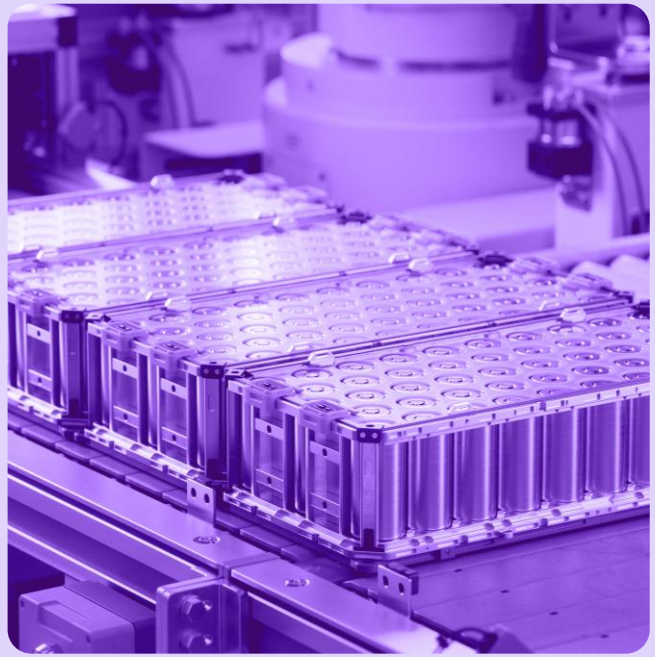
LET'S FLEX

SOLARPOWER SUMMIT 2025

WELCOME TO THE SOLAR FLEX ERA

LET'S FLEX DATA AND AI TO MAXIMISE POWER PLANT EFFICIENCY AND SYSTEM INTEGRATION



LET'S FLEX

SOLARPOWER SUMMIT 2025

JAN OSENBERG

Head of System Integration,
SolarPower Europe

LET'S FLEX

SOLARPOWER SUMMIT 2025

SPEAKERS

Stavros Stamatoukos

Policy Officer, Digitalisation and Artificial Intelligence,

DG ENER, European Commission

Susannah Wood

VP of Public Affairs and Sustainability,

Statkraft

David Moser

Managing Director,

Becquerel Institute Italia

Giuseppe Ferraro

Business Director for Turbine Engineering,

Green Power Monitor (part of DNV)

Jan Osenberg

Head of System Integration,

SolarPower Europe

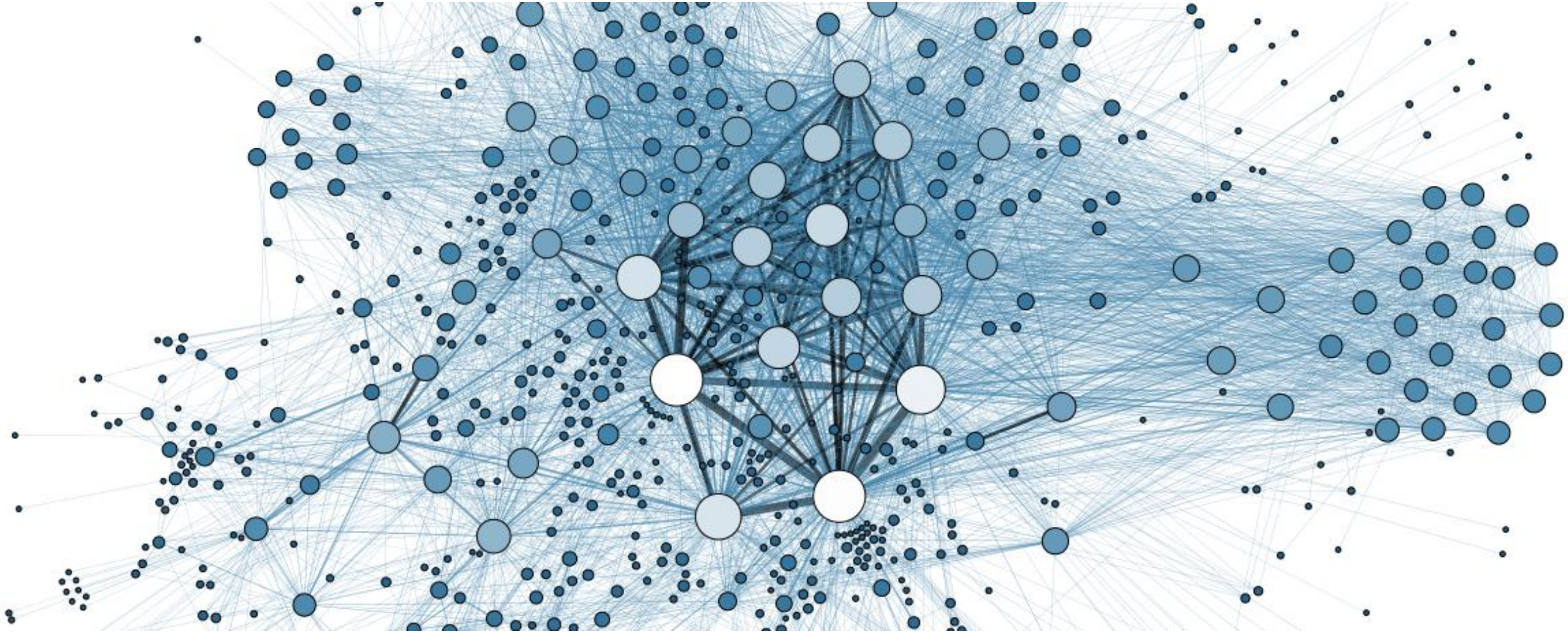
LET'S FLEX

SOLARPOWER SUMMIT 2025

GIUSEPPE FERRARO

Business Director for Turbine Engineering,
Green Power Monitor (part of DNV)

Setting the Scene: prerequisite to data driven strategies



GreenPowerMonitor
a DNV company

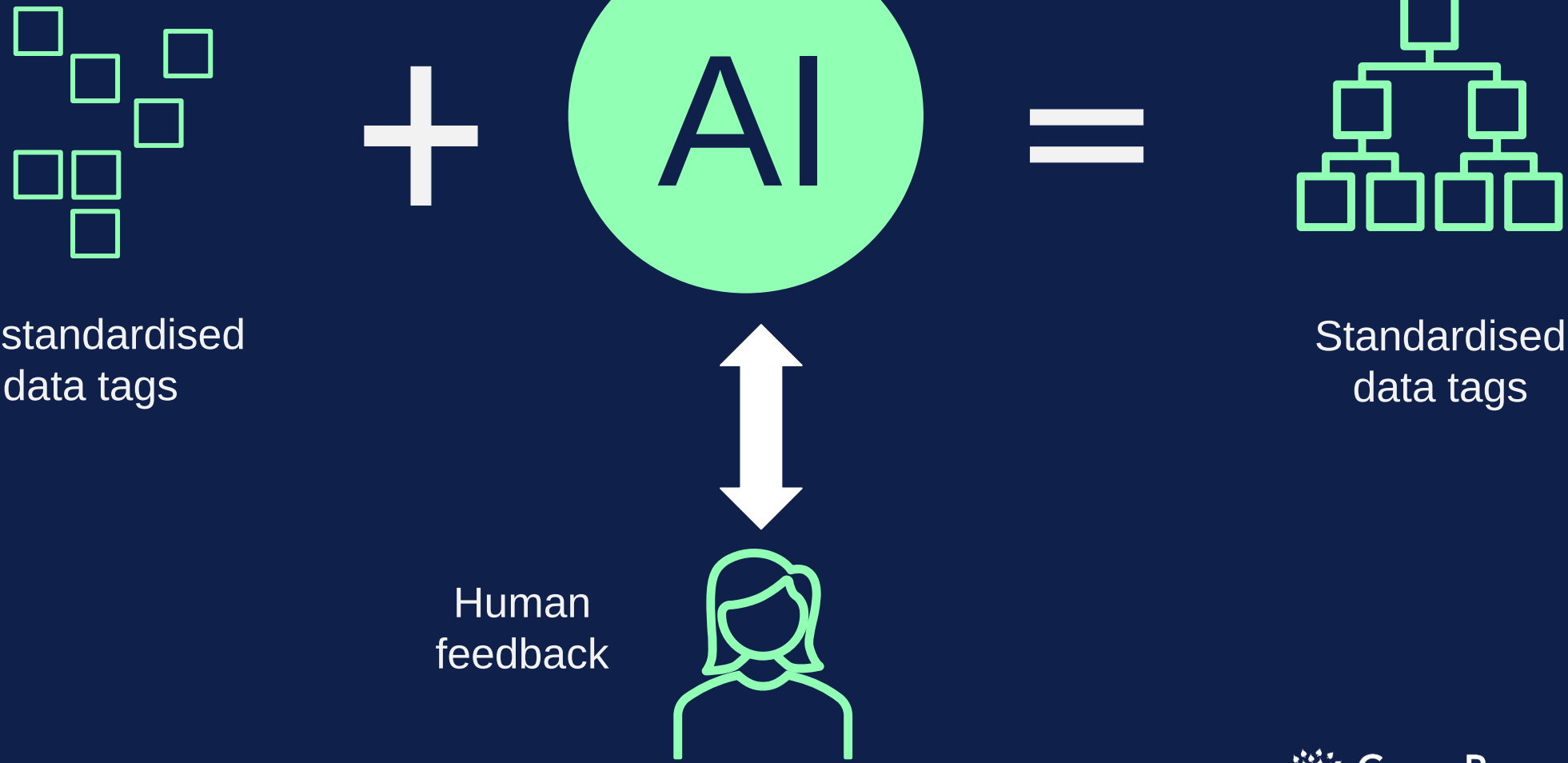
Data Taxonomy

GreenPowerMonitor
a DNV company

Data Taxonomy: enabling data use at scale

GreenPowerMonitor
a DNV company

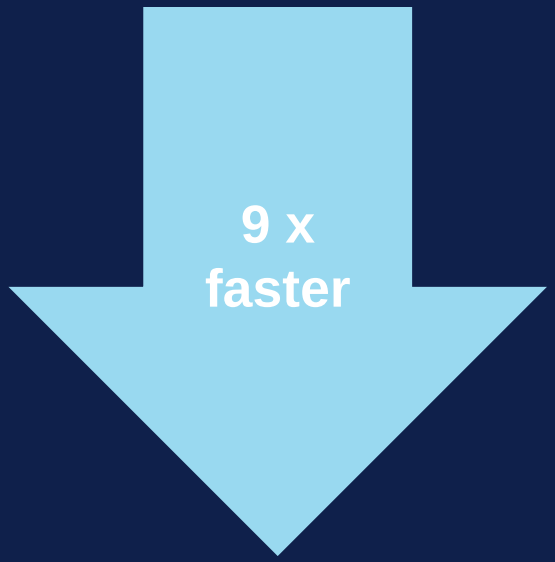
Renewables.Taxonomizer



GreenPowerMonitor
a DNV company

Effect of taxonomy & Renewables.Taxonomizer

Migration time

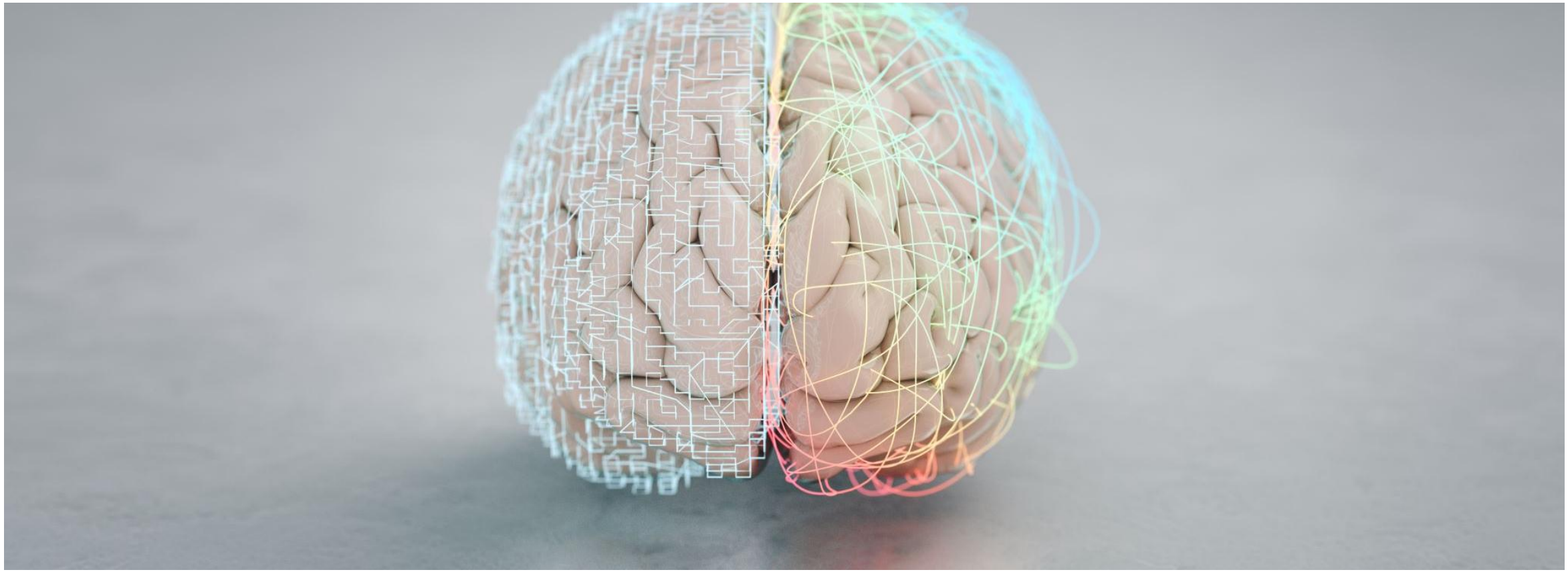


Onboarding time

Max usable data

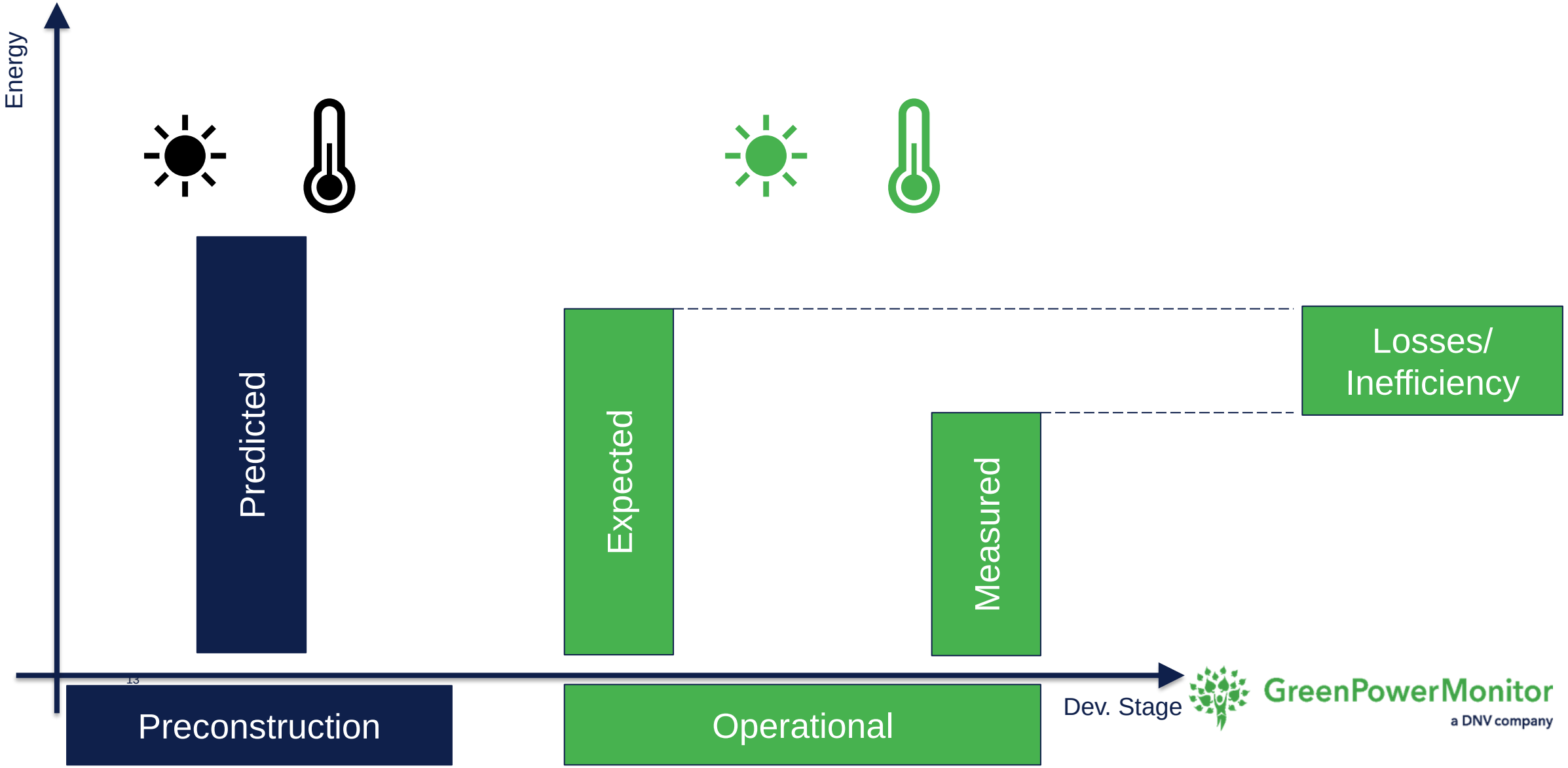
GreenPowerMonitor
a DNV company

AI and Efficiency



GreenPowerMonitor
a DNV company

Expected Energy



Expected energy – two approaches to a digital twin

SolarFarmer

Physical model

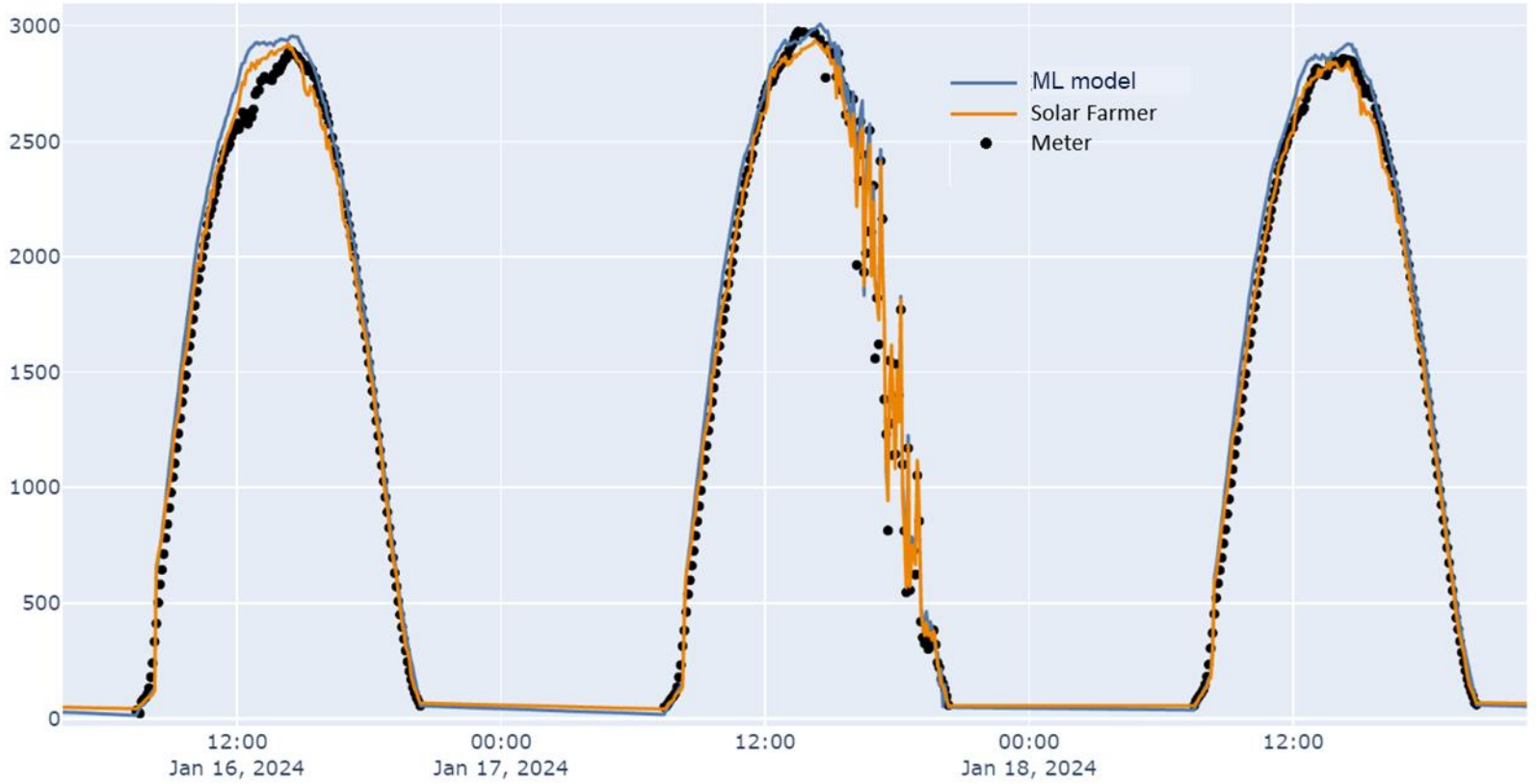
Machine Learning (ML)

Data science supported by domain knowledge

GreenPowerMonitor
a DNV company

Validation results

ML and Physics based digital twins



GreenPowerMonitor
a DNV company

Conclusions

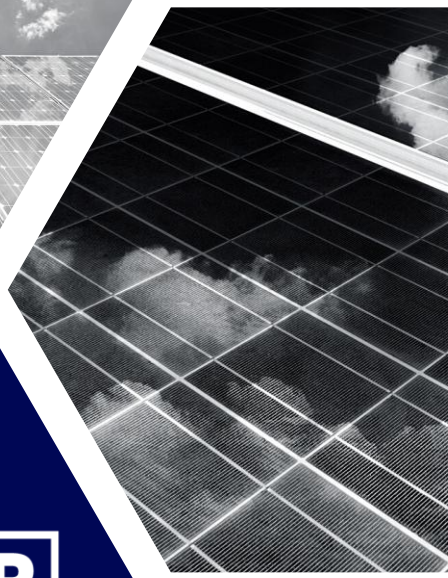
- Start from the basics, taxonomize your data
- AI can be used to taxonomize data and it works
- AI it’s a fantastic tool to improve efficiency, it’ not the only one though
- The future is bright, with the right data and right tools we can achieve wonders!

LET'S FLEX

SOLARPOWER SUMMIT 2025

DAVID MOSER

Managing Director,
Becquerel Institute Italia



BECQUEREL INSTITUTE

Strategy Consulting in Solar PV

Let's flex data and AI to maximise power plant efficiency and system integration

SOLAR POWER SUMMIT

Understanding Predictive vs Generative AI

Predictive AI

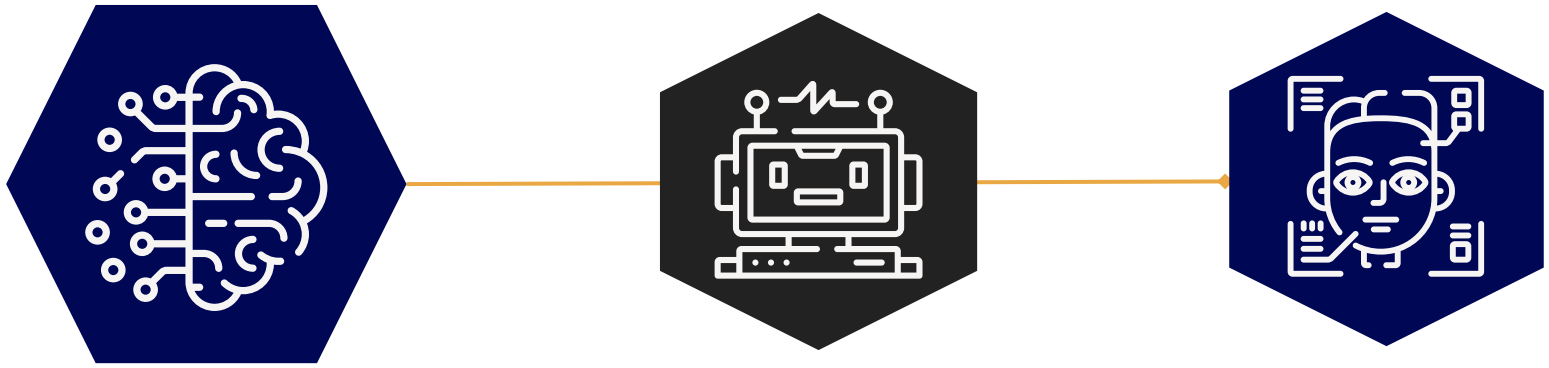
- Definition: **the AI we've been dealing with for years now**, to analyze historical data, to make predictions about future events or trends.
- Key Features: Data-driven, relies on statistical models and machine learning algorithms.
- Applications for PV: Energy Forecasting, Failures detection, Smart energy systems.

Generative AI

- Definition: Generative AI learns from data to generate new content or solutions that didn't exist before**, mimicking creativity and accessible to everyone.**
- Key Technologies: Generative Adversarial Networks (GANs), Transformer models.
- Applications for PV: From **Yet to explore** to **ready to be unleashed**

Agentic User Interface

Any step of the PV value chain



Insights Engine

Agentic User Interface

User

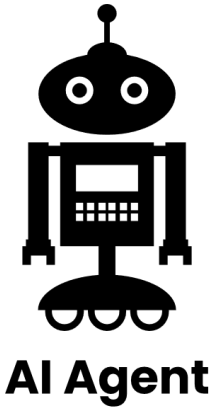
Predictive AI

meets

Generative AI

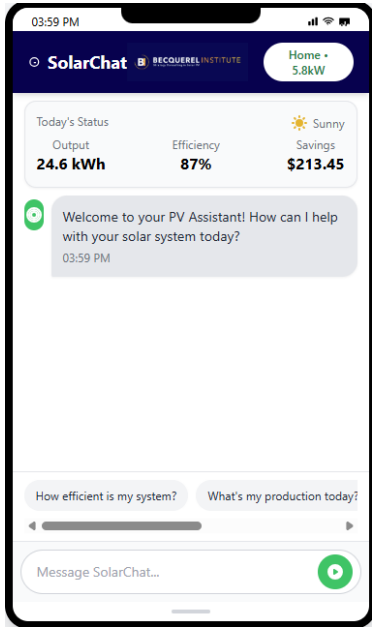
Agentic User Interface

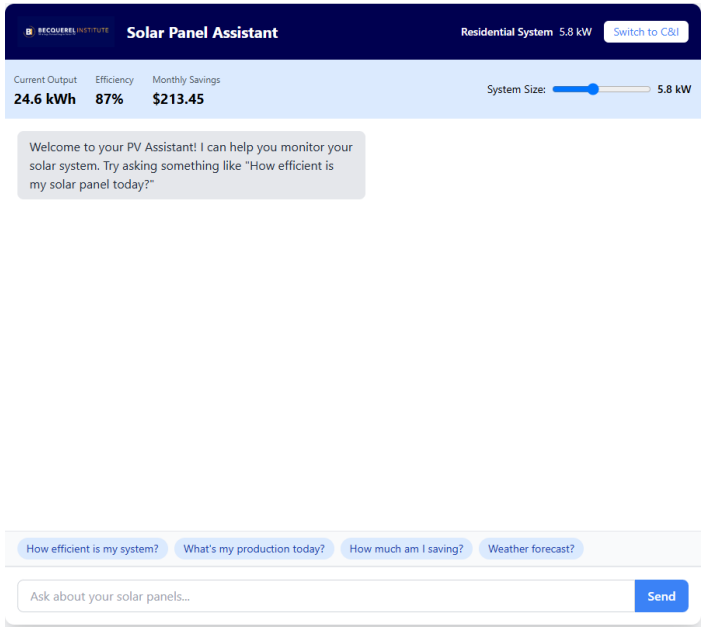
AI agents



An artificial intelligence (AI) agent refers to a system or program that is capable of autonomously performing tasks on behalf of a user or another system by designing its workflow and utilizing available tools.

Different UIs





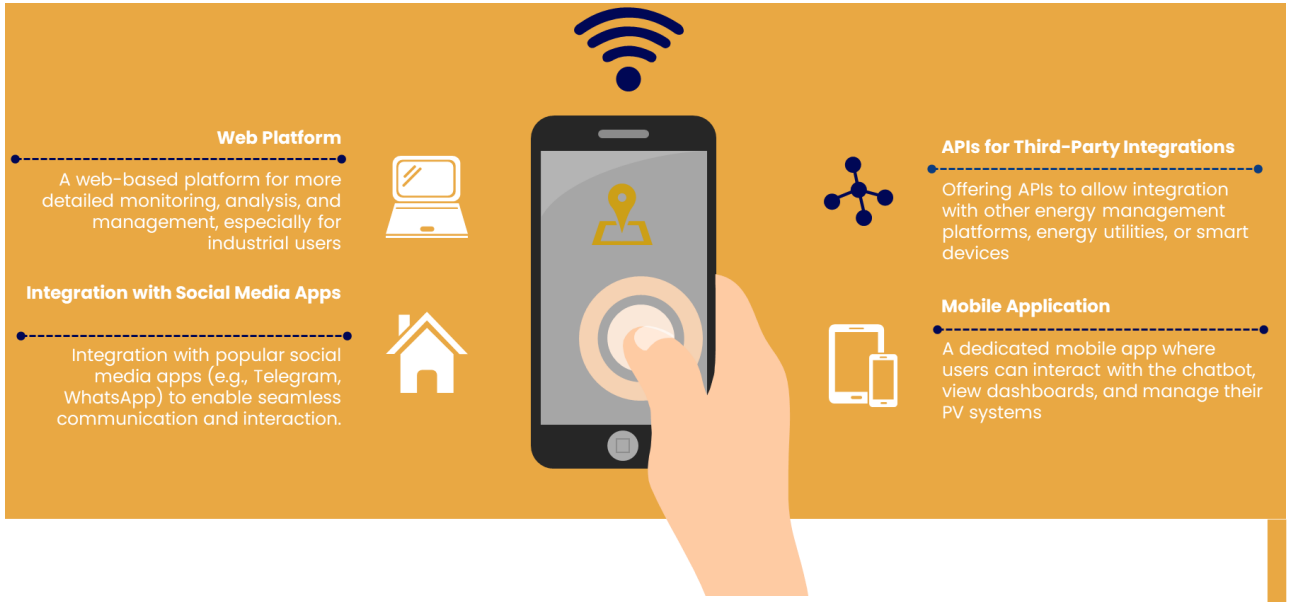
Agentic User Interface

AI agents

AI agents can watch over your assets

Agents can go beyond data retrieval—they're equipped and ready to act

Channels



This isn't just about managing solar energy

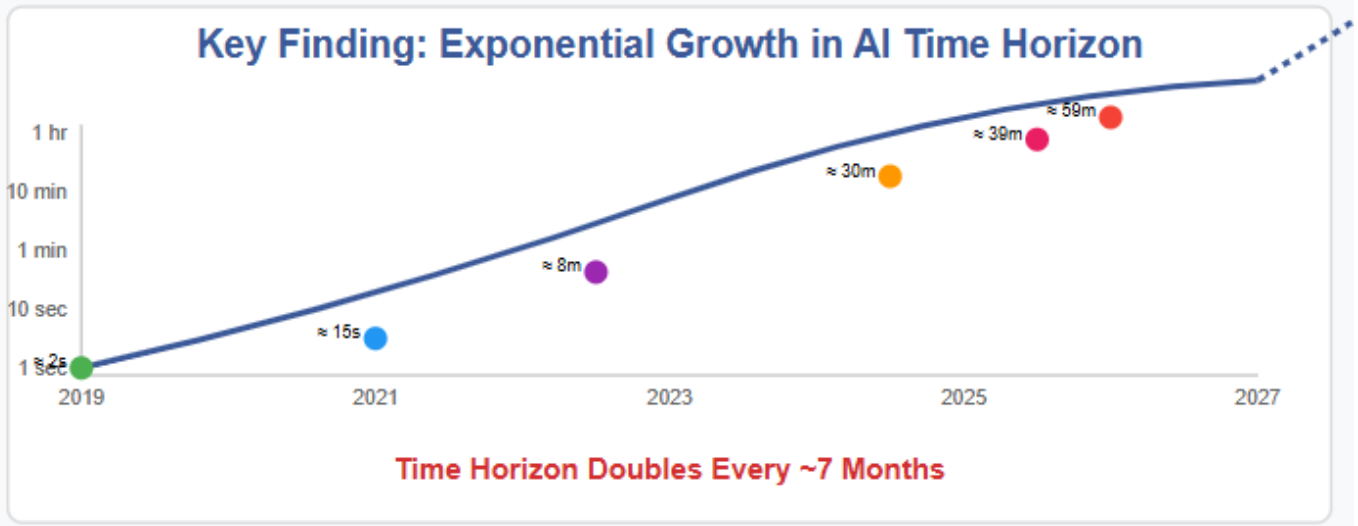
it's about building a dynamic relationship with your PV system

Credits: Mousa Sondoqah @SQS 2025, Eurac Research

Impact of AI: time horizon

What is "Time Horizon"?

- Time horizon is the duration of tasks that AI models can complete with a specific success rate
- 50% time horizon = length of tasks AI can successfully complete 50% of the time
- Provides an intuitive measure of AI capability compared to human experts



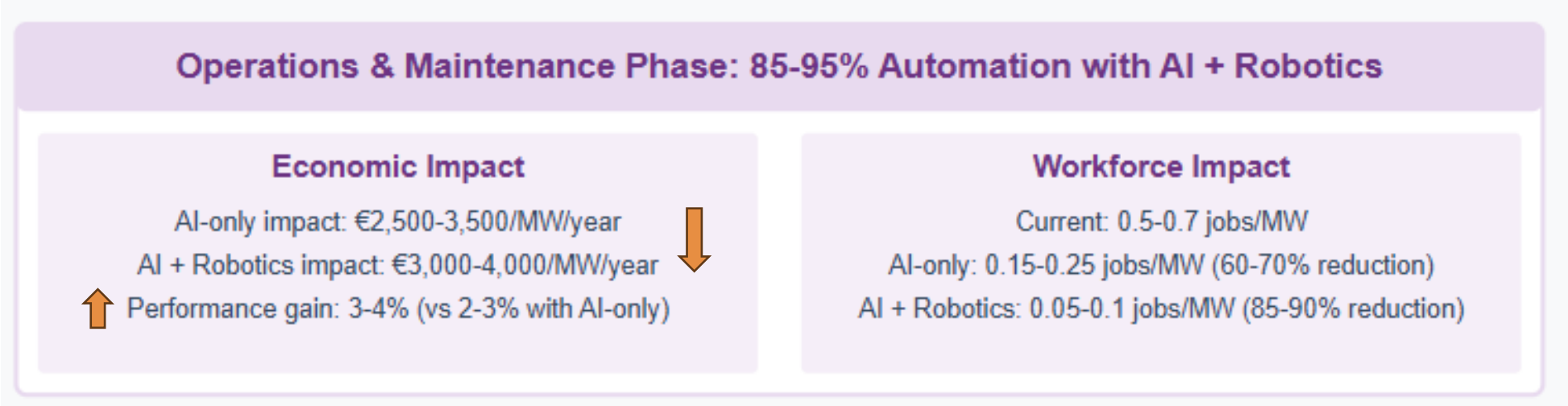
Release date of AI that can complete 1-month long software tasks spans from late 2028 to early 2031

More than 80% of successful runs cost less than 10% of what it would cost for a human to perform the same task.

Measuring AI Ability to Complete Long Tasks arXiv:2503.14499v1 [cs.AI] 18 Mar 2025

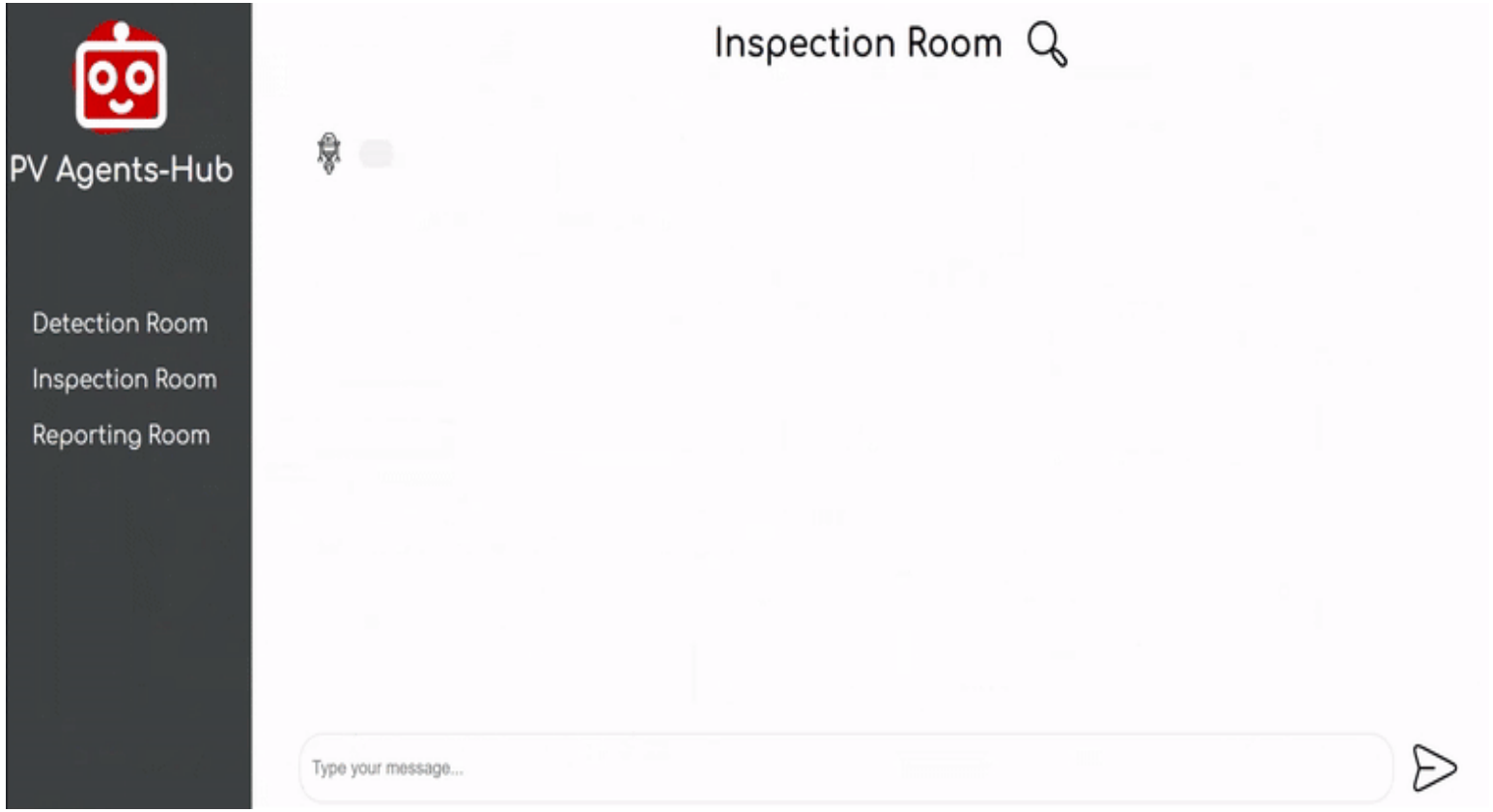
(Possible) Impact of AI by 2030 in the PV sector

DISCLAIMER: Ongoing analysis along the whole value chain. Values are under evaluation



AI + robotics: it enables unprecedented scalability of solar deployment by decoupling growth from workforce constraints, while simultaneously mitigating the severe skills shortage that currently limits or will limit the industry expansion in the future.

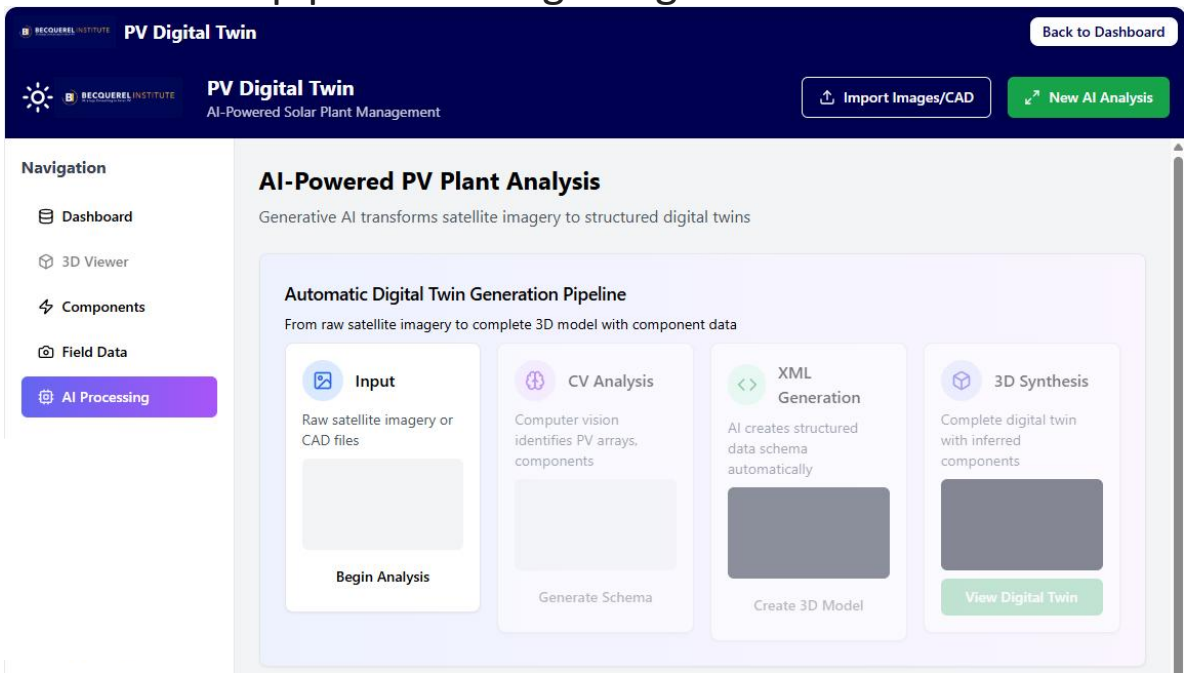
But is this the real life or is this just fantasy?



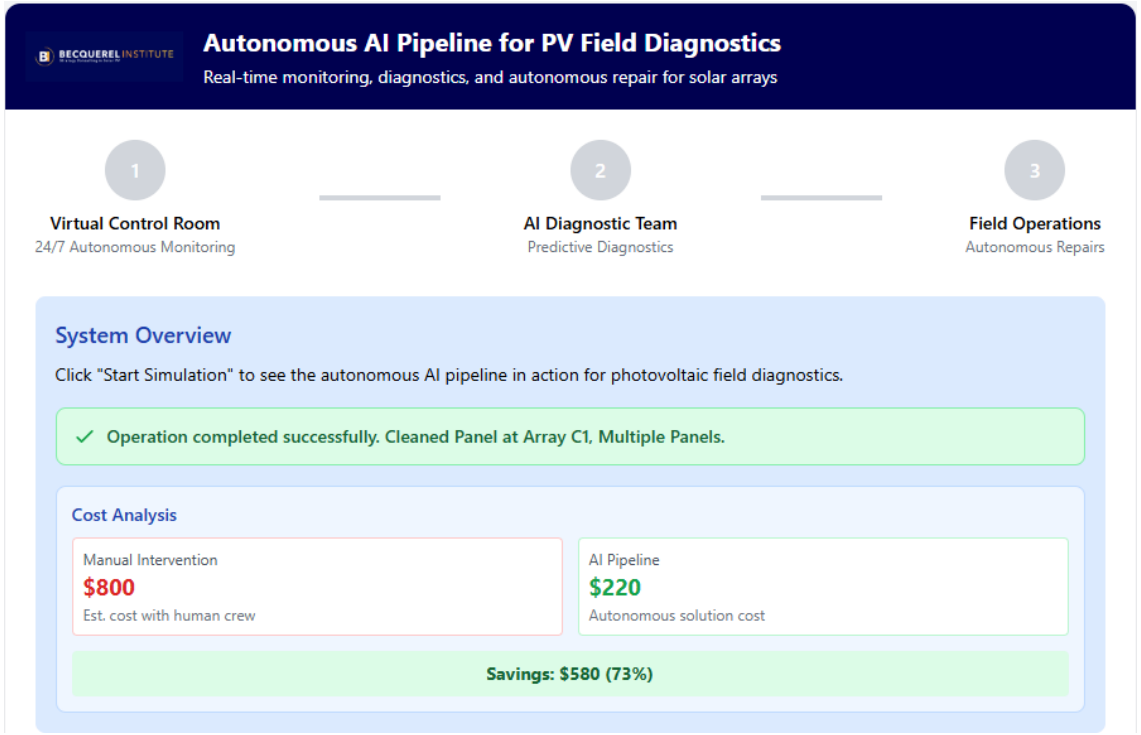
Credits: Mousa Sondoqah @SQS 2025, Eurac Research

But is this the real life or is this just fantasy?

Autonomous pipeline during design



Autonomous pipeline during operation



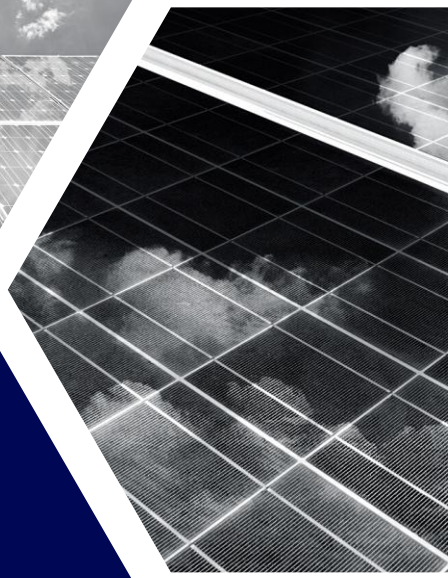
BECQUEREL INSTITUTE
Strategy Consulting in Solar PV

Key points

Mimicking creativity and accessible to everyone.	→	**Energy democratization** **Enlarge the customer base** **Engage with new possible customers / new market segments**
AI Agents driven ecosystem	→	**Creation of a strong case for digitalized solutions and platform** **Management of larger portfolio** **Cost reduction per kW along the whole value-chain**
Conversational interfaces	→	**Unleash the full potential of digital platforms and dashboard based solutions**

AI + robotics: it enables unprecedented scalability of solar deployment by decoupling growth from workforce constraints, while simultaneously mitigating the severe skills shortage that currently limits or will limit the industry expansion in the future.

BECQUEREL INSTITUTE



Your Contact

David Moser
Managing Partner Italia
Becquerel Institute Italia
d.moser@becquerelinstitute.eu

LET'S FLEX

SOLARPOWER SUMMIT 2025

SPEAKERS

Stavros Stamatoukos

Policy Officer, Digitalisation and Artificial Intelligence,

DG ENER, European Commission

Susannah Wood

VP of Public Affairs and Sustainability,

Statkraft

David Moser

Managing Director,

Becquerel Institute Italia

Giuseppe Ferraro

Business Director for Turbine Engineering,

Green Power Monitor (part of DNV)

Jan Osenberg

Head of System Integration,

SolarPower Europe