

# VROC Artificial Intelligence: Redefining Preventive Maintenance



**H**aving earned almost two decades of experience developing process control software and telemetry for the oil and gas, desalination, mining, and manufacturing industries, Trevor Bloch realized the wealth of information stored in the sensor data harnessed by each of the production facilities. He also identified laborious and manual processes as the primary reason as to why these industrial facilities could not leverage this data to gain valuable insights. In an effort to find better ways to process the data efficiently and provide cost-saving insights, he laid the foundation of VROC Artificial Intelligence. Over the past couple of years, VROC has leveraged Bloch's industry learnings to develop a solution that utilizes a combination of predictive analytics, machine learning (ML), and artificial intelligence (AI) processing to identify unscheduled breakdowns in production before they occur, provide just-in-time maintenance planning and root cause analysis, and optimize plant production.

The VROC solution harnesses data from billions of data points within a production facility to answer questions related to equipment maintenance, production efficiency, and the relationships shared between the operations. The company's web-based platform is designed to process the collected data automatically and builds prediction models for the entire plant or a part of the facility to predict accurate

outcomes. "It empowers engineers with the skill set of a data science team," says Bloch, CEO of VROC. In addition to securely ingesting and processing large amounts of data in real-time, the VROC solution comes with highly configurable, interactive dashboards and analytical tools.

VROC's web portal allows easy dashboard customizations and can be accessed through any device—smartphone, tablet, or PC. It also enables users to build models of different failure modes and expected behavior of equipment, which helps them to identify the root cause of a malfunction. For example, when equipment displays a behavior different from the expected model, VROC performs analytical operations over this information and predicts time to failure and root cause for that equipment. "Being able to swiftly predict the operational integrity of industrial process and equipment gives you a powerful business advantage," adds Bloch. Unlike other predictive maintenance solutions, VROC ensures that every piece of equipment is maintained optimally to reduce maintenance costs and unplanned downtime. To put it in the words of the CEO, "We don't have a KPI to sell spare parts. Our KPI is to save clients money. We turn unplanned downtime into a planned maintenance event." VROC provides predictive results in real-time as new data arrives. Although the solution offers fully automated modeling, clients' in-house data scientists can manually configure AI models and individually control the level of automation or manual controls for each model.

Bloch cites a case study where VROC helped an oil and gas company with maintaining one of their offshore oil platforms. Due to regular unplanned equipment failures, a maintenance shutdown was planned for the client's platform to improve its reliability. The client assigned a team of engineers who were tasked with identifying the root cause of the failures and to identify the repairs required during the shutdown. In parallel, the client provided VROC with the platform's sensor and operational data for processing by the VROC AI engine. Comparing the engineers' 4,000 man-hour effort with VROC's 90-minute analysis over 40,000 different sensors and billions of data points, the client confirmed that the VROC analysis provide the same results as the engineers' recommendations. In addition, VROC's AI determined that one piece of equipment was operating in the incorrect operator-selected mode which also contributed to the unexpected shutdowns, a key root cause that was missed by the engineers' analysis. Having the ability to predict failures before they occur and identify root causes faster and at a fraction of the cost, VROC has partnered with the client to roll out their solution across their facilities to diagnose similar issues and impediments.

"Now that we have proven our technology, we have been winning contracts with major entities throughout the APAC region," extols Bloch. In days to come, the company plans to grow geographically along with helping businesses lead their digital transformation. [GA](#)