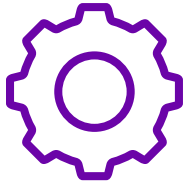

How SCG Chemicals' Digital Reliability Platform harnesses AI-infused APM to prevent unplanned downtime

Warit Krittaphol

AVEVA

SCG Chemicals PLC – Digital Reliability Platform



Challenge

- Drive greater real-time visibility of plant performance across team
- Visualize data and track KPIs as well as leverage performance improvements from analytics-based decision support
- Build a digital operating system that would realize the vision of zero unplanned downtime



Solution

- AVEVA™ Predictive Analytics, AVEVA™ Enterprise Data Management, AVEVA™ Mobile Operator, AVEVA™ Enterprise Asset Management, AVEVA™ Insight, AVEVA™ Asset Information Management, AVEVA™ 3D Asset Visualization, AVEVA™ E3D Design, AVEVA™ Flex subscription program



Benefits

- Plant reliability raised from 98% to 100%
- ROI of 9x achieved within six months
- Maintenance costs reduced, delivering savings of 40%
- End-to-end visibility of plant operations
- Trusted real-time data blended with analytics enables team to predict equipment health, monitor performance and drive optimizations more readily
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- Operational digital twin supports aim to drive zero unplanned downtime



SIAM CEMENT GROUP (SCG) OVERVIEW

One of Thailand's largest conglomerates with over 100 years of experience.

- Siam Cement Public Co., Ltd. (SCC) founded in 1913 and listed in 1975 on the SET
- \$18 Billion in market capitalization
- 3 Business Groups: Historic roots in **Cement and Building Materials** with diversification into **Packaging**, and **Chemicals**

SCG BUSINESS GROUPS



Chemicals
Business



Cement-Building
Materials Business



Packaging
Business

KEY FIGURES (FY2021)

Sales Revenue	16.6	billion USD
Net Profit	1.5	billion USD
Company	369	companies
Employee	58,283	staffs

About SCG Chemicals PLC

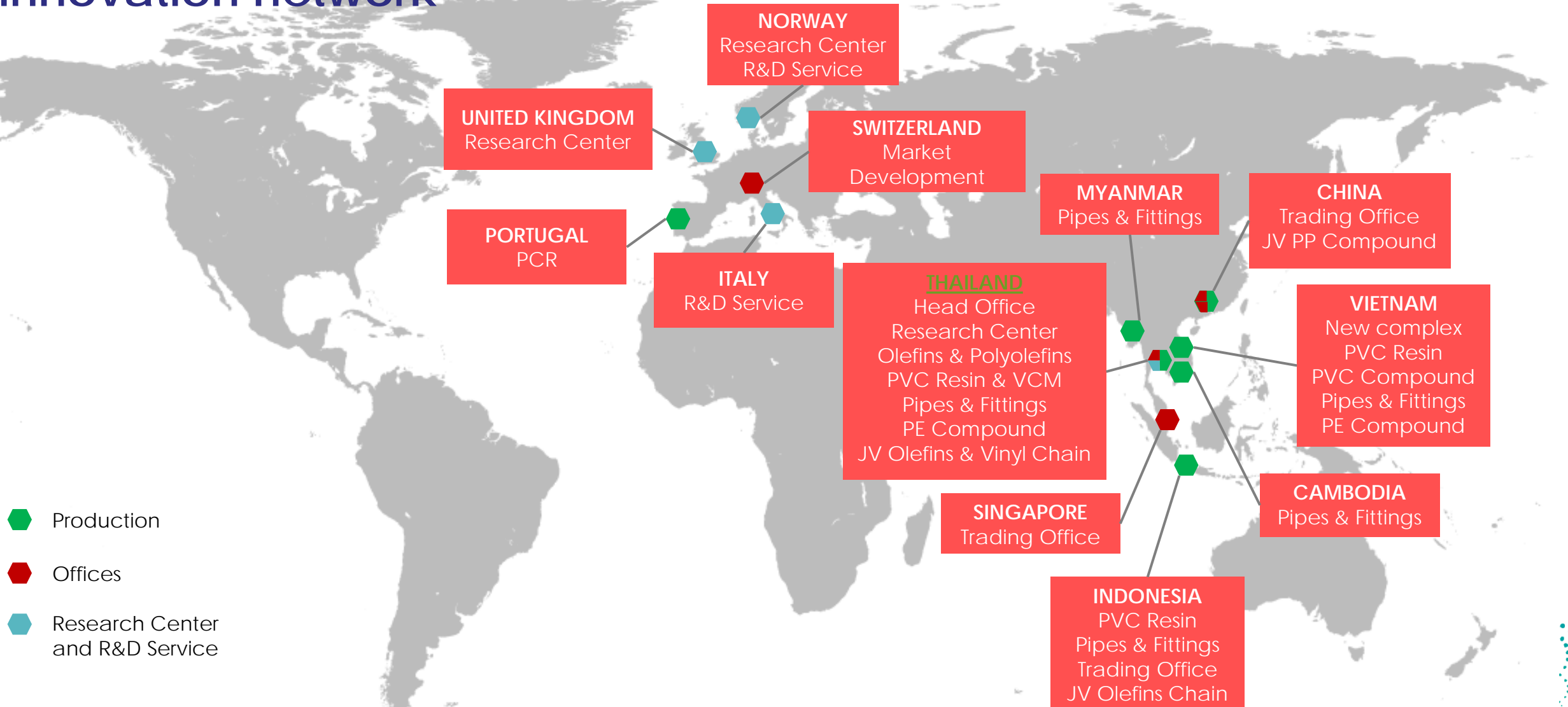


SCG Chemicals or SCGC is **one of the largest integrated petrochemical companies in Asia** and a key industry leader. We manufacture and supply a **full range of petrochemical products ranging from upstream monomers to downstream polymers** including polyethylene, polypropylene, polyvinyl chloride and finished products.

To better serve customers' requirements, SCG assigns prime importance to the development of new technology and innovation for the creation of **high value-added products (HVA)** and **service solutions**.



ASEAN as home base with worldwide market coverage and innovation network



Since 2001

ABOUT US

We are **THE INNOVATIVE INDUSTRIAL SOLUTIONS PROVIDER** offering **ONE-STOP SERVICES** to our customers from general maintenance to integrated solutions for various kinds of industries. With more than **30 YEARS EXPERIENCES** for more than **20 PLANTS** with over **5,000 CRITICAL ASSETS** as a solution practitioner in the petrochemicals industry, we bring our experiences to develop innovative solutions that will help you increase the utmost production efficiency and reliability of your production process.

*“ Your
Trustworthy
Industry
Solutions
Partner ”*

To OUR CUSTOMER

- “* **Customer Success** is our primary goal
- “* **Exceptional Customer Satisfaction** is our service effort for sustaining long term relationship
- “* Tangible impact products & services **to empathize Customer's Pain Points** are professionally delivered with proven engineering facts and our 30 years' practical expertise



REPCO NEX – Asset Performance Solutions



REPCO NEX delivers the best values to our customers through our long experience and world-class experts:



10-30%

Increase Productivity



50-90%

Reduce Unexpected Downtime



30-50%

Extend Asset Lifetime



30-50%

Improve Safety & Compliance

SCGC Digital Transformation Vision



- **Increasing Business Competitiveness**
- **Driving Asset Efficiency and Utilization**
- **Build-in Knowledge Management**
- **Expand and Leverage to Other Industries**



Drive Business Competitiveness

Business requirement for Asset Performance Management



1. Safety	Zero incident
2.1 Uptime (%) (Downstream)	98.5% to 100%
2.2 Uptime (%) (Upstream)	100% (7 – 8 Years)
3. Maintenance Efficiency	40% improved
4. Work Capability	Ratio per Critical Equipment

From business's requirements turn into 500 lines of platform's function, which took two years of effort to search & try, then another two years to gain 9 MUSD in business benefit.

Digital Transformation Critical Elements

- 10 years of Digital Transformation journey **based on Practitioner experience** concise into critical 6 bullets

Business Direction

Culture Transformation

Customer Experience

Working Process

Capability & Capacity

Technology

Digital Reliability Platform



REPCO NEX Digital Reliability Center (Unify Operation Center for Asset Digital Twin)



AVEVA PI World

Total Solution for APM 4.0 for Maximize Asset Life



Unify Operation Center

AVEVA Prescriptive Analytics



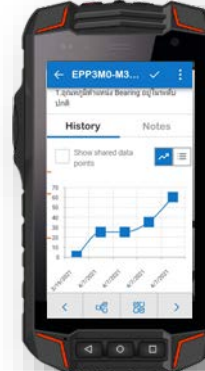
Digital Procedure



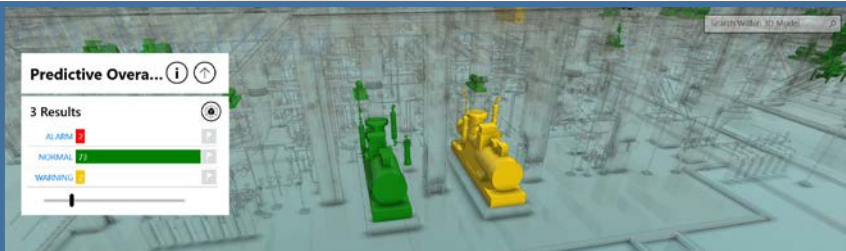
Operation Safety Management



AVEVA Mobile Operator



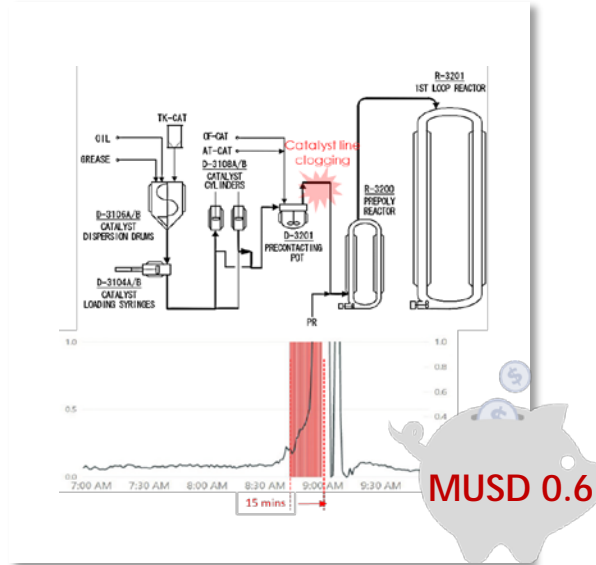
Enterprise Learning



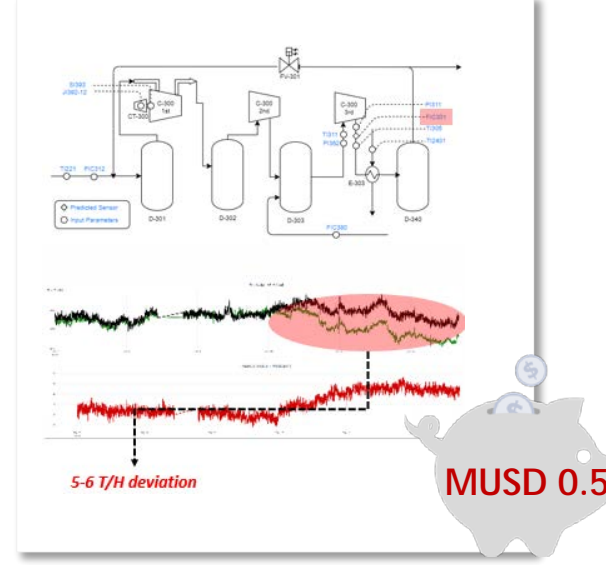
AVEVA Asset Information Management
AVEVA 3D Asset Visualization

Proven Business Outcome - Value Release from Actual Cases

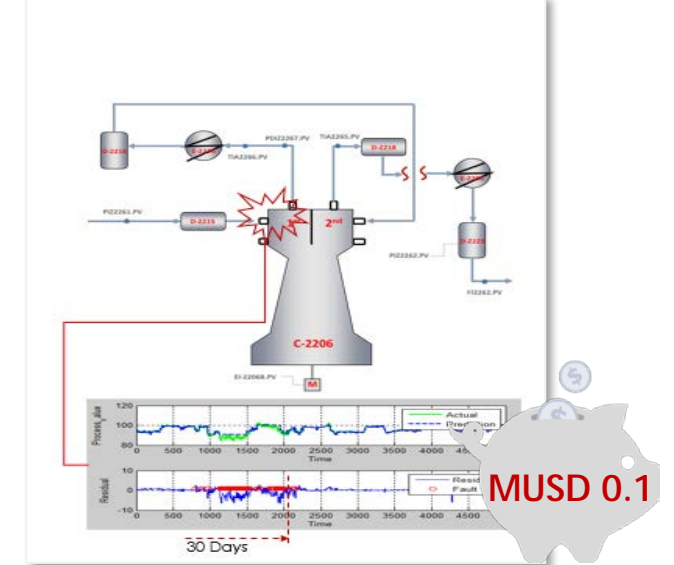
Clogging 15 Early Anomaly Warning



Compressor Min Flow Control Error



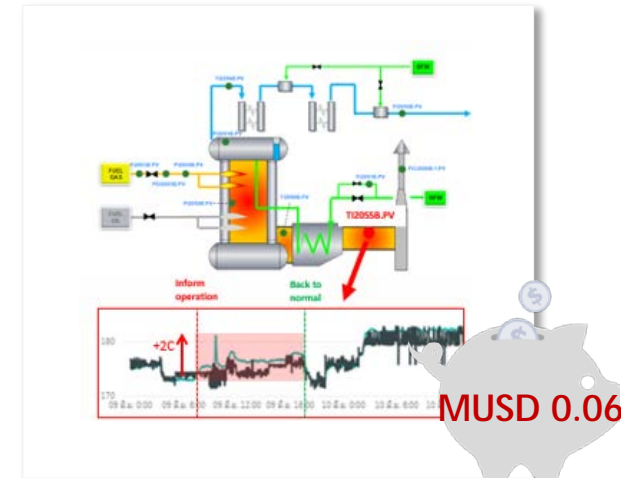
Compressor Valve Crack Early Detection



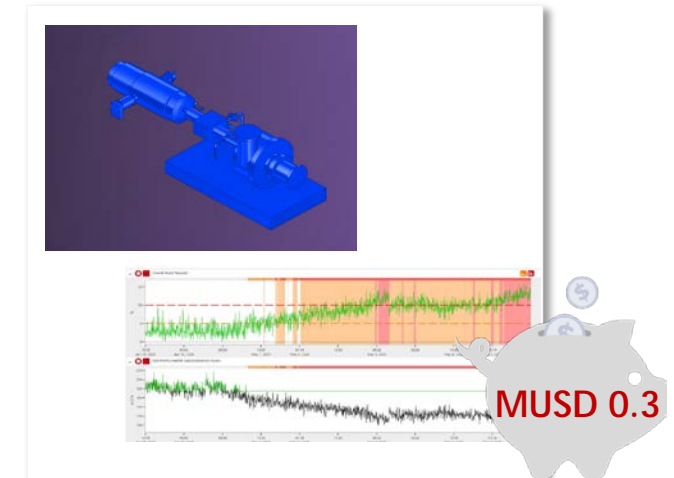
On-line Monitoring Condition



Boiler Low Efficiency



Gas blower – Discharge flow drop



Proven Business Outcome

Increase reliability from 98% to 100% and 30% reduction in associated costs – the average impact of Asset Performance Management

Asset reliability & performance optimization

Increased plant reliability from 98% to 100% through catch identification to avoided asset failure costs

More than **\$9m** saving

Enabled by:

Predictive Asset Monitoring
Case Collaboration & Management
Data-Driven Root Cause Analysis
Fault diagnostics
Prescriptive analytics
Digital Reliability Center

Asset strategy optimization & remediation

Reduced or optimize plan maintenance through IIoT sensors and Real time data analytic

30% costs avoided based on digitalization solutions

Enabled by:

Asset Strategy Management
Asset Strategy Optimization
Real Time Analytic Monitoring

Standardized work execution & safety risk management

Decreased Maintenance costs through greater operational and workforce efficiency and improve safety risk management

40% in maintenance savings

Enabled by:

Smart Workforce Digitalization
Virtual Plant
Asset Information Management System (AIMS)
AI Audits

Access to information & visualization

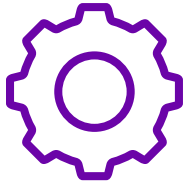
Reduced time to search for right information through single source of truth, single data platform and automated reporting

< 10 Sec. - target time for retrieving actionable information

Enabled by:

Virtual Plant
Asset Information Management System (AIMS)
Smart Workforce Digitalization
Lessons learnt reporting
Case Collaboration & Management

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ABOUT AVEVA

AVEVA is a global leader in engineering and industrial software driving digital transformation across the entire asset and operational life cycle of capital-intensive industries.

The company's engineering, planning and operations, asset performance, and monitoring and control solutions deliver proven results to over 16,000 customers across the globe. Its customers are supported by the largest industrial software ecosystem, including 4,200 partners and 5,700 certified developers. AVEVA is headquartered in Cambridge, UK, with over 4,400 employees at 80 locations in over 40 countries.

[aveva.com](https://www.aveva.com)