



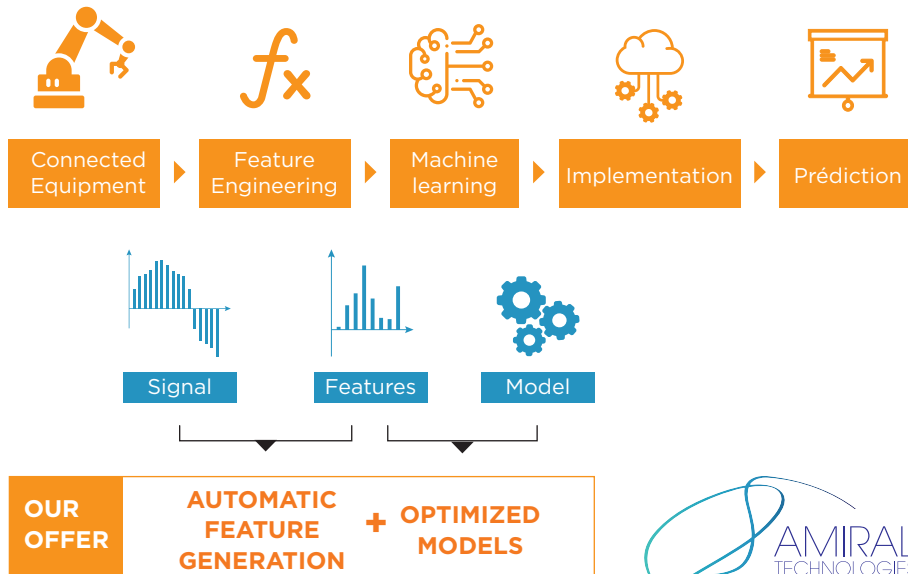
# Smart Predictive Maintenance Solutions



## OUR MISSION

**TOWARDS ZERO DEFECTS AND ZERO DOWNTIME ;**  
with powerful and performant predictive maintenance models for the digital industry.

### DESIGN PROCESS OF A PREDICTIVE MODEL



#### Some Facts

Current maintenance strategies are mostly based on corrective and preventative methods.

#### The problem

Preventative maintenance processes and downtime duration are over-estimated to minimize the risk.

Risk of failure and production downtime is still real and costly.

#### The opportunity

**13 billion** connected objects in 2016 / **29 billion** in 2020.

**Less than 20%** of the assets are connected today and **70%** of the collected data is still not used (World Economic Forum).

Predictive maintenance is the #1 B2B application with **250 million** connected industrial equipment and **€24,7 billion** in 2020 (IDATE, ABI Research).

### Good to know

**30% win** on cost over preventative maintenance

**50% over** corrective maintenance

(Electric Power Research Institute)

## Predictive Maintenance **MODELS**

**Generic and Bespoke AI models** based on Amiral Technologies' innovative algorithms.

- Defective equipment.
- Signs of aging.
- Nearing end of useful life.

**Supervised or un-supervised learning** depending on the availability of historical data.

**Intelligent alert thresholds** matching your own tolerance to the ratio of prediction rate/false alert rate.

## Energy Monitoring **MODELS**

**Estimation of power consumption at equipment level** based on the aggregated consumption data.

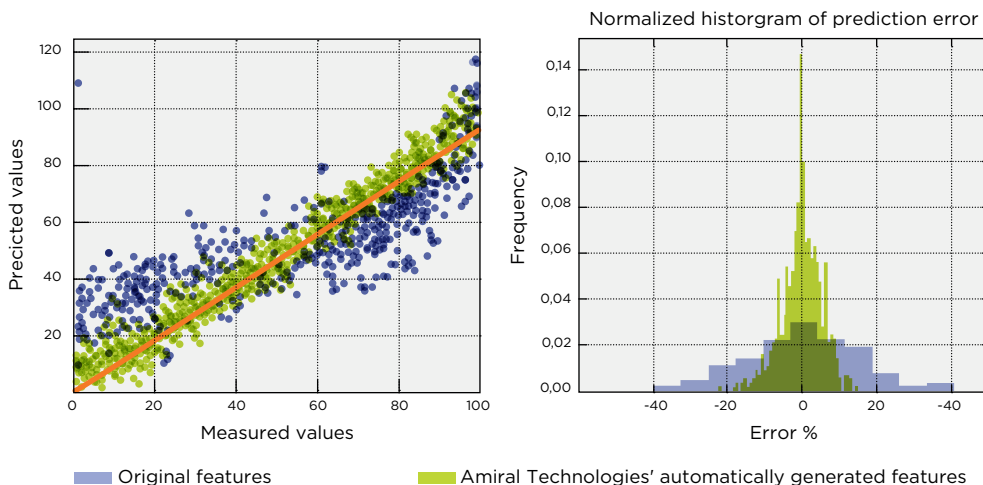
**Equipment detection and classification** based on the switch-on signal.

## Automatic Feature Generation **MODELS**

**A unique innovation in Automatic Feature Generation algorithms**, whatever the nature of the time-based signal (electric signal, temperature, humidity, vibration, ... or a combination of the above) and without the need for a subject matter expert at this stage.

The generated features are infinitely rich, highly discriminant and lead to superior performing predictive AI and machine learning models.

Prediction of the Remaining Useful Life for a power contactor



# CATALOGUE of Models and Use Cases



Towards  
**ZERO** defects  
& **ZERO**  
downtime

## **Prediction of the Remaining Useful Life**

Generic model and its application to Industrial Power Contactors and Turbofans.

## **Prediction of defects**

Generic model and its application to Rail Point systems and Industrial Printers.

## **Prediction of aging**

Generic model and its application to Wind Turbines and Induction Motors.

## **Monitoring of industrial power consumption**

Non-intrusive power disaggregation model to estimate the individual equipment's consumption.

## **Monitoring of domestic appliances**

Appliance detection in a home electric network based on the switch-on signal.

## YOUR OPERATIONAL NEEDS

**Identify** quickly or in a few days the feasibility of a predictive maintenance solution for your production equipment.

**Reduce** your maintenance and inspection costs, drastically.

**Reduce** significantly the risk and financial impact of operational downtime.

Build a powerful predictive maintenance strategy with Amiral Technologies' innovation and expertise in Artificial Intelligence.

## YOUR ADVANTAGES with Amiral Technologies

### Immediate reduction in maintenance costs

From 30 to 50% depending on your current processes.

### Immediate gain on equipment uptime

Up to 100%. (based on a real dataset).

## Amiral Technologies's STRENGTHS

### A strong expertise in AI based on years of research at the French National Research Centre (CNRS).

### Flexible models

- Reduce the dependence on subject matter experts in the early stage of the model design.
- Build precise and powerful predictive models in a few days and save weeks and months of traditional studies.
- Tailor our generic models to the specificities of your equipment using supervised and un-supervised (without historical data) learning.
- Continuously enhance the model's performance with feedback from production data.

### How to use our solutions

- Integrated in your IoT (standard or proprietary) platform.
- Hosted on Amiral Technologies' cloud.
- Embedded in the equipment or using Edge computing in your factory.

# WHY choose Amiral Technologies

## **You have an industrial plant**

And you wish to maximize your equipment availability and anticipate any production downtime.

## **Your are a manufacturer**

And you wish to reach zero defects on delivery and optimize your after-sales maintenance cost.

## **Your are an editor of an Industrial IoT platform**

And you wish to enrich your catalogue of solutions.

## **Your are an AI expert or a team of experts**

And you wish to enhance the performance of your predictive models on time-based and transition-based signals.

## TESTIMONIAL

*"Amiral Technologies provided a clear overview of their understanding of our problem, giving actual results with the data set we provided, even going further and exploring clustering opportunities that require domain knowledge involvement to unleash potential value"*

JM Ibanez Borau, Large Format Printing Data Management, HP Inc. 

### PARTNERS



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