



REDRAVEN™



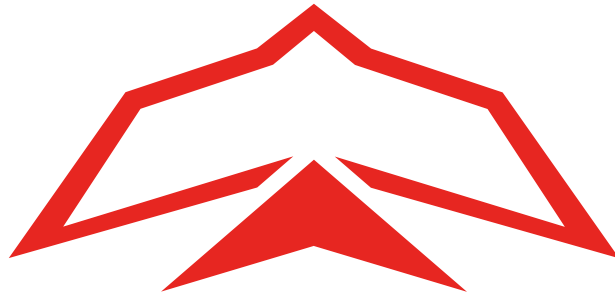
Predict.
Act.
Protect.

REDRAVEN IoT SOLUTIONS

Commercial Playbook

[Get started](#)





REDRAVEN™

Predict. Act. Protect.

Why RedRaven?

In mythology, the raven represents prophecy and insight, a messenger collecting and bringing wisdom, knowledge and clarity — equipped with knowledge to guard and protect — and the power to see beyond. With plumage of Flowserve's trademark color, RedRaven is the symbol of Flowserve's suite of industrial Internet of Things (IoT) products, software and services.

Deriving its power from Flowserve's engineering expertise in fluid motion and control, its advances in analytics, diagnostic and predictive capabilities, and the limitless connections and speed of the IoT, RedRaven is a transformative technology. With RedRaven, you'll have clear insights to improve your plant's efficiency, productivity and reliability.

WATCH INTRODUCTION VIDEO

CONTINUE



REDRAVEN IoT SOLUTIONS COMMERCIAL PLAYBOOK

**Everything RedRaven,
all in one place**

The RedRaven Commercial Playbook summarizes all Flowserve collateral related to RedRaven. It is designed to provide easy access to all collateral that have been developed as part of the RedRaven launch.

[REDRAVEN COLLATERAL MENU](#)



REDRAVEN COLLATERAL MENU

Brochures, white papers, and other materials that explain RedRaven products and services



VIDEOS

SUCCESS STORIES

DATA SHEETS

INDUSTRY INSIGHTS

BROCHURES

EDITORIAL COVERAGE

FLYERS

CUSTOMER PRESENTATIONS

WHITE PAPERS

INFOGRAPHICS





VIDEOS

Visual representation of RedRaven solutions

Access links

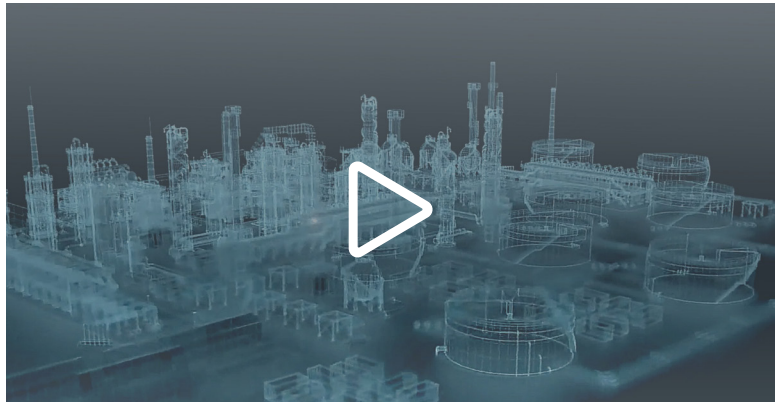
[LOLA TECHNOLOGY ANIMATION](#)

[REDRAVEN TEASER VIDEO](#)

[REDRAVEN OVERVIEW VIDEO](#)

[REDRAVEN VALVE SOLUTIONS VIDEO](#)

[REDRAVEN SEAL SOLUTIONS VIDEO](#)





DATA SHEETS

Technical specifications sheets, each containing a detailed technical description of RedRaven components

Access links

Condition Monitoring

[NODE ER LoRaWAN WIRELESS SENSOR](#)

Predictive Analytics

[DETECT SENSOR](#)
[DATA TRANSFER BOX](#)





BROCHURES

Show a high-level overview for individual solutions or an entire portfolio of monitoring solutions

Access links

RedRaven IoT Overview

[English](#)

[Spanish](#)

RedRaven Valve Brochure

[English](#)

[Spanish](#)

RedRaven Data Security and Privacy

[English](#)

RedRaven Seal Brochure

[English](#)





FLYERS

Show a high-level overview for individual solutions or an entire portfolio of monitoring solutions

Access links

LoRaWAN Monitoring System

[English](#)

[Spanish](#)

Predictive Analytics

[English](#)

[Spanish](#)

Flowserve Monitoring Center

[English](#)

[Spanish](#)

Node Wireless Monitoring

[English](#)

Cloud Power

[English](#)

RedRaven IoT Technology and Services Platform

[English](#)

[Portuguese](#)





WHITE PAPERS

Thought leadership, technical write-ups on IoT solutions and related topics; useful in understanding IoT-related applications, solving problems, or making decisions

Access links

[THREE STEPS TO UNLOCKING THE BENEFITS OF MONITORING ROTATING EQUIPMENT](#)

[EVOLVING INSTRUMENTATION AND MONITORING MAKE IIoT MORE VIABLE](#)

[GAINING VISIBILITY INTO ASSET PERFORMANCE](#)

[WHAT IIoT AND PREDICTIVE ANALYTICS MEAN FOR THE FLUID MOTION INDUSTRY](#)





SUCCESS STORIES

Case studies showing how Flowserve solved a critical customer challenge using RedRaven technology and services

Access links

[REDRAVEN RESOLVES MISSION-CRITICAL WATER SUPPLY CHALLENGES](#)

[REDRAVEN DIAGNOSTICS ENABLE STREAMLINED POWER SUPPLY IN THE UK](#)

[REDRAVEN CONDITION MONITORING SOLUTION SAVES REFINERY FROM \\$40 MILLION PRODUCTION LOSS](#)

SUCCESS STORY

RedRaven Resolves Mission-critical Water Supply Challenges

Challenge

A municipal water supplier was facing substantial revenue loss and expensive daily failures to supply fines, as outages resulted in regional potable water shortages.

Solution

Mazon Electromechanical Co. (MEMCO), an engineering consulting company, recommended Flowserve's RedRaven predictive analytics. This solution resulted in reduced costs, streamlined maintenance protocols, and increased operational resilience for the water supplier.

Unustainably high costs of doing business

A public water provider in the Middle East was relying on conventional site-based monitoring with vibration alarms from predetermined trip values. Without any root cause analysis or indicators, maintenance teams had to respond to alarms by visiting stations, often dismantling pumps for manual diagnosis. This was excessively time consuming and costly, because these locations were so spread out across the region; furthermore, it increased risk of pump outages. The provider was faced with substantial revenue loss and expensive daily failure to supply fines, as outages resulted in potable water shortages to the region.

Empowering prevent unmet

The Utilities business is energy to local industry manufacturing plants; supply, and any disrupt loss and expensive fin protocols include cost levels. Too often, such condition and perform that SSE consider the platform, enabling the riction equipment and RedRaven's wireless capabilities," said Guy Instrumentation Engineer for SSE. "After they explained how the system securely transmits performance data and the various service levels with experienced technician data trend reviews, we decided to deploy a trial demo kit."

marketplace deliverable: uninterrupted power supply.

Timely alert

A petroleum refiner Asia installed a large hydrocracking unit, had some major aggregated data to download the di process measuring receive timely alert experience a proba would be at risk of production losses.) Though RedRaven to help the refinery versions of the son uses today, including:

- Equipment-based monitoring sensors
- Intelligent pumping algorithms that predict equipment performance
- Customized online portal for fast and easy access to performance data

The importance of data security

Before agreeing to kick off a pilot program the water pipeline client data security as a key concern; it could not risk compromising access to its data or mission-critical operations. RedRaven sends pump data on a parallel path from local pump station IT systems to the secure cloud. This means the data is independent does not interface or connect to the water utility's local IT systems. As they understood the system did not introduce new IT security risks, the water operator decided to move forward with the pilot program.

The consultant developed a pilot plan with Flowserve to install RedRaven sensors on 17 pumps. In addition to pump vibration, RedRaven would also monitor water temperature, pressure, and flow. Flowserve technical specialists explained that monitoring this fuller set of data would yield more accurate insights.





INDUSTRY INSIGHTS

RedRaven, in the context of industries and specific applications

Access links

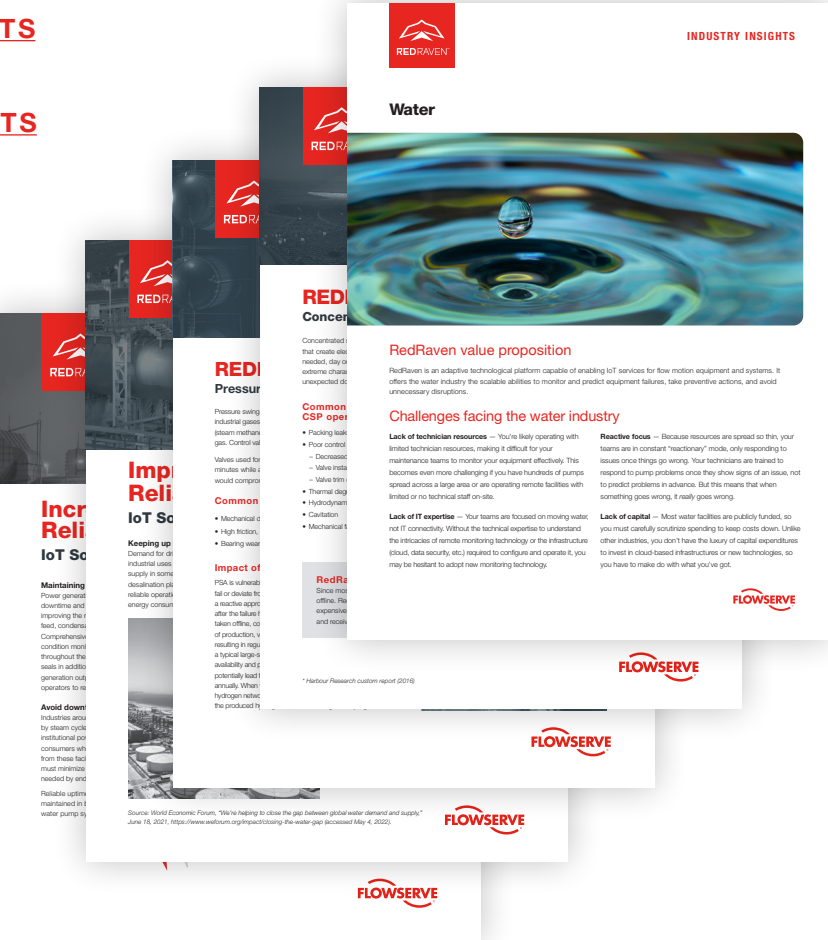
[PSA VALVES APPLICATION INSIGHTS](#)

[CSP VALVES APPLICATION INSIGHTS](#)

[WATER INDUSTRY INSIGHTS](#)

[DESALINATION SEALS INDUSTRY INSIGHTS](#)

[POWER STEAM CYCLE SEALS INDUSTRY INSIGHTS](#)



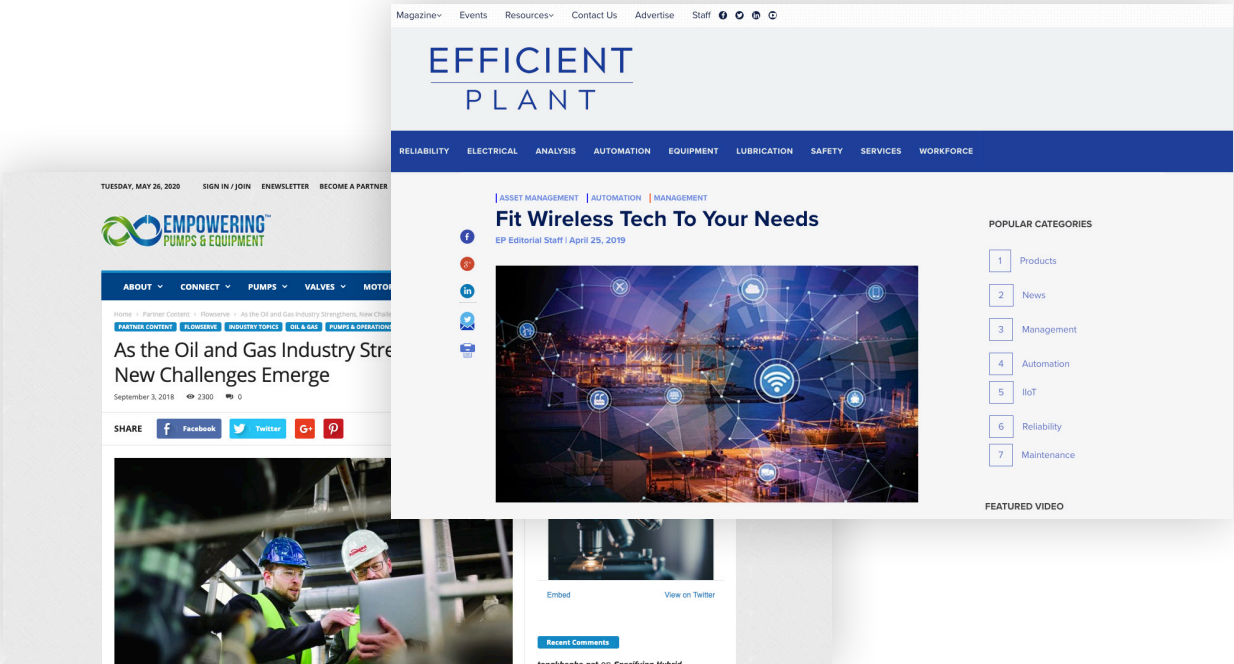


EDITORIAL COVERAGE

Thought leadership IoT articles published in editorials and publications

Access links

- [FIT WIRELESS TECH TO YOUR NEEDS](#)
- [AS THE OIL AND GAS INDUSTRY STRENGTHENS, NEW CHALLENGES EMERGE](#)
- [3 STEPS TO BUILDING A COMPLETE ANALYTICS SOLUTION](#)
- [LONG RANGE NETWORKS CAN ENHANCE REMOTE MONITORING OF FLUID CONTROL EQUIPMENT](#)
- [UNLOCKING THE FULL BENEFITS OF IOT TECHNOLOGY](#)
- [REDRAVEN COLLECTS WISDOM, KNOWLEDGE & CLARITY](#)





CUSTOMER PRESENTATIONS

Detailed information on product offerings, value propositions and key insights

Access link

[REDRAVEN PUMPS SOLUTIONS CUSTOMER PRESENTATION](#)

[REDRAVEN VALVES SOLUTIONS CUSTOMER PRESENTATION](#)





INFOGRAPHICS

Key insights on individual solutions; these provide an overview of each monitoring solution

Access links

[THE TWO SIDES OF PREDICTIVE ANALYTICS](#)

[EQUIPMENT HEALTH INSIGHT](#)

The Two Sides of Predictive Analytics

Predictive analytics can help companies identify equipment problems before they happen, keeping productivity high and maintenance costs low.

Capability 1: Data Capture
+
Capability 2: Data Analysis
=
Complete view of equipment health

Data Capture
Capturing equipment performance data requires equipment sensors that collect and transmit operational data to a central hub.

- Common types of data captured:** Vibration, temperature, pressure, flow rates, and other information critical to the operation. Sensors must often be installed in areas with potentially explosive atmospheres.
- Full-spectrum or basic:** Some devices collect only basic (snapshot) information while others can deliver continuous, full-spectrum data.
- Battery life:** The amount of data collected and the distance the device transmits this data determines the device's battery life.
- Weather resistant:** Sensors must work in all environments, including extreme temperatures and weather conditions.
- Uninterrupted signal:** Sensors must be independent of equipment, so if the equipment fails, there isn't a break in communication.
- Safe and secure:** Sensors should meet the most rigorous data security standards to safeguard sensitive information.

Data Analysis
Having all the data in the world won't mean much if you don't know what to do with it. Keep the following in mind when selecting an analytics partner:

- Algorithms are proprietary:** Algorithms are based on proprietary models, methodologies and industry experience.
- Deep expertise:** Work with partners who understand analytics and related equipment.
- Diagnostic capabilities:** Analytics should diagnose failing equipment without needing to open the panel and tell you how to fix common problems.
- Practical and actionable insights:** Your partner should create algorithms that provide specific and actionable insights, not a data dump of information.
- What to collect:** Your partner should recommend what datasets to analyze to achieve your specific objectives.
- Full-spectrum analysis:** Your partner should create algorithms that analyze full-spectrum data, so you get the most insights from your data.

Equipment Insights

ASS MONITOR
See how you perform over failures and

WHAT IT DOES
Detects small equipment operating conditions, which early indicator of

WHAT YOU GET
Receive a snapshot real-time trends irregularities

ASSETS MONITORED
Balance-of-plant

DATA COLLECTED
Overall vibration metal temperature

OUTCOME
Software generates trend reports and alarms for review by plant operators, reliability engineers and maintenance personnel. >>> Sophisticated algorithms analyze the data. Flowserve and plant personnel work together to determine next steps and provide insights.

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Visit the Flowserve Knowledge Center for more information.

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