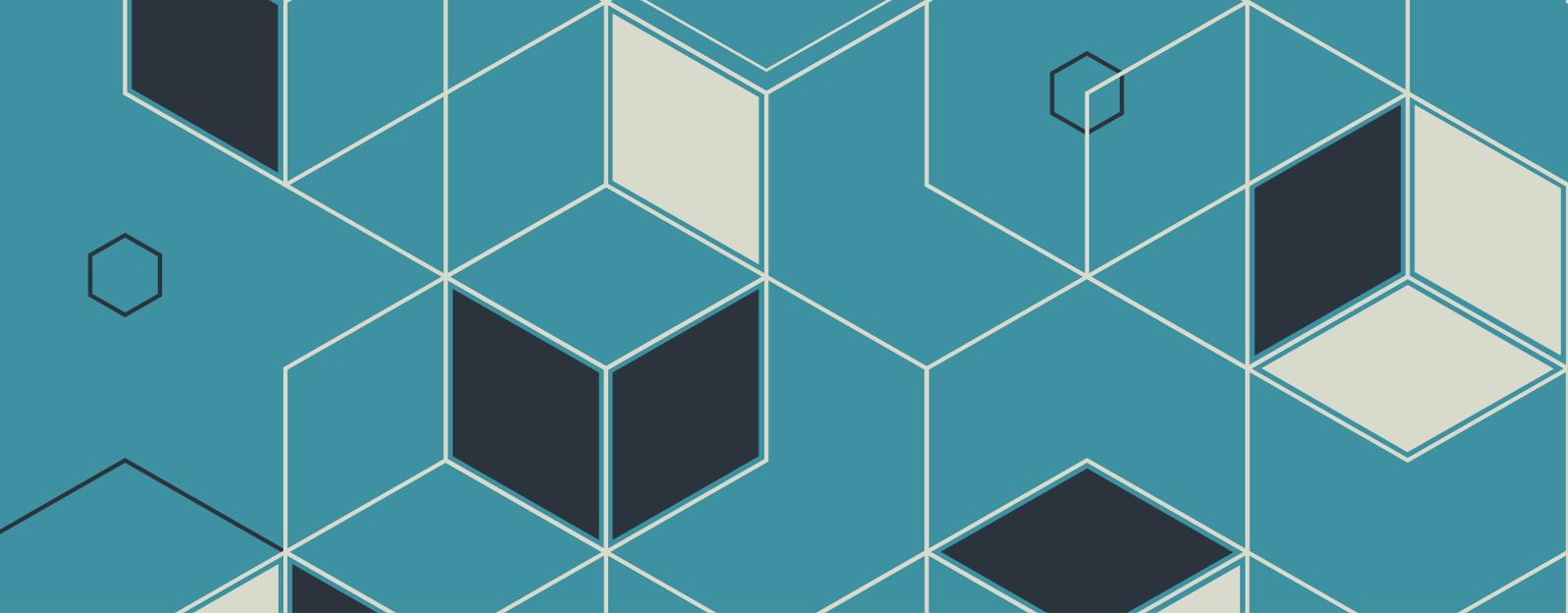




Predictive Maintenance with Altius

If machinery or heavy equipment forms a key component of your production or service, unplanned downtime can have an adverse effect on your business. Unexpected downtime costs your business the time taken to diagnose the cause, schedule the specialist resources and take remedial action to fix the issue. This increases your costs and has an adverse effect on your revenue. Routine maintenance checks are not enough to minimise unplanned downtime and basic tools are not able to capture indirect or contributing factors that may cause the equipment to fail.



The 'Internet of Things' and the prevalence of sensors in equipment, coupled with 'big data', offers unprecedented access to large volumes of data being captured in data warehouses or modern data platforms.

Collating performance data and combining it with operational data allows us to create a digital image of the machine and the processes surrounding it (often referred to as a Digital Twin) and using data science techniques we can optimise performance through statistical modelling. Using this data to schedule and optimise your maintenance is the foundation of predictive maintenance.

Predictive maintenance involves looking for patterns in equipment performance data that could indicate degradation, operation outside of normal or expected modes, or events that accelerate the need to intervene. Automatic detection of these by models can trigger events or alerts to operators or schedulers to take an action.

We can use these techniques to target high impact, high value assets to implement models to optimise your maintenance operation, increasing your revenue and reduce unexpected costs.

The Value

A predictive maintenance solution will enable you to optimise your maintenance strategy. Data driven insights into the lifespan and performance of your equipment will enable you to implement a maintenance schedule to repair and service your equipment before failure. This will both reduce your costs and improve your revenue.

Across all industries and business types, predictive maintenance solutions help you to:



- Avoid unplanned downtime by servicing equipment before it fails.
- Optimise maintenance schedules with strategy driven by data.
- Empower maintenance teams with real-time insights on fleet and part lifecycles.
- Maximise the lifespan of assets, reducing unnecessary replacement of parts.
- Reduce inventory carrying costs by avoiding a build-up of spare parts.
- Improve customer satisfaction by avoiding unplanned disruptions to your services.

It is imperative to thoroughly analyse your equipment to understand which are best suited for a predictive maintenance solution. The predictive maintenance models used depend on the equipment performance data.

There is no 'one size fits all' approach, rather a series of considerations which will help select the appropriate equipment and models for your predictive maintenance solution.

We can help you with your business case, quantify the benefits of predictive maintenance and advise you on the best approach.

Suitability

Predictive maintenance can be implemented to different degrees depending on your current maintenance system. A mature maintenance system with equipment that is fitted with sensors and has historic maintenance data is well suited for predictive maintenance.

Large quantities of data, both historic and the number of sources available are important

but data quality is equally important. We start every project with an Exploratory Data Analysis ("EDA") phase assessing your data quality. If necessary, we provide recommendations on how to improve data quality which will result in better insights.

Maintenance systems that do not have historic data can be analysed during operation to observe deviations from "normal" behaviours which may indicate degradation or other problems. The system learns over time based on growing data sets and from input from your engineers. If your maintenance products were not initially fitted with sensors, you can go through a retrofitting activity to plant sensors to collate equipment performance data. We have experts to help you in designing this approach.



Data driven insights into the performance of your parts will enable servicing of your equipment before failure, reducing your costs and improving revenue.

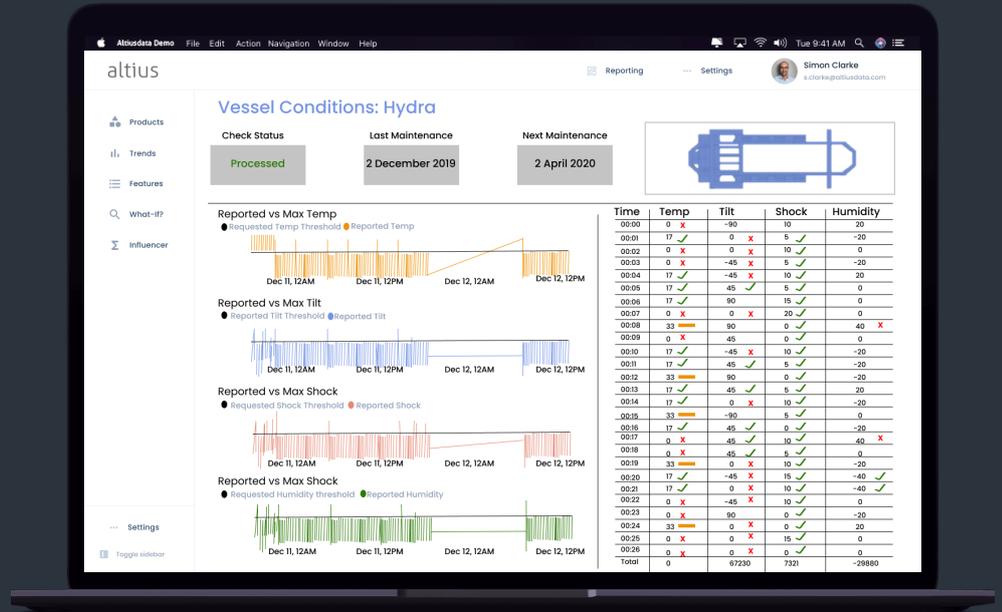


We have a click button deployment of our predictive maintenance architecture on Azure and we design and develop with your user-base in mind, leading to beneficial and engaging interactions for the user.

Our Approach

Altius have an accelerated approach to implementing our predictive maintenance solutions for our customers. We have click-button deployment of our baseline predictive maintenance architecture on Azure as well as the associated Continuous Integration / Continuous Deployment (“CI-CD”) pipelines required for its configuration and enhancement for your particular operating environment.

We like to work collaboratively with your experts from the engineering, maintenance, and technology teams in order to share knowledge in both directions. Using our broad and deep understanding of different industries and sectors, We will run workshops to align ourselves to your business. This will allow us to build a detailed picture of your business processes, systems, and data sources. As a joint team from Altius and your experts, we will rapidly create a Minimum Viable Product (“MVP”), tailored to your organisation.



Our Data Scientists will thoroughly analyse your data to establish a baseline for predictive maintenance and gain insights into areas for improvement. This will allow us to calculate expected benefits and build a roadmap to achieve this. Our unique set of code accelerators and microservices architecture grant faster deployment of these models, with quick integration into your current systems, reducing costs and time to production, bringing about a faster increase in bottom-line. This modular architecture allows us to quickly implement solutions while building bespoke models specific to your business needs.

In developing interfaces and applications, we follow user-oriented design principles with the end user in mind. Depending on the user types in your organisation we can use templates or develop fully custom applications for the engineers, schedulers, planners, procurement team or other roles. Design and development are done with your user base in mind to ensure the solution aligns to the business process and leads to a beneficial and engaging interaction for the user.

Start here. Contact us to discuss the potential value in our solution for your organisation.

info@altiusdata.com

<https://linkedin.com/company/altius-data/>

www.altiusdata.com

Understand • Model • Predict



IS 646580