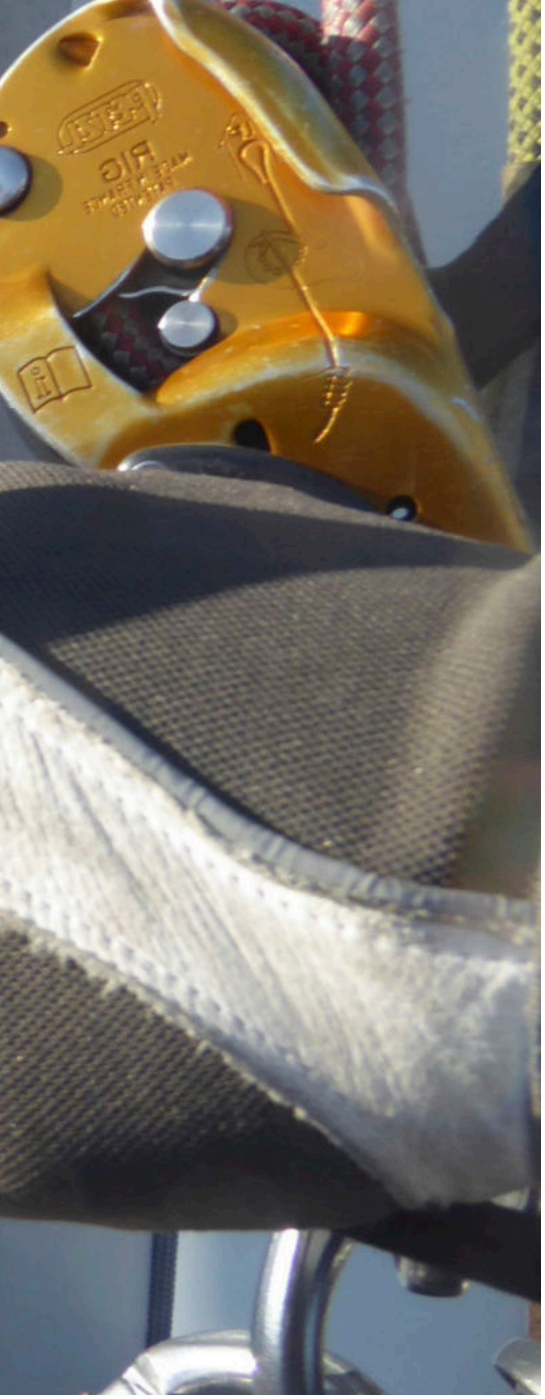
Optimise blade maintenance with IT

Words: Colin Lefebvre, Blade Expert CEO

Digital innovation is crucial for tracking blade damage history and repair details on large fleets. As the first software-as-a-service for this market, Blade Expert sets a new communication standard for rotor blade works and data management that allows any service company to deploy its own system, while enabling owners and operators to optimise their maintenance strategy.



Conventional inspection and repair methods for rotor blades are being challenged with new technologies, including drones, robotics and AI. While capable of delivering large amounts of data, such technology doesn't necessarily drive a maintenance plan. While traditional methods can deliver some of the most qualified information and data, blade technicians are now switching to modern alternatives that offer even more advantages.

Blade Expert offers service companies their own custom database and web application for blade inspection and repair activities. Each system is independent and set according to the organisation policy. It has been designed for use by blade specialists for communication and reporting optimisation, with the aim of managing blade assets in best way for maximising AEP and avoiding costly losses and downtimes.

Digitalise the workflow

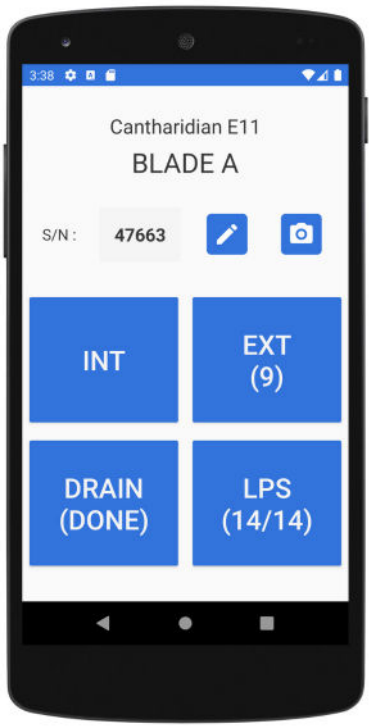
Data is collected on site using a mobile application, with results delivered from a web platform direct to the customer. In this way, Blade Expert enables service providers to improve their workflow through digitalisation. Furthermore, turbine owners and operators can aggregate the necessary maintenance information and manage their systems independently from the source, a particular advantage on large fleets.

For blade service providers looking for a modern and standardised format to present their knowledge and work performance, innovation and information technology are key factors that are driving positive change. With this solution, reporting is enhanced, saving time and keeping costs down on a day-to-day basis. Communication between site technicians is also optimised thanks to the mobile app, while quality is improved, with better support and back-up from the office.

Define a communication standard

From drone inspection to repair services, the wind industry needs an open communication standard that is independent from any organisation or service provider. The challenge is huge, facing a diverse range of usages, but standardisation is necessary in the blade maintenance business. Creating a network of service partners using an independent tool, Blade Expert sets a standard for the reporting and communication of rotor blade damage that moves the wind industry forward.

While static reports are deliverable and give accurate conclusions and recommendations at the time of issue, they can quickly become outdated and inaccurate in managing a blade maintenance strategy on a large scale over a long time period. This makes the damage traceability very weak and highly time consuming for blade engineers with different



spot codes, positions and wordings or low definition pictures.

Blade Expert presents an alternative and enables any blade service provider to easily deliver to final customers, high quality data in a standardised format beside a custom PDF report.

Mobile app input

Blade Expert provides the first mobile application that is accessible to any service technician and dedicated to rotor blade inspection and repairs. Once connected, blade technicians can send images and information to the database, with the engineering department able to review it live from the office before sending instructions back to the site. Thus, communication is enhanced and quality issues are reduced.

From the user perspective on site, the mobile application is accessible online or offline. The creation of damage lists for each blade is easy using any android mobile device. Adding pictures, parameters, specifications, weather conditions or serial numbers is intuitive with the app. Damage list could be also predefined with to-do actions, making the pictures of the last status accessible on the mobile device.

Enhanced reporting and dashboards

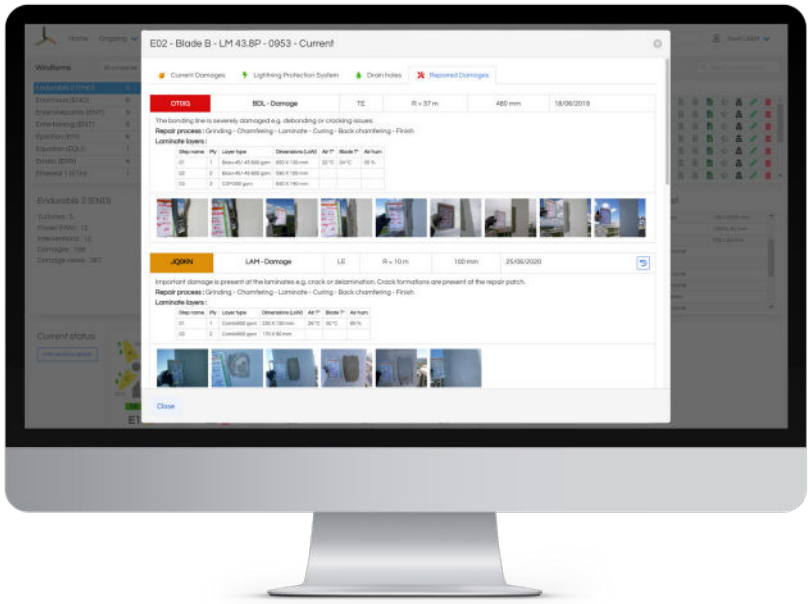
Damage and image lists are automatically identified and ordered on the web platform, ready for review and validation from the office. This makes it quick and simple to analyse information including inspection and repair images, lightning protection system measurements or drainage hole status.

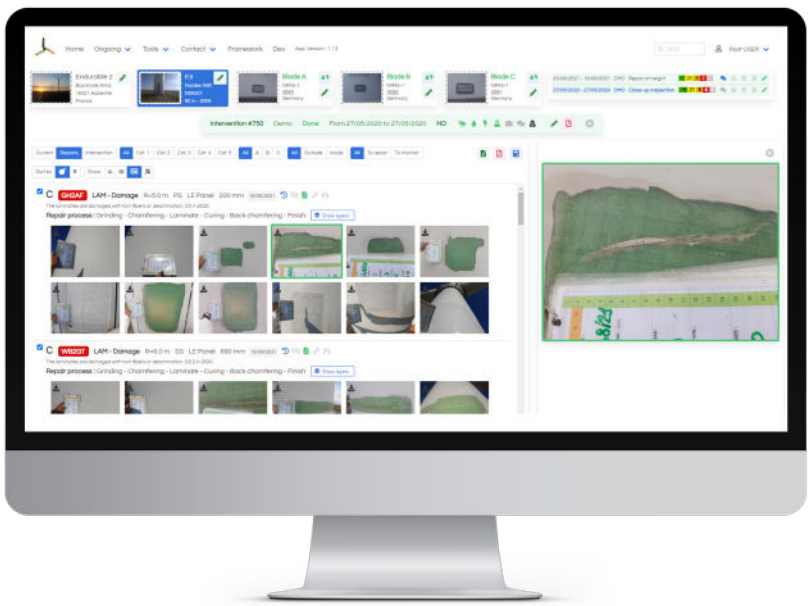
Flaw types, descriptions, chemical products, layer types and repair processes are defined in custom lists and templates, enhancing the reporting process and resulting in a high-quality, industry standard report, which can be produced in several languages including English, French, Spanish and German.

Once validated, the end customer is notified about the report availability with a download link to the web platform. Access rights are strongly defined at all levels, making validated spot conditions accessible, including image details, damage history, search options, advanced export or interaction functionalities.

Campaigns and subcontractors

For large operators, Blade Expert makes it possible to follow blade inspections and repair campaigns through various service providers in a single page. To-do lists can be created, with tasks allocated to the relevant contractor, enabling progress of the job to be tracked per campaign, subcontractor, wind farm, turbine or damage rates. All input from different sources and service providers is gathered





on one platform, within a single format.

Follow-up and review of interventions is easy and there is no loss of information. Quality indicators per intervention can be tracked via details and satisfaction ratings per customer or service provider. Data storage, security and traceability are also assured, with archive and deep storage in compliance with quality systems, which means peace of mind for the user's organisation too.

Fleet management

More than a reporting tool, Blade Expert has been designed to display key indicators of a turbine blade's status in a dashboard, for effective fleet management. Rotor blades are tracked in the system from the manufacturing stage to their end of life, including damage and repair histories. Wind farm dashboards and turbine views are available with next action tags, enabling decisions on maintenance strategy to be made easily.

This solution offers many advantages for all involved in turbine blade maintenance, from small to large scale service companies, utilities and manufacturers. Users benefit from the power of data and gains added value on their fleet experience. With unique spot codes enabling various conditions and images to be analysed over different time periods, the technology makes the evolution and repair history of any damage accessible on demand, through several interventions.

With this latest technology, any request can be made with a few clicks in the search page and statistics are easily gathered per blade type, manufacturer or production site, improving the understanding of any specific damage. Sharing data across a large fleet of turbines and blade types is key for operators and the ultimate aim of the Blade Expert platform.

www.blade-expert.com

User case study with Heliopales

Words: Jean-Baptiste Loyson, CEO

We have been using the Blade Expert platform since 2021, successfully managing up to 10 teams of blade technicians during the last season.

Previously, reporting activities were time consuming, often with delays and problems in image transfers, or miscommunication between the site and the office.

Whilst using the mobile app on site, Blade Expert enables our technicians, to strengthen communication, quality, traceability and reporting efficiency.

We now work in the cloud and share reports and data directly with the customers on our web platform, which is highly beneficial for users at all stages.

Customer satisfaction is very high and the cloud platform allows us to define fleet priorities together. Plus, we can estimate repair times for quotes or export damage lists in just a few clicks.

It has never been easier to follow-up inspection or repair campaigns across several windfarrms. The proof of concept beside is on a 3 GW fleet with statistics on damage types and repartition over 30 000 views.

We save time and costs daily, which makes the subscription fee worthwhile in the long-term. We are proud to have been part of the development of the Blade Expert software, which is going to be a key reference tool for blade service activity.

www.heliopales.com