A sure way to improve efficiency

Theresa Trevor, Director of Marketing, SkySpecs brings PES her view on how to improve efficiency in our industry, by the use of data: not just its collection. Digitization is the answer.

The past two years have revealed the near-term need for digital transformation of the energy industry in order to maximize ROI and minimize risk for owners. Digital transformation is the process of devising new business operations and processes that integrate digitized data, which results in a sustainable advantage.

Currently there is a great deal of inefficiency embedded in the wind energy industry. Among those inefficiencies is the lack of data that allows stakeholders to make decisions and draw conclusions. Disparate data sources, a lack of tracking, and a fragmented communication chain can compound the problem.

While steps need to be taken from multiple directions, it's important to first be aware of the some of the challenges that are facing the industry with regard to digitization and data overload.

The amount of data generated is growing faster than most in the industry can keep up - and it's all over the place

There are many technologies that are driving data acquisition faster than ever before. SkySpecs, as an example, collects blade data using AI-powered robots. In as little as 15 minutes we've collected images of all sides of all the blades on a wind turbine, and that data is accessible within days, streamlining the entire inspection process, which results in more data, more quickly.

To date, SkySpecs has collected over 3 million blade images. That's no small amount of data for owners, technicians, and engineers to make sense of.

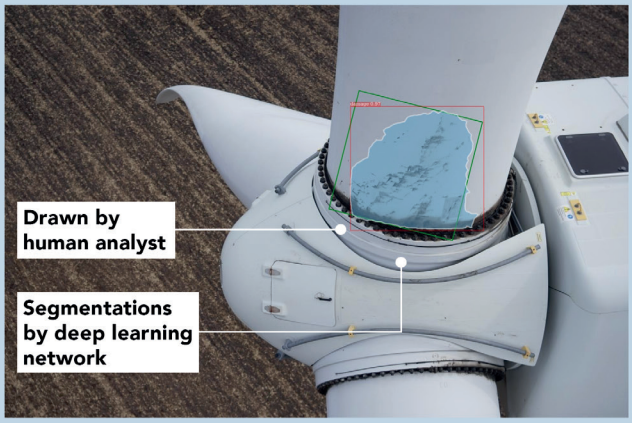
While this data is shared, viewed and annotated in a digital format by our software, it is extracted many times. This can take the form of downloads, pdf reports, spreadsheets, which in a way stops the digital process short. Add other types of disparate data that is being created at breakneck pace, and you've got an industry buried in data that isn't immediately useful.

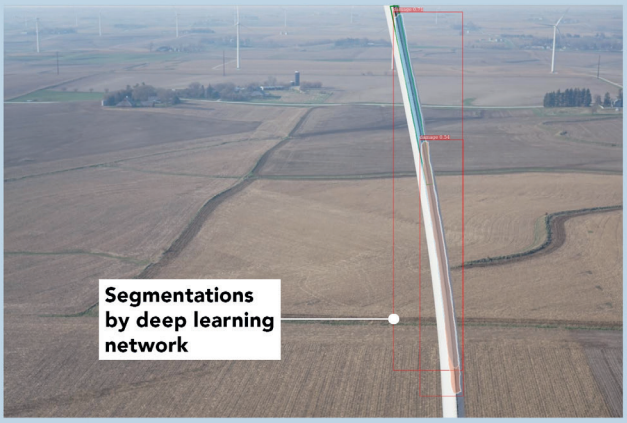
Data analytics produce insights more quickly

Operators need to reconfigure their operations in order to make use of the insights provided. This is a prerequisite for bringing down operating costs and increasing the lifetime value of the assets. In today's technological landscape, data analytics is an automated process, which makes insights possible, and these insights can be produced quickly if the format of that data is consumable and high-quality.

SkySpecs has found that the majority of owners use a reactive maintenance model. However, we also know that many windfarm owners would like to understand more about the health of their fleet, and are eager to adopt more predictive maintenance strategies.

Machine learning & automation produce data faster





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Unscheduled wind turbine downtime can last a week per year and in some cases, significantly more. Reactive maintenance leads to significant energy loss, catastrophic failures and considerable monetary losses. Robust management software that allows users to make sense of the data quickly and in a way that drives decisions is the key to predicting failures in components and optimizing energy yields.

Operations and maintenance costs are rising

Operations and maintenance costs vary widely depending on age, location and O&M strategy. Effective maintenance is critical to ensuring that assets operate reliably. Because older assets have a higher propensity for failure, they usually require more frequent maintenance.

Organizations need a comprehensive maintenance strategy that takes large amounts of data into consideration. Collecting, storing and examining data that includes age, location, weather data, and damage history is a critical step in ensuring high performance and the highest ROI. Collectively considered, owners can make smarter maintenance decisions and avoid inconsistencies and arbitrary maintenance.

There is certainly no one-size-fits-all strategy for managing O&M costs, but owners can begin to develop one over time, as trends emerge and drive maintenance. Because SkySpecs has developed a machine-learning system for detecting damage, we have started to make sense of a great deal of blade health data and repair workflows.

This information has revealed that turbines are in much worse condition than many customers expect. Partnering with them to understand this data and systematize the processes and workflows around repairs minimizes downtime, while optimizing maintenance schedules and leveraging resources.

And because machine learning enables and promotes self-learning, predictive maintenance becomes more fine-tuned over time.

Right now, in the wind industry, data is available, but not as usable as it could be. Owners need to invest in digitization because it is paramount to making the data useful. Given the rising costs of O&M having those analytics available is the critical path for making better decisions and combating rising O&M costs.

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