

PROCESSVUE
Enhancing Water
Operations through
Alarm Management



PROCESSVUE
Alarm Management Without Limits

Alarm Management in the Digital Age

“ProcessVue is reframing the way we think about alarm management, no longer just a necessary cost to be safe and meet compliance requirements, it is a route to optimisation, a downtime killer and a window into operations data and continuous improvement potential,”

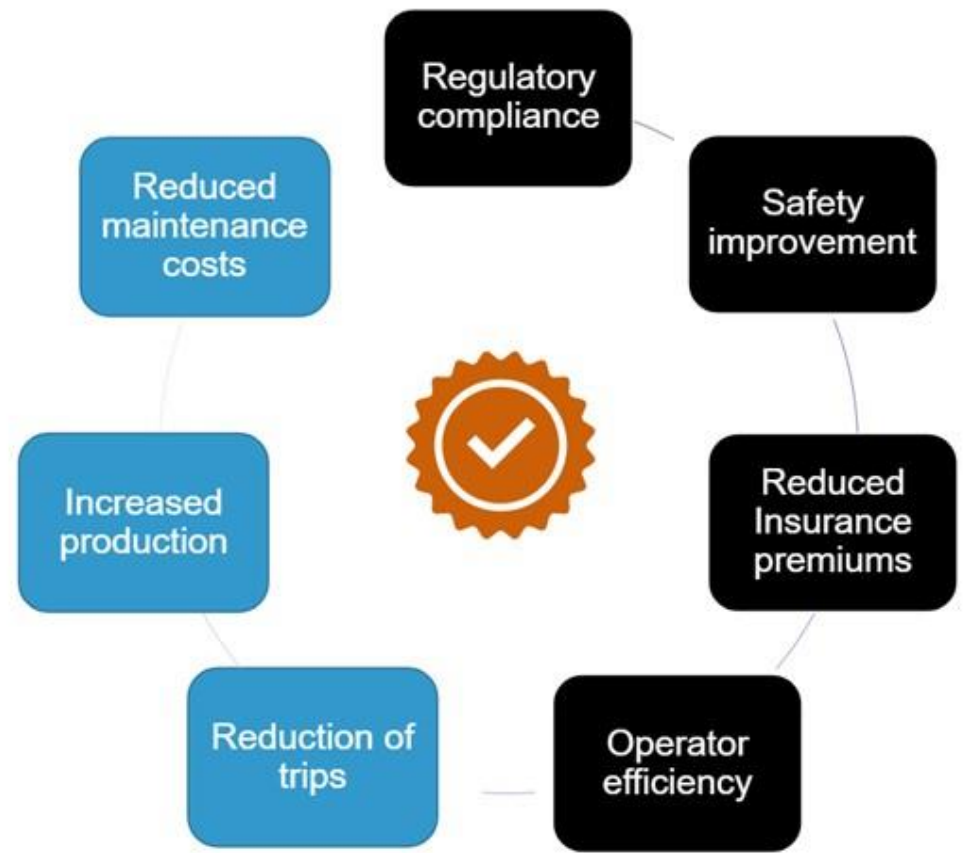
Lieven Dubois, Qualified Instructor and technical contributor for the ISA - Instrumentation, Systems, and Automation Society.



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Perception shift



Traditional – Process safety, regulation & compliance



Emerging – Wider digitalisation process, reduce downtime, cost saving, efficiency

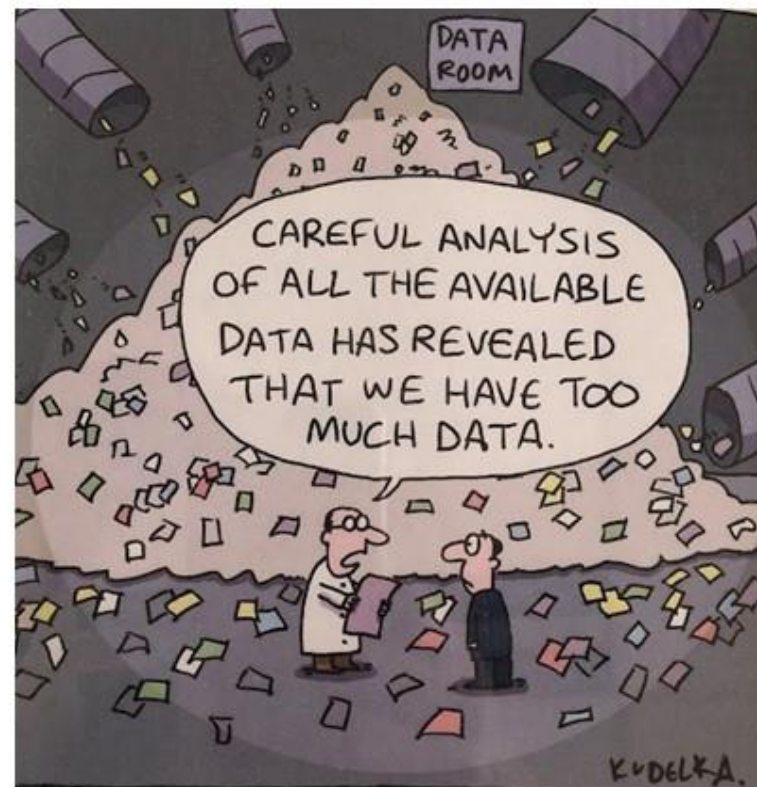


PROCESSVUE
Industry Background



PROCESSVUE
A generalisation...

The Increasing Demand For Water



PROCESSVUE
Water and Wastewater Digitalisation strategy

- Water companies that implement effective alarm management illuminate additional optimisation opportunities.





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User Story: The Water Company



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User Story: Background & Challenges



The Company's Alarm Management Challenges

- High alarm loads.
- Loss of production/water/processing.
- Frequent engineering callouts
- Environmental breaches.
- Monetary fines.

User Story: Current Alarm Management Practices



No Alarm Management Activities

PROCESSVUE
User Story: Assessing the Situation



BENCHMARKING



- **The benchmark assessment identified a number of problems.**

PROCESSVUE User Story: Assessment

Common business problems

- Inconsistent priorities
- Inconsistent terminology
- Alarms not aligned to business priorities
- Different departments and staff responsible
- Culture



Issue	Cause	Consequences
High Alarm Load	<ul style="list-style-type: none"> ■ Weather events ■ Increased automation ■ Increased digitalisation ■ Compliance requirements for reporting or monitoring 	<ul style="list-style-type: none"> ■ Operators accept alarms without review ■ Poor decision making in response to alarms ■ Critical/High priority alarms may be masked ■ Failures and fines
Alarm Floods	<ul style="list-style-type: none"> ■ Weather events ■ Poor alarm rationalisation ■ Inadequate alarm philosophy 	<ul style="list-style-type: none"> ■ Distraction causing delayed response ■ Incorrect responses to the incidents
Nuisance Alarms	<ul style="list-style-type: none"> ■ Poor alarm rationalisation ■ Inadequate alarm philosophy 	<ul style="list-style-type: none"> ■ Alarms regularly 'defeated' ■ Alarms not acknowledged ■ Alarm system becomes ignored
Operator Cognitive Overload	<ul style="list-style-type: none"> ■ Too many, poorly rationalised alarms ■ Insufficient staffing (or skills deficit) ■ Inadequate alarm philosophy 	<ul style="list-style-type: none"> ■ Operators with reduced situational awareness ■ Mistakes causing failures, quality issues, reputation loss, fines etc. ■ Poor staff retention and time lost to sickness/stress related illness

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User Story: The Improvement Strategy



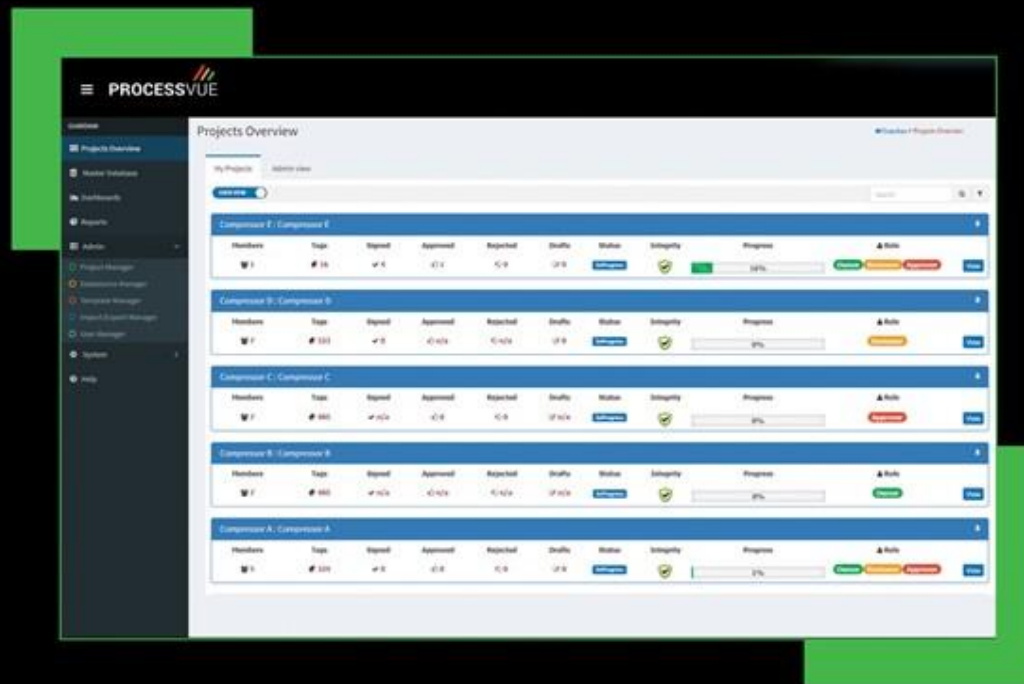
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User Story: Improvement Process

- The first step was to review the company's existing alarm philosophy document.



PROCESSVUE GUARDIAN

ProcessVue Guardian integrates a Master Alarm Database and Management of Change functionality into a single application, facilitating alarm rationalisation and documentation in a fully collaborative work environment.



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SEQUENCE

PROCESSVUE
ANALYSER

PROCESSVUE
GUARDIAN

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User Story: Improvement Process

- Implemented key information from the amended alarm philosophy document into ProcessVue Guardian.
- This helps ensure:
 - Consistent approach to rationalisation.
 - Required information on hand.
 - Standardised terminology.



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User Story: Improvement Process

- Mentored the company during rationalisation and documentation of their alarm population to better serve operations.



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User Story: Benefits



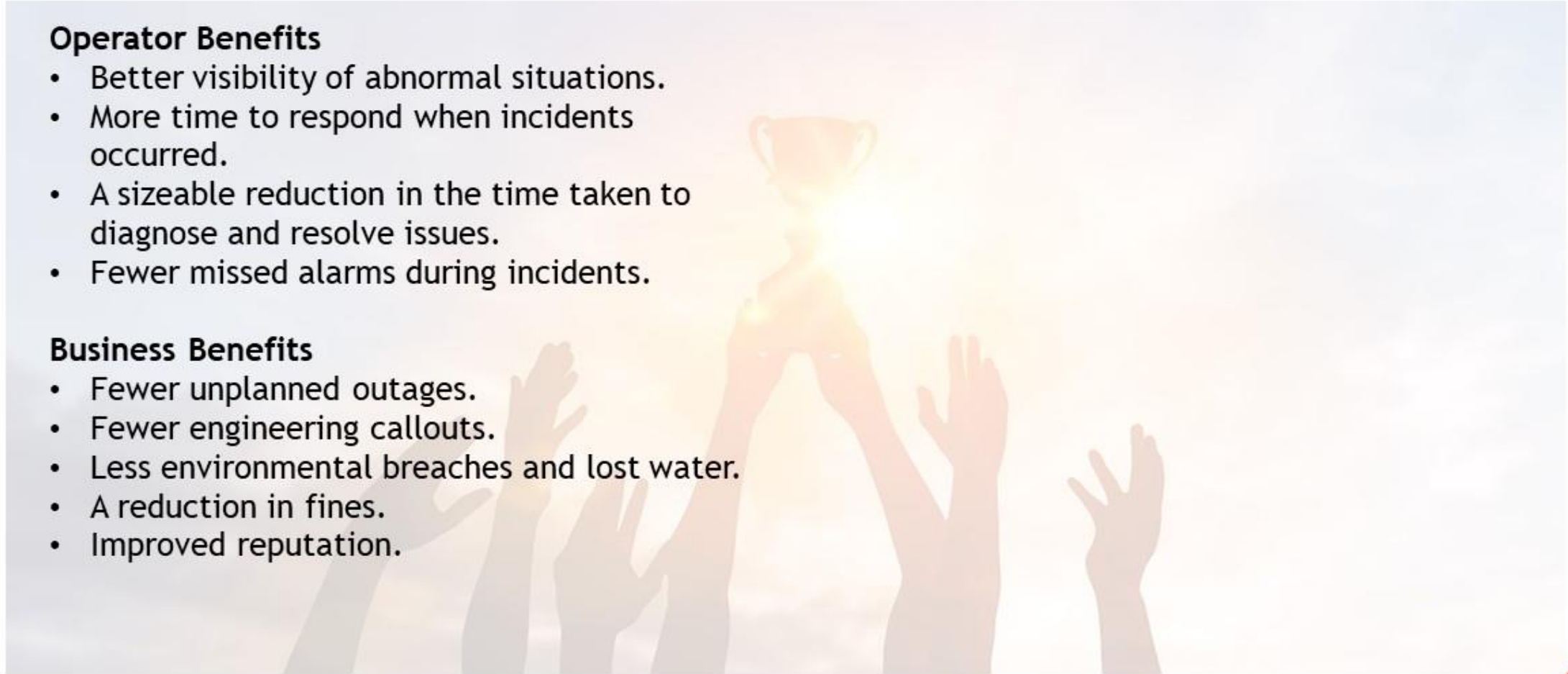
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User Story: Customer Benefits

Operator Benefits

- Better visibility of abnormal situations.
- More time to respond when incidents occurred.
- A sizeable reduction in the time taken to diagnose and resolve issues.
- Fewer missed alarms during incidents.

Business Benefits

- Fewer unplanned outages.
- Fewer engineering callouts.
- Less environmental breaches and lost water.
- A reduction in fines.
- Improved reputation.



 **PROCESSVUE**
Information



PROCESSVUE
White paper and summary

We have produced a series of white papers to help you understand alarm management and the benefits it can bring to your business.



Our latest White Paper

Enhancing Water Industry Operations Through Strategic Alarm Management

This white paper explores how alarm management steps in as a comprehensive solution for the water industry, eliminating nuisance alarms, streamlining priorities, and unleashing the power of data analysis, real-time visualisation, and automated reporting.

[DOWNLOAD PDF](#)



WHITE PAPER
Enhancing Water Industry Operations Through Strategic Alarm Management

AUTHORED BY
James Fox
ProcessVue Product Manager

Executive summary

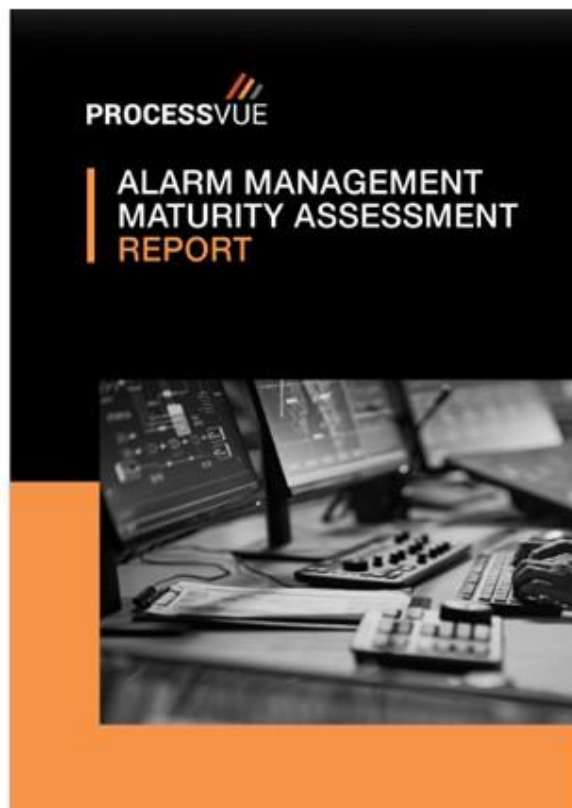
The water and wastewater industry stands at the threshold of profound digital transformation. Yet the industry grapples with its own unique complexities, rooted in legacy systems, and bound by stringent regulatory obligations. Nevertheless, the imperatives of urbanisation, climate change, regulatory scrutiny, and a global skills deficit demand a resolution only possible through digitalisation.

Amid this landscape, effective alarm management emerges as a linchpin in the journey towards digital transformation. As water companies amass vast troves of data and wrestle with ever-mounting compliance requirements, the imperative for robust alarm management is evident. Alarms are the first line of defence in the safe operation of utilities, but mismanaged they can be the direct cause of errors, regulatory penalties, and reputational damage.

A litany of avoidable issues—nuisance alarms, alarm floods, operator cognitive overload, and subpar prioritisation—can all threaten operational efficiency. Here, modern alarm management software steps in as a comprehensive solution, eliminating nuisance alarms, streamlining priorities, and unleashing the power of data analysis, real-time visualisation, and automated reporting.



PROCESSVUE Struggling to Start? - Alarm Maturity Assessment



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Knowing the rate that alarms are generated is fundamental in gaining an understanding of the operating conditions faced by the plant operator, the plant characteristics and the demands placed upon the alarm systems.

On average, how many alarms do your operators manage in a 10 minute period? *

Less than 1
 Between 1 and 10
 More than 10
 I don't know

← NEXT QUESTION

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 Alarm Management Without Limits

ALARM MANAGEMENT MATURITY ASSESSMENT REPORT

Question 1
On average, how many alarms do your operators manage in a 10 minute period?

When an alarm is annunciated in process control, operators play a critical role in responding promptly and effectively to the situation. The specific steps an operator should take may vary depending on the nature of the alarm, the industry, and the process being monitored. An important factor of an alarm system is to afford the operator sufficient time to perform the relevant actions in response to the alarm.

An operator will typically follow the workflow below upon receiving an alarm:

1. Acknowledge the alarm.
2. Identify the alarm.
3. Prioritise the alarm.
4. Consult standard operating procedures (SOPs).
5. Gather additional information.
6. Communicate with team members.
7. Take corrective actions.
8. Document actions taken.
9. Monitor system response.
10. Report to the supervisor or control center.

As evident in the above workflow, there are 10 steps for the operator to perform in response to an alarm. According to Alarm Management Standards and Guidelines, the recommended rate is 1 alarm per 10 minutes. Knowing the number of process alarms annunciated in a specific time period is important for maintaining operational efficiency, ensuring safety, preventing downtime, and facilitating continuous improvement in industrial processes. It provides valuable insights that help organisations proactively manage and optimise their systems.

Your answer was 'more than 10'

Your alarm system will be close to unusable, with operators often simply acknowledging alarms to silence the annunciator, rather than responding appropriately to the alarm. Your operators may miss critical alarms due to the alarm noise. Many alarms are likely to be meaningless or of little value, and it is highly likely many alarms may have been disabled by the operators due to their nuisance value.

Recommendation: Employ nuisance alarm reduction techniques to reduce the volume of alarms annunciated to operators and perform alarm rationalisation to remove duplicate and any unnecessary alarms.