

17 MAY 2022

Streamline Data Flow Enablement – Your Data, Our Expertise

Cognizant – TQS Integration

Alan Bourke & Eoghan Moloney

AVEVA

About Cognizant – TQS Integration

TQS Integration

- Unrivalled knowledge of PI product suite, existing & new products
- Sound understanding of Predicate Rules (GCP, GLP and GMP) to implement in processes
- Global Data driven solutions company
- Premier Global Partner for AVEVA PI
- Global EA Partner with AVEVA
- Acquired by Cognizant in July 2021

Cognizant

- Helps modernise technology, reimagine processes and transform
- Our consultative approach helps clients envision, build and run innovative and efficient businesses
- Headquartered in the US, Cognizant is ranked 185 on the Fortune 500



Your Data Journey

**Where do I
start?**

Standardisation &
Connection

**What data do I
need?**

Collection &
Contextualisation

**Who are the
users?**

Availability &
Visualisation

**What is the
destination?**

Applications &
Cloud

**What are the
next steps?**

Data Analytics &
Data Modelling

It's better to look at data than to look for data



TQS Integration



Challenge

- Many different data sources
- Many different data requirements
- Many different end points
- Many different end users
- Many different use cases

Where is the starting point?

Solution

- Understand the requirements
 - **Data Readiness Study**
- Source systems
 - **Connectivity**
 - **Data types**
- Know the data you require
 - **Standardized**
 - **Contextualized**
 - **Structured**

Benefits

- Right first time and set the program up for success**
- Standardized approach to data integration
- Data has context
- Structured, accessible data, for all users

Cognizant TQS Integration & AVEVA - Best in Class

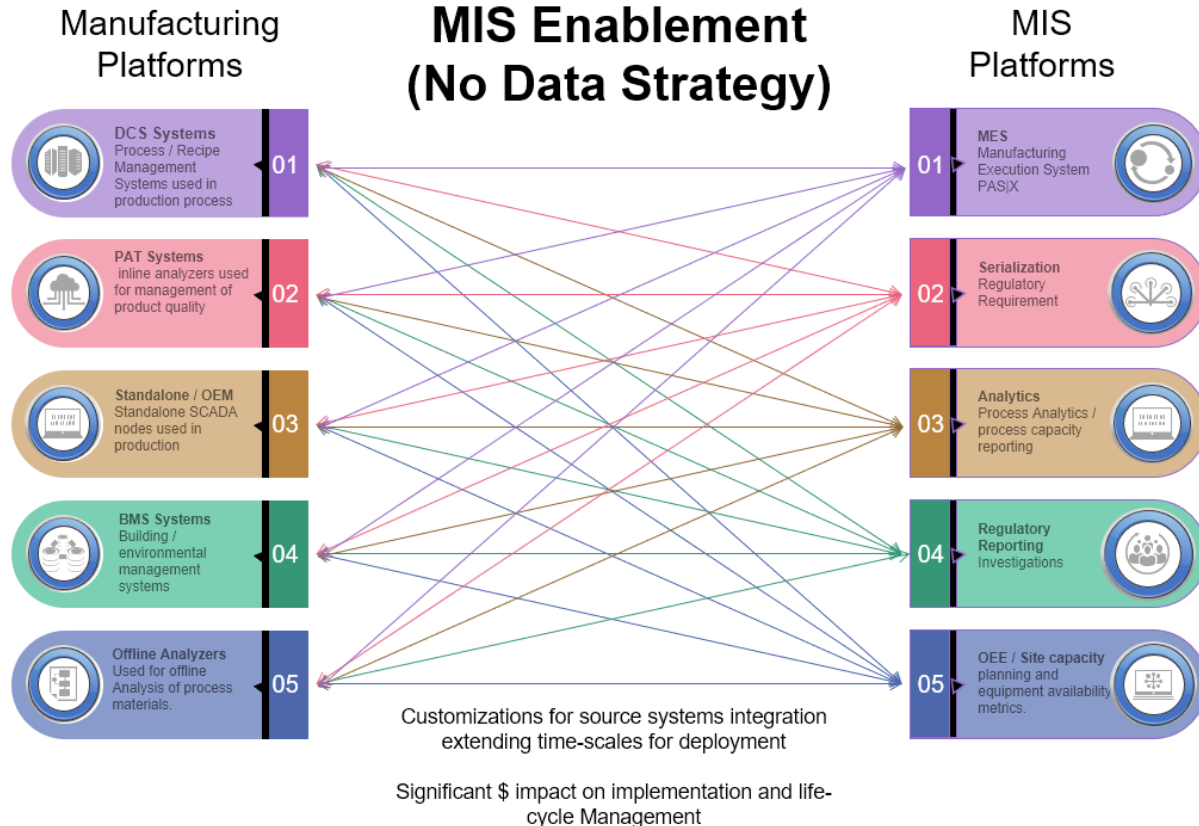


Challenge

Too many end points/unstructured data....

- Minimal standards identified for manufacturing systems
- Minimal standardization across manufacturing sites
- Minimal data-sets available from systems
- Minimal recipe based manufacturing management
- Minimal standards identified for manufacturing system
- Minimal real-time data acquisition
- No data contextualization strategy

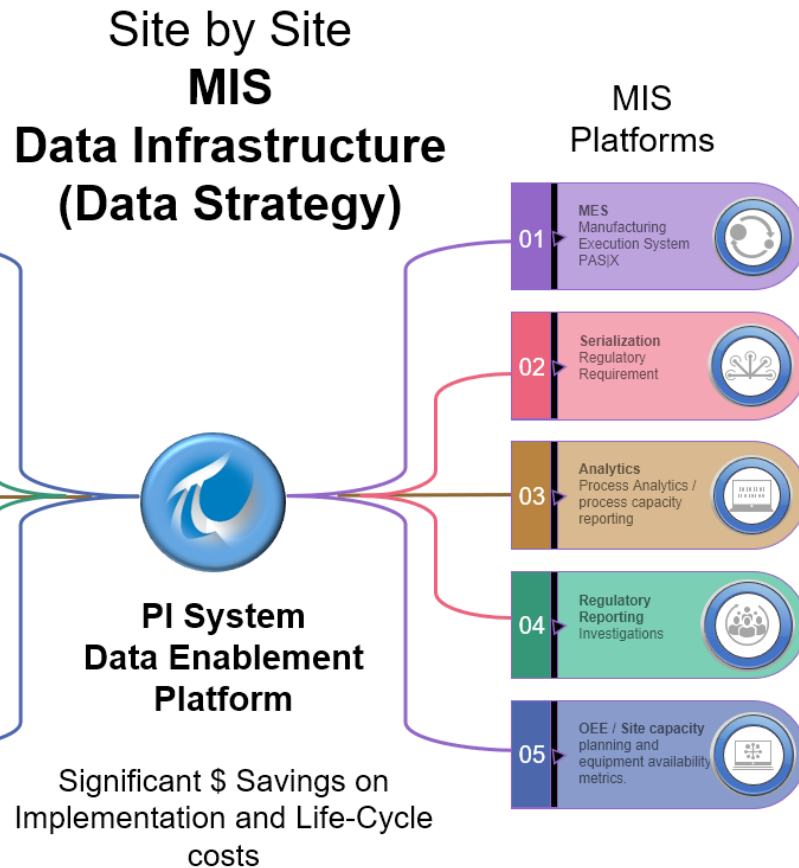
Site by Site MIS Enablement (No Data Strategy)



Solution

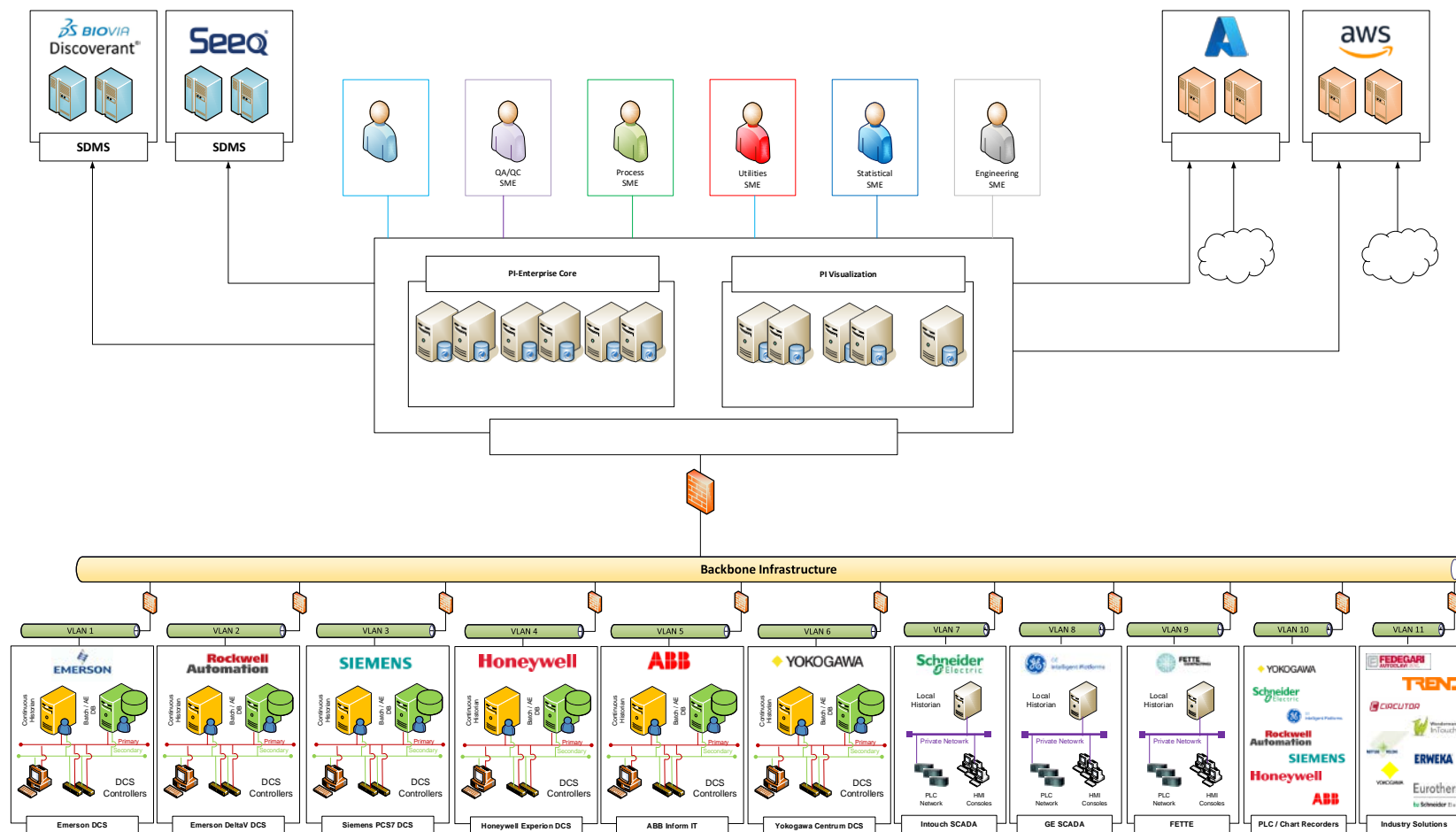
Structured data access, one source of truth....

- Understand the requirements
- Data Readiness Study
- Source systems
- Connectivity
- Data types
- Know the data you require
- Standardized
- Contextualized
- Structured



Data Readiness Study

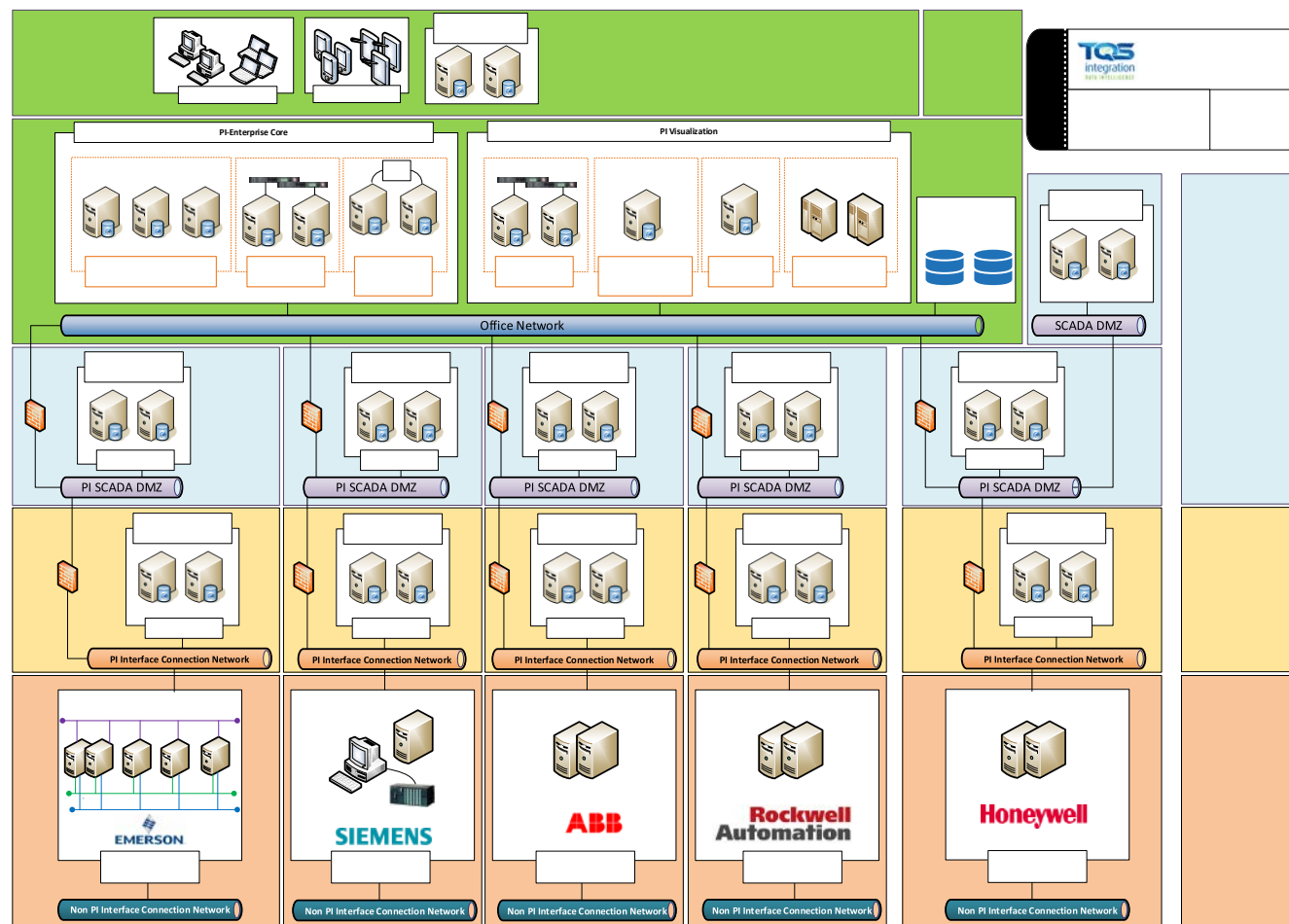
- What is it?
- What format does it follow?
- What are the goals?
- What are the outcomes?



What is a Data Readiness Study

Detailed analysis of:

- Equipment
 - PCS, DCS, Standalone Equipment etc.
- Connectivity
 - Protocols, Interfaces; OPC, RDBMS, UFL
- Network architecture
 - Evaluation of current infrastructure, Automation / IT
- Data availability
 - Data acquisition requirements
- Data security
- Reporting requirements



What is the format of a Data Readiness Study

Review and Evaluate

- Remote or On-Site
- Multi-day workshop
- Meet with all stakeholders
 - Automation Engineering
 - Process Engineering
 - IT
 - Quality
 - End users / Business
- Develop detailed systems list
- Review network architecture
- Review site initiatives
- Propose and review documentation / validation approach

Recommendations

- Data standardization
- Batch Context / Event Frame configuration
- Historical data migration options
- Security implementation
- Networking & system architecture
- Validation approach overview
- Training requirements

What are the outcomes of a Data Readiness Study

- Detailed systems list
- Data Readiness Study Report
- PI System architecture diagram
- Roll-out / Integration plan
- Validation / Documentation strategy
- Cost impacts
- Resource requirements

System Number	System Name	System Description	Location	Building	Area	Device/Hardware	Production Line	System Type	HRS Version	Comments	System	System Version	Network (V/F)	Operating System	Active Database (V/F)	SCADA/DCS/PLC/RTU (System Number of Item)	Class A-F	Low Site	Questionnaire	IC/Class	Release to PLC	Release to HMI	Release to RTU	Release to I/O	Release to PDI	Release to ODI			
EN-UT-000402	BMS (SMATIC Voice) VINCC 音響指令系統	BMS (SMATIC Voice)	EN	NA			FACTORY UTILITIES INFRASTRUCTURE	HP Seven Central SCADA	HP Seven Central SCADA	HP to be updated 2022 Q2. Information provided & for the current requirement status (24 Feb-22)	VINCC	7.3 SE Update1	Y	Windows 7 sp1	N	Y	Class C	Y	Y	Y	Y	Y	Y	Y	Y	Y			
FR-OS-0004	Balance	Balance	FR	NA			OPAL SOLID	NA	NA	Validation equipment. Initial commission. There is an 8233 part with connectivity to process. Can potentially use Modbus for the remote connection.	NA	NA	N	NA	N	NA	NA	NA	NA	NA	NA	Y	Y	Y	Y	Y			
FR-SP-000	AZOL350 Ampoule loading machine AZOL350 藥丸裝填機	AZOL350 Ampoule loading machine AZOL350 藥丸裝填機	FR	NA			PLC ETHERCAT	PLC SIMATIC 200 CN	HRS (SAP/MS) PC/RTU AV/RTU ORION GABO	No ethernet connection to PLC or HRS. Plans to upgrade HRS Q2 in 2022. No current plan to upgrade PLC to ethernet, planned for 2023.	NA	V5.5.0.30	N	Windows 2002	N	Y	B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
FR-SP-001	K32420201 Tunnel Oven K32420201 隧道烘箱	K32420201 Tunnel Oven K32420201 隧道烘箱	FR	NA			PLC ETHERCAT	PLC SIMATIC 200 CN	HRS status	No ethernet connection to PLC or HRS. Plans to upgrade HRS Q2 in 2022. No current plan to upgrade PLC to ethernet, planned for 2023.	NA	V5.5.0.30	N	Windows 2002	N	Y	B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
FR-SP-0027	SGLAPE #HFD AutoClose	SGLAPE #HFD AutoClose	FR	NA									N	Windows 10	N	Y	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
FR-SP-0038	INTEGRITY TEST RECUMBENT	INTEGRITY TEST RECUMBENT	FR	NA									N	Windows 10	N	Y	B	Unknown	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
FR-SP-0041	Balance	Balance	FR	NA									N	Windows 10	N	Y	C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
EN-UT-0003-004	Water Treatment System I/OA 水處理系統	Water Treatment System I/OA 水處理系統	EN	NA									N	Windows 10	N	Y	Class E	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Coater 1 (Class C) Siemens - S7 300

- Overview
- Configuration
- Alarm & Events / Audit
- Health
- Remote Access
- Network
- File Transfer
- Diagnostic
- History
- Maintenance

Local Site Deployment Strategy (Rapid Deployment) FES -> DEVELOPMENT -> Quality -> PRODUCTION

This is the strategy for local deployment of the PI infrastructure to focus on the implementation of the core infrastructure to facilitate efficient and robust connectivity of source systems (DCS / SCADA / PLC ...etc.). The strategy is based on the core templates developed for a Rapid Deployment Methodology to sites.

- 1. Deep Dive
 - Analysis of readiness of site and the infrastructure for connectivity
 - Focus on site remediation
- 2. DEV Core De
- 3. DEV Core Co
- 4. PROD Core
- 5. PROD Conn

Resource Requirements

- Client
 - Development Phase:
 - Site & Global Validation Groups - alignment on validation strategy and Review and Approval of Project Documentation
 - Site & Global IT - Policies of Infrastructure and Implementation
- TQS
 - Development Phase:
 - Kickoff Meeting - TQS SME & Consultant
 - Development System Build - TQS Consultant

Graphical Representation of Documentation



Manufacturing Data Strategy The Strategy - What Will it Provide ?

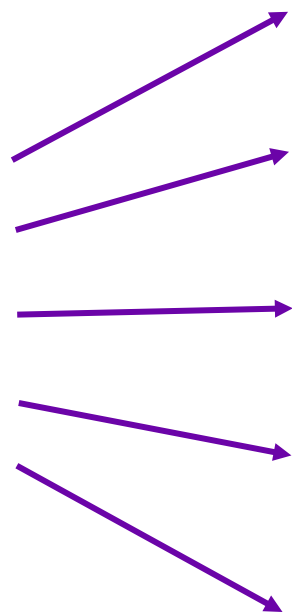
- A real-time data infrastructure to meet both manufacturing and corporate reporting needs of the organization
- Management Reporting
 - Manufacturing capacity planning / reporting
- MIS Integration Platform
 - Removing requirement for custom connectivity in MIS systems implementations enabling rapid / standard deployment of those systems throughout the organization
- Regulatory Reporting
 - Providing a GMP platform to complement MIS System(s) and BIG Data sets for efficient regulatory reporting
- Analysis / CPV
 - Enabling real-time performance and production analysis across the enterprise - empowering a data-driven organization
- Data Delivery
 - Introducing real-time delivery of data sets to required platforms enabling efficient data-transfer to business systems
- Visualization
 - Providing out-of-the-box visualization capabilities to the organization



Getting your data to the right people

Know your data, know your end users....

- Not all end users require the same data
- High level and cloud applications also have differing data requirements



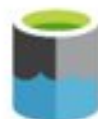
{JSON}



SIMCA®



Azure IoT Hub



Azure Data Lake Storage Gen2



Parquet



Seeq®

AVEVA

The right Data at the Right Time in the Right Place

Case Studies on Data Starved and Data Readiness Study



Data Starved Case Study



Data Readiness Case Study

“You are better looking at your data than looking
for your data.....”

TQS Integration



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PLS VISIT US AT BOOTH #46

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 MULȚUMESC
 PAKMET CIZGE
 GO RAIBH MAITH AGAT
 БЛАГОДАРЯ
 GRACIAS
 МАНАДСАНИД
 ТИ БЛАГОДАРАМ
 TAK DANKE
 RAHMAT
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 PAKKA PÉR
 PAXMAT CAĠA
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 WAZVIITA
 FALEMINDERIT
 TAPADH LEIBH
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 БАЯРЛАЛАА
 MISAOTRA ANAO
 WHAKAWHETAI KOE
 DANKON TANK TAPADH LEAT
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 SIPAS JI WERE
 TERIMA KASIH
 UA TSAUG RAU KOJ
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 СИПОС

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ABOUT AVEVA

AVEVA is a global leader in industrial software, driving digital transformation and sustainability. By connecting the power of information and artificial intelligence with human insight, AVEVA enables teams to use their data to unlock new value. We call this Performance Intelligence. AVEVA's comprehensive portfolio enables more than 20,000 industrial enterprises to engineer smarter, operate better and drive sustainable efficiency. AVEVA supports customers through a trusted ecosystem that includes 5,500 partners and 5,700 certified developers around the world. The company is headquartered in Cambridge, UK, with over 6,500 employees and 90 offices in over 40 countries.

Learn more at www.aveva.com