

How dredging benefits from self service advanced data analytics

Insights gained with the use of historical data and TrendMiner's self-service analytics software greatly increased the understanding of local dredging situations – and saved costs of 400K for just one asset type.



CUSTOMER
SUCCESS
STORY

DEME (Dredging, Environmental and Marine Engineering NV) is a global solution provider for dredging and land reclamation, marine and offshore solutions, fluvial and marine aggregates and environmental solutions. They are the market leader in their field with over 100 vessels operating in 90 countries worldwide and generating a revenue of +2.6 billion euros in 2018.

In this case study, Manu De Block, DEME's project engineer, explains how Trendminer's self-service industrial analytics helped him and his team improve operational efficiency, lower uncertainty in future dredging projects and save costs upwards of €400K annually – for just one asset type.

JOURNEY & BUSINESS CHALLENGES

POWER OVER DATA IN REMOTE LOCATIONS

At a globally operating marine construction company like DEME, dredging projects often take place in remote areas. Needless to say, working in rough environments creates unique challenges. For one thing, even the slightest differences in volume or density of soil materials can have a tremendous impact on vessel production levels. Proper soil investigation is crucial to determine the outlines of the project and control cost prices. Additionally, the engineering team at DEME needs to avoid any kind of downtime or sub-optimal performance of their vessels, as vessel costs per hour and per week are high.

Experience had shown that sharing of data and best practices is crucial to maintain high vessel production levels. Loading sensor data into the cloud is challenging: vessels are "floating factories", often stationed in remote locations without proper internet connection. Things are complicated even more by their decentralized team structures, where projects have their own profit and loss units.



Manu De Block

Project Engineer at
DEME Group, Antwerp,
Belgium

Manu De Block is a data engineer at DEME, with a growth mindset and a general interest in technology and innovation. Exploring the fascinating world of data from sensors to analytics. Manu has worked for over 3 years at the R&D department at DEME, currently to improve operational performance of the dredging vessels by use of big data and advanced analytics. Manu is Master of Science in Mechanical Engineering as holds a Master degree in Management from the University of Leuven in Belgium.

Manu de Block was looking for a way to share important data with the head office by mirroring the screens of operators, without having to do a large upfront investment in tooling. He selected the Osisoft PI system for its robustness and for being an industry proven solution.

Over time Manu came to realize that the value was in the data itself. Large amounts of big data in the system enabled the team to use feedback about past projects to improve future ones. The system also allowed teams to do calculations on overall equipment effectiveness and execute condition based maintenance.

To give operators in decentralized teams more power over data, the self-service industrial analytics software of TrendMiner was added to the PI System. TrendMiner enabled individual teams to gain insights with use of the historical data which greatly increased the understanding of local dredging situations and the team’s ability to adapt their approach to the dredging projects accordingly.

“The self-service analytics philosophy of TrendMiner is a perfect fit for our decentralized way of working. TrendMiner is a powerful search tool – the Google for industrial data.”

Manu De Block
Project Engineer at DEME

Reasons to implement TrendMiner on top of the Osisoft PI system included:

- It’s powerful search capabilities “The Google for Industrial Data”
- The self-service analytics philosophy was a perfect fit for decentralized teams
- No steep learning curve: easily accessible and promoted data usage

SOLUTION & BENEFITS

CREATING A DATA CULTURE

In one particular case, Manu refers to DEME’s trailing suction hopper dredger, a vessel that provides various possibilities in both capital and maintenance dredging works and land reclamation. Despite the dynamics of this particular project – uneven seabeds, wave action on the vessel and different soil characteristics – the dredger should in no case show oscillations in performance. But it did. This unexpected behavior raised questions as to why and when oscillations occurred, and what the impact was on production levels.

TrendMiner’s rich search functionality helped discover that oscillations which occurred in the past (image 1) had also occurred on other ships (image 2). It also helped show the correlation between oscillations and soil type. On the short term this gave the team insight to use other set points and eliminate oscillations. On the long term, insights and knowledge build up for a better operation and lower uncertainty.

Happened in the past

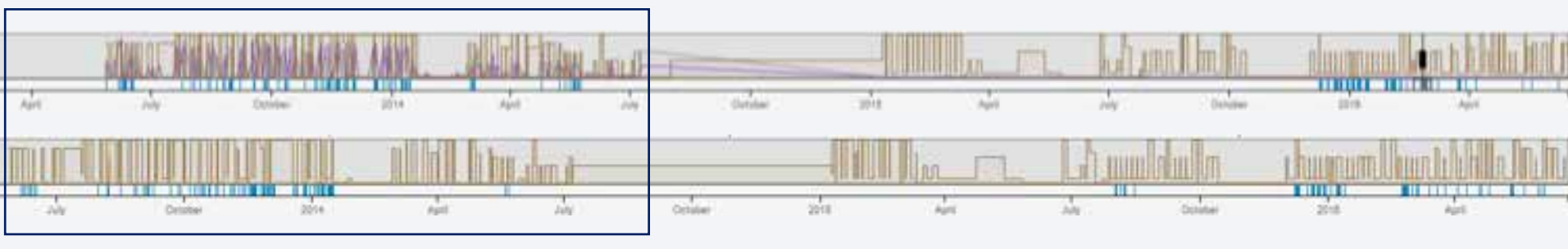


Image 1. Oscillations which have occurred in the past

Happened on other ships

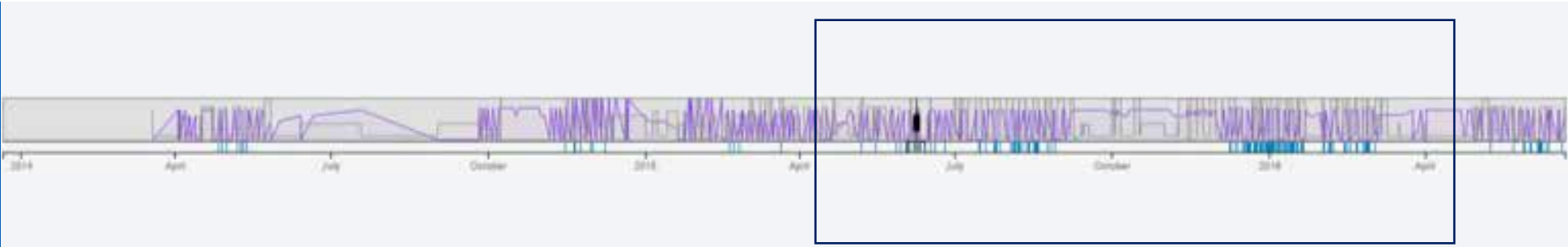


Image 2. Oscillations which have occurred on other ships

TrendMiner's ability to analyze their data helped DEMA to:

- Get more comprehensive insights into historical time-series data
- Test important dredging hypotheses
- Greatly increase the understanding of local dredging situations
- Adapt a better project approach and lower overall uncertainty
- Create the right base for implementing condition-based maintenance
- Save costs upwards of €400K annually – for just one asset type

Manu de Block is positive about robust data logging in combination of self-service industrial analytics in combination with central efforts to improve overall productivity. His goal is to create a data culture within the entire organization to solve future operational challenges together with the people at the vessels.



WHAT DOES A SELF-SERVICE ANALYTICS PROJECT WITH TRENDMINER LOOK LIKE?

Structuring your self-service analytics project smartly is essential for both a successful outcome and for gaining business value, and we at TrendMiner want to make sure you get the most out of your journey.

Curious what self-service industrial analytics with TrendMiner looks like?

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**Want to see TrendMiner in practice?
Then it's time to request a demo:**

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