



**Proxima**  
Solutions

Services Brochure

**Renewable energy.  
Enabled by AI  
Powered by humans**



# People power: the importance of the human factor

Our experts are renewable energy enthusiasts who are highly proficient in their fields. Through our advisory services alongside machine learning algorithms, we bring this know-how to you, helping you to get more from your data.

Our value proposition







# Supervision

Our Supervision Center is where we make sure things are running smoothly, by continuously monitoring your wind farms and hydropower plants. From here, we let you know about any alarms, warnings or failures that might need attention from you, your contractors and service providers.

We then oversee the maintenance, making sure it's scheduled to take place at the right time – during the right weather and market conditions – to minimize any losses.

## Woriless control

Receive alerts about urgent issues and possible red flags at precisely the right moment.





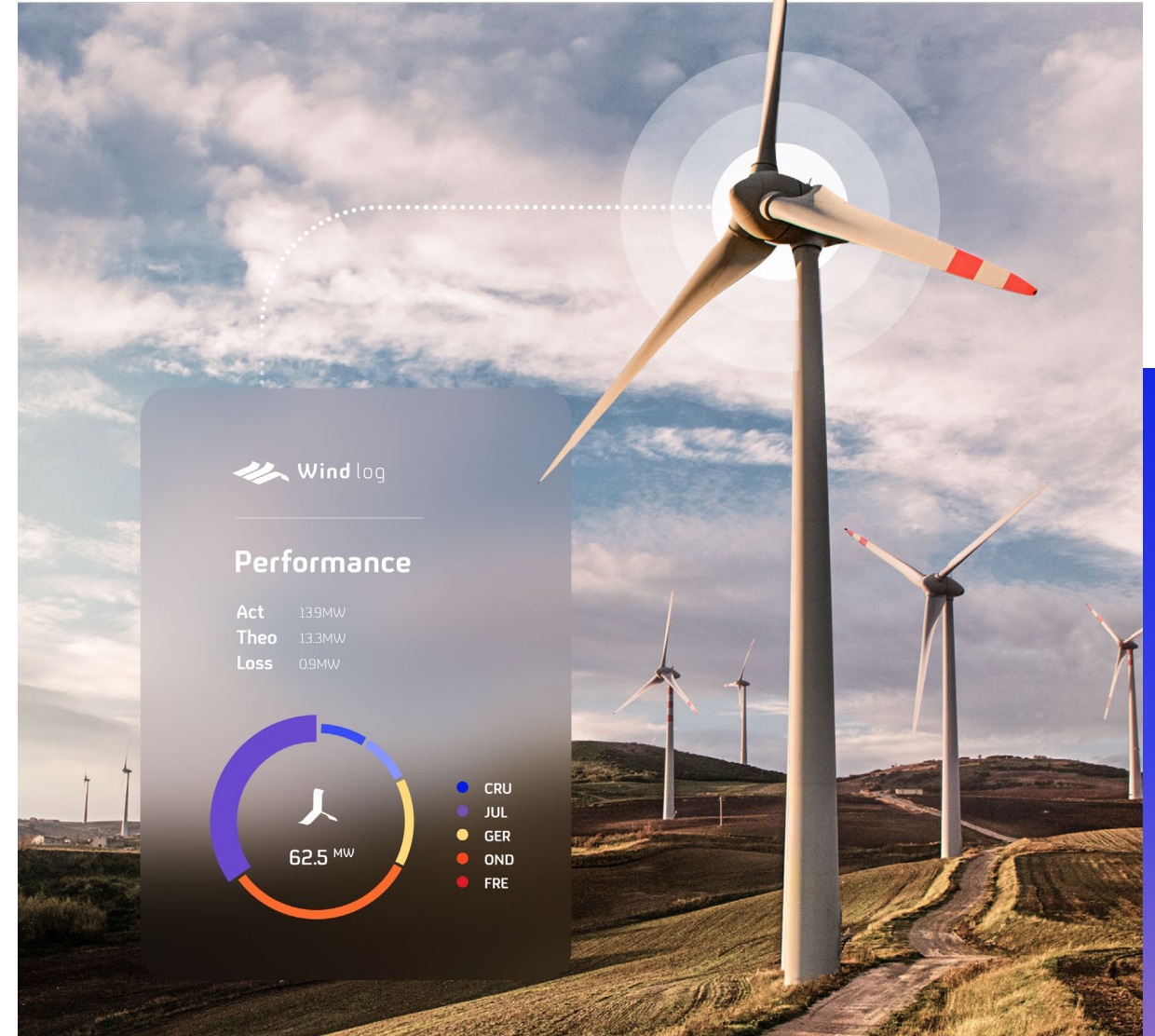
# Asset management

By keeping track of every single turbine and maintaining Wind-Log's Logbook Module, we can calculate your assets' contractual availability and make sure you're always getting value for money from your maintenance contracts.

We can perform ad-hoc analysis on failure statistics, benchmarks of performance between parks or turbines, and suggest measures to improve their performance or extend their lifetimes. We can also assess the benefits of plant upgrades.

## Comprehensive asset reporting

We calculate asset KPIs – and we provide you with ad-hoc reports about performance and component conditions, so you're always on top of how things are going.





# Diagnostic

Our proprietary AI/ML-based algorithms detect anomalies early so that corrective measures can be taken, and machinery failures are avoided.

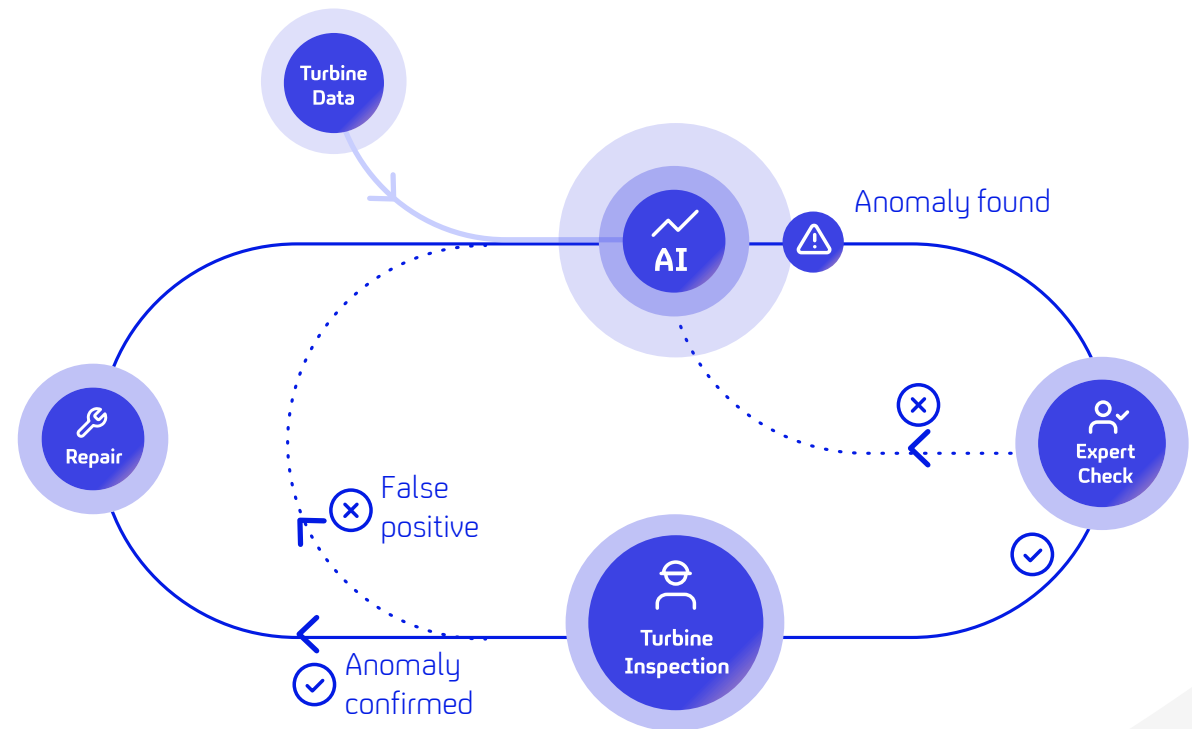
Our experts evaluate every finding to minimize false alarms. The algorithms have been extensively tested in the real world and – thanks to a closed feedback loop between field personnel and data scientists – their accuracy keeps improving.

We send our clients turbine health assessment reports and organize monthly calls to analyze findings and advise on mitigation measures.

## From predictive to prescriptive

The aim of all this tracking and monitoring is not just to identify anomalies. Our experts have the knowledge and experience to advise you on the needed corrective measures.

### Anomalies effortlessly detected and addressed with our propriety AI/ML-based algorithm

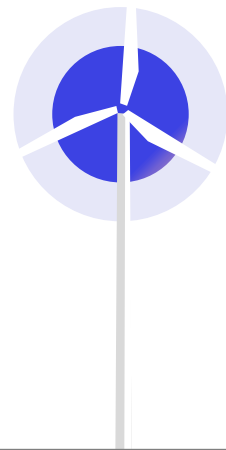


# 01 Create digital turbine twin

Turbine is connected to Wind-Log and at least 1 year of 10 min data values are delivered to the database.

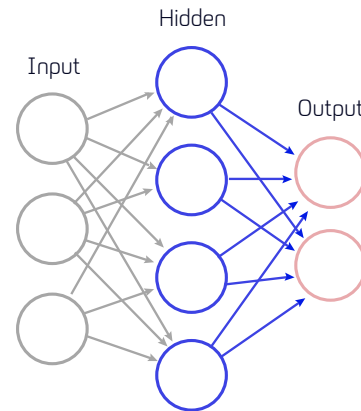
If the WTG Model is already known in Wind-Log, the system will also work with only 3 months of 10 min data.

Combination of attention based networks and recurrent neural networks

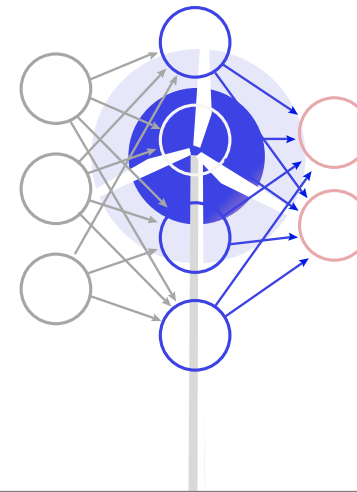


Historical data of a wind turbine

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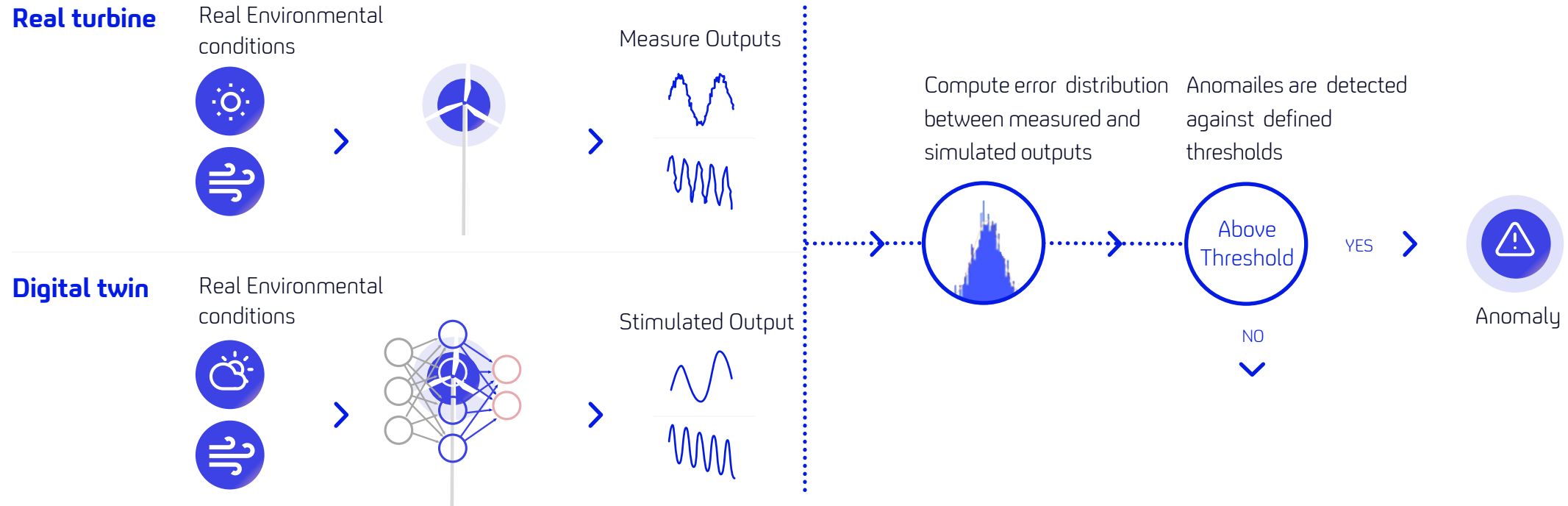


Digital twin

## 02 Identify anomalies

Neural network (AI) is “trained” with the data that was received and “learns” what a normal operation modus is.

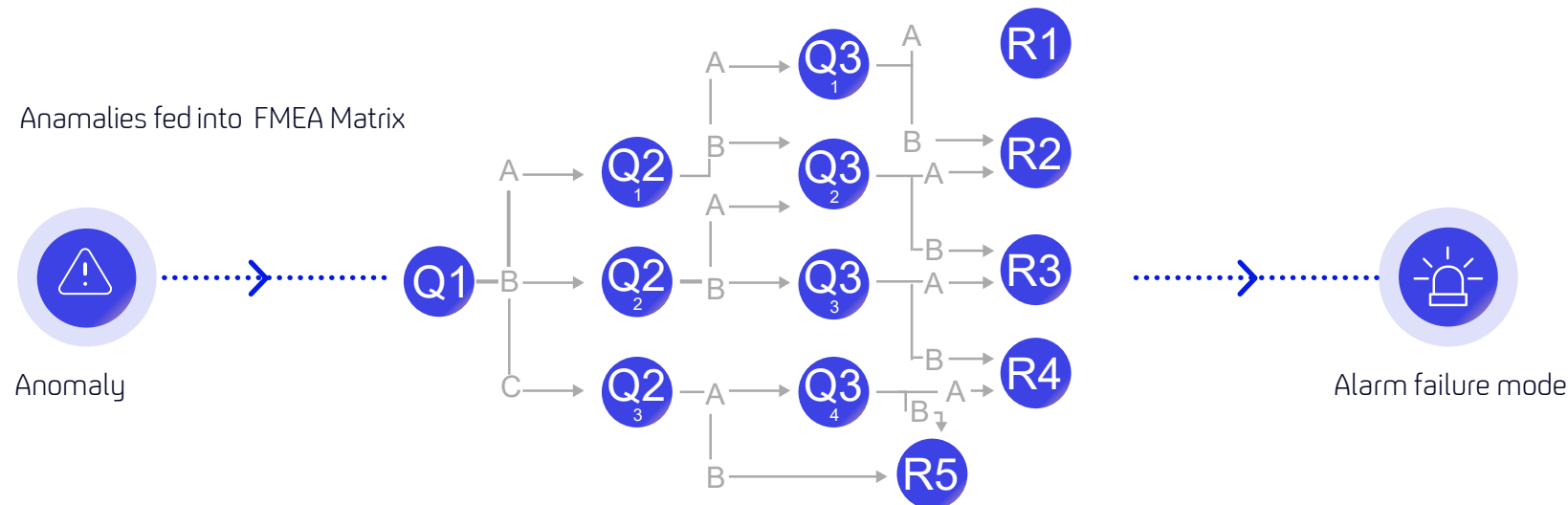
Anomalies can then be detected against this “normal” situation using the developed algorithms, if a defined threshold is exceeded.



## 03 From anomalies to failure mode

Anomalies are fed into a FMEA Matrix (failure mode and effects analysis) developed combining the know-how of data scientists, technology specialists and wind energy experts.

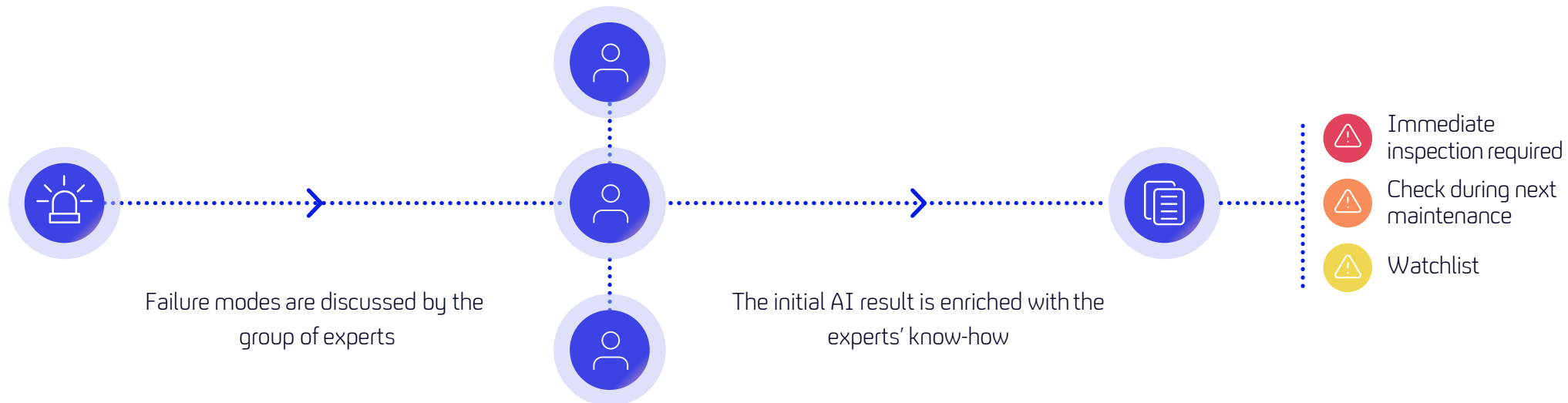
The FMEA Matrix is an automatized decision tree, that for each anomaly provides the most probable failure modes. Failure modes are the possible root causes of the detected anomalies. These anomalies and the resulting failure modes are then automatically saved into a list.





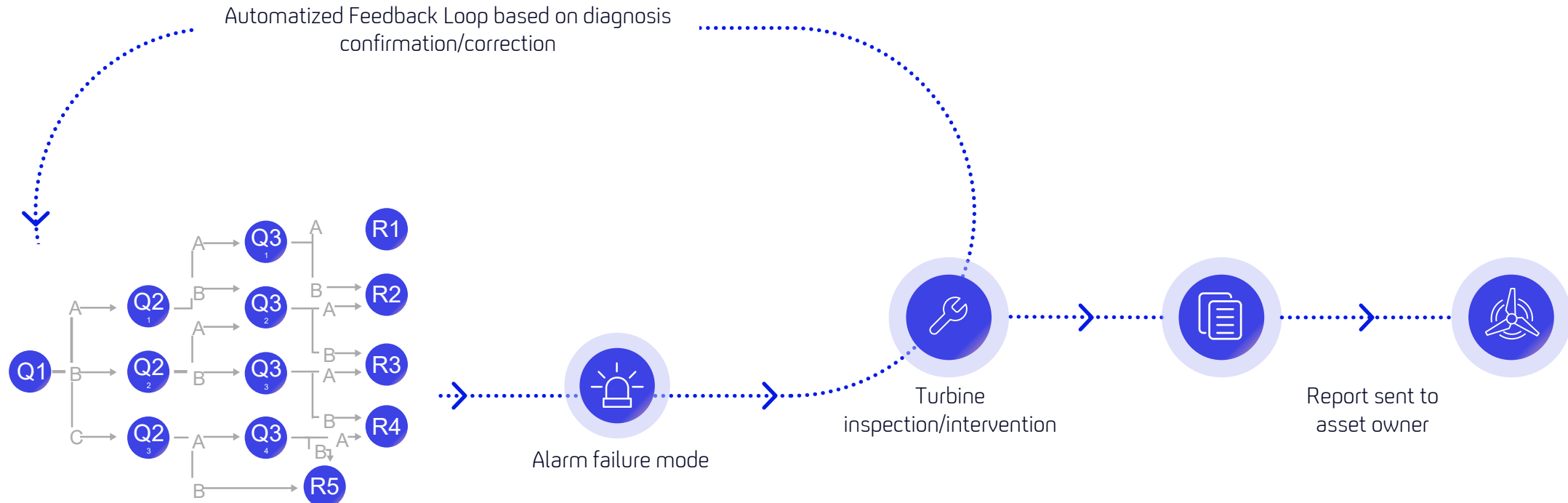
## 04 AI results enriched by expert know-how

Turbine and wind energy experts discuss the failure modes and evaluate them, based on their know-how. Following the expert severity and urgency evaluation, the decision about the reaction to the problem is taken.



## 05 Permanent feedback loop from the field

The experts' severity class report is then sent to the clients. With the report the client can challenge their service providers. Feedback from the service provider then goes back into both the predictive algorithms and the FMEA Matrix to constantly improve their quality.



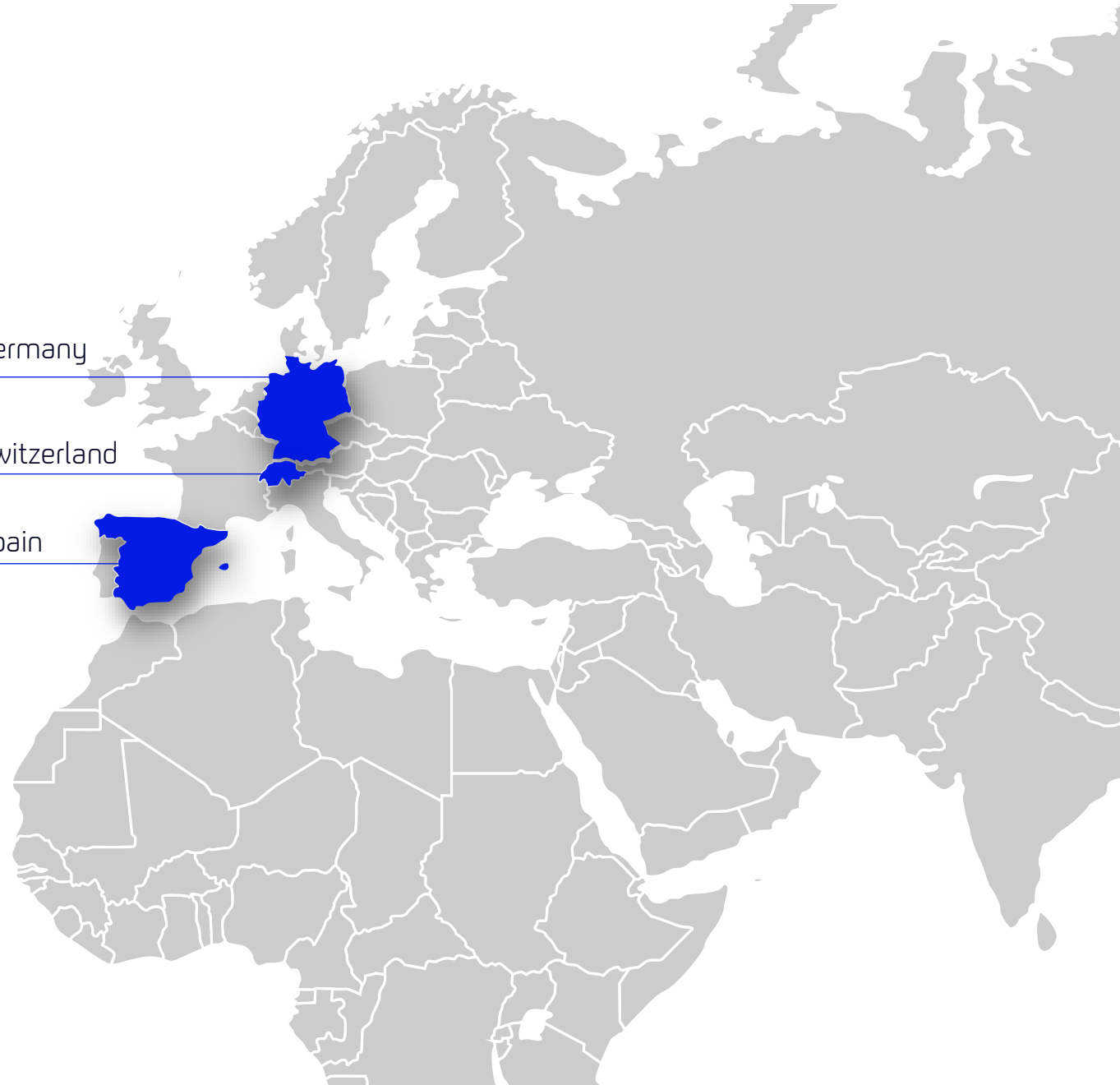
## **We are a German-based company founded in 2018**

with the purpose of boosting projects for  
renewable energy assets through software  
development and AM advisory services.

Germany

Switzerland

Spain





**Giuseppe Madia**

CEO of Proxima Solutions

20 y + experience in Energy Sector.



**Dirk Oehlmann**

Head of Sales

11y + in Wind Energy and Project  
Management



**Frank Schnabel** 

Head of Operations

17y+ in IT Business



**Adriano Sorgente** 

Lead Backend

10y + as BE developer



**Christoph Neufink** 

Head of Control Room

13y+ Solar Energy and Project  
Management



**Gökay Pamuk** 

CTO

10y + as Developer, BI Consultant,  
Data scientist



# Renewable energy. Enable by AI Powered by humans

Oehlmann Dirk Lennart

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