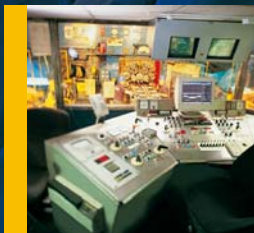


vigilantplant.®

Volume #3

Production Management Solutions



Bulletin 00A01A21-23E

vigilantplant.®

The clear path to Operational Excellence

Imagine a process plant maximizing the return on its investment; consistently producing products of the right quality, without exceeding the required specification; providing a safe and predictable environment with guaranteed uptime. This is the vision and promise behind VigilantPlant, the clear path to operational excellence from Yokogawa.

More information, less data

Making improvements requires seeing clearly what is happening now. Transforming the ever-increasing flood of raw data into value added information is vital to avoid overload and enable management to make the right decisions. Knowing in advance enables you to create a plant which is responsive and flexible. And by acting with agility, you are able to adapt to changes in raw materials, costs and other variables. Production Management Solutions from Yokogawa allow you to see clearly, know in advance and act with agility.



SEE CLEARLY Less blind spots

Start from a base of knowledge, recognizing existing limitations and bottlenecks.

Minimize reactive measures, unexpected downtime and quality variations.

Fewer surprises KNOW IN ADVANCE



ACT WITH AGILITY Predictable production

Business decision-making is supported by shop-floor information.

> Gap analysis

Yokogawa can deploy experienced consultants to work with you to help understand and define your current situation.

Business Processes

- Analyze key business issues/drivers
- Analyze future business/market drivers
- Identify gaps in current practices
- Define enhancements/changes required



Application Audit

- Analyze current company-wide software applications
- Map current applications against business needs
- Identify potential areas for improvement
- Define new/complimentary applications required
- Define enhancements/changes required



**SEE
CLEARLY**

Information Audit

- Analyze and document IT infrastructure
- Identify performance and downtime issues
- Map future business needs
- Recommend improvements
- Define enhancements/changes required
- Assess network security and recommend improvements



> Plan for the future

Having reviewed your current situation we can establish where you need to be. Yokogawa consultants can help you develop:

Master Plans

- Review gap analysis recommendations
- Define the ideal infrastructure for the future
- Specify key applications for business gain
- Define an implementation roadmap
- Provide an outline cost benefit analysis & ROI



FEED Studies

- Outline requirements definition for IT infrastructure
- Specific requirements definition for all applications
- Identify possible solutions and potential vendor list
- Define enhancements/changes to existing legacy application
- Prepare tender documents required

**KNOW
IN ADVANCE**

Functional Design

- Detailed analysis of system & user requirements
- Detailed analysis of integration requirements
- Functional definition of the integrated solution
- Functional definition of all applications

Project Viability Analysis

- Conduct tender process for solutions
- Collate & evaluate tenders
- Propose vendors & define overall costs
- Define ROI for all applications
- Present detailed cost benefit analysis



> Unlock the potential of your plant

Yokogawa can help you optimize your plant and unlock the value – making it a Vigilant Plant!

Production Management

- Planning/scheduling, execution
- Plant information management, traceability
- Advanced operator assistance
- Business & automation system integration
- Advanced process control solutions



Maintenance Management

- Condition based/predictive maintenance
- Downtime management
- Response analysis/management
- Materials control - spares/consumables
- Device analysis and management



ACT
WITH AGILITY

Quality Management

- Laboratory information management
- SPC/SQC analysis & control
- Multi-variate/predictive product quality control
- Procedural management

Inventory Management

- Data reconciliation
- Mass/energy balance
- Production accounting
- Tank farm & offsite management
- Warehouse management
- Material tracking & tracing



Customer Benefits

Across the globe, customers are benefiting from Yokogawa's VigilantPlant solutions, supported by our process expertise.

Maximum Throughput

This was the goal for Aromatics Thailand (ATC), which has a huge Petrochemical complex located at Rayong, Thailand.

The company needed to increase throughput by 3% within a year to deliver a \$4.5M 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.

According to Ms K. Jeranee, the Technical Division manager, "APC stabilized the process operation significantly and it also maximized unit throughput. Our APC uptime last year was 99.8%."



Improved inter-shift communications

Chemical manufacturers Acordis needed to improve inter-shift communications at their Acetate Products plant near Derby, England. Yokogawa's eLogBook enabled them to do so.

"The use of eLogBook in our business has enabled much improved communications and handover between shift teams. The system has allowed these teams to see at a glance what issues are affecting them now, and where efforts should be focused. It has also had the added benefit of improving communications and visibility between different teams."

ACORDIS
Acetate Products

Long-term reliability
= low total cost of ownership

Cost of ownership is critical for Nederlandse Aardolie Maatschappij's (NAM) ongoing upgrade of one of the world's largest gas fields in Groningen, The Netherlands.

A key for Yokogawa in winning the previous contract for this major project was the high reliability of its products and technology as well as the professional performance that it demonstrated in the first phase of this and other projects.

"We know Yokogawa's products are reliable and robust as proven on the first phase of the project and I am sure that Yokogawa, as a strategic business partner, can meet our expectation for the second phase as well.", comments Henk Niezen, Manager of PIMS GLT and Land Projects Europe, NAM.



440% ROI in First Year

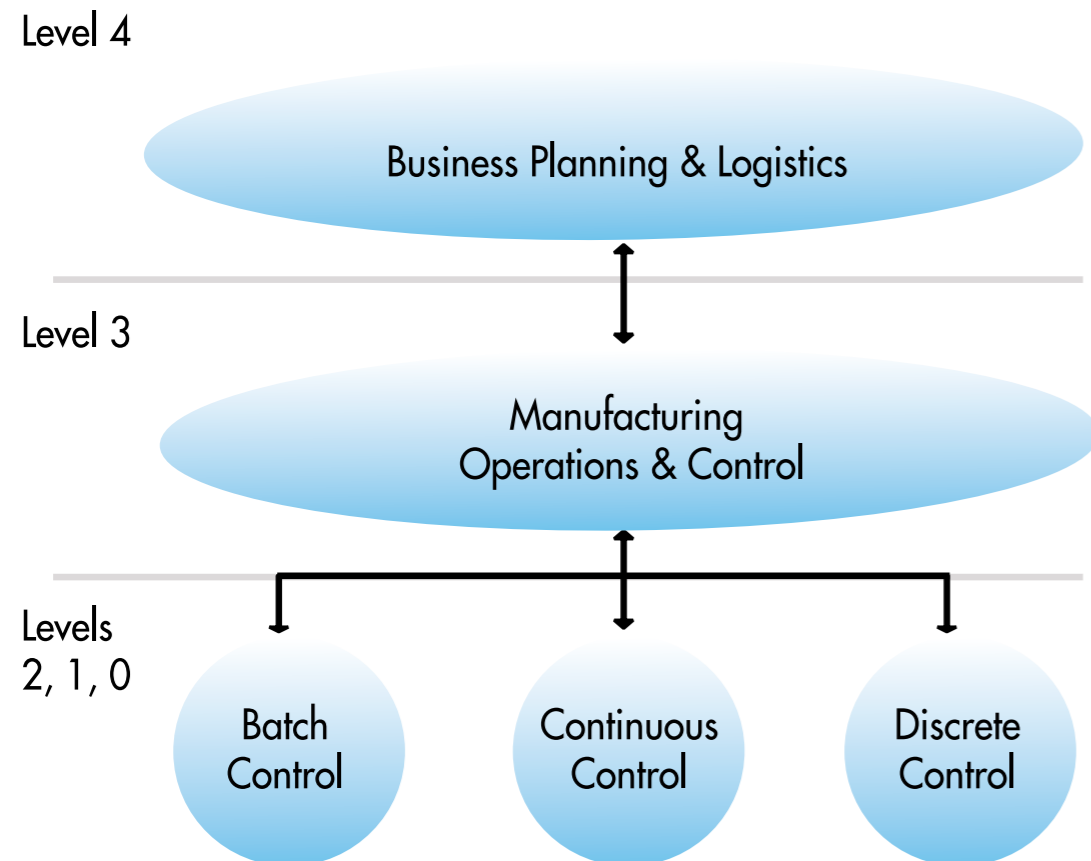
Major Brazilian pulp and paper producer CENIBRA has achieved annual Operational Expense savings of over \$2m on an investment of \$450,000 in Exaquantum and other MES software. Savings were made in three areas:

1. Reduced Chlorine Dioxide (ClO₂) - by understanding better the relationship between ClO₂ used for bleaching and pulp quality CENIBRA reduced its consumption by 12.8%, saving \$1.2m per year
2. Fuel saving of \$750,000 from a better understanding of the energy balance involved
3. Reduced downtime, saving \$60,000. Achieved by cross-variable analysis of data collected, leading to a better understanding of blockage problems.



ISA-95 Standards Based

The ISA-95 standard has been adopted by Yokogawa as the basis for Production Management Solutions. Customers benefit from the structured approach to managing manufacturing operations and business system integration provided by the standard as well as the inter-operability it enables.

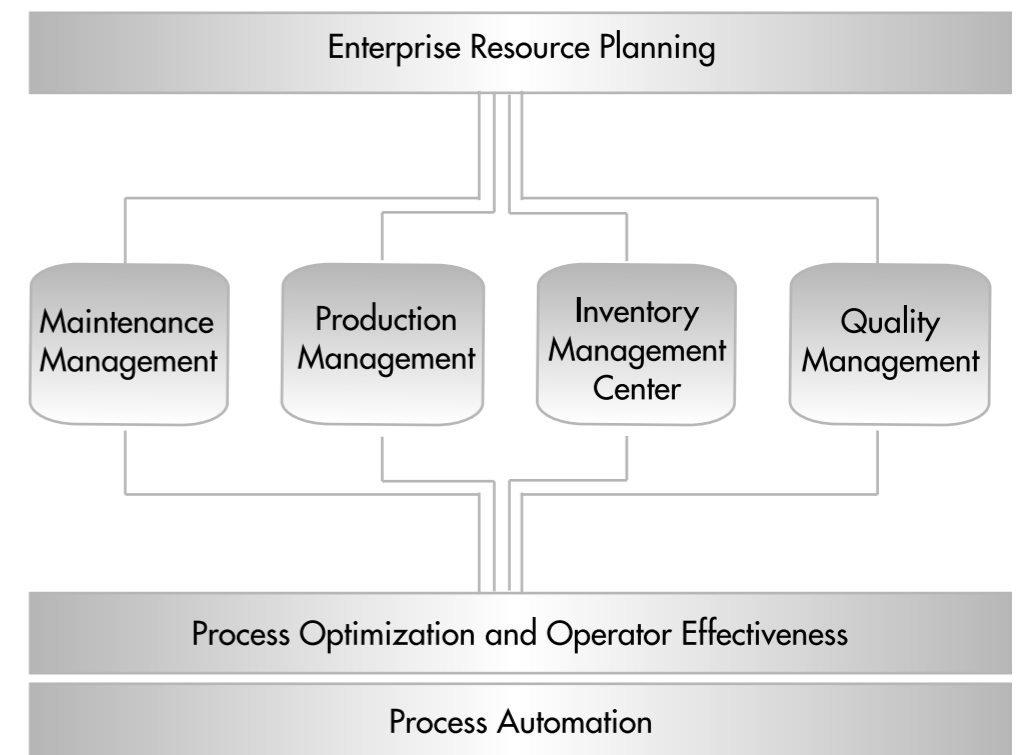


The ISA-95 standard addresses the interface, or exchange of data, between business systems and process automation systems. It also clearly identifies a standard approach to production, maintenance, quality and inventory operations activities and data exchanges. Yokogawa uses this standard as a framework to build industry specific solutions.

ISA-95 Values

- Faster implementation of integration projects by enabling industry-wide standards using current technology
- Reduced lifecycle costs for enterprise - process automation system integration with common message structures and data organization
- Lower Total Cost of Ownership (TCO) by applying common methodology to multiple operational disciplines
- Extending Collaborative Production Management (CPM) Systems from the control room to IT by enabling secure access to real-time production data and displays
- Decrease downtime, product introduction lead times, product change over times, off-spec products and product variability by applying production data across functional areas using a standards based approach.

ISA-95 Model - Yokogawa's Perspective



"VigilantPlant gives users a clear path towards Operational Excellence by placing its applications and capabilities in the context of a continuous improvement process."

ARC Advisory Group





“The clear path to operational excellence”



The clear path to operational excellence



VigilantPlant is Yokogawa's automation concept for safe, reliable, and profitable plant operations. VigilantPlant aims to enable an ongoing state of Operational Excellence where plant personnel are watchful and attentive, well-informed, and ready to take actions that optimize plant and business performance.

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