

# PREDICTABILITY FOR PROCESS Operational Excellence Solutions



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A Yokogawa Commitment to Industry

**vigilance**®

**YOKOGAWA** 

## Why Predictability for Process?

Our customers' objectives are clear:

- Maximize return on investment in plant
- Maintain the right quality, without going over spec
- Ensure a safe and predictable environment with guaranteed plant uptime

For the process industries, there's nothing new in these goals, but responding to them becomes more challenging all the time.

The goal posts are constantly moving: more complex operations and reduced numbers of operators with greater individual responsibility. Companies are searching for improvements in system uptime and higher reliability, resulting in fewer opportunities for start-up/shut down. It gets tougher to identify decisions to deliver improvements in today's business demands.

## More information, less data

Making improvements means understanding exactly what's happening now, and that in itself is a challenge. Not because there's a lack of raw data - often there's too much - but it's not available in the right form, for the right people, at the right time. At the heart of the problem is a fundamental mismatch between the world of hours, days and weeks of ERP, and the second by second world of process control.

Many organizations have introduced point solutions, to crack specific trouble spots by improving the flow and currency of information from the process. By their very nature, island solutions can only deliver so much, and no more. The limitations of manually keyed data, for example, mean that it's already history . . .

This is why we develop Operational Excellence Solutions. These provide predictability for process to create an environment where business decision-making can be supported by shop-floor information.



**“ Impending failure of a high pressure valve would not have been detected without Exaplog from Yokogawa.”**

Christian Vermum  
Manager of electrical engineering department  
Degussa Oxeno

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**innovation** empowers you with new insights and capabilities, better throughput and asset utilization

## It's all about predictability

Yokogawa operational excellence solutions use an integrated suite of proven software tools to improve the predictability at operational and corporate levels. Significantly, these tools complement your existing point solutions, enhancing the return on investment and helping to optimize existing assets.

So what makes us so confident that Predictability for Process can really deliver? There are two key reasons...

## Powerful partnership

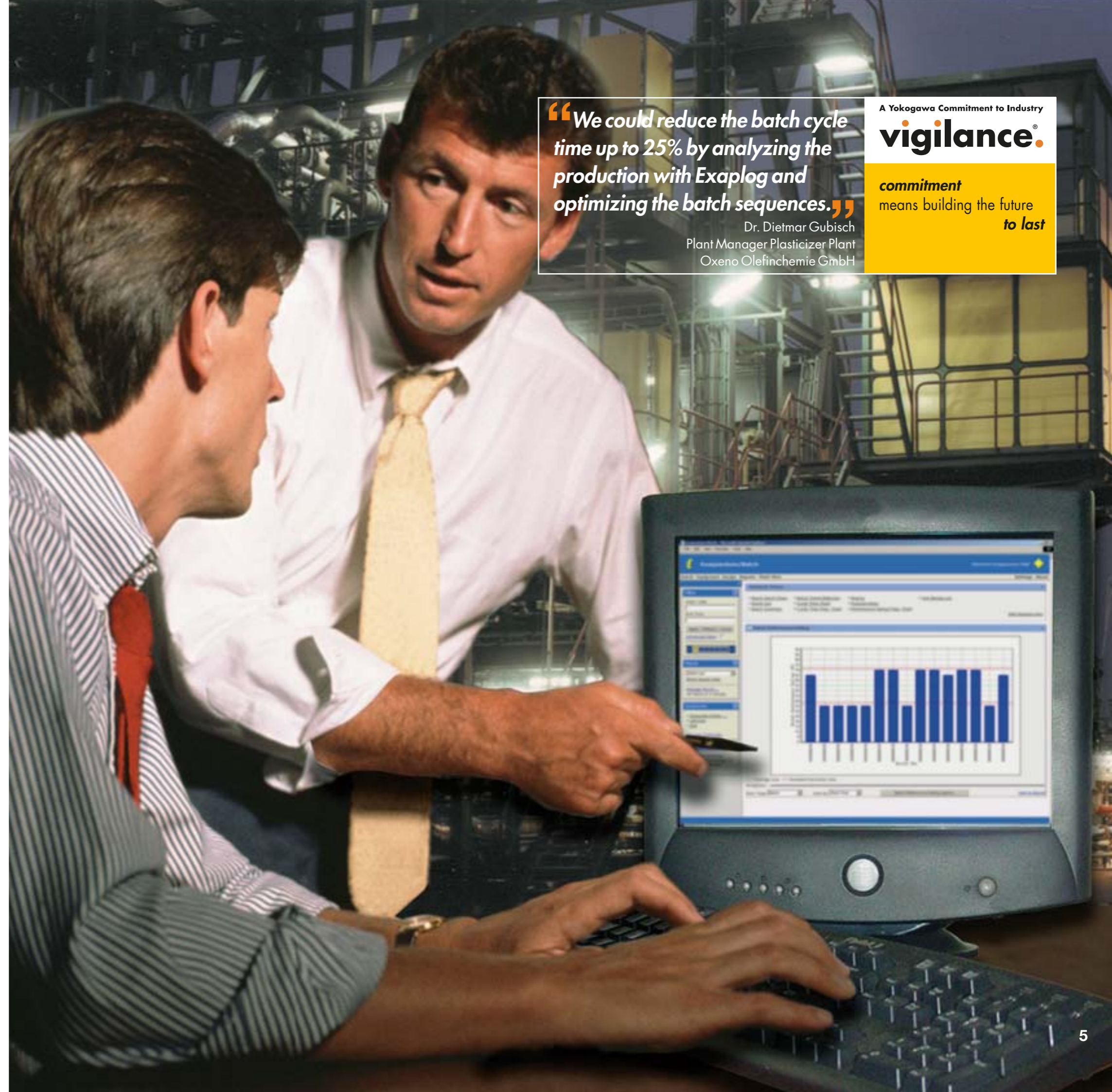
The suite is backed by Yokogawa expertise. Knowing when and how to apply proven tools for maximum effectiveness is essential. That's where our ground up understanding of your industry comes into play. We understand where the information is coming from and we know how to capture vital operator know-how and transfer it to an automated solution.

Our deployment methodology allows the solution to reflect your initial reference point and priorities. Capacity issues require a different approach and need different priorities from quality issues, for example.

Our partnership approach means we can set in motion a life-long evolution through the plant life cycle.

## Flexible software solutions

Industry wide standardization for exchange of real-time production and asset data will enable operating companies to dramatically improve their effectiveness. Yokogawa is a leading participant in developing the ISA-95 standards and these are incorporated into our products. We apply technologies such as OPC, XML and web services as the underlying basis of our solutions resulting in a breakdown of silo's of information to support your continuous drive for operational excellence.



**“We could reduce the batch cycle time up to 25% by analyzing the production with Exaplog and optimizing the batch sequences.”**

Dr. Dietmar Gubisch  
Plant Manager Plasticizer Plant  
Oxeno Olefinchemie GmbH

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**commitment**  
means building the future  
*to last*

# What does Predictability for Process deliver?

Our Operational Excellence Solutions are designed to deliver concrete business benefits. The solutions address key issues affecting your plant, your people, the materials you process and produce and the processes themselves.

## Plant maintenance

The key to maximizing component life and reducing downtime from failures and unnecessary planned maintenance is a comprehensive understanding of all the factors that combine to reduce equipment life. Our Operational Excellence Solutions integrate information from condition monitoring systems and visual inspection with maintenance management systems. Armed with this information, you can build on existing maintenance tactics to create a highly proactive strategy that improves equipment availability and leads to a reduction of maintenance costs.

The result is reduced, more predictable, downtime and a better return on investment through more reliable and available equipment.

### CORPORATE

Productive, Empowered Employees



Improved Customer Service



Lower Operating Cost



Improved Product Quality



Return on Assets



← PLANT MAINTENANCE →

← MATERIALS MANAGEMENT →

← OPERATOR EFFECTIVENESS →

← PROCESS OPTIMIZATION →

### OPERATIONAL



Stable Process



Improved Asset Utilization



Controlled Product Handling



Regulatory Compliancy



Reduced Quality Give-Away

## Operator effectiveness

How do you make best use of your operators' skills? Improving your operations not only depends on process control but also on the operation by operators. Sound procedures play a big part - but so does smoothing out peaks and troughs in workload. Good training is essential and we can build on this by reducing reliance on individual operators' skills.

Our experience is invaluable; it helps address these complex and sometimes sensitive issues. We help to create meaningful and accessible company-wide procedures, to consistently improve performance across the whole organization. By identifying and sharing knowledge which expert operators have acquired, we establish the reasons behind excess alarms, or the failure to apply procedures. As a result we can help you make changes to ensure consistently more efficient operations.

## Materials management

Efficient materials management is the heart of predictable processing. It spans every stage; from receipt of raw materials through to dispatch of the finished product. For many organisations, there is a potential for huge savings through automation and integration of information on the materials' journey through the plant.

We will work with you to understand the potential for delay, spillage, error or contamination at every stage of that journey, before introducing appropriate automation to speed materials movements - safely. The result is improved throughput within your existing plant infrastructure; a cut in costly delays, wastage and inventory, and certainty of legislative compliance.

## Process optimization

Process optimization means doing what you do, only better. Using existing plant to make more, better quality product, without incurring a cost penalty on the overall organization. It requires a detailed understanding of often highly complex processes, and the use of high quality data.

Our Operational Excellence Solutions support the development of highly sophisticated models. They reflect real world pressures, like changing environmental regulations and the need to extend the benefits balance across energy costs and recycling. Yokogawa solutions enable optimum operating conditions for superior quality at minimum cost. At the same time they accommodate variations imposed by outside factors; from shift changes to new materials suppliers.

## Customer benefits

Across the globe, customer facilities are benefiting from Yokogawa solutions, backed up by our process expertise.

Maximum throughput for minimum costs was the goal for **Aromatics Thailand**. The company needed to increase throughput by 3%, within a year, to deliver a 4.5M USD benefit. We helped them apply advanced process control technologies to the reformer and aromatic units, securing a return on investment well in excess of the target figure.



For **Mitsubishi Chemical**, the goal was to cut the number of time-consuming and disruptive DCS alarms and manipulations. Through improvements in field instrumentation, optimization of PID parameters, and APC and Advanced Operator Assistance implementations, we helped shift all processes into the "stable and safe" category.



For **Lonza USA**, we helped identify repeated process alarm messages that were ignored, manual operations that could be automated, instances of alarm flooding, and areas where measures like PID tuning and advanced control could help. The result? Dramatic reduction in average DCS events a day, from 5837 to 3041 – a cut of 45%.



**Japan Polychem** wanted to extend the high levels of stability and efficiency achieved in normal operation, to grade changes, when the workload increased dramatically and where operating time and product quality were totally dependent on the skill of the operator. We helped to devise and implement Exapilot a fully automated solution, which reduced the number of operations from 200 to two, cut operating times and transitional products, cut the workload by a factor of ten, and enabled individual operator know-how to be shared among all the operations staff.



"Very user-friendly and much easier to implement than in the DCS" - that's the first impression of the newly automated water, brine and shutdown operations at **Solvay Chemicals, Inc.**, USA. The operations traditionally involved an uneasy mix of DCS and field operations; this, plus the split of responsibilities between skilled operators and DCS engineers - and the disproportionate DCS engineering overhead for a low-frequency operation - led the company to look for an alternative. In a matter of weeks, we helped to develop and implement a new software-based solution, and to train the operations staff.



When **TOTAL** required a sophisticated information system they chose Yokogawa. The challenge was to collect data from five existing DCS's, from various manufacturers. The system also needed to unify data from separate plant locations. Our response was to provide a solution including the Exaquantum Plant Information Management System. By using industry standard OPC integration multiple DCS data is seamlessly transformed into a single coherent information source, accessible across a wide area corporate network. TOTAL's choice was a result of Yokogawa's knowledge and familiarity with open protocols and integration, reinforced by TOTAL's positive experience of Yokogawa at Girassol in Angola.



**"APC stabilized the process operation significantly and it also maximized unit throughput. Our APC uptime last year was 99.8%."**

Ms K.Jeranee  
Technical Division Manager  
Aromatics, Thailand

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quality minimizes your total cost of ownership, brings your cost down throughout your business life cycle.

## How we work with you

The way we implement our Operational Excellence Solutions is key to our customers' success. Our methodology is built on 35 years' experience across the spectrum of process industries. It's designed to minimize time to solution, while ensuring that every step we take today provides a viable foundation for future enhancements and developments. It ensures that we reflect your priorities, and understand your expectations - that's the first step towards meeting them.

### With our approach, there are no blind alleys

First, we look at the big picture - your existing systems, your future plans, and the return you need on your investment. We look at your priorities, agree a road map with you and accurately define cost benefits you can expect.

We look at your business processes, and map all the inputs, outputs, and activities involved. Any activities and sub processes that contribute no value are eliminated. Problem areas are focused on. These are the processes and activities that will enable you to achieve your goals.

To improve these processes, we use a highly disciplined approach and a set of statistical tools to give us a standardized basis for measurement and comparison. After **defining** the goals in terms of KPI's, we **measure** the existing system and **analyze** the findings to establish the gap between "as-is" and "to-be". We will generate alternative paths to **improve** the process and **control** that the improvements work for you.

To implement the chosen improvements, we work with you to create a prioritized project plan and communicate the changes through the organization. This stage is critical if the improvements are to be of enduring benefit to your business. We apply expertise gathered over many hundreds of projects to ensure you make the most productive improvements to your procedures and systems improvements.

Finally, we review the completed project, to see what value we can return to other areas of your organization.

### A unique combination

It is the combination of a highly disciplined and structured methodology, world class software and our unrivalled industry expertise that enables Yokogawa Operational Excellence Solutions to bring predictability to your processes.



“ We managed to preserve our operators' know-how. ”

Hidehito Katou  
Technology Group Manager  
Japan Polychem Corporation

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*foresight* secures your future with the best solutions available both today and in the future

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quality

innovation

foresight

What does Yokogawa **vigilance** mean to the future of your business? **Quality.** Through products that are built from the ground up and tested to the last hour, you're ensured continuous operation and more uptime. **Innovation.** Your business will benefit from new insights and capabilities, bringing true predictability to your process. **Foresight.** As the market changes, you'll have solutions that give you the continuity and flexibility to plan ahead and grow. Our partners know the difference. With Yokogawa, you can count on a lifetime of plant efficiency, from instrumentation to operation support. Let us be vigilant about your business.

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