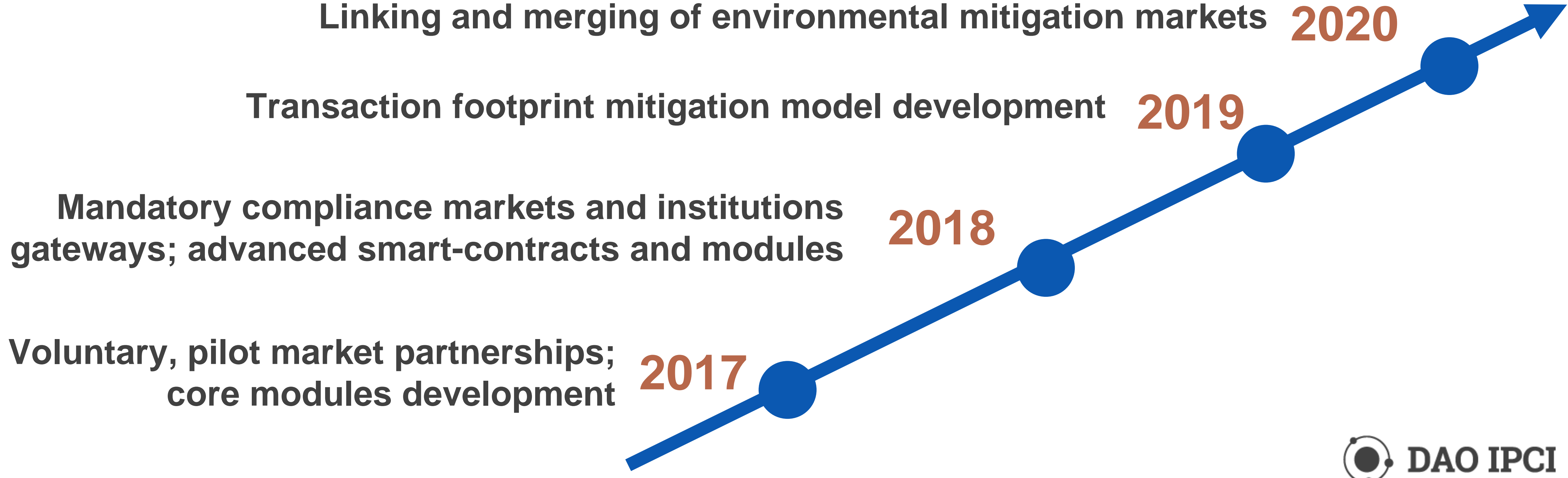- Proposed greening of BTC and ETH

1 token = offsetting of carbon footprint of 1 ETH

1 token = offsetting of carbon footprint of 1 BTC

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CO2

DAO IPCI development plans and projected milestones

Linking and merging of environmental mitigation markets **2020**

Transaction footprint mitigation model development **2019**

Mandatory compliance markets and institutions
gateways; advanced smart-contracts and modules **2018**

Voluntary, pilot market partnerships;
core modules development **2017**

DAO IPCI

Can we make Mars a little bit more comfortable for Devcon50?

Mars today

Surface temperature

Min	Mean	Max
130 K -143 °C	210 K -63 °C	308 K 35 °C

The atmosphere

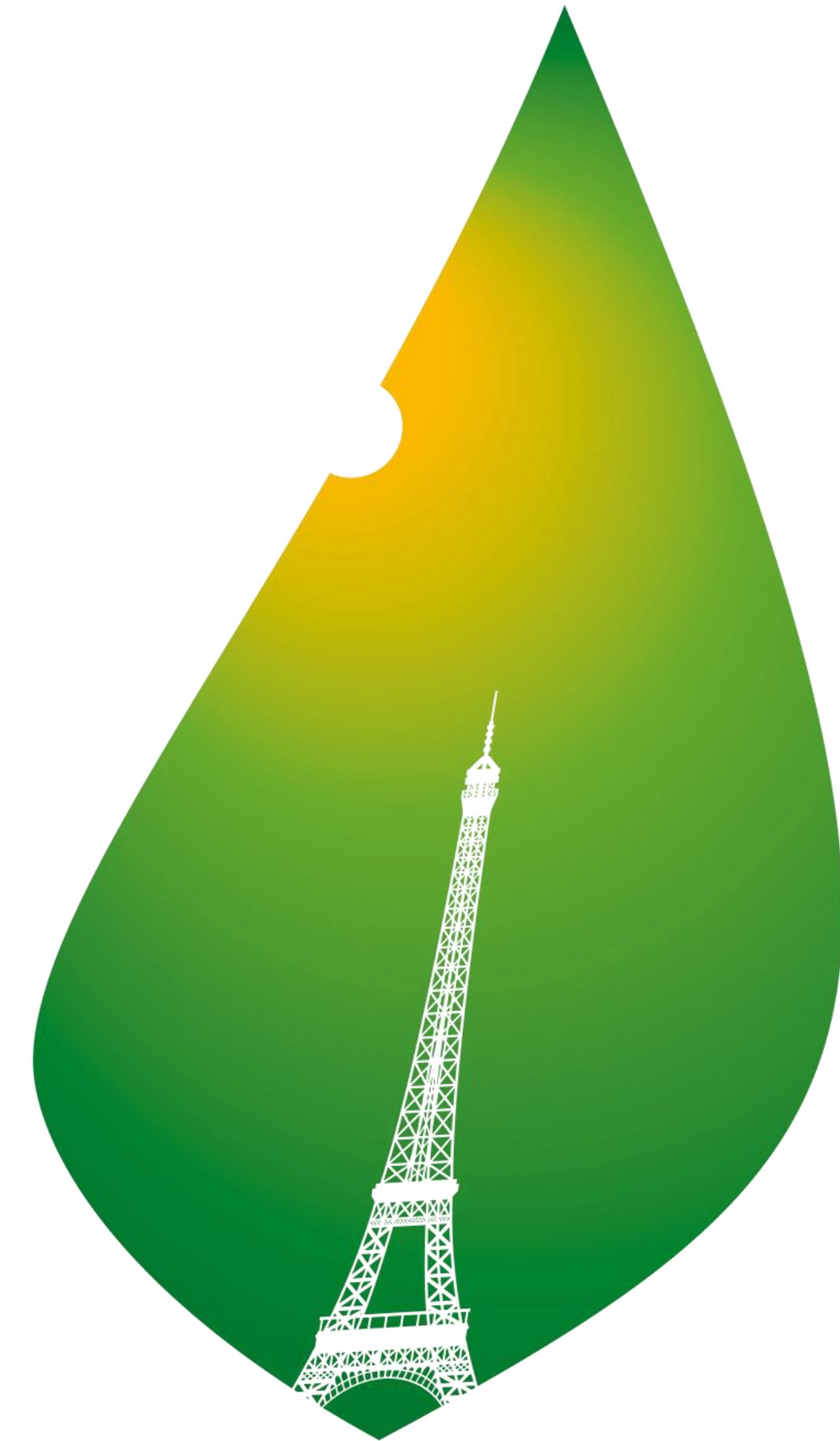**Carbon dioxide 96%** **Argon 1.93%** **Nitrogen 1.89%** **Traces of oxygen and water**
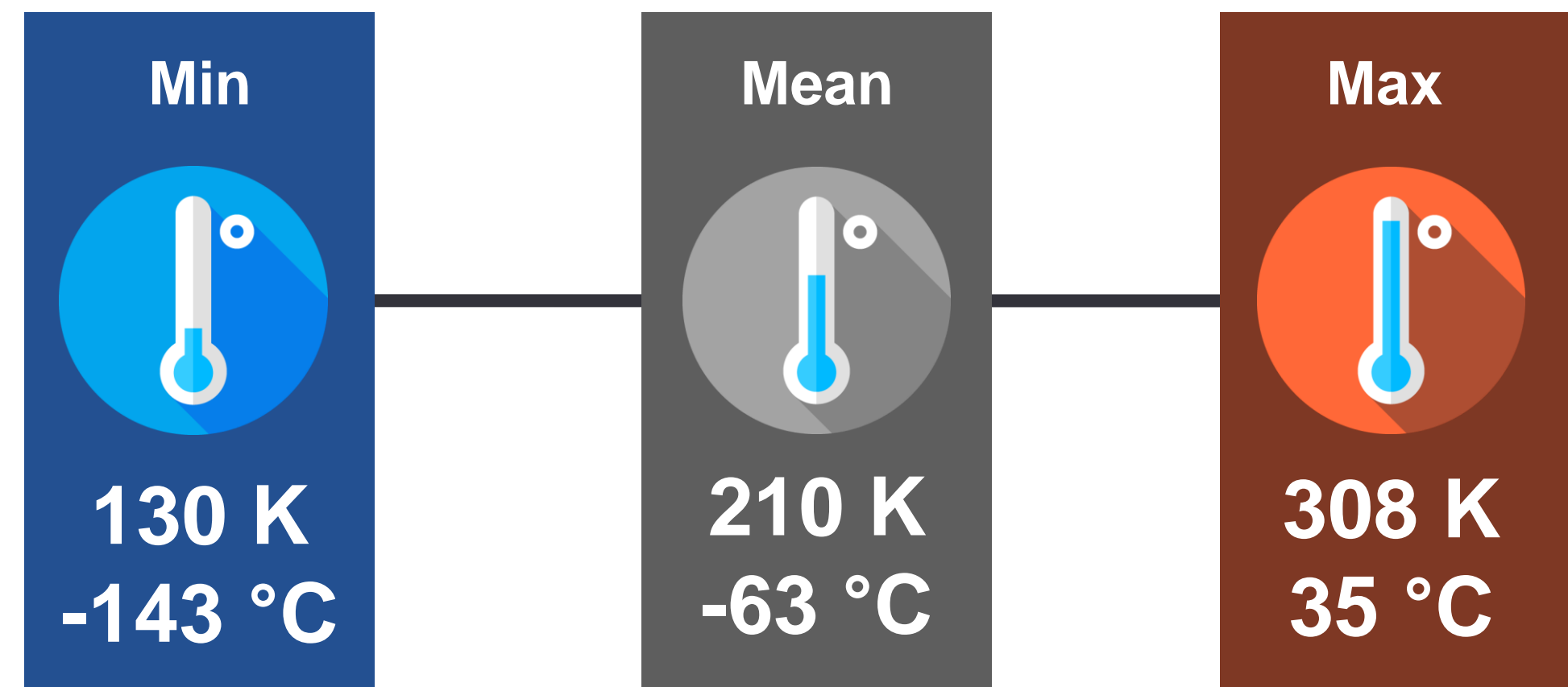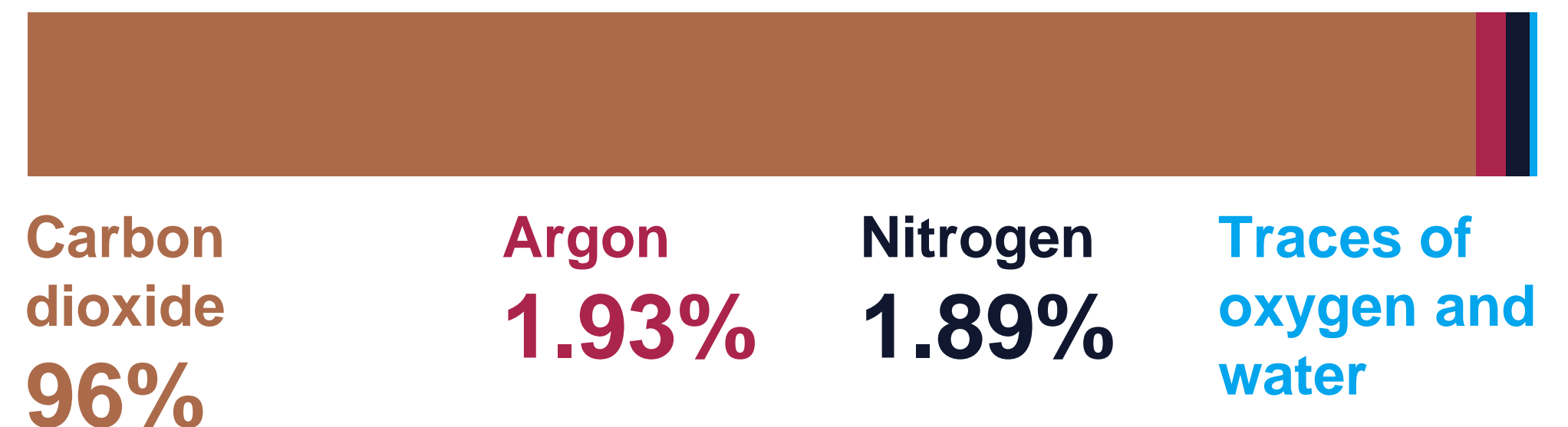
Paris Agreement

The Agreement aims to respond to the global climate change threat by **keeping a global temperature rise this century well below 2 degrees Celsius** above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.
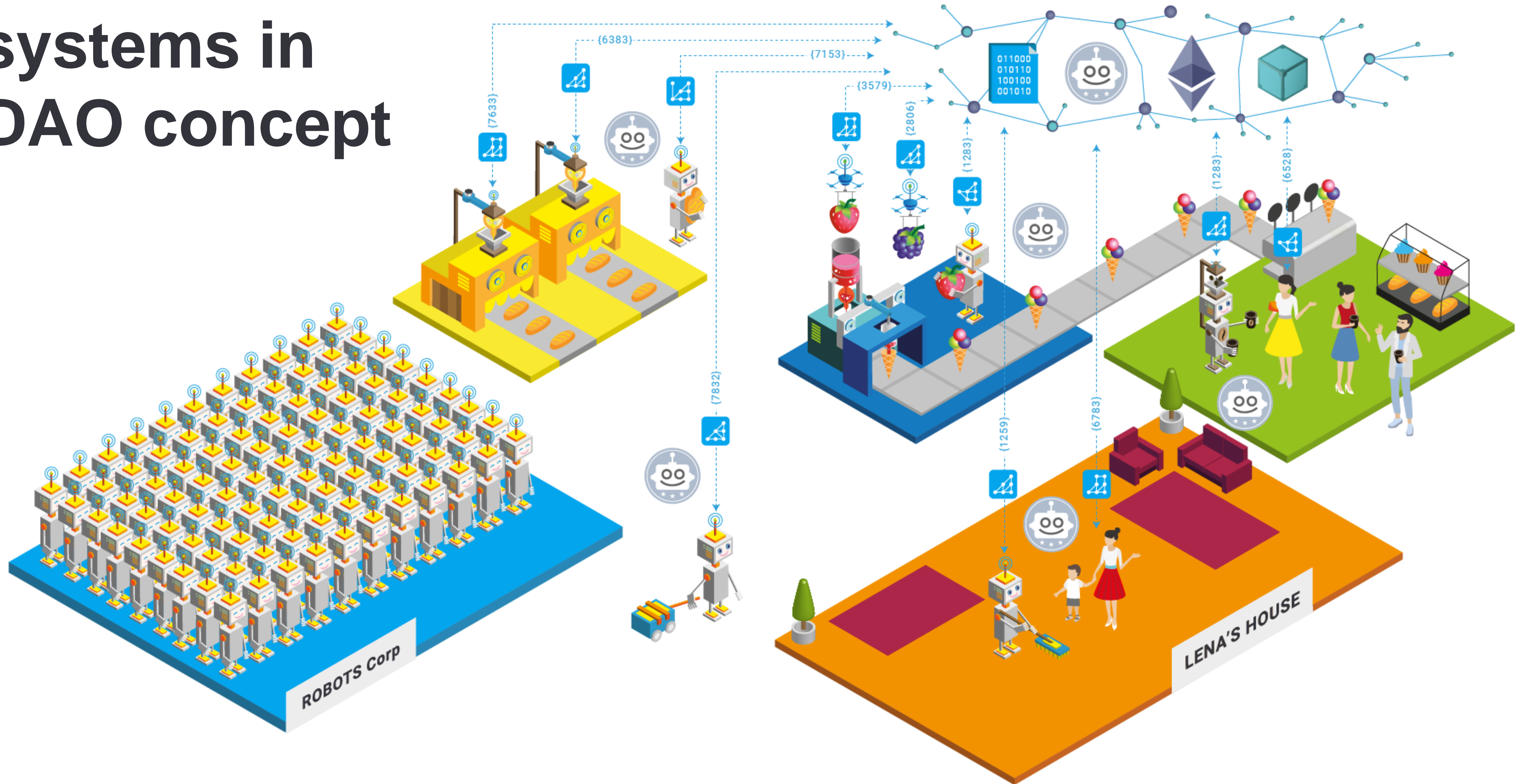
COP21·CMP11

PARIS 2015

UN CLIMATE CHANGE CONFERENCE

Keeping global temperature rise well below 2 degrees Celsius = The first planetary terraforming experiment based on economical game

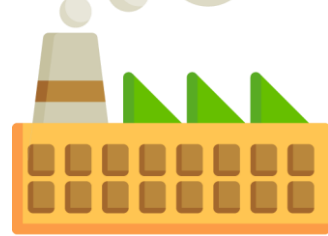# Human-machine systems in DAO concept

Today Paris Agreement is Human-to-human system with strong reputation requirements

…if we shift that on Ethereum network

Paris Agreement can be Human-to-machine system based on algorithms and independent arbitrary validators…

Manufacture

Smart cities

Ethereum

Green

IoT + Ethereum network validators

Manufacture

Keeping global temperature rise well below 2 degrees Celsius

| Factory | Power station | Farm |

Smart cities

| Sensor | Sensor |

| Sensor | Sensor |

Ethereum network

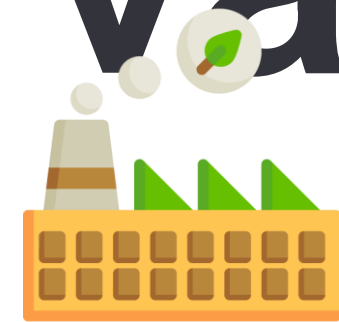| Validator+ with carbon credit emission algorithms (additional software packages) | Validator+ | Validator+ |

Green humans

| Green human boosts green economy all over the world | Green human | Green human | Green human |

IoT + Ethereum network validators
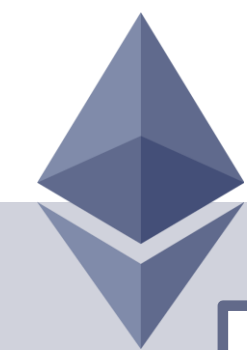
Manufactures on the way to green

Smart cities

Factory	Power station	Farm

Sensor	Sensor
Sensor	Sensor

Ask the network for collected data about carbon footprint

Collect data about carbon footprint around city

Send annual report

Ethereum network

Validator+ with carbon credit emission algorithms (additional software packages)

Validator+

Validator+

Smart contracts for collecting donations

Smart contracts for collecting donations

Green humans

Green human boosts green economy all over the world	Green human	Green human	Green human

IoT + Ethereum network validators

Manufacture

New terraforming tasks! ☺

| Factory | Power station | Farm |

Sensor network

| Sensor | Sensor |
| Sensor | Sensor |

Ethereum network

| **Validator+** with carbon credit emission algorithms (additional software packages) | **Validator+** | **Validator+** |

Green humans

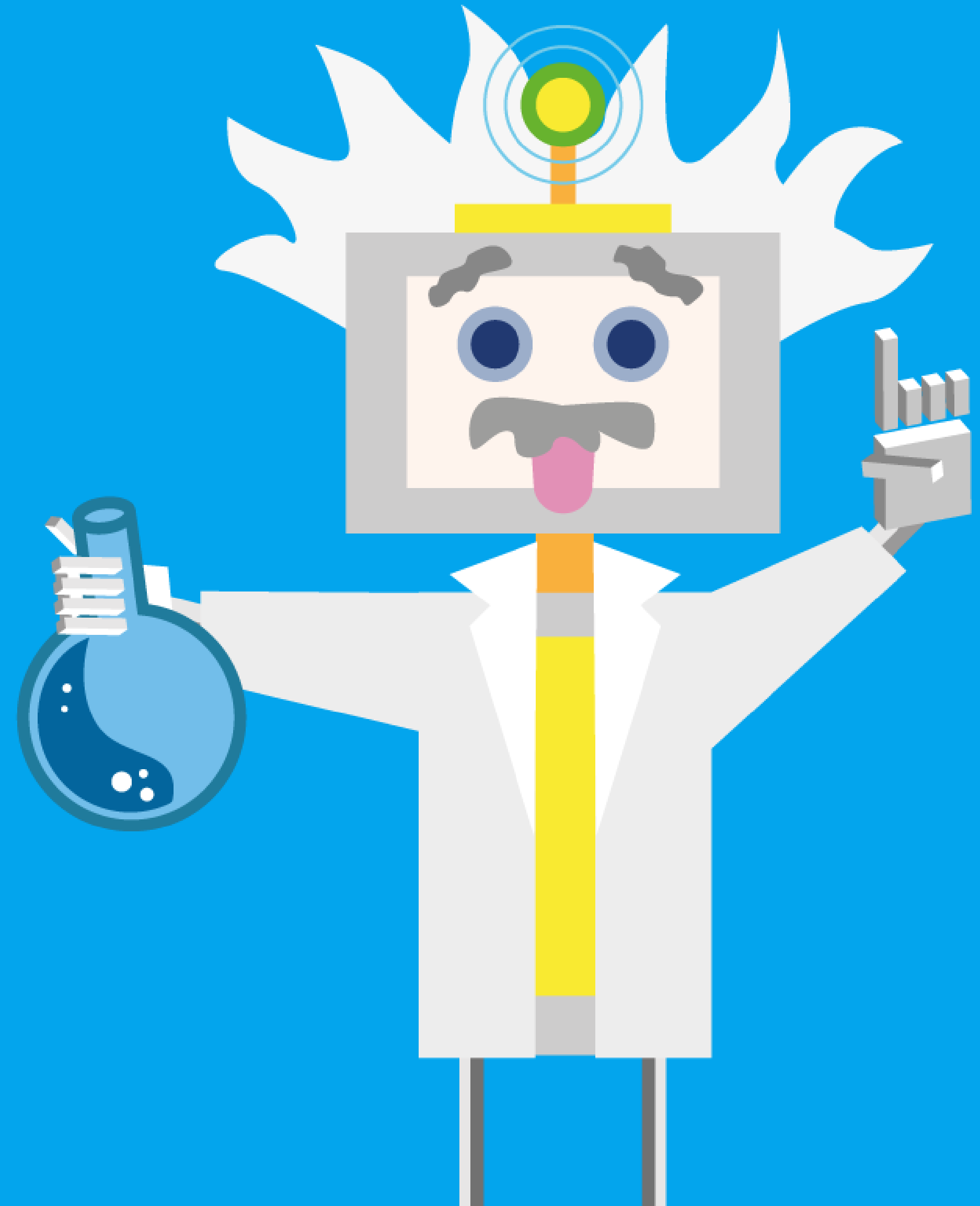| **Green human** boosts green economy all over the world | **Green human** | **Green human** | **Green human** |
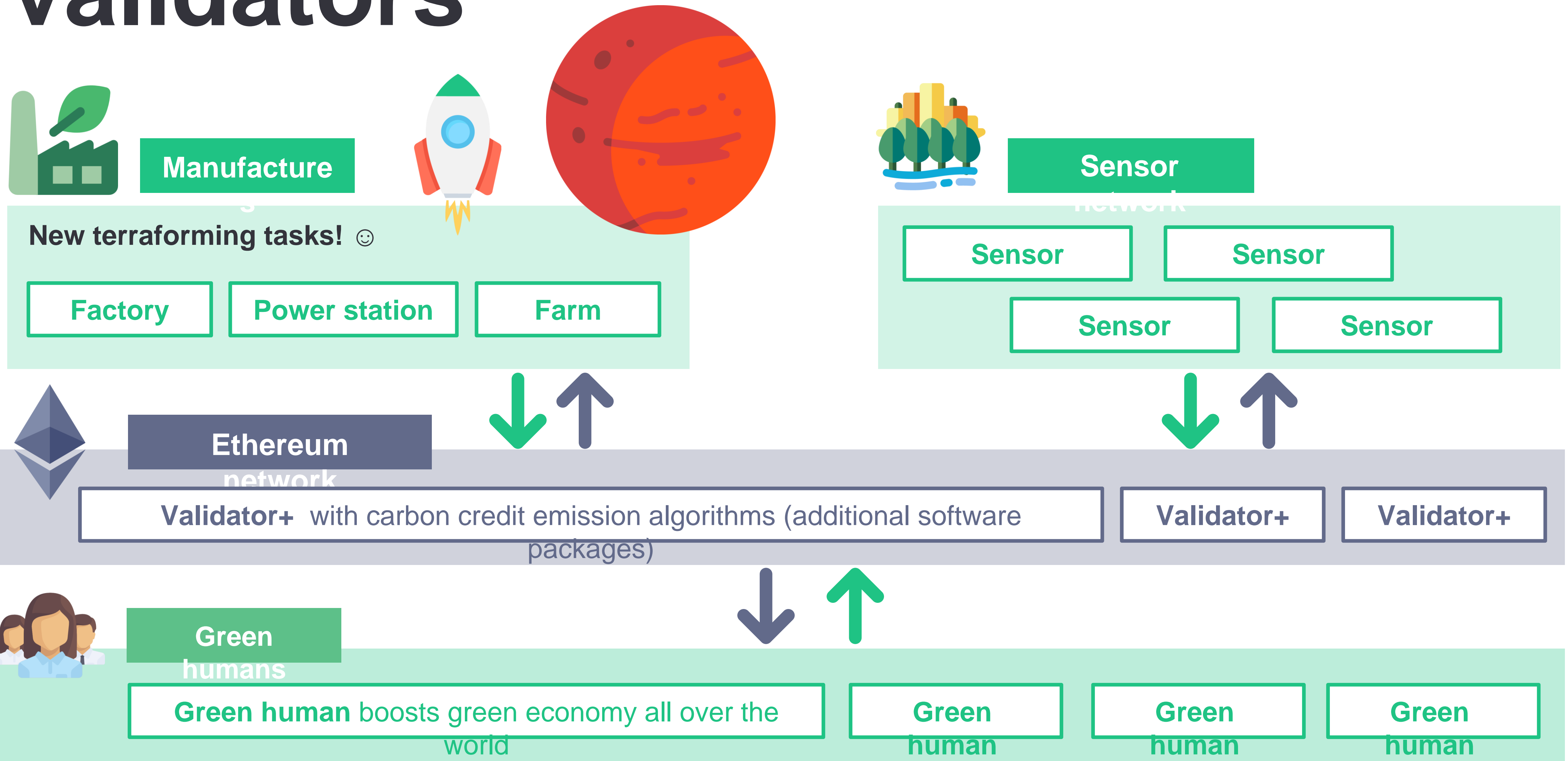
What do we have now?

- DAO IPCI: smart contract packages for carbon credit market tested with real participants.

dApp IPCI for human-to-human communication.

AIRA distributive for building carbon footprint sensors and network validators.

What are we doing now?

- R&D for showing the first algorithms for Human-to-Machine system on Carbon market.

- Try to involve Paris agreement participants in COP23 to our concept.

- Build the first service for reducing your carbon footprint with only carbon credits based on Ethereum network.
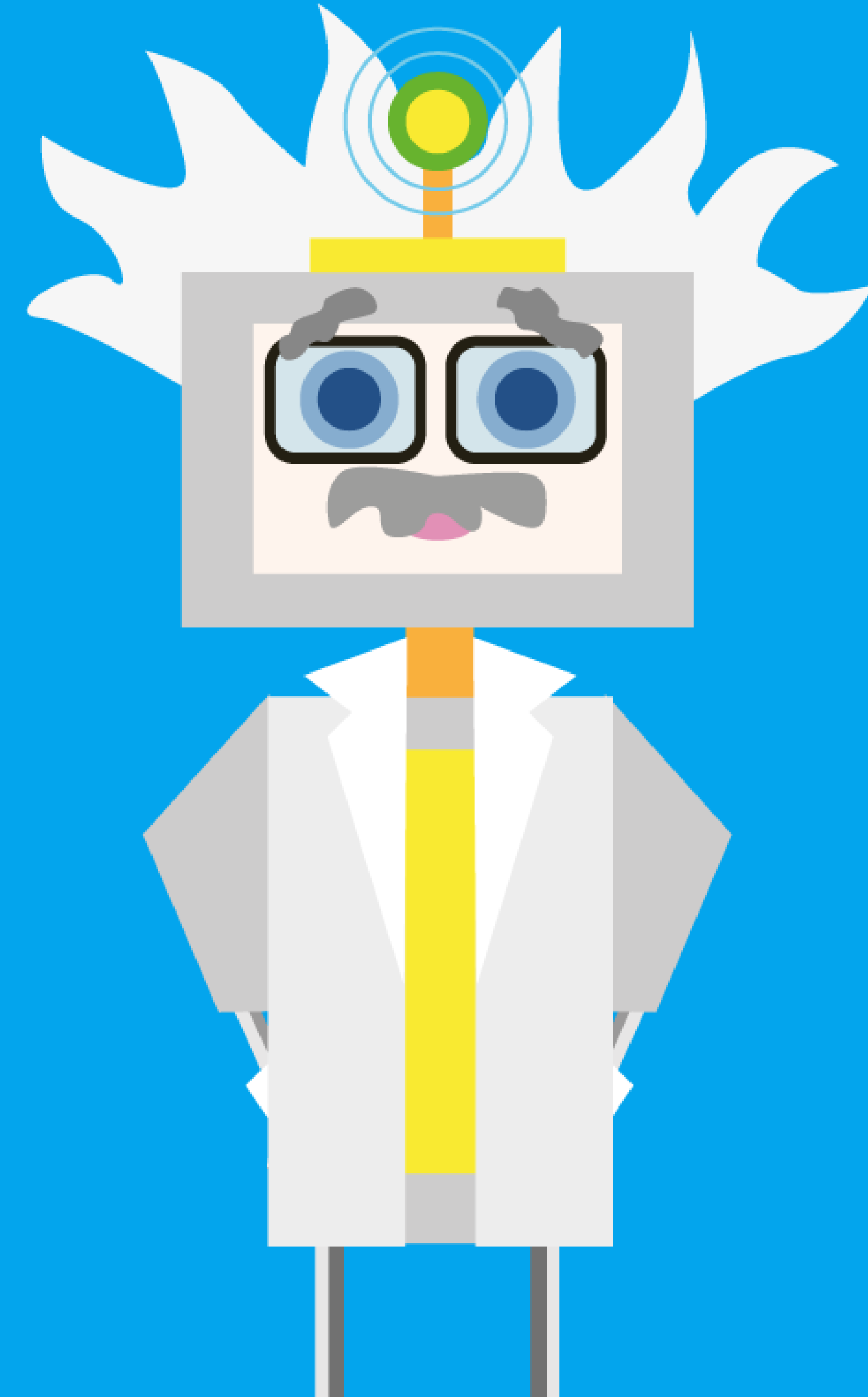
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On the way to Devcon50