BLOCKCHAIN Y ENERGÍA

CASOS DE ÉXITO

Alex Puig
CEO de Alastria
CTO de Caelum Labs

CAELUM LABS

Utilities
tipo de proyectos en Blockchain

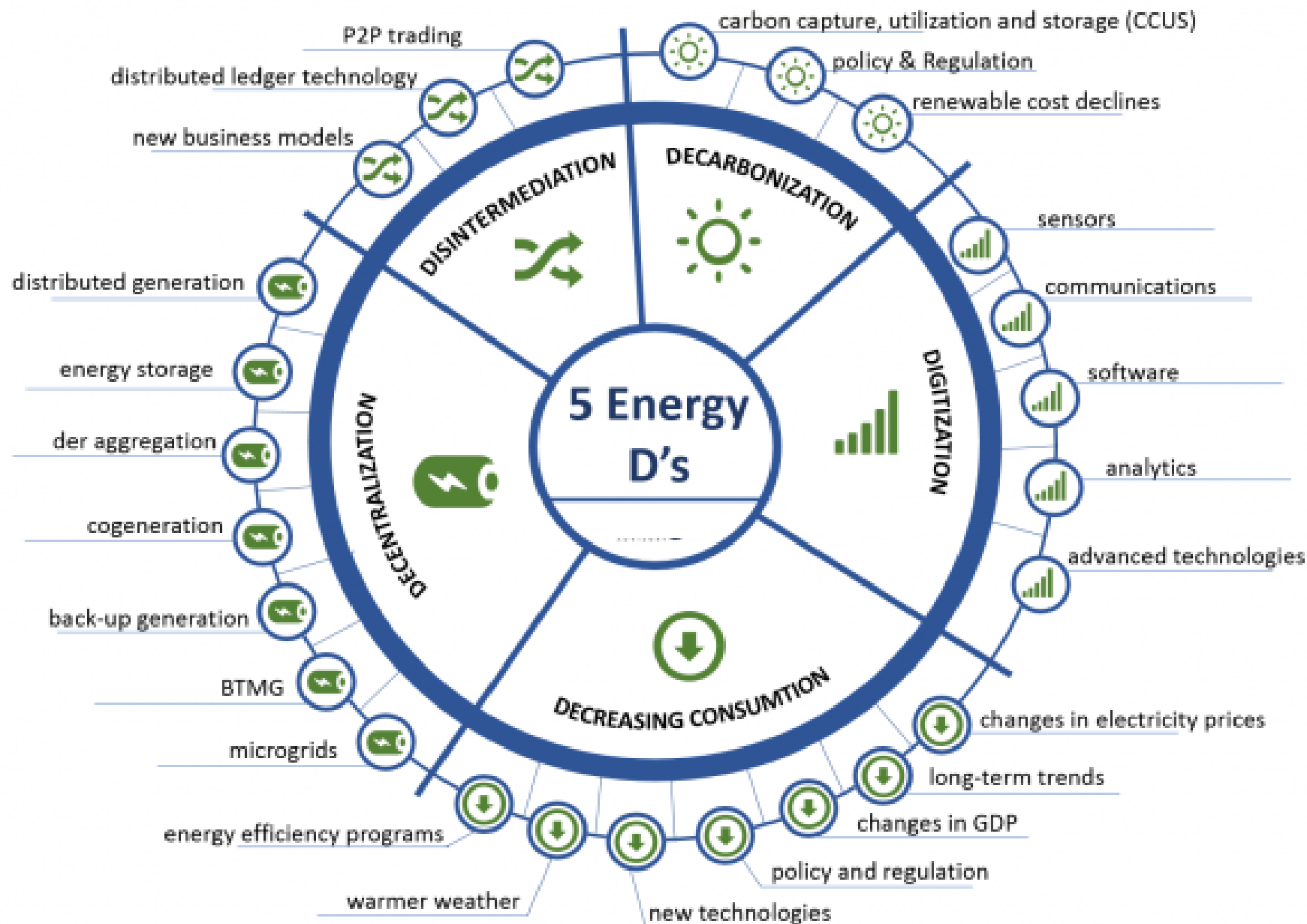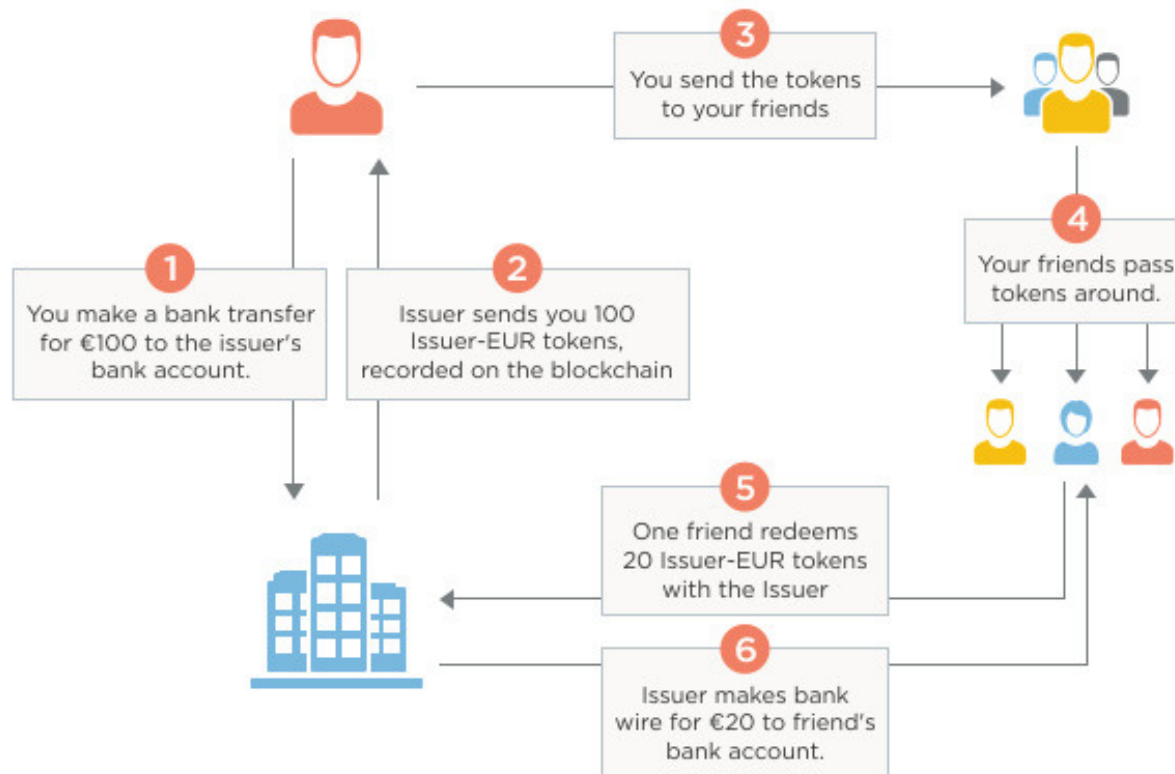| 10%	20%	40%	20%	10%
Metering	Grid management	Decentralized Generation	EV Charging	IOT
Data exchange between stakeholders of Smart Grid applications, intelligent control systems, as well as the standardization of data transfers	Value exchanged between devices in the form of data, network access, currencies, compute cycles, contracts for ongoing service, trusted introductions to other devices	Real-time metering of local energy generation and P2P transaction management	Develop EV Charging Stations that use blockchain based smart contracts to authenticate users and managing the billing process	Continuous identification of new applications of blockchain for IOT and the Connected Home markets

5 Energy D's

DISINTERMEDIATION
- P2P trading
- distributed ledger technology
- new business models

DECARBONIZATION
- carbon capture, utilization and storage (CCUS)
- policy & Regulation
- renewable cost declines

DIGITIZATION
- sensors
- communications
- software
- analytics
- advanced technologies

DECREASING CONSUMTION
- changes in electricity prices
- long-term trends
- changes in GDP
- policy and regulation
- new technologies
- warmer weather
- energy efficiency programs

DECENTRALIZATION
- distributed generation
- energy storage
- der aggregation
- cogeneration
- back-up generation
- BTMG
- microgrids

¿Tokenización?

Representando *todos* nuestros assets en blockchain

¿Cómo *funcionan?*

3 You send the tokens to your friends

1 You make a bank transfer for €100 to the issuer's bank account.

2 Issuer sends you 100 Issuer-EUR tokens, recorded on the blockchain

4 Your friends pass tokens around.

5 One friend redeems 20 Issuer-EUR tokens with the Issuer

6 Issuer makes bank wire for €20 to friend's bank account.

Oportunidades en la *trazabilidad*

ID panel solar

ID Generador

IDs Clientes

ID empresa

Comercializadora de energía

IDs torres

Generadora de energía

ID empresa
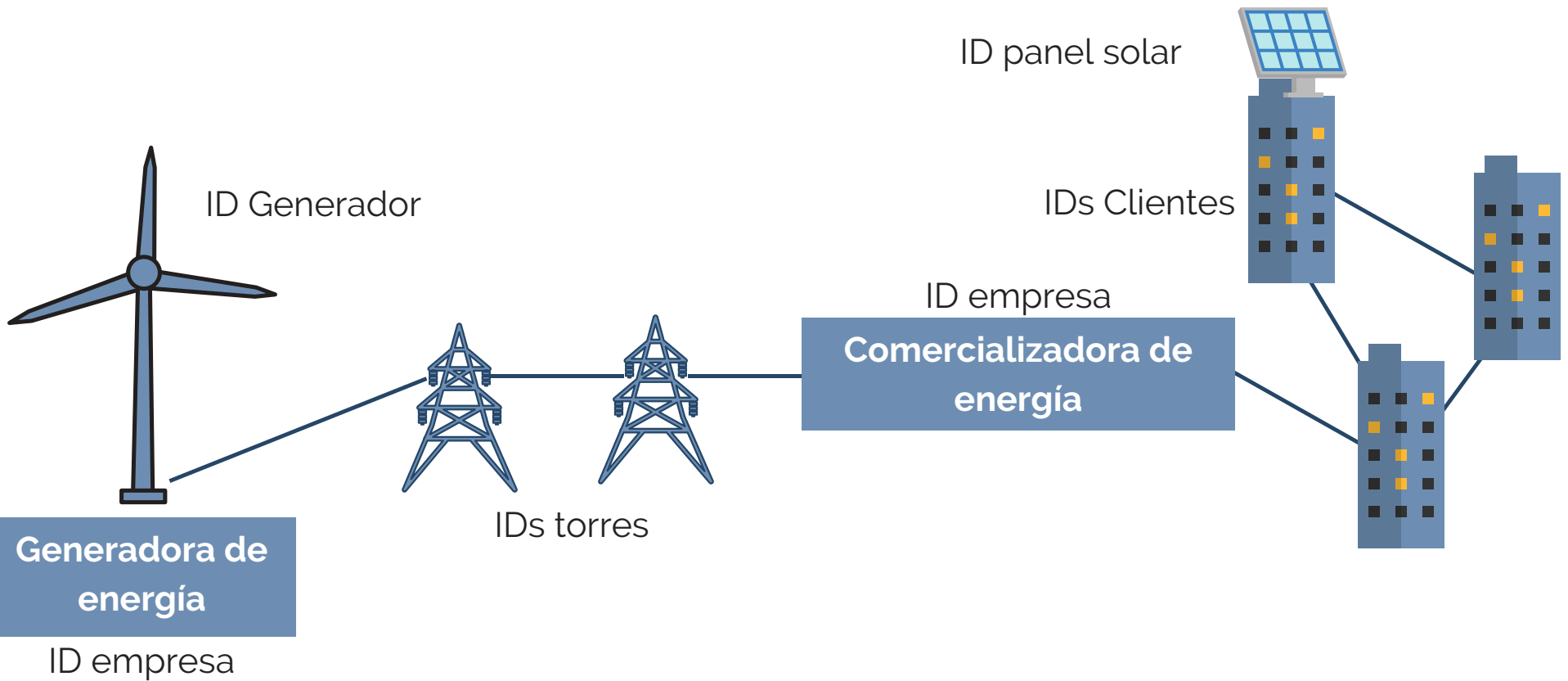
Lleva la energía contigo

Que tu contrato te acompañe a
todas partes

Solarcoin

Energy generation enables circulating SolarCoins

Solar MWh Generators → Verification Information (MWh meter report, Unique #123495) → SolarCoin Foundation & Community

Generator receives SLR grant from Foundation
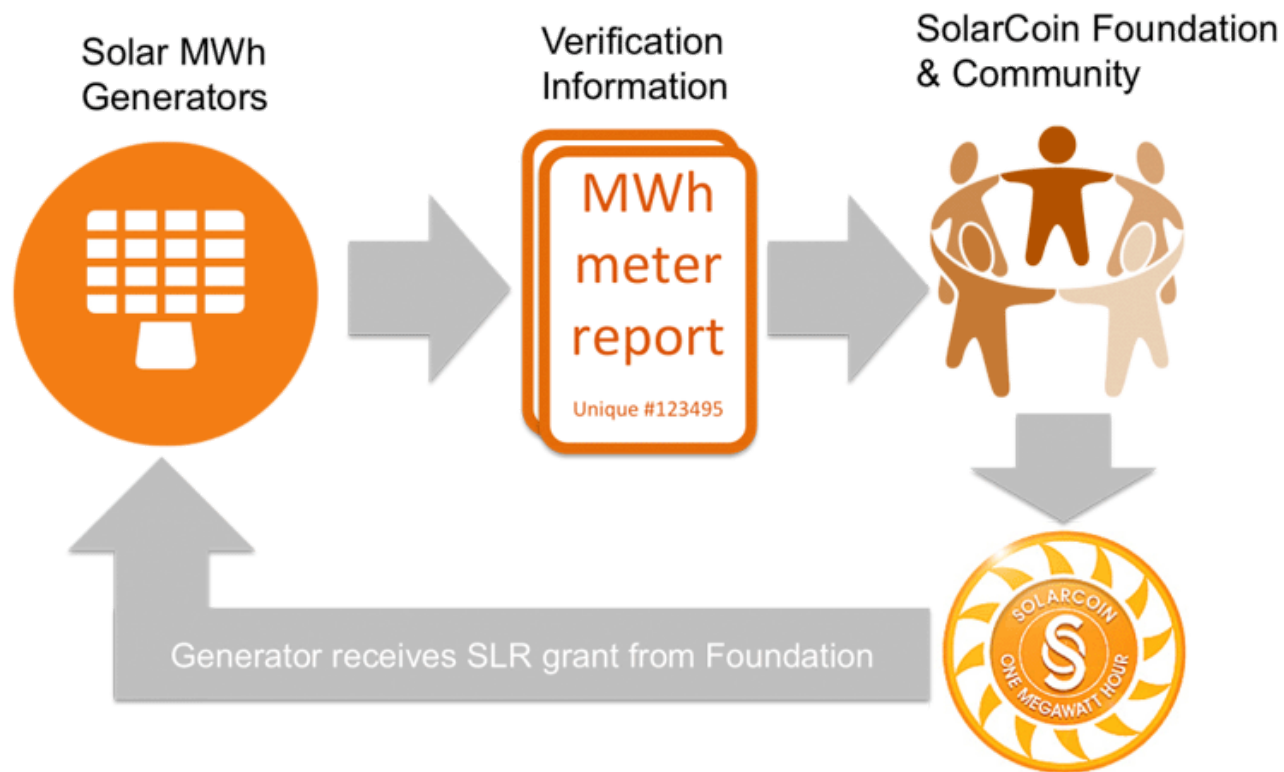
Drift

How does Drift work? It's simple.

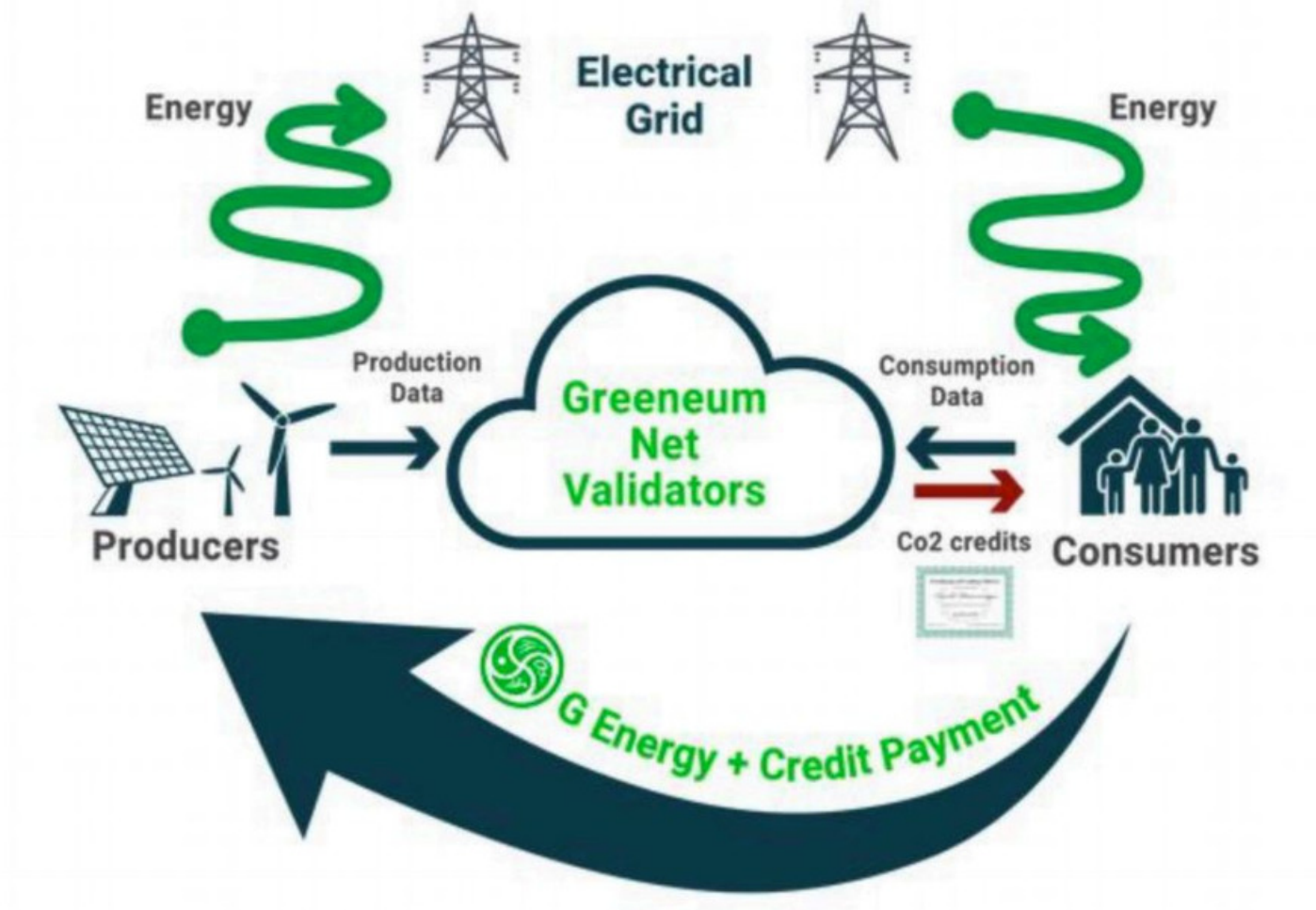**Get access to cleaner and local energy**

Artificial intelligence keeps your costs down
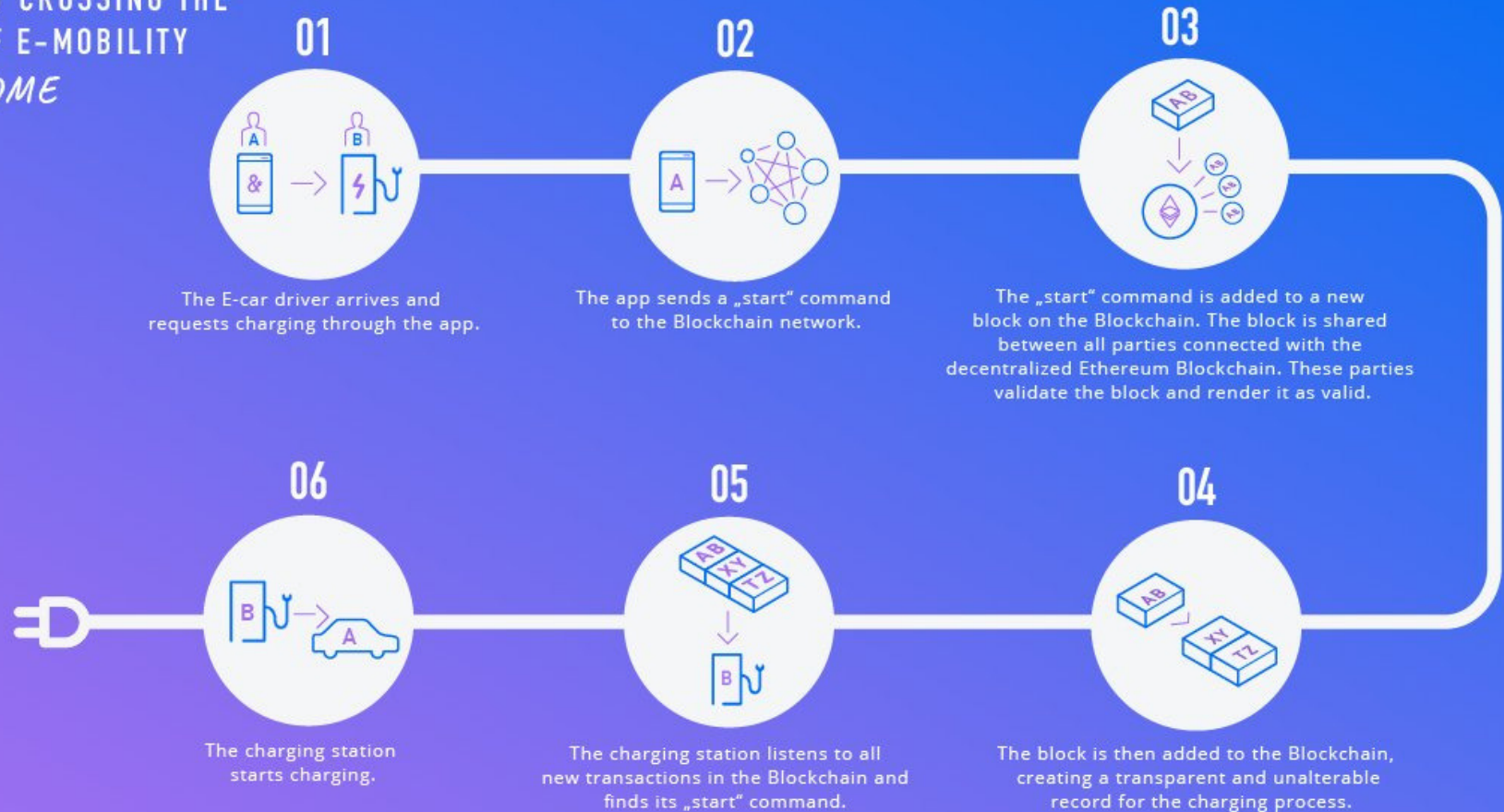
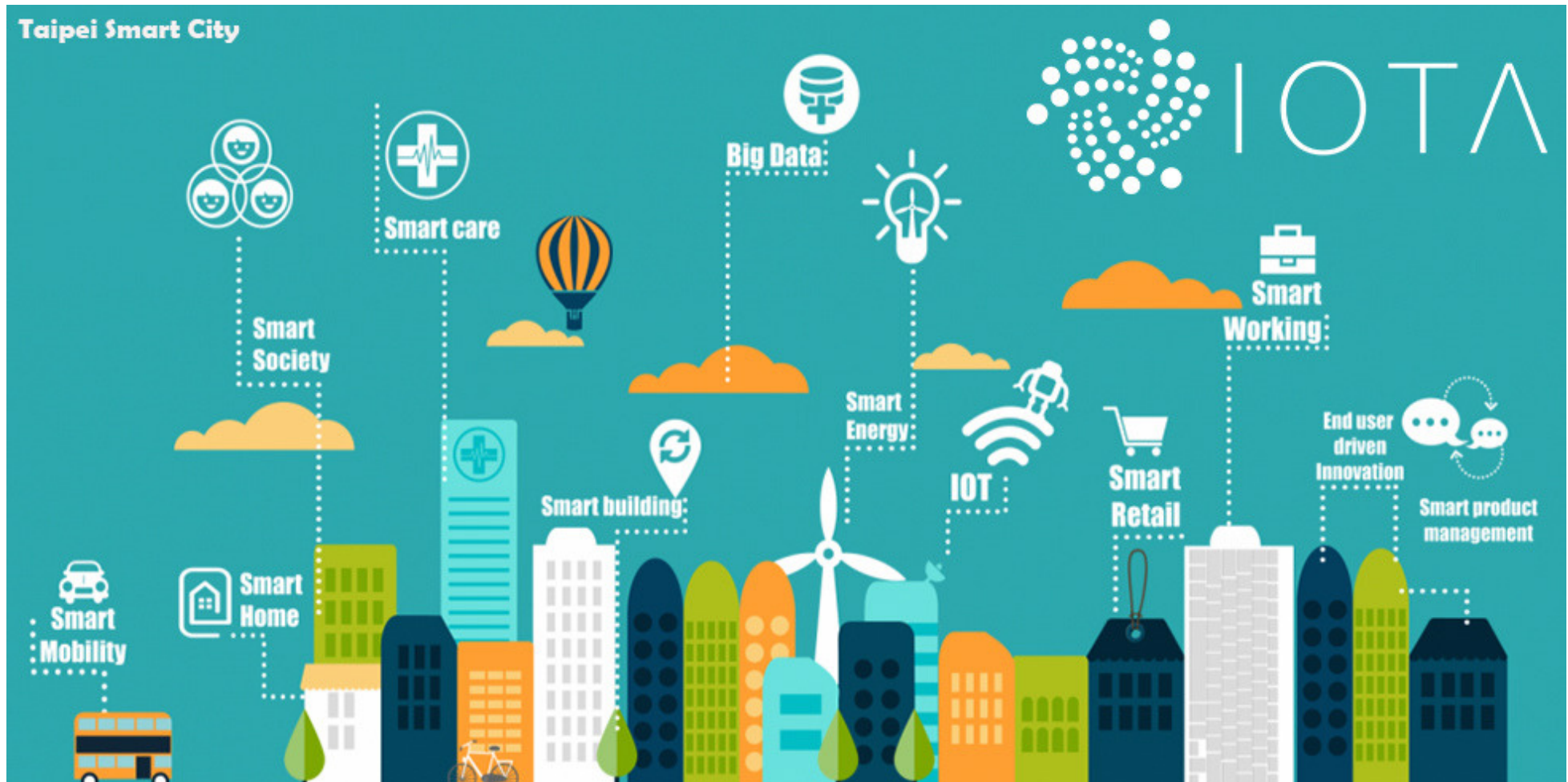**Track your environmental impact over time**

Greeneum

share&charge

SEAMLESSLY CROSSING THE BORDERS OF E-MOBILITY
#OSLO2ROME

01
The E-car driver arrives and requests charging through the app.

02
The app sends a „start" command to the Blockchain network.

03
The „start" command is added to a new block on the Blockchain. The block is shared between all parties connected with the decentralized Ethereum Blockchain. These parties validate the block and render it as valid.

06
The charging station starts charging.

05
The charging station listens to all new transactions in the Blockchain and finds its „start" command.

04
The block is then added to the Blockchain, creating a transparent and unalterable record for the charging process.

www.shareandcharge.com/en/oslo2rome_blockchain

Taipei & IOTA

The Sun exchange

1 FIND a project to invest in.

2 REGISTER your details online and we'll send you a project prospectus.

3 REVIEW the prospectus which contains everything you'll need to know about your chosen project.

4 INVEST your funds into the project as described in the prospectus

5 RECEIVE interest payments directly into your bank account

6 SPEND your solar-powered earnings or RE-INVEST in another Sun Exchange solar project.

Electron

Any approved company can provide network resource for the platform.

Software protocols are open and available to all participants.

```
...
contract owned{
  function owned() {
    owner = msg.sender;
  }

  modifier onlyowner() {
    if(msg.sender==owner) _
  }

  address owner;
}
...
```

Transparent regulatory oversight

Decentralised applications are run by the whole network, not a central server.

Supplier API

3rd party API

Custom API

SMART METERS

ANALYTICS

SETTLEMENTS

REGISTRATION

SMART GRIDS

SWITCHING

ROAMING CONTRACTS

RENEWABLES

Flexidao
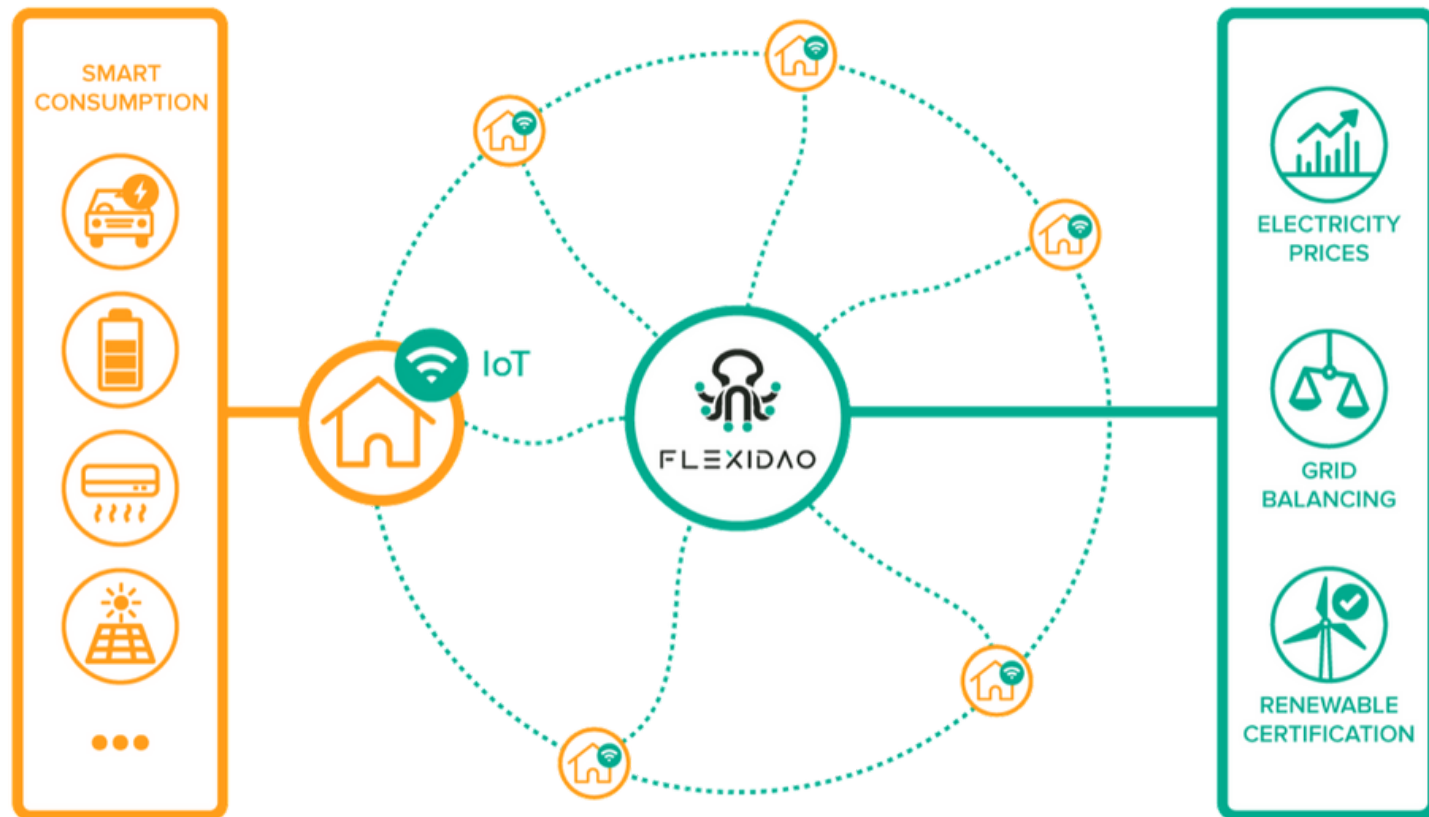
Energy Web Foundation

MUCHAS GRACIAS

CAELUMLABS.COM