

MAY 17 2022

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# AVEVA & AWS: Enabling the Industrial Transformation for a Sustainable Future

AVEVA

# Agenda

- AWS for Industrial and AWS for Energy
  - Strategic industries of focus, customer focus
  - Solution shift
  - Grow with ecosystem
- AWS and AVEVA
  - Joint value proposition inclusive of sustainability
  - OSIsoft
  - Energy uses cases
- Call to action



# We just launched 8 strategic industries including Industrials and Energy

## Industrials IBU

### *Our Vision:*

*To revolutionize the earth's ability to build more intelligent, connected and sustainable operations, products and service with boundless velocity*

### *Our Mission:*

*To establish AWS as the industry innovation partner of choice unlocking transformational growth and disruption across manufacturing industries*



# Why AWS for Industrial ?



AWS was born from complex automation & factory operations at Amazon



AWS has the most comprehensive and advanced set of cloud services & features available today



AWS customers take advantage of security designed for the most sensitive organizations



AWS massive, global scale reduces risk

# Key Industrial customer needs

## Smart Manufacturing



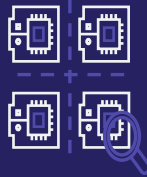
### Engineering & design

- Accelerate time to market
- Lower infrastructure costs
- Improve collaboration within and beyond the enterprise
- Develop sustainable products



### Production & asset optimization

- Lower costs (energy, machines, labor)
- Improve machine or asset productivity within & across lines and factories
- Modernize OT & MES legacy systems
- Remote monitoring
- IT and OT convergence



### Quality management

- Automate quality inspection
- Improve inspection accuracy
- Achieve Zero Defects



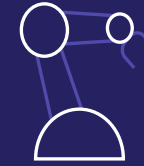
### Sustainability

- Reduce waste and carbon impact
- Deliver compliance and transparency; act responsibly
- Monitor & optimize your extended value chain



### Supply chain management

- Improve forecast accuracy
- Reduce procurement and inventory costs
- Improve supply chain collaboration
- Advanced warehouse automation



### Smart products & services

- Enhance user experiences
- Create new revenue streams and business models
- Improve product or service quality

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### Marketing

- Personalized customer care
- Digital buying experience
- Improved pricing practices
- Field service transformation



# Focus Areas

## Smart Manufacturing



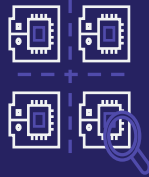
### Engineering & design

**Product Lifecycle Management**  
**Computer Aided Engineering**  
**Electronic Design Automation**  
**Secure Collaboration**  
**Engineering Desktop**  
Model Based Systems Engineering



### Production & asset optimization

**Asset Performance Management**  
**Manufacturing Execution Systems**  
**Operational Analytics**  
**Maintenance**  
**Industrial Data Platform**  
  
Historian Migration\*  
OT Security in the Cloud\*



### Quality management

**Visual Based Anomaly Detection**  
Quality Control



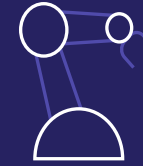
### Sustainability

**Energy Optimization & Sustainability**  
**Product Carbon Footprint**  
Resource & Environmental Monitoring on AWS



### Supply chain management

**Integrated Business Planning**  
Supply Chain Risk Mgmt.  
Warehouse Operations & Automation  
E2E Visibility – Transportation & Inventory  
  
Real Time Demand Sensing  
Dynamic Supply Response  
Last Mile



### Smart products & service\*\*

**Design for Smart Products**  
Smart Buildings  
Connected Aircraft  
  
Digital Twin  
Design for Smart Services

Insert Image Here

### Marketing

Marketing Data Lake  
Customer 360

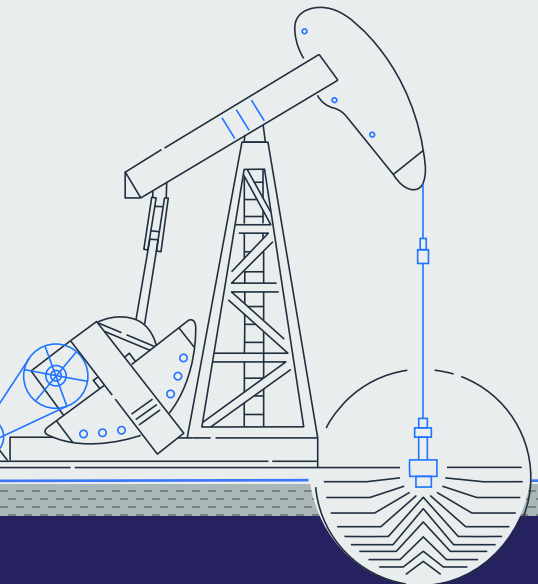


# Innovation Across the Value Chain

## UPSTREAM

**Well Construction**  
Reduce well delivery times, improve drilling accuracy and help customers design more efficient completions

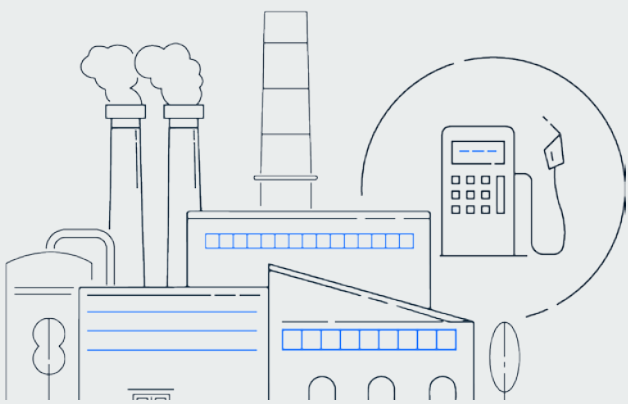
**Production Operations**  
Lower operating expenses, reduce downtime, and increase safety across operations.



## DOWNSTREAM

**Fuels Retail**  
Provide security monitoring on the forecourt and innovate customer experience in the C-stores

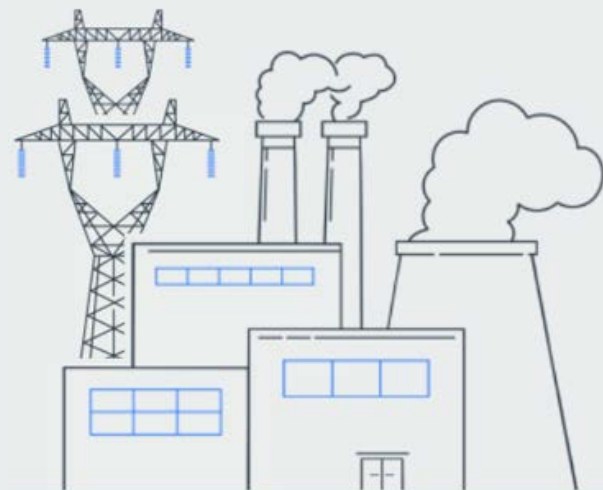
**Refining Operations**  
Optimize production and refinery yields while streamlining facility inspections.



## POWER & UTILITIES

**Consumer Insights**  
Help utility customers understand their customers consumption, churn and other business critical patterns

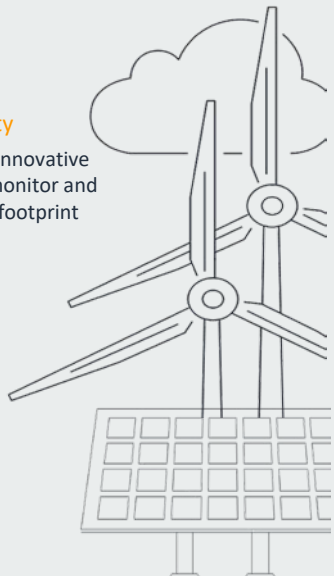
**Transmission & Distribution**  
Optimize production and refinery yields while streamlining facility inspections.



## NEW ENERGIES


**RE Generation**  
Support customers based on technology developed for Amazon Wind business, provide solutions to optimize their solar and wind generation facilities.

**Sustainability**  
Help customers with innovative solutions to identify, monitor and reduce their carbon footprint



  
More production

  
Lower costs

  
Faster time to value

  
Lower footprint

  
Less risk

2021 Developments  
2022 Developments





# What are energy & industrial asset owners asking for?

1. **Flexibility** – The ability to use a mix of best in class applications
2. **Transparency** – “See” assets at granular level, from disparate sources, in near real time
3. **Collaboration** – Global teams, working seamlessly, with access to same data and tools
4. **Data Driven Decision Making** – Right insight, in right person’s hands, at right time
4. **Sustainability** – Must reduce carbon footprint; create differentiated products
5. **Partner vs Vendor** – Co-innovation and evolving commercial models
6. **Unified User Experience** – A singular, integrated user experience...not 15 apps





# Process of Innovation

HOW WE DEVELOP SOLUTIONS WITH PARTNERS AND CUSTOMERS



**Ideate** with 50+ partners to create potential universal set of focus areas



**Identify 2-3** innovative customers as the **anchor** customer where solution is developed and scaled prior to GA



**Prioritize** ecosystem of >10,000 partners to integrate with solutions through Marketplace



**Innovate** continuously, add features, new partners, AWS services to improve solution



**Conduct 100+** Customer and Partner Interviews to prioritize roadmap



**Deliver** project with anchor customers at scale and product team simultaneously focuses on generalization



**Launch** solution publicly with reference customer and launch partners



# Customers we support

## COMPONENTS OF SOLUTIONS RELEVANT FOR VARIOUS CUSTOMER PERSONAS

### The Buyer



For a customer that is a buyer, we make native and partner solutions available on AWS Marketplace that are integrated in the customer AWS account

### The Builder



For a customer that is a builder, we provide various co-development offerings, professional services offerings and partner SI offerings for each solution

### The Hybrid



For customers that are a mix of both, at no cost, we provide various technical artifacts – CFTs, QSs, IGs that customers can self deploy in their own environment (or instruct a preferred SI to)

# Customer Impact

EXAMPLES OF BUSINESS IMPACT THROUGH INNOVATION ALONG THE CUSTOMERS' LINES OF BUSINESS



More production

4%

Created incremental production by optimizing artificial lift set point optimization



Lower costs

45%

Reduction in TCO compared to incumbent solution, by migrating OT data to the cloud



Faster time to value

160x

Full waveform inversion for a seismic volume of 3200 square kilometers



Lower footprint

48%

Reduction in venting events equivalent to a 18 MT reduction in CO2 emissions



Less risk

0

No new reported leaks or spills upon startup of solution on chemicals plant



# Achieve business outcomes faster for industrial customers

Offering multiple pathways to a successful digital transformation



Build



Market



Sell

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**aws marketplace**

Speeds up procurement, improve governance, and optimize IT spend, all in one place



# Joint Value Proposition with AVEVA

AVEVA and AWS together enable the transformation of the Industrial Sector by delivering differentiated, innovative solutions to create the outcomes that will shape a global sustainable future.

AVEVA's deep industry expertise and AWS's broad cloud platform capabilities combine to make possible for businesses across key industries to become more connected, agile and resilient, in the face of an increasingly dynamic market and a global effort to achieve sustainability.

AVEVA and AWS' key focus Industries together will be **Energy and Manufacturing**, and focus areas will revolve around **Sustainability and our Joint Vision of the Digital Twin**, to exploit innovation and create new sources of value to the businesses we serve.



# Amazon's approach of sustainability

## The Climate Pledge

- Calls on signatories to **reach net zero-carbon emissions by 2040** which is 10 years ahead of the Paris Agreement



## Amazon commitments

- Created a 2B\$ fund to invest in visionary companies to accelerate transition to low carbon economy
- use 100% of Renewable energy for its DC by 2025
- 50% shipments to be net zero carbon by 2030
- 50 factories powered by solar roof

53 Signatories:



<https://www.theclimatepledge.com/>

# Solution/Service overview example: AVEVA Unified Engineering



- One unified engineering cloud platform to reimagine the digital asset value chain
- Unifies the process and plant model lifecycles into a data centric environment to mitigate capital project investment risk
- Offers end-to-end process simulation and engineering in a secure and scalable cloud environment

## Integration with AWS (better together):

- AVEVA Unified Engineering offers end-to-end process simulation & engineering (1D, 2D, 3D) from one platform in a flexible, secure and scalable cloud environment, allowing rapid deployment with minimal disruption and ensures projects are kept on track and our customers maintain competitive edge in a 'new normal' market.

## Value to customers:

- Up to 50% saved on time to project start-up due to rapid cloud implementation
- Up to 50% faster FEED stage
- Up to 30% increase in engineering efficiency
- Up to 30% reduction in cost estimates





# AVEVA + Aker Carbon Capture - Accelerating the transition to net zero



Aker Carbon Capture designs and builds facilities for companies in carbon-intensive industries, such as cement, steel, and oil and gas.

## Challenge

- Engineers and designers need to work concurrently during facility design.
- Teams separated by time zones and large distances need to collaborate on projects.

## Solution

- AVEVA's Unified Engineering in the cloud helps Aker Solutions create efficient and replicable designs for carbon capture units, and AVEVA's cloud-based software allows teams to collaborate across time zones, resulting in an increase in operational efficiency and time to market by over 50%.

## Results

- A material reduction in engineering hours.
- Reduced cost of medium-sized offerings of nine years ago by 90%.

Case Study: <https://www.AVEVA.com/en/perspectives/success-stories/aker-carbon-capture/>



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# How Veolia Water Technologies is driving innovation and sustainable operational improvements in the Cloud



Veolia Water Technologies is a Veolia subsidiary which provides the complete range of services required to design, deliver, maintain, and upgrade water and wastewater treatment facilities and systems for industrial clients and public authorities.

## Challenge

- Standardize over 260 global engineering accounts on the same environment, unify disparate data and engineering tools on a shared enterprise-wide platform, connect engineering teams and best practices, and reduce IT workload to support various business units.

## Solution

- Implement AVEVA UE to Connect engineering teams and data around the world, enhance operational insight and efficiency, contribute to Veolia's strategic goals of sustainable next-gen water operations and becoming the benchmark in ecological transformation.

## Desired Outcomes

- 20% improvement in IT agility; increased efficiency, collaboration, visibility and maintenance of engineering data across the asset lifecycle on a single, cloud based data-centric platform; enhanced project transparency and status tracking, blueprint for operational excellence worldwide

Case Study: <https://www.AVEVA.com/en/perspectives/success-stories/veolia-water-technologies/>



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# Known Customer Challenges

- How to aggregate PI data from different sites into AWS
- How to perform effective infrastructure scaling when typical data center reaches capacity and there is an increase in demand for more services, such as, analytics and more sensor data
- How to reduce onsite PI Infrastructure TCO
- Compliance for On site Data storage

# OSIsoft solutions on AWS

- Aggregate PI Systems on cloud connected to local PI Systems
- Data and PI System migration with Cloud Endure
- Automated deployment of PI System with CloudFormation

PI System on AWS Outposts

PI System Integrator for Analytics with AWS



# TransCanada improves forecast accuracy with Operations Data Lake & Machine Learning



## Challenge

- TransCanada wanted to improve and automate their manual demand forecasting process to respond to changes in market demand and operational load.

## Solution

- Created Operations Data Lake integrated with on-prem OSI PI historian to aggregate flow meter, weather, commercial transaction, outage, and spot pricing data. Use Amazon SageMaker to develop machine learning forecasting model.

## Desired Outcomes

- Increased forecasting accuracy with reduced effort
- Roll out model to all market areas
- Enable creation of Secondary Sensor Network in future monitor additional IoT data

Case Study: <https://www.osisoft.com/Presentations/Extending-TransCanada-s-PI-System-infrastructure-with-the-AWS-Cloud/>



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## CALL TO ACTION

- Join us on our booth # for demonstration and follow up conversation
- Contact us after the show
  - Jason Lee (leehyung@) – Global Alliance Manager
  - Sandrine Perino (Perinosp@) – Global Partner Lead Manufacturing & Industrial
  - Atif Saddiqi (Atisiddi@) – Principal Partner Lead Energy



# Thank you!



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# AWS has been serving industrial customers for years



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# AVEVA Engineering Products on AWS

- Unified Engineering – Authoring of Engineering Information
- Point Cloud Manager – Management and Visualization of Laser Scan Data in capital projects
- Enterprise Resource Management – Management of Resources in capital projects
- Asset Information Management – Enterprise consumption of Engineering Data
- Information Standards Management – Management of Standards application to engineering information
- Contract Risk Management – Management of risk on capital projects
- Unified Supply Chain – Planning, Building, Management and visualization of the Supply Chain
- Cloud Training Center – Self learning training courses in the cloud for E3D
- Licensing as a Service – provision of licensing as a cloud service
- 3D Visualization Service – high-performance cloud rendering of 3D engineering models



# Partnership Milestone

2015 –



## Long Standing Relationship

- AWS has been part of AVEVA's cloud transformation.
- Presented a case study at re:Invent 2016

2017 –



## Foundation of Cloud Strategy

- 10 Engineering Products - UE, AIM, PCM, ERM, ISM, etc.
- PI Systems on AWS - Advanced Analytics, Outpost
- Geo Deployment - US, Ireland, Singapore, Australia, Japan, Canada, India, UK, Korea, Brazil, Bahrain, Germany, Netherlands.

2021 H2 –



## Go-To-Market

- Partnership Plan
- Leadership Alignment
- Account Mapping in Energy, Utility, MFG – Global/Corp
- AVEVA at AWS ADITEC Booth, AWS at AVEVA PI World
- AWS Co-sell Program - ISVA, Competency, Marketplace in Progress
- PCM, ERM, AIM Technical Validation