

Predictive Maintenance

Effective approaches address both
technological and organizational challenges

in partnership with



by Jean-Baptiste Guillaume & Rémi Sabonnadiere

” *IAC Partners and L2F have a unique complementary positioning to support industrial actors, combining strategy, operations and organization consulting with the best algorithm in Europe.*

At the era of real-time data processing, IoT and Big Data, it is now possible to predict and avoid failures before they occur and reach new levels of operational efficiency. But success is not only a matter of technology.

To successfully implement predictive maintenance, 2 technical challenges have to be overcome to gather and analyze data:

- 01** It is necessary to monitor the right identified metrics through the installation of smart sensors on the products, remotely connected to the organization's data center.
- 02** The development of advanced predictive algorithms e.g. embedding Topological Data Analysis is a vital step to deliver precise failure patterns.

Even though the technical level is essential in the deployment of predictive maintenance, it is not sufficient to a successful implementation. Many industrials fail to implement concrete results at the organizational level:

- 01** As maintenance operations will no longer be planned on a regular basis, new service processes and skills have to be defined in order to operate in agile mode, enabling smart and efficient operations.
- 02** Finally, predictive maintenance requires disruptive changes to be operated at the organization level, which have to be tackled as part of a change management policy to enable this transition toward a new digital-oriented mindset.

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Perspectives

Because it provides tangible return on investment in almost all industrial sectors, predictive maintenance will continue to be the basis of new product development strategies.

93%

of companies describe their maintenance processes as not very efficient

Our studies show that some benefits can be:

- 01** A decrease of breakdown occurrence by up to 70%,
- 02** Lower aggregate maintenance costs by up to 30% compared to preventive maintenance and
- 03** Reduction in unplanned downtime by up to 50%.

Predictive maintenance is not only about cutting costs. It has the ability to generate new business opportunities; in particular through the addition of new services in the offering portfolio driven by the development of smart business models.

As such, we are expecting an increase in the move from the sale of traditional products toward the sale of services with, for instance, new value proposition based on operating time (e.g.; in hours/month...) or product availability, which are more customer-oriented.

2018 - 2020 Challenges

- **1,000 avoided engine failures over 1 year** thanks to predictive maintenance on Delta Airlines' fleet
- **5-10% of average inventory cost reduction** thanks to predictive maintenance
- 55% of the companies are running pilot projects but **only 23% are generating a tangible benefit from it**
- To support implementation of predictive maintenance, **80% of companies would require assistance** on data analytics and 72% on the solution's implementation

Those benefits apply to any type of business, ranging from product manufacturers, to transport operators but also asset centric industries.

As an illustration, the low-cost carrier EasyJet implemented predictive maintenance of its entire fleet of more than 300 aircraft, following successful pilot projects. Relying on support from Airbus, 31 events were successfully predicted before

they occurred last year. On another domain, Nestlé retrofitted its entire corporate coffee machine operating base with predictive maintenance, optimizing technicians' travels.

The race is just starting, and most of leading companies are running pilot projects at least, in preparation of a future global expansion.

