Optimizing blade O&M: allying technology with blade expertise

Blade O&M has become a focus for BladeInsight, formerly Prodrone. André Croft de Moura, CEO and founder, spoke enthusiastically to PES, about his vison for the future of drone inspections, with added value. This blade centric company has already embraced the idea of predictive maintenance and is continuing to provide quality, agility and a focus on the customer.

PES: Hi André, it's great to have you back with us at PES Wind. Last time we spoke, you were ProDrone and today you join us as BladeInsight. For the benefit of new readers, could you walk us through the background of your company and how you came to be BladeInsight?

André Moura: Firstly thanks for having us back. It's great to be here under our new brand BladeInsight. I founded this company as ProDrone in 2015, based on the conviction that in order to make wind energy universal, it had to become more competitive than other carbon-intensive energy sources.

Wind turbine blades really caught my eye early on, as one of the most critical elements in wind energy infrastructure. As a key component, blades are exposed to the elements and susceptible to all types of damages, making their maintenance critical to a turbine's mechanical and economic efficiency.

As ProDrone, we grew this idea into an autonomous drone flight inspection solution which came to market in mid 2017. Since then, we have inspected more than 11,000 blades in 16 countries through a network of licensed partners who today are able to deliver our solution in 5 continents.

With this solution we delivered best in class image resolution: on average resolution of 0.4mm/pixel, meaning you can easily identify hairline cracks on blades, and very accurate and robust data with a repeatable flight path providing consistency. Our solution provided clients with actionable insights into the state of their blades including measurement and tracking of damage over time, pushing towards data-driven decision-making in the industry. Clients who adopted this model of optimisation have reported more control and visibility over their O&M budget.

Over time though, through the close industry relationships we had developed, we wanted to expand our reach and realized that to reflect our new ambitions we needed a new name.

As BladeInsight, we commit to deliver a tailored solution to optimize blade O&M, covering the inspection and maintenance value chain over the full lifecycle of the blade. It also reflects how we integrate blade expertise into our solutions, a clear differentiating factor. Our tools are designed with experts and specifically for blades.

PES: So, the name change to the BladeInsight seems to mark a move away from being just a drone solution. Would you say it is a change in gear for your company?

AM: More than moving away from any particular solution, we are moving closer to our customers.

As ProDrone, we became a global player in autonomous drone inspections as an agile, technically robust and ambitious start-up. We provided a globally competitive solution that has delivered high quality data across the wind industry value chain, from OEMs, to wind farm owners/operators, to other third parties. As BladeInsight, we are building on this, while remaining rooted in our same values of quality, agility and a focus on the customer.

If we were just a drone company, we might worry only about the speed of the operation, ease of use, or about the level of automation of the drone. Instead, as a blade centric company, we are focused on what the customer needs, solutions that hit the right balance between cost-effectiveness, operational efficiency, but most importantly provide visibility and control over blade O&M maintenance planning and budgets.

BladeInsight is not in the business of providing thousands of images, or an endless stream of PDF reports or Excel tables resulting from drone inspections. We are in the business of delivering technically sound expertise to our customers through high quality data, as well as a multi-source asset management platform on which customers can have a full record of the state of their blades.

One of our main new features is our new

André Moura

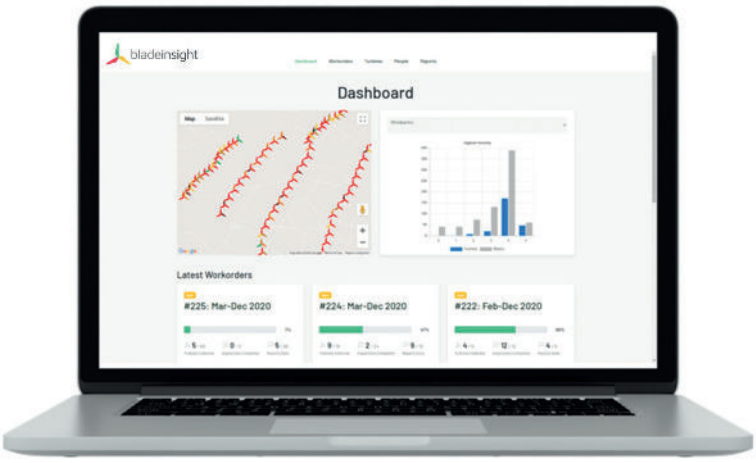
internal inspection capability. Our BladeInsight platform, which until mid 2020 was a visualization tool for drone inspection data and reporting, now has an integrated internal crawler data collection solution. A safer, more reliable, high quality alternative to traditional technician inspections.

This is a breakthrough for customers who can now track and cross reference external and internal damages for greater visibility and more assertive action.

PES: What kind of growth do you see in the market right now?

AM: We see several trends in the industry, especially in blade O&M. There is a clear thirst for data and more informed maintenance decision-making. There is also a thirst for creative and effective solutions that do not fit into the mold of traditional inspection data fed into Excel files, or PDF reports.

Wind farm developers, OEMs and third parties in the industry want more visibility over the state of their blades. And this is no utopia - it's just a matter of time and adopting the right solution that can deliver tailored innovation for continuous,



comprehensive asset management.

PES: What markets are you currently active in and how do you see your global reach expanding? We've heard you recently launched in the US.

AM: As I mentioned, our drone solution has been deployed in 16 countries for clients across the blade value chain through a network of partners. In South America, in particular, it has had a great deal of success with our partner company ArthWind, market leader in Brazil, recently expanding to Uruguay and Chile.

We have also expanded our own operational arm, in particular with the recent launch of BladeInsight in the United States. With over 110 GW of operating wind power capacity in the United States and 60,000 wind turbines in 41 states and two U.S. territories, the launch of BladeInsight in the US market is a landmark for the company.

Our customers in the US can now benefit from an even more extensive suite of inspection solutions and technical engineering and consulting services.

In the United States, we provide autonomous drone and internal crawler inspections, as well as technical engineering consulting, ranging from fleet management to remote and on-site repair auditing, supported by powerful analytical tools.

PES: Predictive maintenance seems like a buzz word in blade O&M. We hear customers calling for it, competitors promising it. What's BladeInsight's take on this?

AM: Blade O&M is often characterized by its reactive nature. This brings higher costs, inefficiencies and ultimately suboptimal budget allocations. Predictive maintenance will allow wind turbines to keep turning and generating revenue. And they will do so confidently, with sound data that ensures their health and longevity.

BladeInsight contributes not only the data quality needed for this, but the tools and technical expertise required to make a significant impact for clients who are responsible for making maintenance decisions and plan maintenance budgets across the value chain.

PES: How has the COVID-19 pandemic affected your company this year, and how do you see this rolling out?

AM: When COVID-19 shook the world in March of 2020, we were unsure of what was in store for the industry, for us and for our team. But I feel we rose to the challenge as a company. We immediately and seamlessly went fully remote to contribute to flattening the curve. Our team demonstrated their agility and resilience by pushing ahead and making it work even if we weren't physically together.

Today we are a multicultural team of more than 20 employees, based in Lisbon, Portugal and with a Houston, TX office, with backgrounds ranging from advanced robotics, data science, web development, business and communications and of course, blade engineering.

And, if anything, the pandemic has shown that the wind sector is more crucial than ever, with significant public and private investments increasing around the world. We are looking forward to the green recovery!

PES: And the single biggest challenge facing the market today?

AM: I would say the single biggest challenge facing blade O&M today is effectively achieving predictive maintenance.

The industry needs to be able to manage and leverage all of the different strands of data that compose blade O&M, including inspection data from any source, manufacturing data, external data such as weather, and ally it with technical expertise such as root cause analysis and serial defects. This will require extensive modelling of Artificial Intelligence with blade expertise and providing powerful insights for the industry, leading to more timely, more effective, and more long lasting maintenance.

This is where we come in and deliver for the industry.

PES: Looking forward - what's on your roadmap?

AM: We are moving forward with rolling out our suite of solutions to optimize the blade maintenance cycle. On the data collection side, we will be releasing a new version of our autonomous drone inspection solution that will be able to inspect all three blades of the turbine without blade repositioning, with a guarantee of high data quality.

On the data processing and asset management side, the BladeInsight platform will continue to grow to cater to the full value chain of the blade. And finally, we will continue to work closely with our customers and partners to incorporate blade expertise into our solution for effective, actionable insights to optimize blade O&M.

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