

AVEVA PI WORLD

Glatfelter's Digital Transformation Journey to AI/ML-driven Operations

Presented By:

Remi Duquette | Vice-president - Industrial AI | Maya HTT Ltd

Rodney Ruddick | Director - Global Manufacturing Services | Glatfelter

AVEVA

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G L A T F E L T E R
Beyond Paper

Your Presenters today



Remi Duquette

Vice-President | Industrial AI+IIoT | Maya HTT Ltd.

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My curriculum in numbers...

- ✓ **5** spacecrafts in orbit
- ✓ **150+** industrial & engineering services engagements
- ✓ **5,000+** hours on AI-ML-DL
- ✓ **10,000+** hours on skates
- ✓ **1** short-track speed skating champion

→ **Your industrial AI+IIoT partner of choice!**



Rodney Ruddick

Director - Global Manufacturing Services | Glatfelter

My endorsements in numbers...

- ✓ **6** Business Analysis
- ✓ **4** ERP
- ✓ **4** Business Process Improvement
- ✓ **2** Project Management
- ✓ **2** Business Intelligence
- ✓ **1000+** Lego sets owned and built

→ **Glatfelter's industrial AI+IIoT leader!**

AVEVA



Maya HTT Ltd

Premium Aveva PI Partner

- 11+ years experience working with the PI System
- **4.5M+ PI Tags deployed in 120+ sites worldwide**
- Your PI SI with deep bench for...
 - PI Core + PI Edge + PI Cloud
 - Timeseries & data integration
 - Data pipeline engineering & machine learning
- Your digital transformation partner for...
 - Executable data-driven & physics-based digital twins
 - ML-Ops on industrial edge devices
- Domain expertise across many industries
- Staff consisting of 75% Engineers & Scientists
 - 22% have PhD's, 30% have Master's Degrees



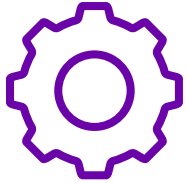


Glatfelter

Aveva PI Customer for more than 11 years

- Over 155+ years in paper industry, headquartered in Charlotte, NC, USA.
- Transforming paper company into global provider of engineered materials
 - From Tea bags and Battery Components, to Femine Hygiene and Table Top products, and now more than ever ... medical face masks.
- Continue to grow by acquisition with plans to reach 2Billion USD in revenue by 2023
- 12 Manufacturing facilities in North America, Europe and Asia, collecting >20K tags worldwide
- Embarked on a Digital Transformation in 2016
- Deployed our first ML based solution in 2018 and continue to expand our deployment to multiple mills.

World-class manufacturing operations



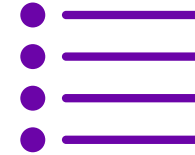
Main Business Challenges

- Need to further reduce material waste
- Need to reduce variability of process
- Need to reduce need for lab testing of quality and rely more on inline measurements
- Need to reduce risk of knowledge drain from aging workforce
- Need to attract tech talent



Solution (tech and non-tech)

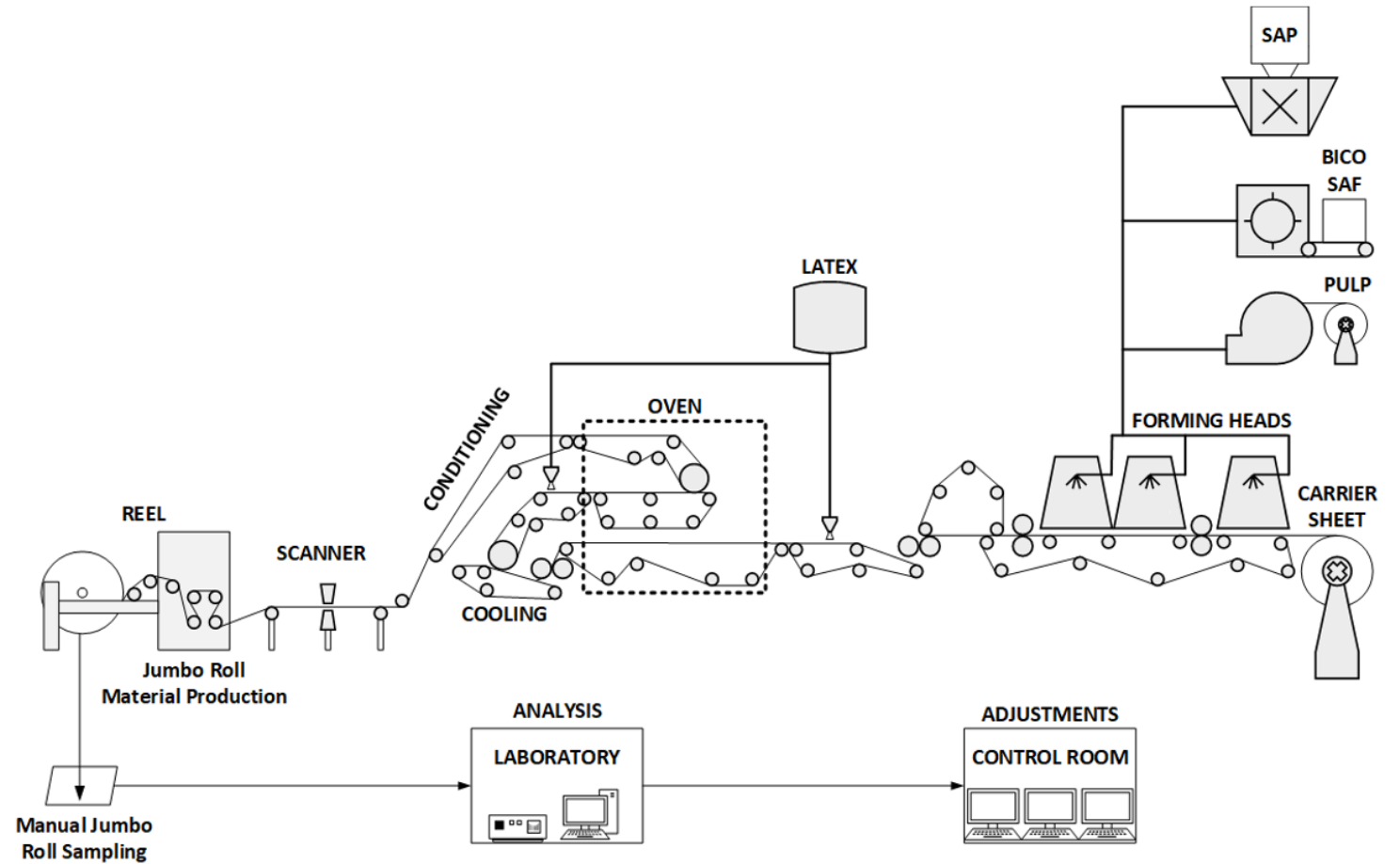
- Initiate change management to slowly adopt new digital tools
- Convert the gold mine of PI data into actionable insights
- Embed machine learning results into the existing tools and operational systems
- Identify most influential process parameters to current changes in order to cut down troubleshooting time and potential waste



Business Benefits

- Accelerated 'Time to Value' for Advanced Analytics & Machine Learning projects
- Uncover data issues which need to be addressed to ensure AI-Ops success
- Identify key impacting parameters driving product quality
- Understand the source and sensitivity of production variability
- Enable data scientists and SMEs to get to predictive modeling faster and be in a position to truly augment business benefits moving forward

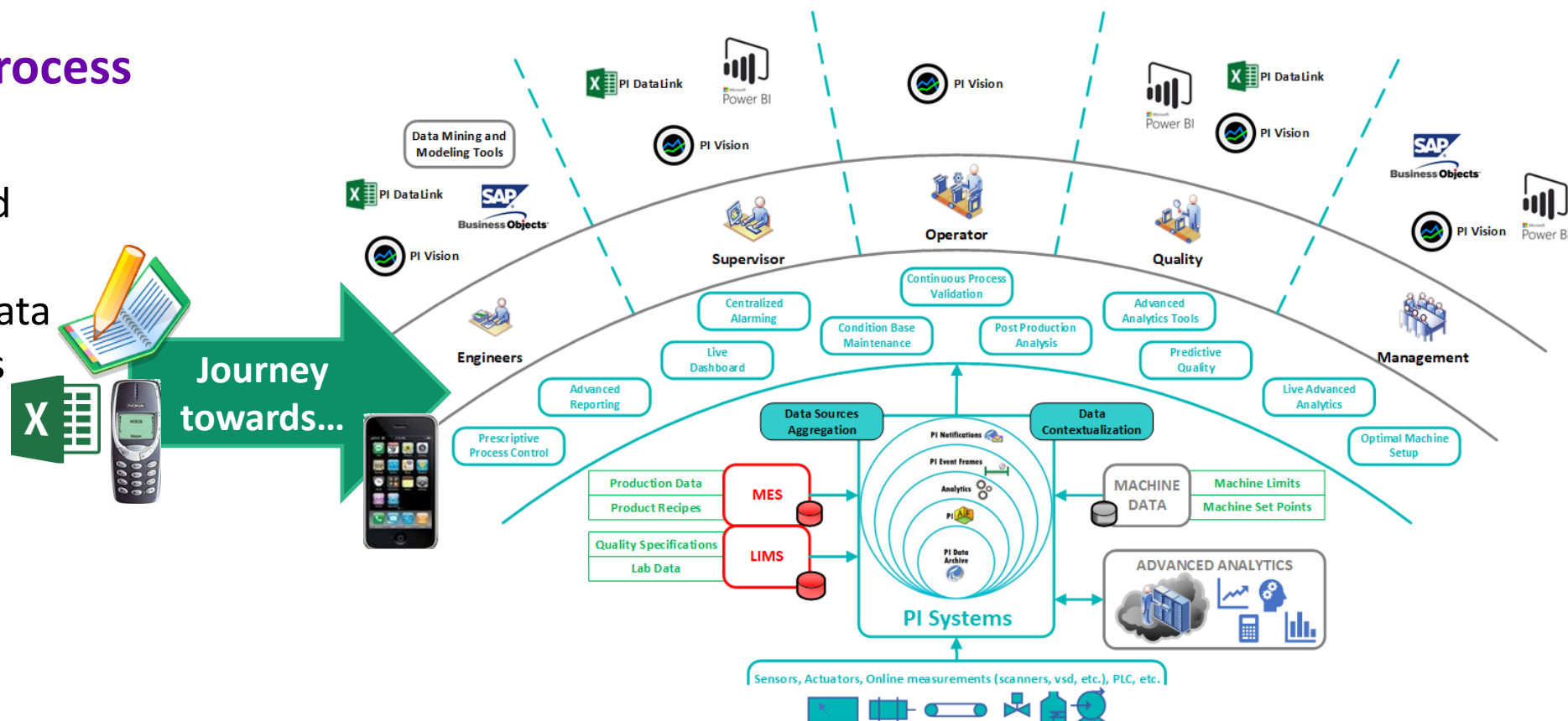
High level overview of Glafelter's Airlaid Mfg Process



What do we mean by Digital Transformation?

Past = manual control process

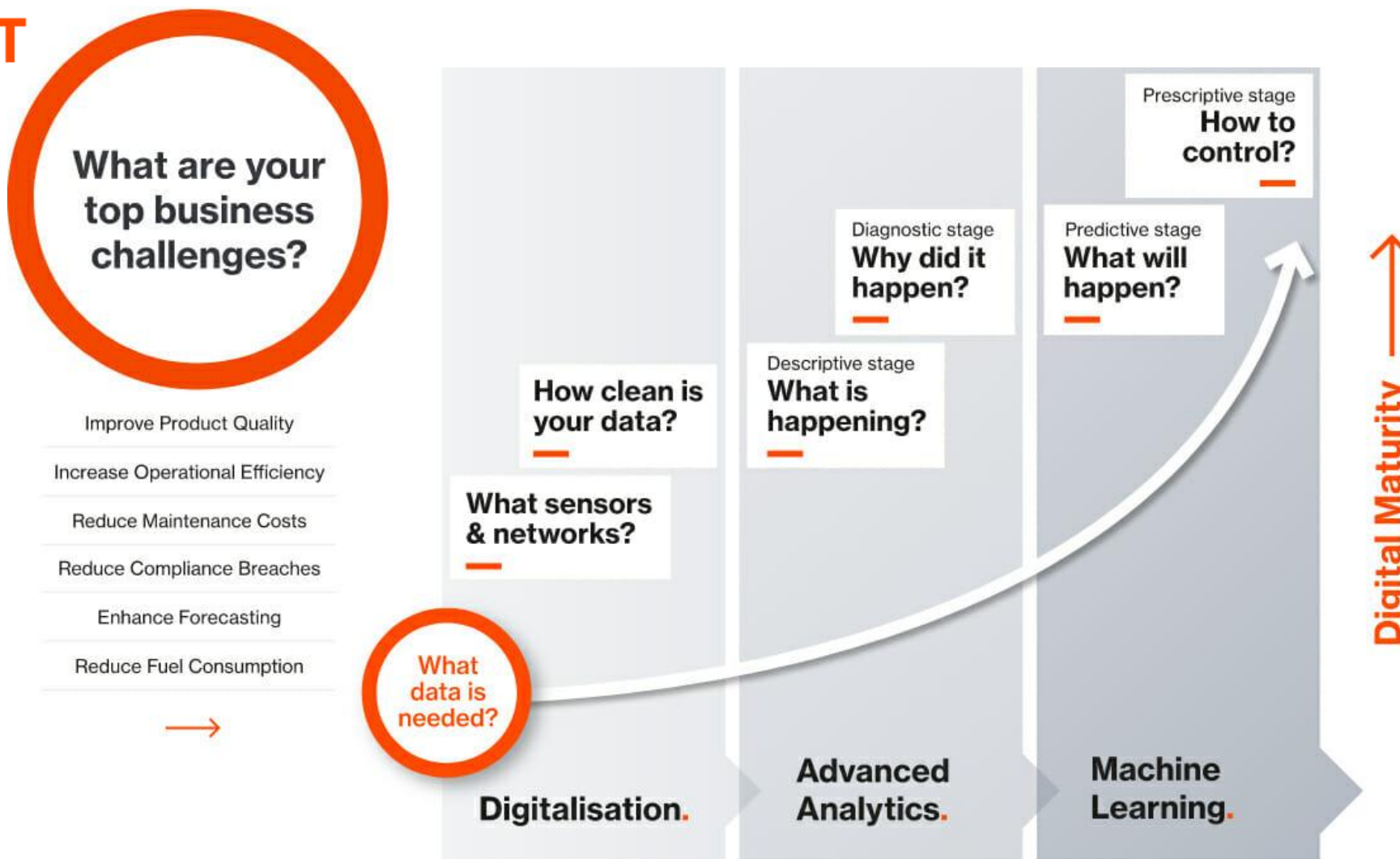
- ✓ Many manual entries
- ✓ Control adjustments based on intuition
- ✓ Silo'd systems and OT/IT data
- ✓ Excel based Control Charts and Centerlines
- ✓ No alarming on exception
- ✓ Many Excel standalone spreadsheets





Digital Transformation Journey in the Industrial World

Maya HTT

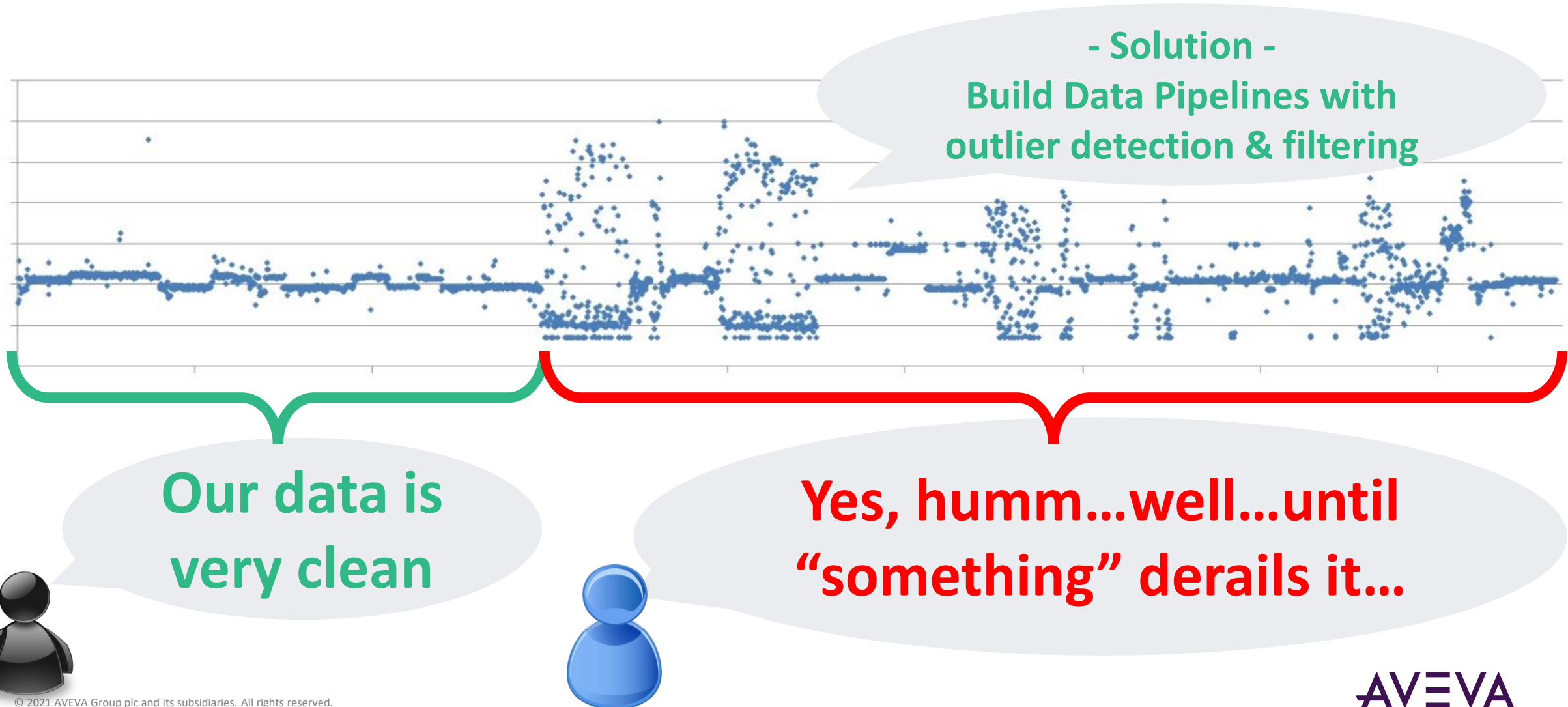




Governance – Are you AI-Ready? **Maya HTT** AI Project Canvas

Business Use Case What actions performed which produces a result of observable value and needs to be improved?	Value Proposition What is the business value if the FUTURE target metric is attained (from the baseline today)? What are the secondary benefits of the project? <ul style="list-style-type: none">✓ Infrastructure improvement✓ Data pipelines improvement✓ ML-Ops expertise increase✓ AI literacy increase✓ Brand tech leader recognition✓ Talent acquisition improvement	Data <ul style="list-style-type: none">✓ What data do you need in support of the business case success?✓ What is the quality of the data needed?✓ What is the quantity of the data needed?✓ How accessible is the data needed?✓ Are data pipelines in place?✓ Any known bias in the data?✓ Any OT/IT or other data integration needed?✓ Any regulations applicable on the needed data?	Infrastructure Any additional infrastructure needed? <ul style="list-style-type: none">✓ Missing sensors?✓ Higher accuracy sensors?✓ Connectivity and network enhancements?✓ Any edge or compute hardware or software needed?✓ Any cloud-based solutions needed?✓ Any cyber-security or additional data security needed?✓ Any additional dashboarding or other end user delivery tools needed?	End users Who are the end users (or systems) who will consume the AI result? What are the expectations of the end users in terms of experience?
Output <ul style="list-style-type: none">✓ What key metrics are you trying to impact?✓ What is the baseline BEFORE the AI project?✓ What is the FUTURE target?				Stakeholders Who are the stakeholders affected directly or indirectly by the project? Any existing tools with which the stakeholders are familiar with which could be leveraged?
Returns & Revenues Cost Savings Revenue Increase Risk Mitigation			Cost	

Governance – Why assuming your data is dirty until proven clean is sound?





Industrial Data Governance – Biggest challenges & why « industrial AI » is different?

Industrial AI-operations has unique challenges

- ✓ Production “lag” time is complex
- ✓ Asset failures or accurate lab product quality results are typically not big data
- ✓ SMEs are essential AND they are at the same time a source of data bias
- ✓ AI-ML models in industrial operations may require frequent re-training

Why ingesting “Industrial” data is different

- ✓ Cleaned up sensors without timestamps | markers
- ✓ Maintenance of systems without timestamps | markers
- ✓ Replacement of sensors without timestamps | markers
- ✓ Product recipe or process change without timestamps | markers
- ✓ Data compression ratio adjusted
- ✓ Default engineering units changed
- ✓ Sensor location changed
- ✓ Discontinuity | gaps in operations
- ✓ Uncorrelated drops & spikes
- ✓ Unsteady cold start-up
- ✓ ...

Solution : Assign a data custodian



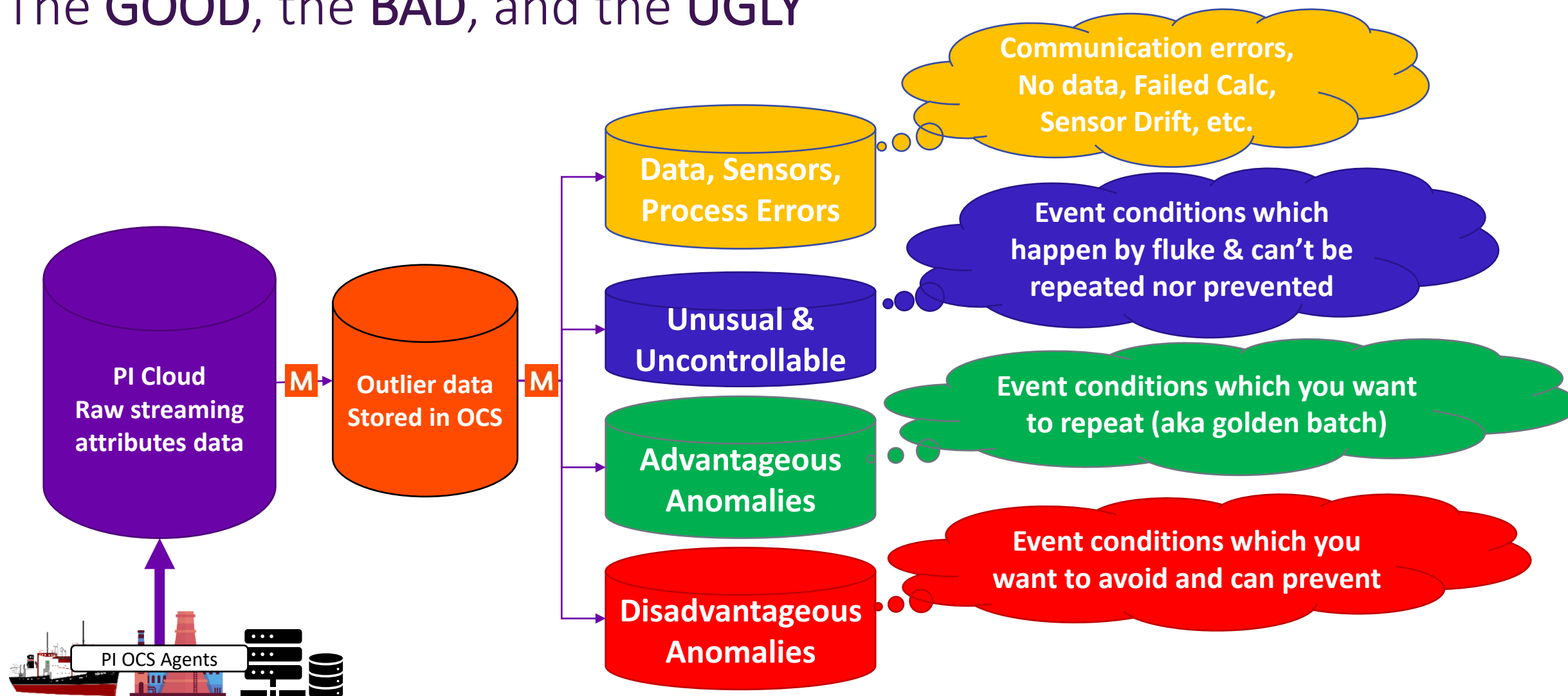
Industrial Data Governance – Biggest challenges & why « industrial AI » is different?

Beware : your SMEs are essential AND biased

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Governance – The **GOOD**, the **BAD**, and the **UGLY**



Governance – Tips on Change management



Top 5 “best practices” which helped in our case

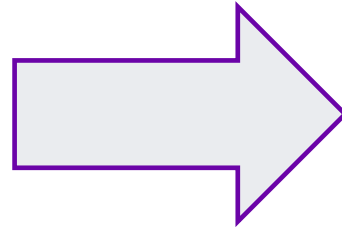
- ✓ Involve SMEs and stakeholders early
- ✓ Upskill a process engineer into advanced analytics position
- ✓ Leverage existing systems in place (PI Vision or others) to show AI results
- ✓ Increase AI and digital tech literacy at all levels as you proceed
- ✓ Adopt an agile way to transform slowly (avoid sudden changes)

Conclusion:

Success in Digital Transformation must be orchestrated

Business Benefits Today

- Accelerated 'Time to Value' for Advanced Analytics & Machine Learning projects
- Uncover data issues which need to be addressed to ensure AI-Ops success
- Identify key impacting parameters driving product quality
- Understand the source and sensitivity of material waste
- Enable data scientists and SMEs to get to predictive modeling faster and be in a position to truly augment business benefits moving forward

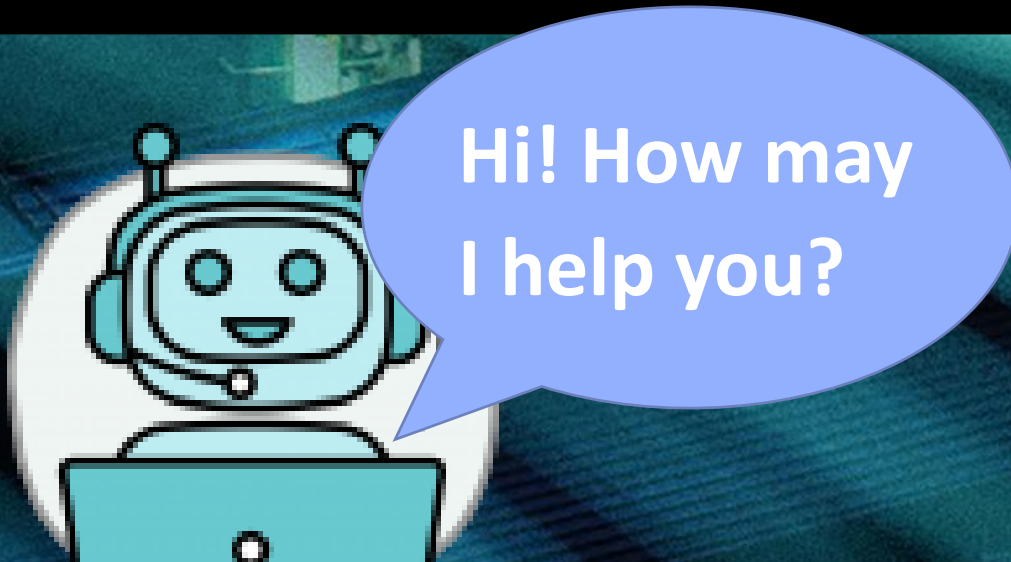


Future Business Benefits

- Moving to predictive solutions
- Adopting more « brave » AI-Ops models
- Continuous manufacturing improvements where older methods reached a limit
- Attracting new talent ensuring business continuity moving forward
- Increasing resiliency by leveraging data-driven decisions and relying less on black magic and instincts

Q & A = chatbot time ... with natural intelligence ;-)

Maya HTT



Hi! How may
I help you?

Remi Duquette

Vice-President | Industrial AI+IIoT
Maya HTT Ltd.

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→ **Your industrial AI+IIoT partner of choice!**

Download our white paper “The Call of AI for Manufacturing, Plant Engineers & Plant Managers.pdf”

https://www2.mayahtt.com/l/504061/2021-09-30/bv234j?utm_source=PI_World&utm_medium=Presentation&utm_campaign=Call_AI

For more details visit: <https://www.mayahtt.com/ai/>

THANK YOU

謝謝

DZIĘKUJĘ CI

NGIYABONGA

TEŞEKKÜR EDERİM

DANKIE

TERIMA KASIH

GRACIES

WHAKAWHETAI KOE

DANKON

TANK

TAPADH LEAT

SALAMAT

SPASIBO

GRAZIE

MATUR NUWUN

ХВАЛА ВАМ

MULTUMESC

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GRAZIE

شكرا

FAAFETA

ESKERRIK ASKO

HVALA

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БЛАГОДАРЯ

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ТИ БЛАГОДАРАМ

MAHADSANID

TEŞEKKÜR EDERİM

OBRIGADO

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MAHALO IĀ 'ŌE

TAKK SKAL DU HA

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RAHMAT

MERCI

GRAZZI

PAKKA PÉR

HATUR NUHUN

PAXMAT CAĞA

CẢM ƠN BẠN

WAZVIITA

FALEMINDERIT

ありがとうございました

SIPAS JI WERE

TERIMA KASIH

UA TSAUG RAU KOJ

ТИ БЛАГОДАРАМ

СИПОС

KÖSZÖNÖM

KEA LEBONA

MISAOTRA ANAO

БЯЯРЛАЛАА

ТАРАДХ ЛЕЙВН

ДЗЯКУЎ

FAAFETA

ESKERRIK ASKO

HVALA

TEŞEKKÜR EDERİM

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CẢM ƠN BẠN

WAZVIITA

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ABOUT AVEVA

AVEVA, a global leader in industrial software, drives digital transformation for industrial organizations managing complex operational processes. Through Performance Intelligence, AVEVA connects the power of information and artificial intelligence (AI) with human insight, to enable faster and more precise decision making, helping industries to boost operational delivery and sustainability. Our cloud-enabled data platform, combined with software that spans design, engineering and operations, asset performance, monitoring and control solutions delivers proven business value and outcomes to over 20,000 customers worldwide, supported by the largest industrial software ecosystem, including 5,500 partners and 5,700 certified developers. AVEVA is headquartered in Cambridge, UK, with over 6,000 employees at 90 locations in more than 40 countries. For more details visit: www.aveva.com