Clever solar devices
DIGITALIZING THE PHOTOVOLTAIC INDUSTRY
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YouTube

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The PROBLEM
WHERE are the defective modules?

Utility scale

Commercial & Industrial

Distributed Residential

Photovoltaic installations come in all sizes and shapes, but they have one thing in common, **they should be maintained**. **BUT PV modules do not provide any information about their status or performance.**

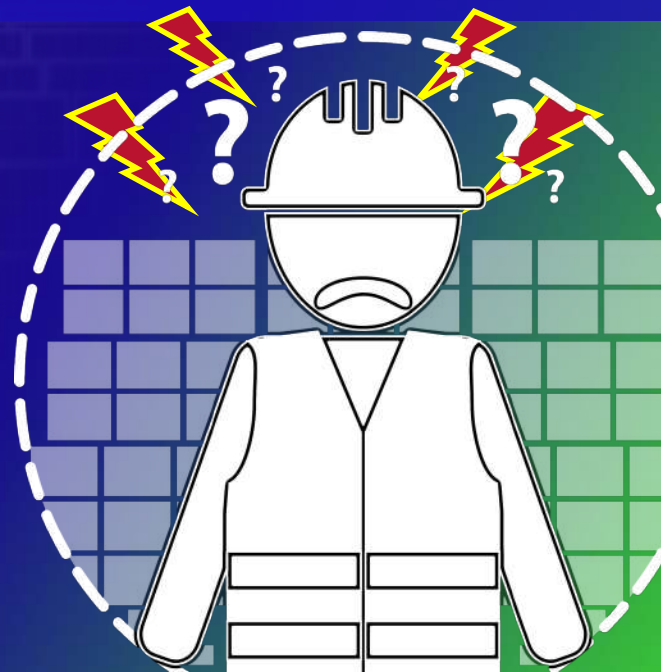
That's why, **to really know if a PV module is working properly, we must check them MANUALLY ONE BY ONE.**

Which are the defective modules?

2000 MILLIONS of MODULES

1 min per each = 3805 year reviewing PV modules

If we DEDICATE just 1 min to each of them it would takes us 3805 years to review them all.
Maintain a PV plan requires to manually connecting a measuring device to each module and check it, by putting yourse at risk of electric shock, thermal shock (working at more than 60º Celsius) or risks of fall in case of installations in altitude.



PV Plants needs to be efficiently maintained in order to provide the maximum Clean Energy production.

All modules needs to be diagnosed and taken care of efficiently to have Cleaner Cities and a Better Planet.

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Our Purpose is to digitalize the Photovoltaic Industry to achieve Sustainable Safer Energy for all contributing to a better Planet for everyone

HOW? With your Phone!

WELCOME TO PHOTOVOLTAICS 4.0

Introducing Clever Dx, the Intelligent Digital Twin for Photovoltaic Solar Plants.

A cutting-edge technology designed to enable remote diagnosis of photovoltaic solar plants.

Detect any issue in real-time, provides an efficiency diagnosis, improves production and reduces costs, and aids in business decisions based on accurate data.

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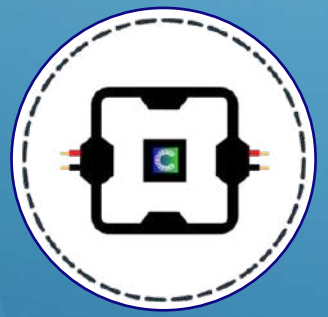
Patented small plug-n-play device placed behind each module that sends automatically to the cloud the diagnosis information and **Artificial Intelligence and Deep learning** make the work for you.

Simplified and comprehensive information, reports, alarms and maps for you know exactly

WHAT is going on and the most important WHERE EXACTLY are the problems in the installation.

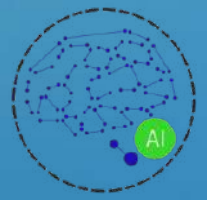


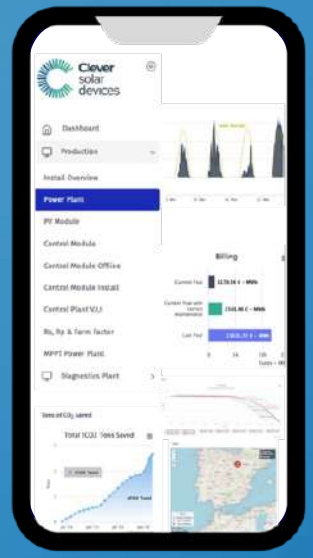
Patented HW

CLOUD COMPUTING
SCADA

Accurate data

AI
Deep Learning





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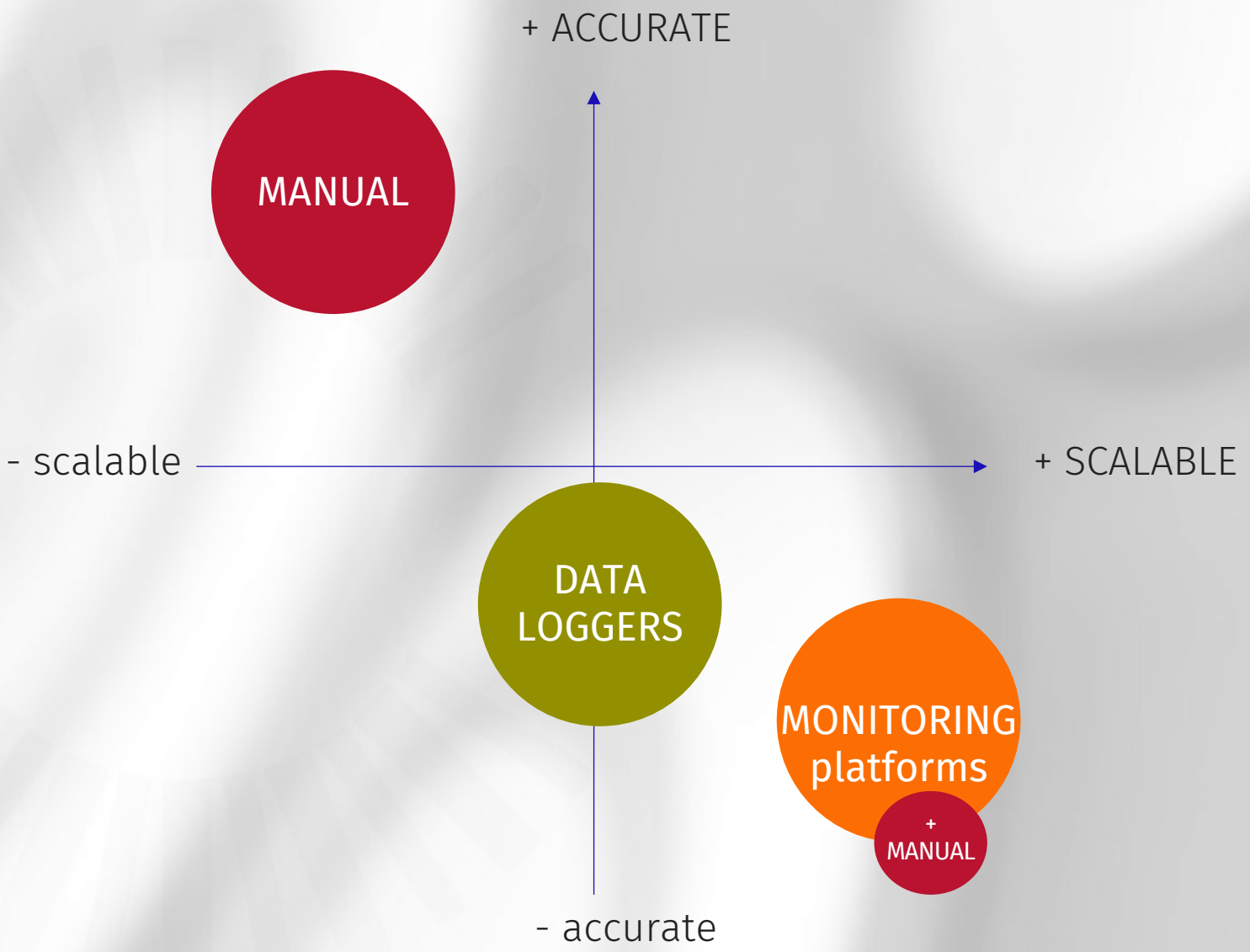
Competition

Monitoring platforms are growing players in the market but only summarizes the production information delivering insufficient data for diagnosis: just an estimation that should be complemented with Manual procedures.

Manual checks imply labor risks (electrical and thermal shock and falls), it's also time consuming and expensive, therefore, usually only 5% of the installation is reviewed periodically twice a year.



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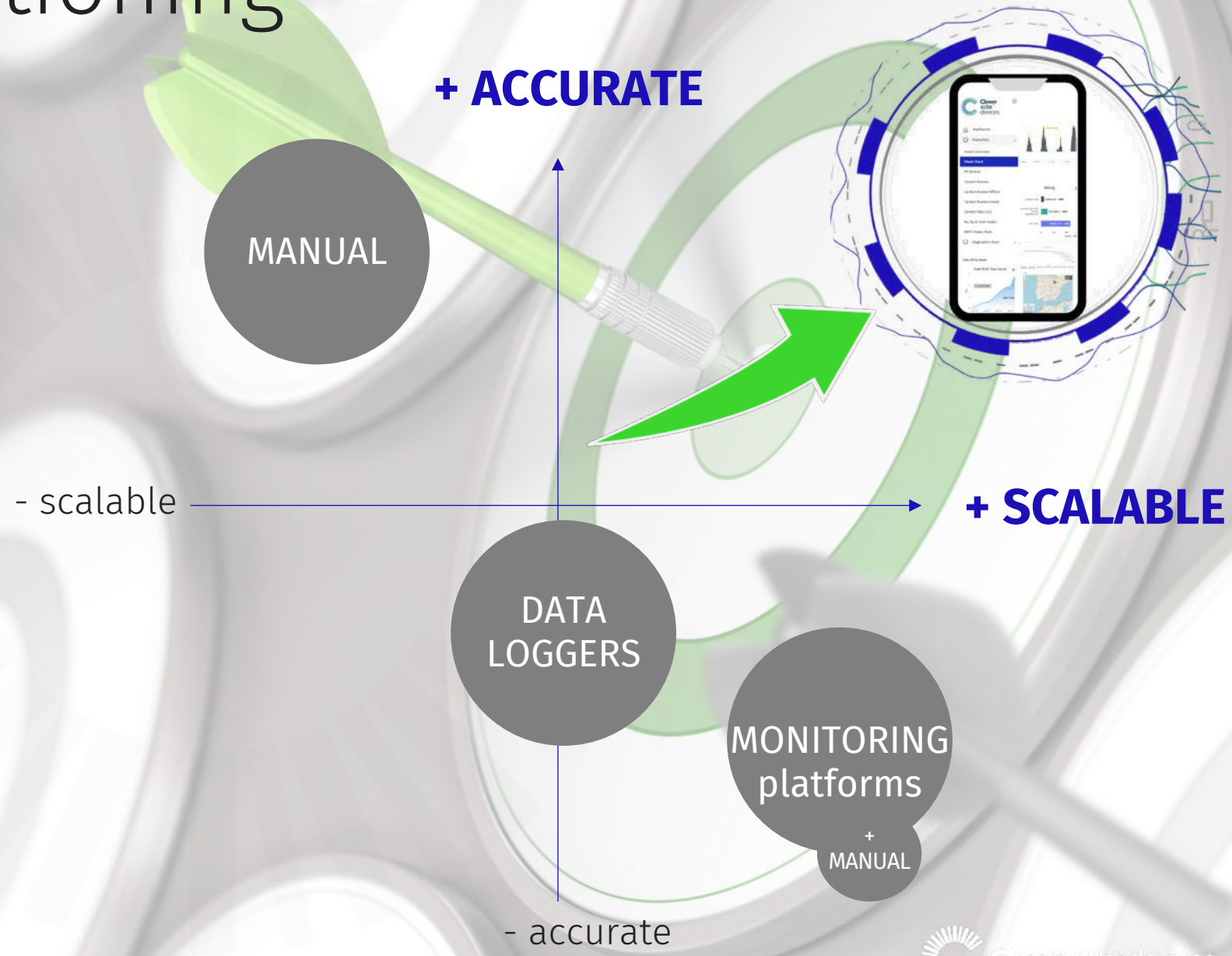
Our Unique Positioning

... filling the GAP

Our Photovoltaics 4.0 tells you WHAT and WHERE.

We **Diagnose** thru IV Curves at PV module level: the most **accurate data for PREDICTIVE** and **PREVENTIVE** maintenance and, the **best foundation** for a **true PV Power Plant Digital Twin.**



Our INNOVATION

WHICH panels have issues, WHERE they are in the installation and WHAT is going on thanks to our UNIQUE and PROPIETARY algorithm

Cracked cells

Potential induced degradation

Shortcircuit cells

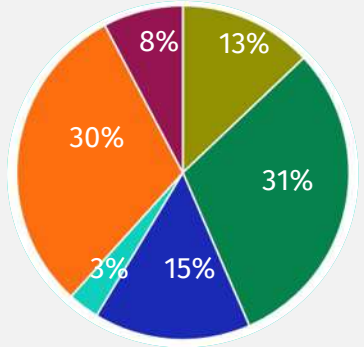
Glass transparency lost

Glass delamination

Broken cell. Solder Corrosion

Including % of Degradation of each PV module!

Faulty Modules overview in installation



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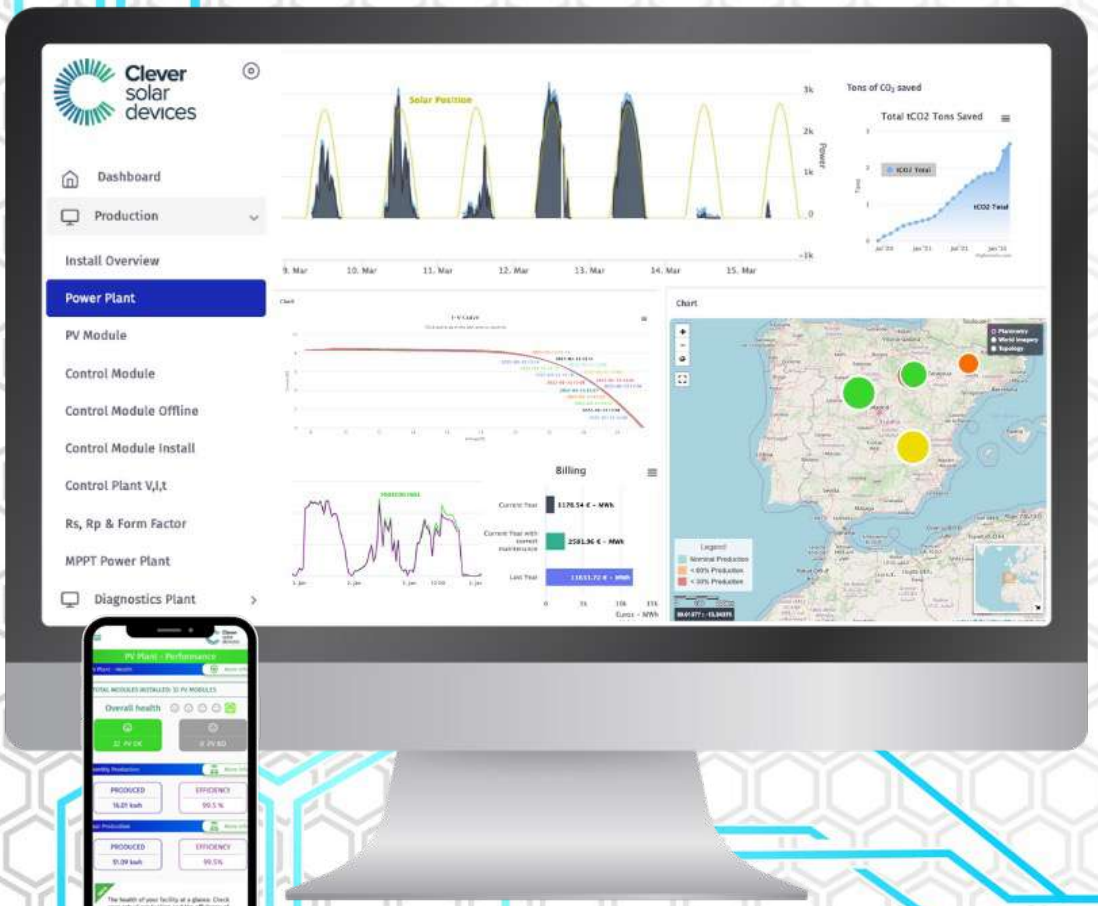
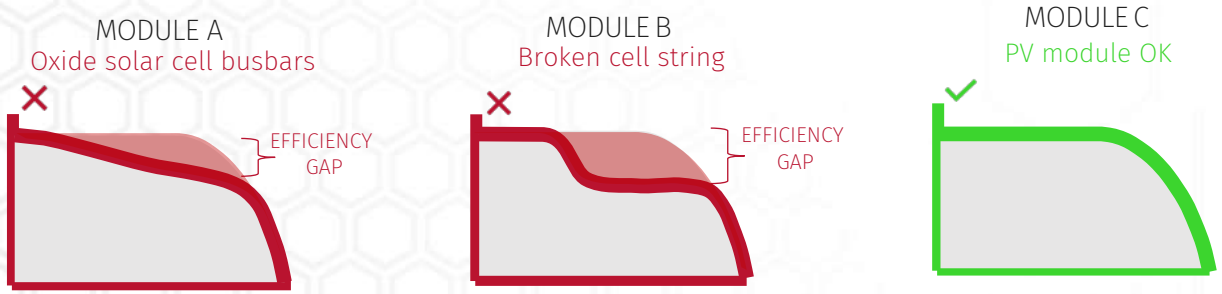
Sourcing the BEST data out there

We measure the IV-Curve at PV module level





We are a DIGANOSTIC platform.

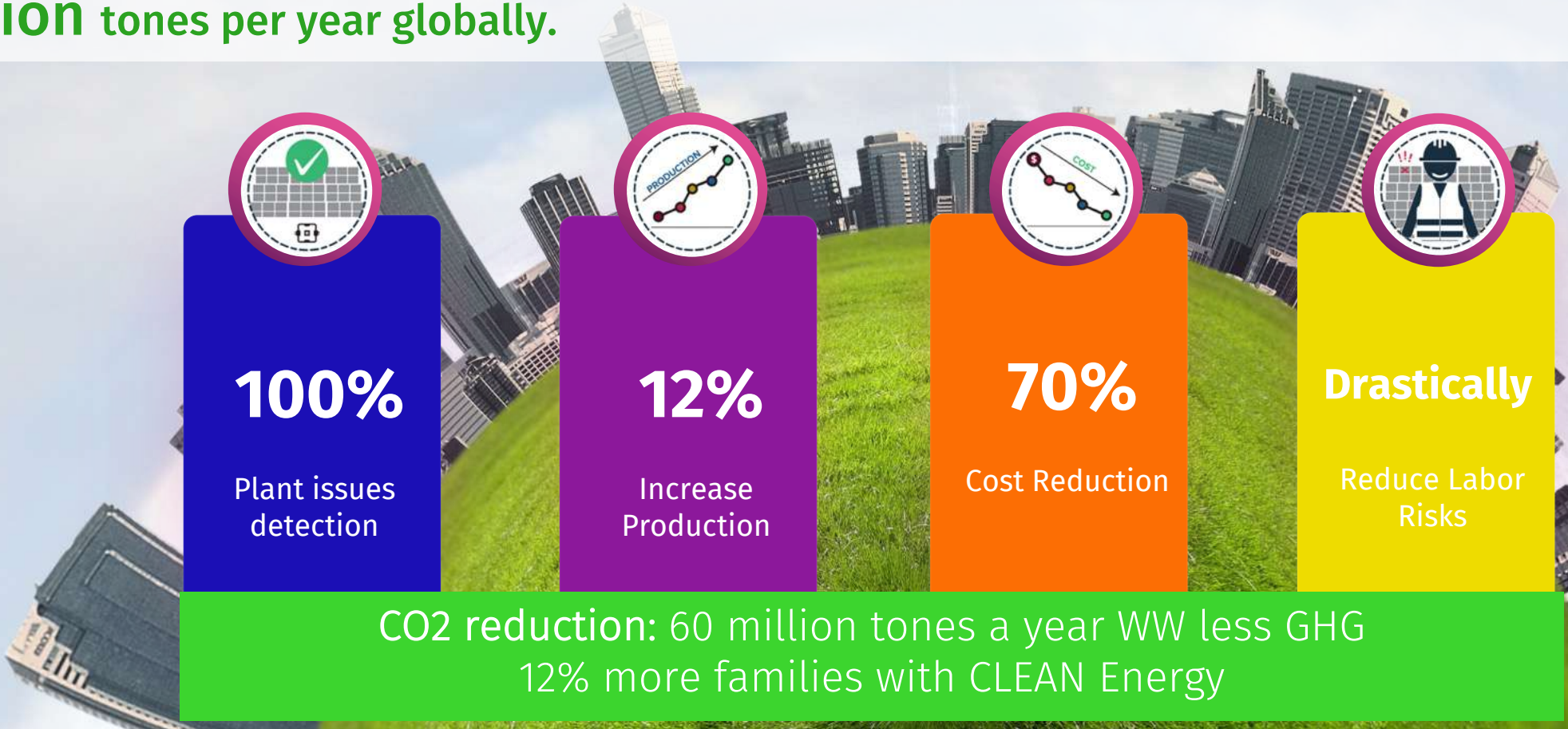
We don't estimate behavior like monitoring platforms. **We KNOW.**

Clever Dx **is the only platform** that measures **IV Curves,** which are the **best and more accurate data** to know the performance and health of a full PV Power plant.

Our Benefits

KNOW EXACTLY WHAT is happening to each module and WHICH And WHERE are the defective modules in the installation remotely.

Moreover, with the same number of production plants, **reduce Green Gas Emissions, up to 60 million tones per year globally.**



100%
Plant issues detection

12%
Increase Production

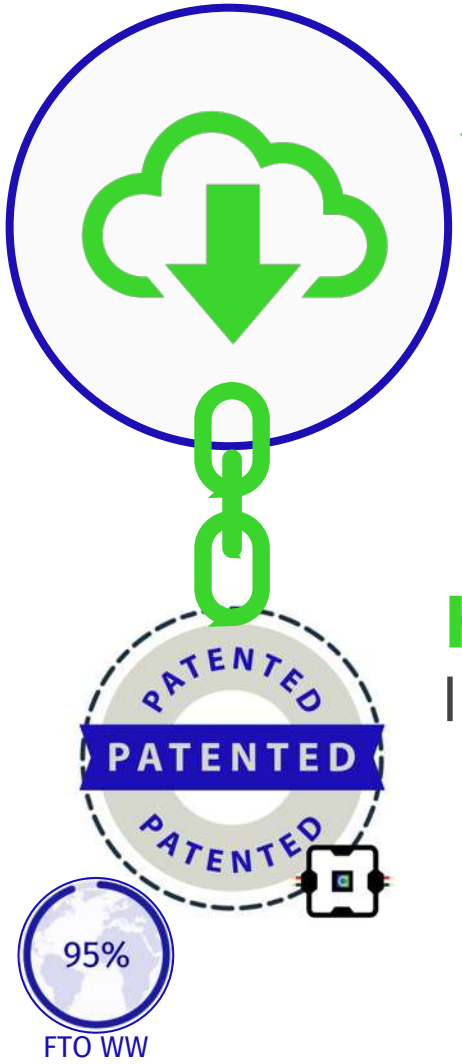
70%
Cost Reduction

Drastically
Reduce Labor Risks

CO2 reduction: 60 million tones a year WW less GHG
12% more families with CLEAN Energy

Our Business Model: Software as a Service

As of today is a combination of HW and SaaS, planning in evolving into a pure SaaS.



SOFTWARE PLATFORM

(Price by volume depending on the number of devices)

HW

Investment

or

Leasing

RECURRENT REVENUE SECURED BY OUR PATENTED HARDWARE

We are a global company; we have the intellectual property that allows us the Freedom to Operate in 95% of the installations worldwide.

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Our Team of Innovators & Visionaries

Bhishma Hernández
CEO & Founder

José Luis Sevillano
CDO

Alexandra Pradas
CMO

Angeles Jimenez
Finance & HR

Carlos Betancort
AI developer

Aarushi Sharma
Full Stack developer

Tony Alvarez
Advisor

Carlos Alvarez
Advisor

Pau Molinas
Advisor

Altogether more than 150 years of experience in Tech Companies

Our TRACTION

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5
BIG UTILITIES

Paying Customers

POC installations in:
Spain, Italy and Greece
Next steps: Expand the POCs
+ New installations in
Commercial&Industrial and
Residential.

NEW
PARTNERSHIP

Industrial Partnership

Partnership in the works to penetrate industrial segment.

In conversations with PV manufacturers for the “smart-module”

AWARDS & GRANTS

Recognitions

UNEF aws infineon eit Climate-KIC piosphere 2022 Co-funded by the European Union

Our solution is being recognized both in the national international Innovation and PV communities

Our Compromise

Our VALID, POSITIVE and SIGNIFICANT IMPACT has been validated by Impact Forecast organization

We contribute to **6 Sustainable Development Goals**, helping improving operator's day to day, creating a more efficient energy system for everybody by digitalizing the PV industry, thru innovation and **contributing reach the goals of Horizon 2030-50.**

From 3805 years
To 3 simple clicks
THANK YO
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