

PREDICTIVE INTELLIGENCE solution for Predictive Maintenance

Reduce machinery down time and optimize technical services

World-class products require world-class production line management. Increase machinery availability and optimize technical service management by predictive and demand-oriented maintenance.

Maintaining machinery on the basis of pre-defined cycles and condition monitoring belongs to the past – actually in two ways:

- Analysis is based on “What has happened” but not on “What will happen and what is necessary to avoid future failure”.
- Next generation of maintenance is future-oriented: Predictive machine service and adaptive plant analytics.

Only predictive and demand-oriented maintenance saves time and money. New self-learning algorithms inject “predictive intelligence” in all relevant components.

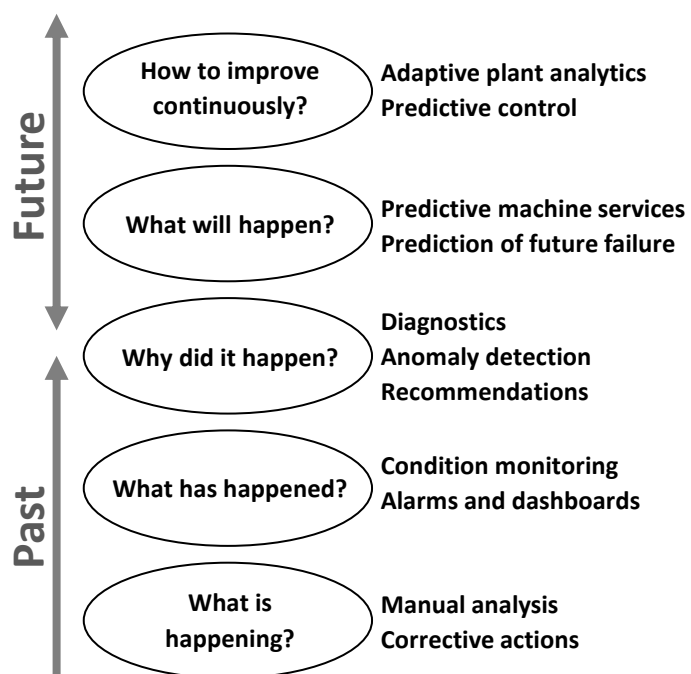
Both, machinery operators and machinery producers benefit from next generation maintenance. New business models are created to offer value add services for predictive maintenance analytics, i.e. via cloud.

Key Benefits

With PREDICTIVE INTELLIGENCE solution for Predictive Maintenance, you can:

- Discover anomalies in machine behavior.
- Get transparency which factors influence machine inefficiencies. In this way, you can optimize machine operation and sensor usage.
- Predict accurate machine failure and inefficiencies.
- Automatically adjust algorithms to understand changes in machine behavior (i.e. changed production and machinery utilization)
- Automatically roll out customized algorithms to your machinery instances

Even complex processes can now be analyzed with dynamic pattern discovery. Optimize your production and maintenance activities in an innovative and future-driven way.



Features

Dynamic pattern discovery

In highly complex and dynamic data, hidden and multifaceted data patterns are discovered. High complexity can mean big data / data lake, but also hardly any data / gaps in data.

Benchmarks have proven that PREDICTIVE INTELLIGENCE reaches significant more accurate predictions in complex and dynamic data than state-of-the-art methods like Deep Learning, Neuronal Networks, Support Vector Machines, Regressions, R, ...

In addition, often, those methods deliver satisfying results on learned data, but are not reliable on unlearned data. PREDICTIVE INTELLIGENCE realizes equally good results on untrained data.

Anomaly detection

Complex data patterns are found which happen in similar or changed ways before machinery runs inefficiently or fails. Those changing patterns can develop over weeks or months. PREDICTIVE INTELLIGENCE detects anomalies and assesses them for criticality.

Influencing factor discovery

Available data is analyzed for their influence to cause machine inefficiency / failure. In this way – even out of data lakes – significant factors are discovered. Transparency leads to optimized process re-design. In addition, sensors are optimized because attention is paid to relevant sensors, only, instead of gathering as much data as possible.

Failure prediction

For each machinery, inefficient operation / failure can be predicted in high accuracy.

Downtime is minimized and maintenance activities are planned and managed in an optimal way.

In addition, service technicians are informed which data causes future inefficiency. In this way, service technician is guided to component which will cause trouble in the future.

Self-learning: Manage changes over time

Production processes are not static. Changes happen again and again, for example, production lines` utilization is changed, production items are changed, ... This leads to different machinery usage, like heavier or lighter machine assignments, etc.

Self-learning algorithms understand dynamics of those changes and adopt analyzed data patterns automatically. Thus, there is no need to engage Data Scientists regularly to adjust mathematical models to changed reality. PREDICTIVE INTELLIGENCE realizes those adjustments automatically.

Self-learning: Enable scalability

In state-of-the-art methods, Data Scientists might be required to modify mathematical models for each individual machinery instance.

However, PREDICTIVE INTELLIGENCE learns the individual context of each instance, automatically. Thus, no Data Scientist has to adjust mathematical models for individual machinery instances.

Technical flexibility

PREDICTIVE INTELLIGENCE has a flexible architecture. It can be run on Linux or Windows, can use SQL or SAP HANA® and is GPU-enabled for high performance.

It can be easily integrated into your IT architecture (cloud, on premise, edge), either with own user interfaces, or as analytics core to send results into your existing monitoring system.

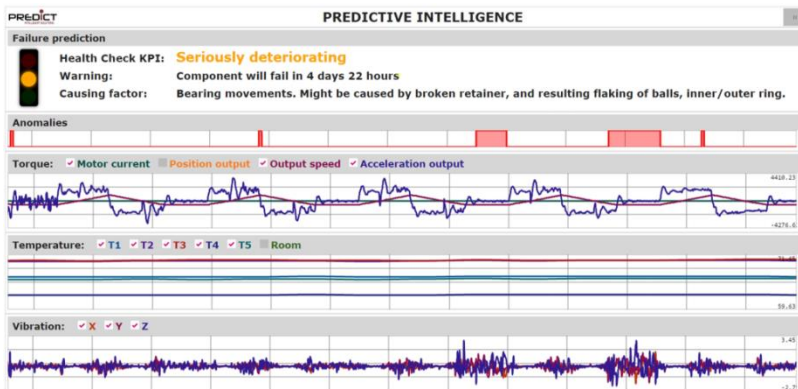
Project approach

In 3 phases, you can realize Predictive Maintenance:

- Phase 1 – Scoping
Prioritize critical processes and machinery and get transparency on available data
- Phase 2 – Analytics concept
Get assessment on available data for failure prediction (data quality, analytics potential, ...), discover influencing factors, detect anomalies and predict

failure

- Phase 3 – Analytics implementation
Integration in operative environment, field test, roll out and go live.



About IS Predict GmbH

IS Predict GmbH helps organizations to get the best business value out of digitalization and data analytics. Self-learning Artificial Intelligence solution PREDICTIVE INTELLIGENCE enables customers to optimize their processes in a predictive way – avoiding inefficiencies before they occur.

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