



## The combination of mobile app and digital control center for performance analysis and predictive maintenance

The demand for operational readiness of wind turbines is increasing, as well as the requirements for the reduction of unplanned outages. Windpulse® from Lufthansa Industry Solutions, enables a real-time view of all plants in the portfolio. With an extension, you can use Artificial Intelligence and Machine Learning to anticipate unplanned outages and generate reports – whether for you, the OEM, or the agency.

### Windpulse® operational management

#### The optimal solution for operations management and service processes with

- Mobile service app
- Back-office web app
- IoT platform (cloud)

#### Your business benefit

- Optimization of own processes
- Cost reduction across the entire value chain
- Shorter service lead time
- Efficient use of resources
- Information platform
- Sustainability and quality management
- Documentation availability
- Process and detection safety

### Mobilize access to all performance information from your portfolio

New technologies simplify the work of operators and at the same time, they provide much more information. The operations management solution bundles all central wind turbine data for a performance presentation and analysis. This means that the latest information about your service portfolio is available electronically at any time. Performance analysis can be carried out directly via tablet or smartphone on site. It can be seen much more efficiently and leaner through the mobile application. If required, the solution also stores all evaluations on the cloud platform, so that all stakeholders involved in the process can quickly access the necessary information with a single click. This also enables their quick response when questions arise.

### Automated evaluations by Artificial Intelligence (AI) and Machine Learning (ML)

The expansion of the standard package opens up new possibilities for the user, specifically for asset management, as well as for communication with the OEM or the authorities. This gives the user access to all their system data with just one log-in. The user can compile the data independently so that presentations and individual reports are possible in addition to standardized evaluations. Artificial intelligence, in the context of Machine Learning, provides recommendations for actions that enable predictive maintenance. With the Windpulse® operations management solution, you can avoid downtime and capture all trends live.



## Features

- **The new standard**

Benefit from the asset management experience of the Lufthansa Group. You can have all the information you need in one place. Whether availability, downtime or predictive maintenance, have everything at a glance.



- **BYOD – Bring Your Own Device**

Suitable for tablet and smartphone (currently iOS).

- **Individual settings**

Configure mobile devices centrally and individually for your employees.



- **Individual user and device recognition**

Grant individual access rights to wind farms, wind turbines and master data per employee or user group.

- **Object data**

In conjunction with the inspection tool, you can always obtain detailed data on wind farms, wind turbines, assemblies or individual devices – such as site specifics, exact location determination, grid connection point or required auxiliary equipment.



- **Fast status detection**

In the inspection tool, get the photos, reports and documentation of the respective wind turbine and have a view of its condition.



- **Performance analysis**

Take a look at the performance of a wind turbine over a defined period of time. Compare the production of several systems with each other. Identify your most efficient wind farm in the portfolio and draw conclusions for more purchases and optimizations.

- **Project data**

Through a standard interface, load all project data from wind ERP systems or the inspection tool into Windpulse®. Data entry is also possible directly in the back-office solution.

- **Checklists and reports**

The checklists generated in the inspection tool automatically provide information for the operations management solution. Decide which type of report you would like to issue (weekly, monthly, management, BSH, DIBt, EOW report, etc.) and generate it automatically or with just one click.

- **All data at a glance**

Consolidate all data from all your systems in one place. Take a look at the timely adjusted data via a single log-in.

- **Data visualization**

Decide which parameters of the plants and wind farms you want to compare with each other. Have them displayed with standard tools in just a few clicks.

- **Recommendations for action**

Avoid downtimes in your wind energy plant by using the recommendations for action identified by Artificial Intelligence and Machine Learning. Decide which lead needs assessment in order to have enough time for deployment and asset planning.