Simplifying Digital Transformation in Industrial Manufacturing

Manish Yashvant

Pr. Strategic Alliance Manager

AWS

Simplifying Digital Transformation

Unlocking transformational growth and disruption by helping our customers build more intelligent, connected, and sustainable operations, products and services.

AWS FOR INDUSTRIAL

aws

Why AWS for Industrials?

AWS was born from complex automation & factory operations at Amazon

AWS has **purpose-built services to optimize operations at industrial sites**, adding to AWS's leading suite of industrial services and solutions

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

AWS massive, global scale reduces risk

AWS industry coverage

Advertising & Marketing

Aerospace & Satellite

Automotive

Consumer Packaged Goods

Energy & Utilities

Financial Services

Games

Healthcare & Life Sciences

Manufacturing & Industrial

Media & Entertainment

Public Sector

Retail

Sports

Travel & Hospitality

Telecommunications

AWS Manufacturing Use Cases

Supply Chain Management
Developing connected and resilient supply chains

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- Driver-based Demand Planning — LEARN MORE

Smart Products & Services
Redefining customer experiences and revenue models

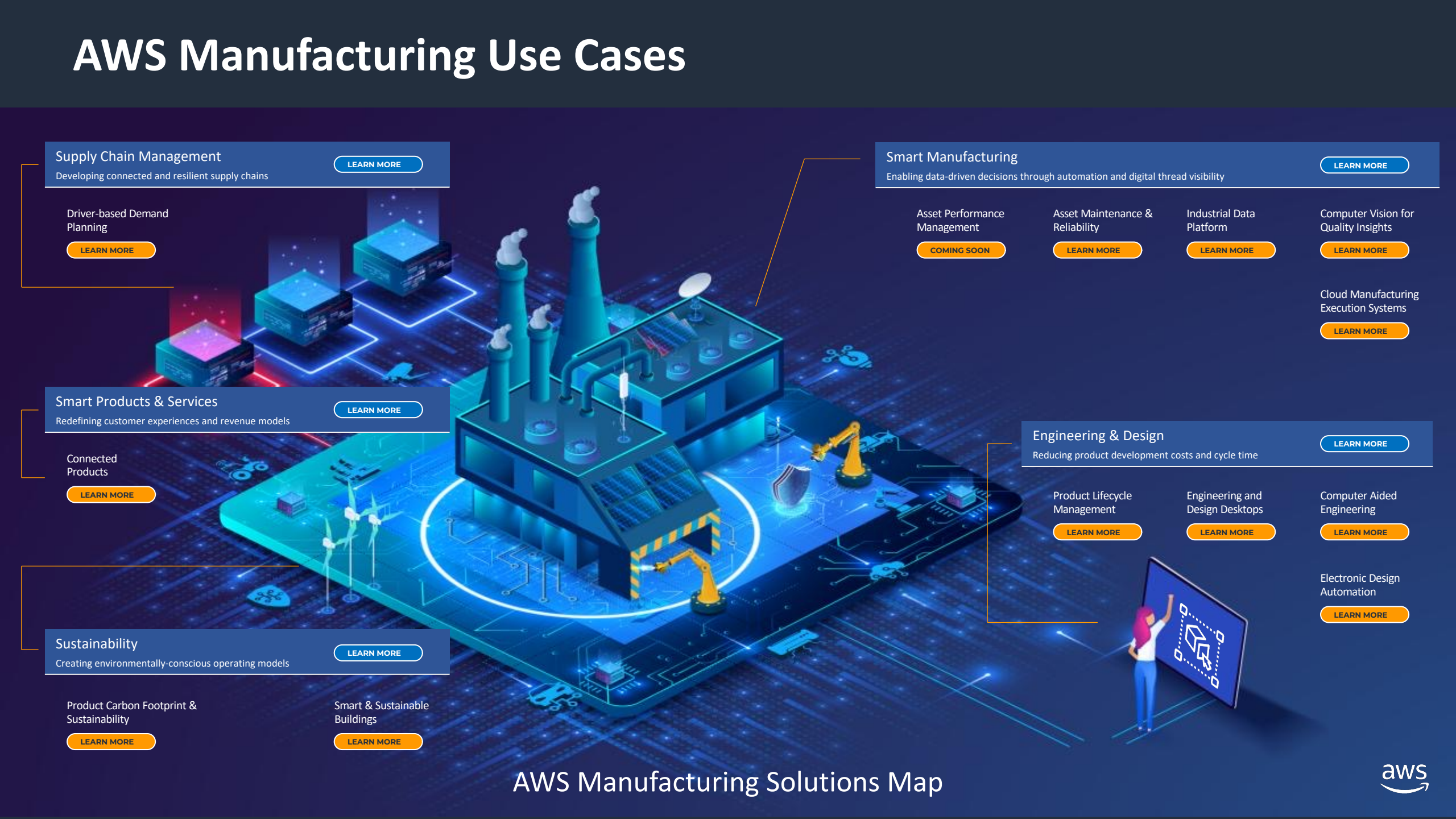
LEARN MORE

- Connected Products — LEARN MORE

Sustainability
Creating environmentally-conscious operating models

LEARN MORE

- Product Carbon Footprint & Sustainability — LEARN MORE
- Smart & Sustainable Buildings — LEARN MORE



Smart Manufacturing
Enabling data-driven decisions through automation and digital thread visibility

LEARN MORE

- Asset Performance Management — COMING SOON
- Asset Maintenance & Reliability — LEARN MORE
- Industrial Data Platform — LEARN MORE
- Computer Vision for Quality Insights — LEARN MORE
- Cloud Manufacturing Execution Systems — LEARN MORE

Engineering & Design
Reducing product development costs and cycle time

LEARN MORE

- Product Lifecycle Management — LEARN MORE
- Engineering and Design Desktops — LEARN MORE
- Computer Aided Engineering — LEARN MORE
- Electronic Design Automation — LEARN MORE

AWS Manufacturing Solutions Map

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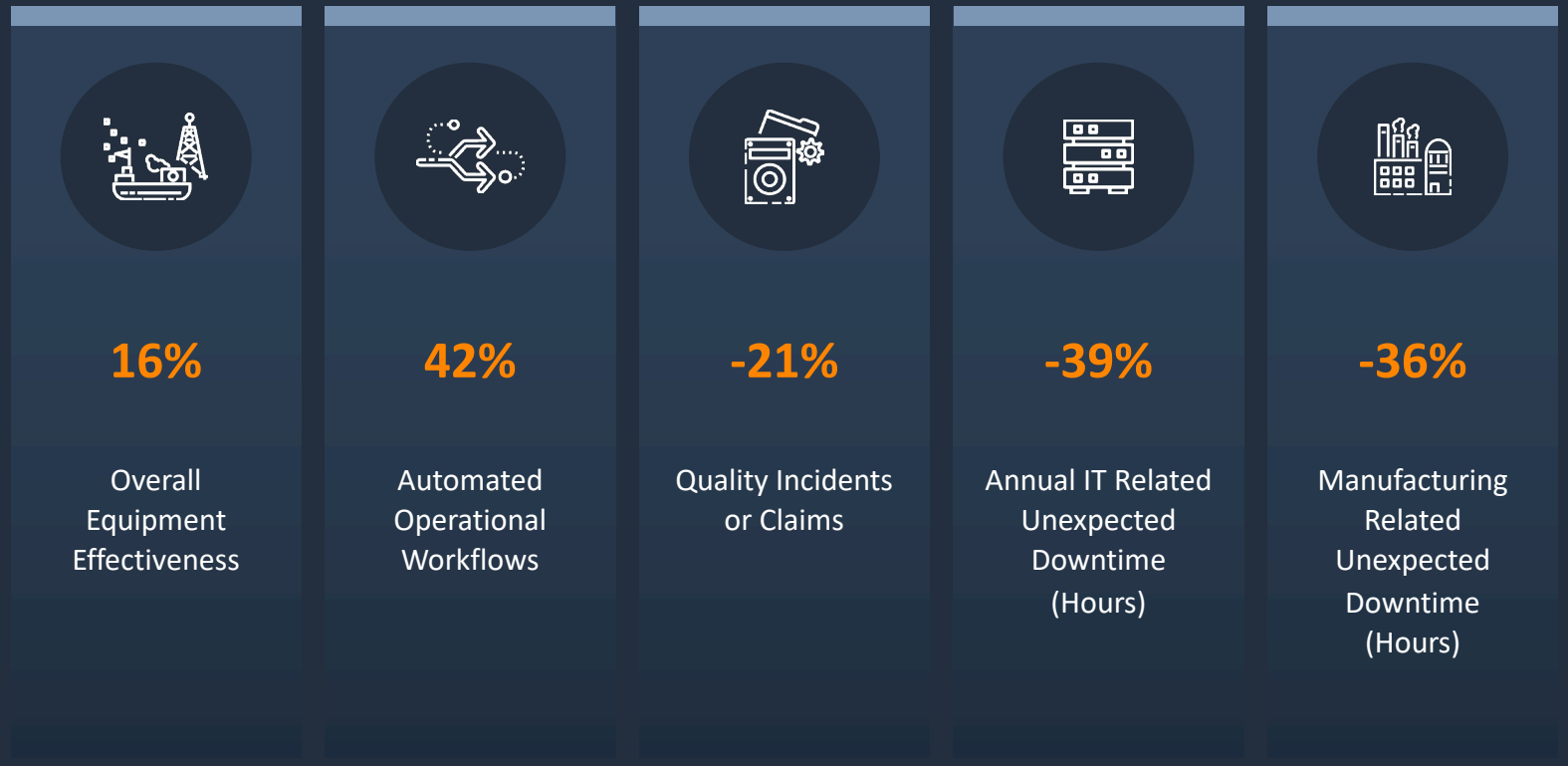
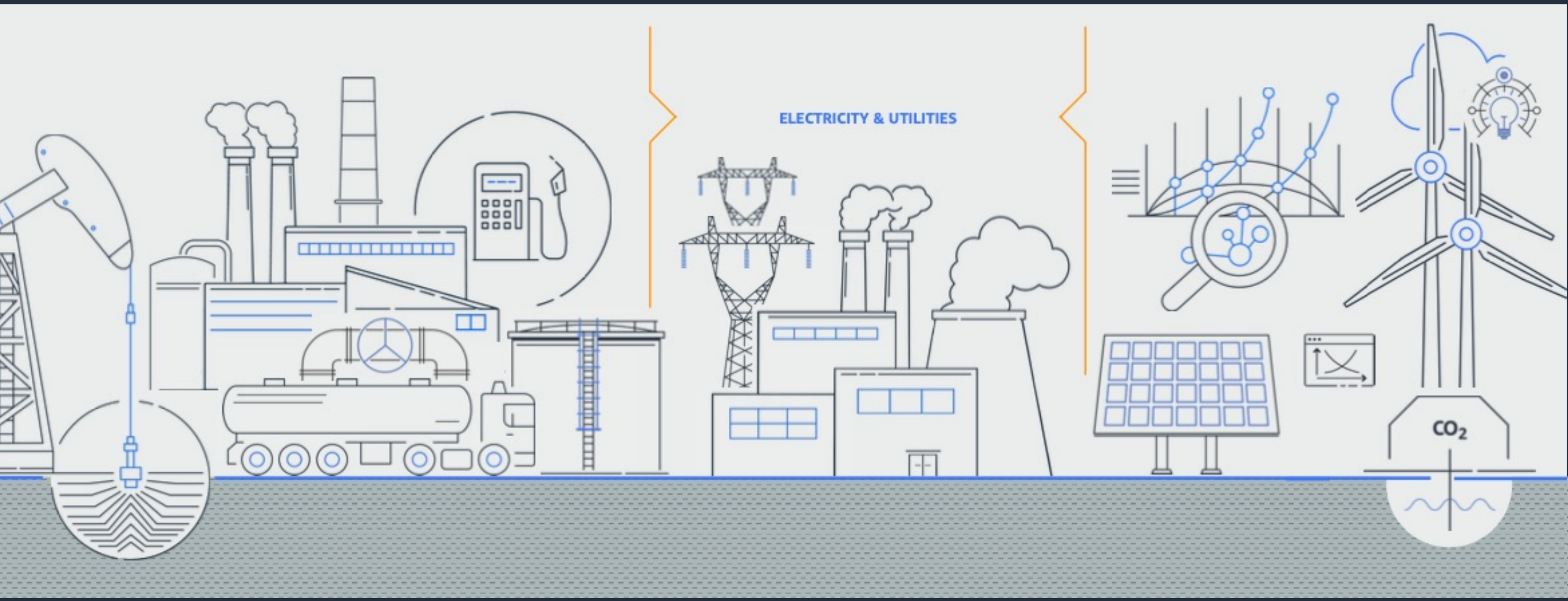
Optimizing manufacturing operations KPIs



- Overall equipment effectiveness (OEE) measures the portion of manufacturing time that's fully productive, with a score of 100% indicating maximum output, zero downtime, and no quality problems.
- Study data findings highlight that moving to the cloud results in increased automation and resilience. These are key drivers to improve OEE.
- After moving to the cloud organizations reported a 16% increase in OEE. The data also showed a correlation between cloud investment and OEE improvement.

AWS Energy

AWS helps energy companies to optimize legacy operations, make them more sustainable & less carbon intensive while helping them evolve their businesses to the new energies paradigm. AWS sees the utilities business as the point of convergence between legacy and new energy generations businesses and has a proven record of innovating with its customers in this domain.



AWS Energy

UPSTREAM

Drilling & Completions

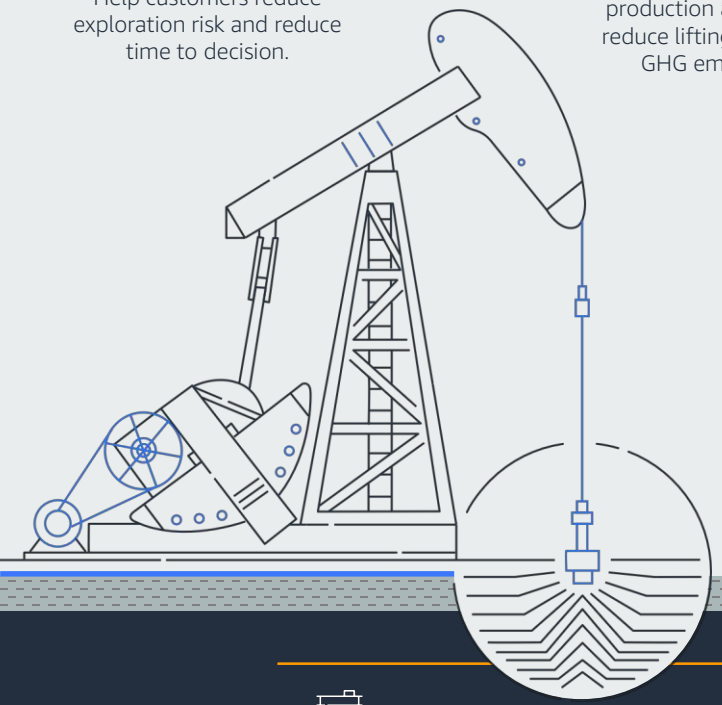
Help customers achieve faster and more accurate drilling operations and more cost-optimized completions.

Geology & Geophysics

Help customers reduce exploration risk and reduce time to decision.

Production Operations

Help customers increase production and safety, reduce lifting costs and GHG emissions.



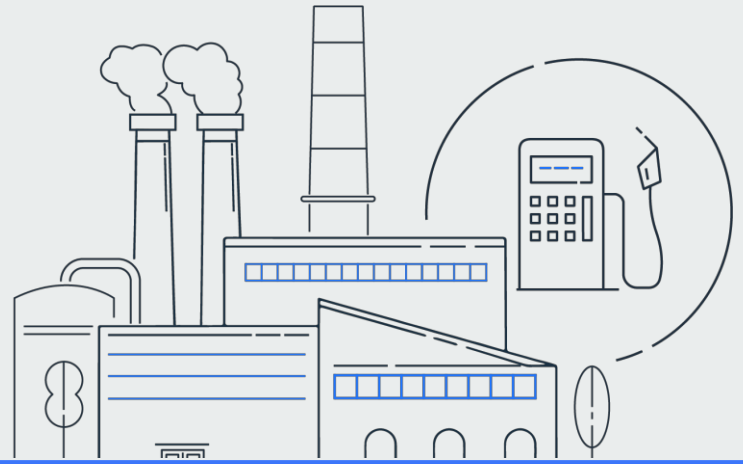
DOWNSTREAM

Refining Operations

Help customers with end-to-end refinery optimization around throughput, reliability, costs and emissions.

Fuels Retail

Help customers learn from and create a better experience for their own retail customers at gas stations.



MIDSTREAM

Infrastructure

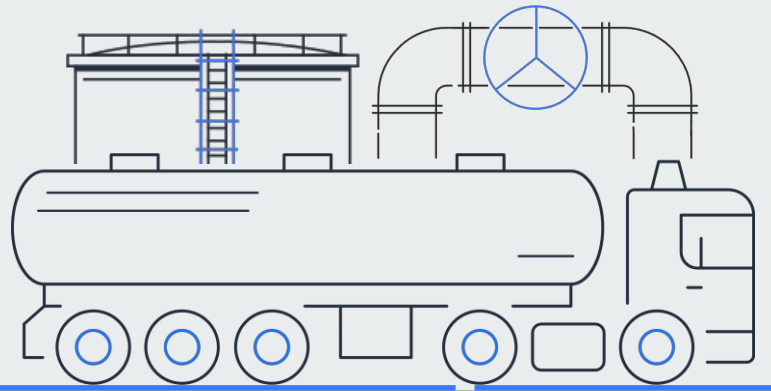
Help customers with storage and delivery of products with streamlined terminal operations and gathering line systems.

Pipelines & Logistics

Help customers by providing them condition monitoring and transport cost optimization capabilities across their network of pipelines.

Trading & Risk

Help customers optimize commodity trades by delivering various computing capabilities to trading platforms and helping them build new ones.



CUSTOMER VALUE

More production

Less cost

Faster value

Lower footprint

Less risk

aws energy

AWS in Life Sciences

Supporting innovation & operational excellence across the value chain

Research & discovery

Clinical development

Manufacturing & supply chain

Commercial & medical affairs

Compliance

Manufacturing & supply chain

Most common customer support areas:

Breaking down silos throughout the supply chain to enhance operational forecasting

Connecting instrument data to improve shop floor visibility and predict site performance

Adapting legacy processes to enable manufacturing of large molecule drugs

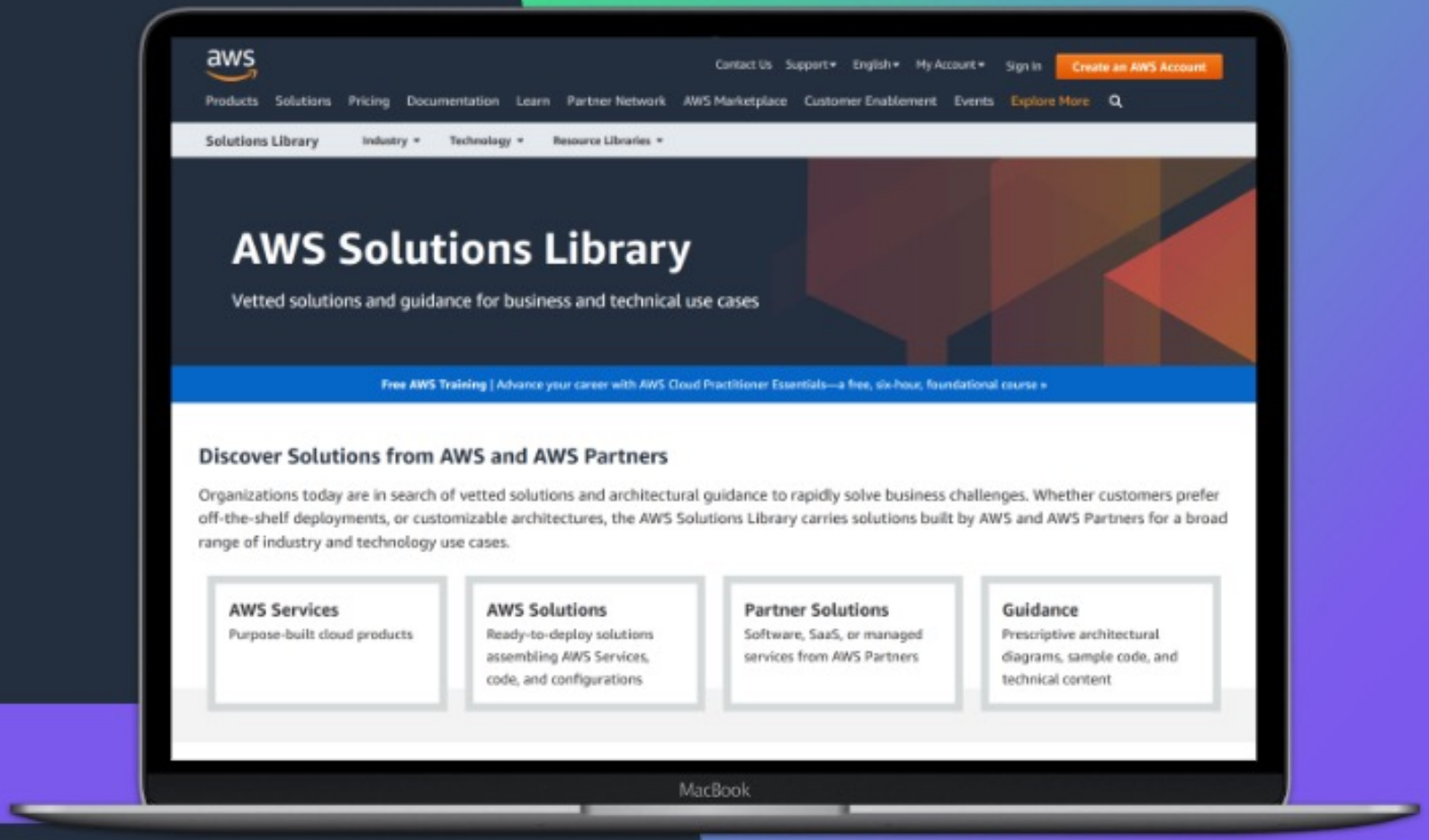
Identifying opportunities for optimization, cost savings, and working capital improvements

AWS Solutions Library

Helping customers find and use solutions to speed time to value

Customers can find industry and technology solutions for their priority use cases. Currently, there are **24 AWS Solutions, 179 Partner Solutions, and 132 Guidance in 11 industries** in the Library. More industries and solutions will be added in the coming months. Additionally, the Library has solutions for 15 technology domains.

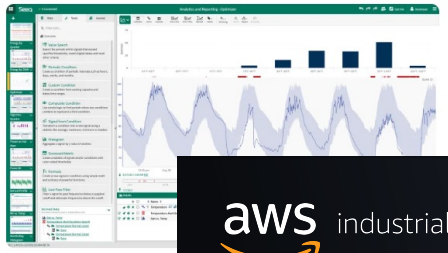
aws.amazon.com/solutions



Seeq® + aws

The leading Advanced Analytics solution for Process Manufacturing on AWS

Seeq Accelerates Chemical Industry Success with AWS



Seeq on AWS enables faster insights for their customers

Seattle, Washington, July 21, 2021 – Seeq Corporation, a leader in manufact
agreements with two of the world's premier chemical companies: Covestro an
corporate solution, empowering their employees to improve production and t

Seeq enables engineers and scientists in process manufacturing organizations
This announcement follows an impressive start to 2021 for Seeq, a year in whi

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Seeq®

Process Optimization through Digitalization with Advanced Analytics

Speakers
Manish Yashvant, , AWS
Allison Buenemann, Industry Principal - Chemicals, Seeq
Bram Bamps, Data Analytics Expert, Covestro

aws

Converging OT and IT: Uncover Predictive Insights from Time-Series Data

Whitepaper Presented by AWS and APN Industrial Software Competency Partner Seeq

aws | Seeq

Optimize process manufacturing at scale

Traditionally, Operational Technology (OT) data has been on-premises, managed using process manufacturing systems, and analyzed with monitoring, trending, and visualization tools. This approach was designed for a very important purpose – real-time process control. However, it has also created challenges, mainly that the data is difficult to access for advanced analytics limiting the insights that can be derived from OT data.

Seeq and AWS provide significant opportunity for process manufacturing companies to converge innovations in IT processes and analytics tools with their OT data on the cloud. This whitepaper will demonstrate how Seeq on AWS enables organizations to enhance the value of their existing data, enable subject matter experts to collaborate with new data workflows,

Download the Whitepaper

Business Email Address:

First Name:

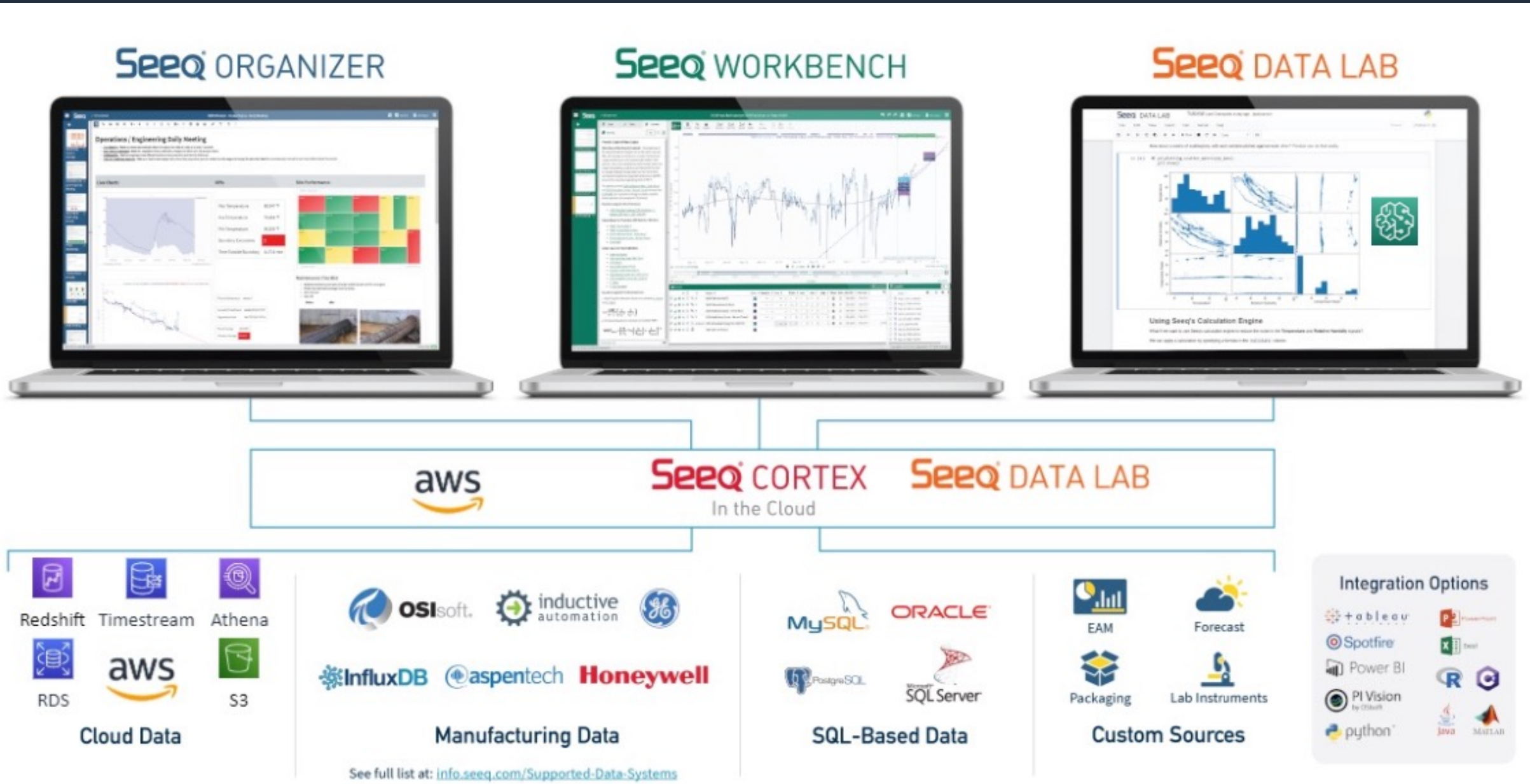
Last Name:

aws PARTNER Manufacturing and Industrial Competency

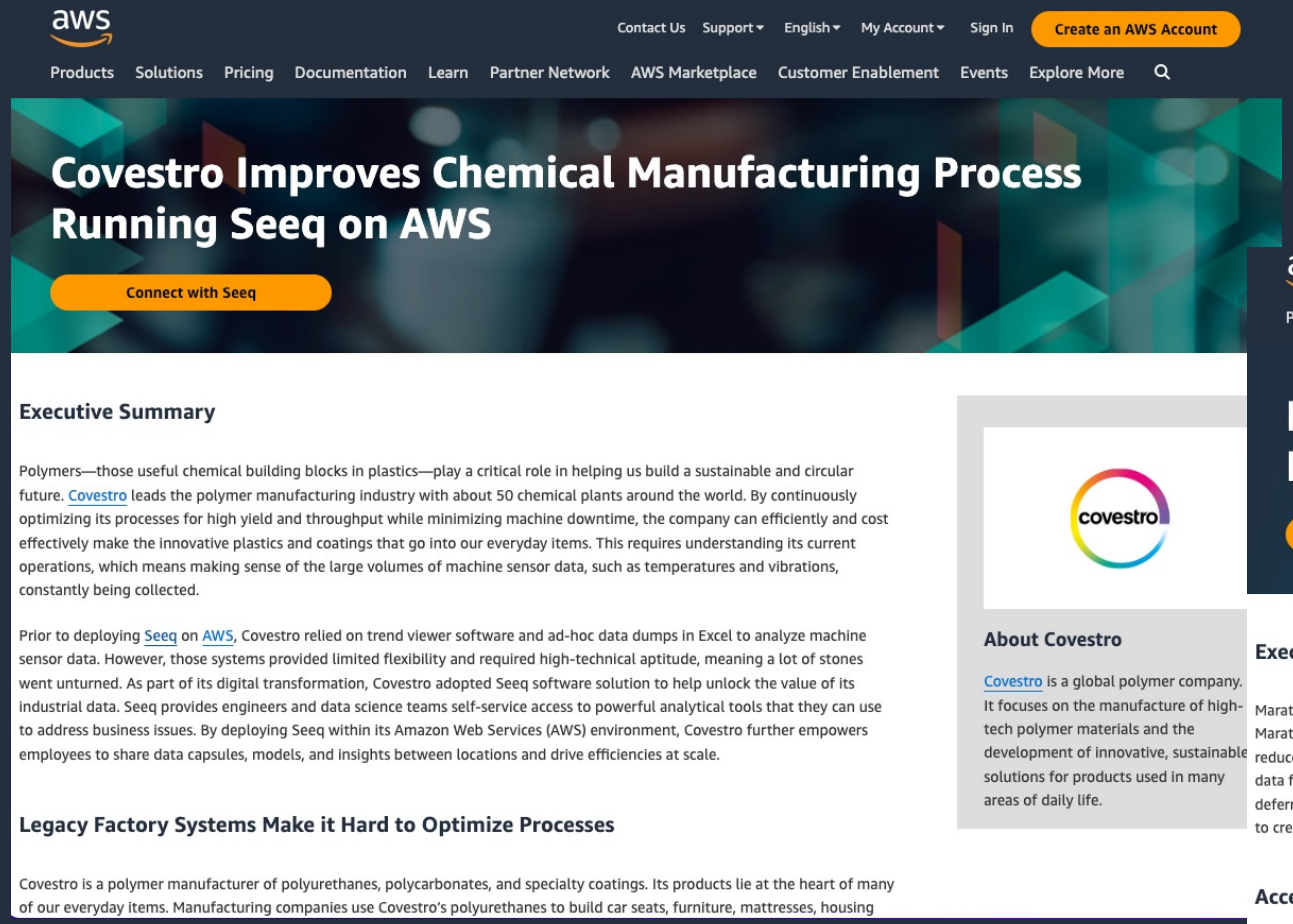
aws PARTNER Life Sciences Software

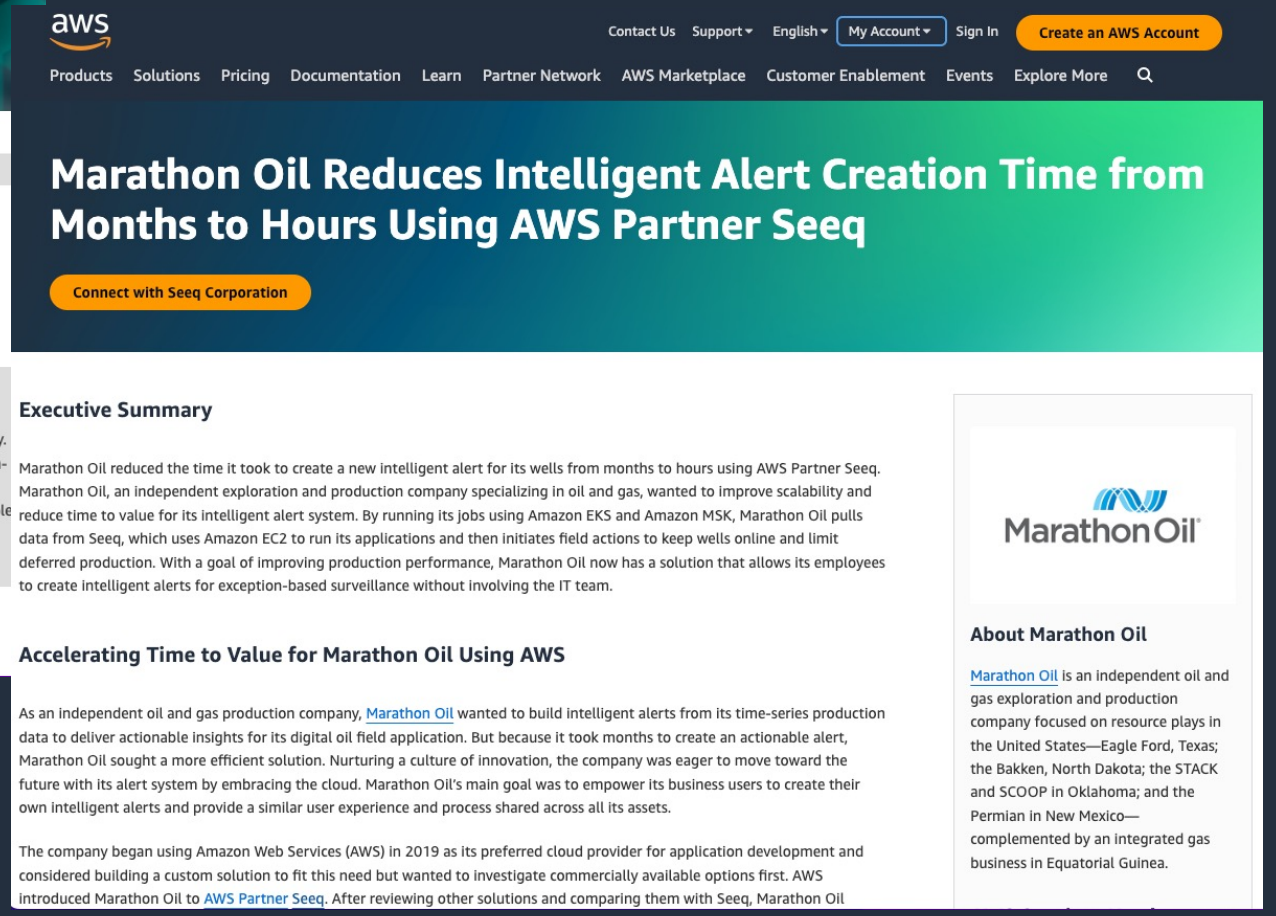
aws PARTNER Energy Software

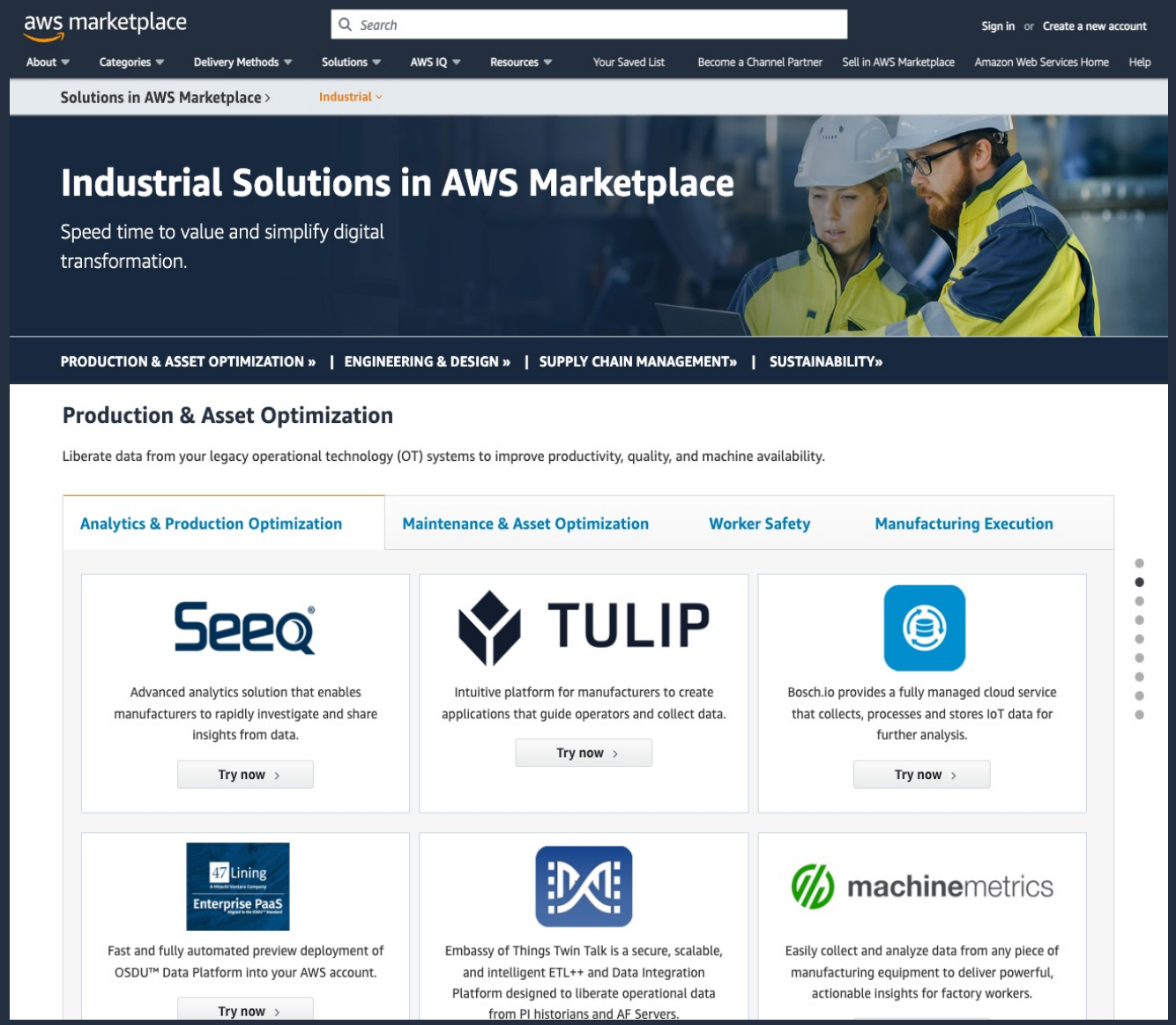
Seeq + AWS Architecture

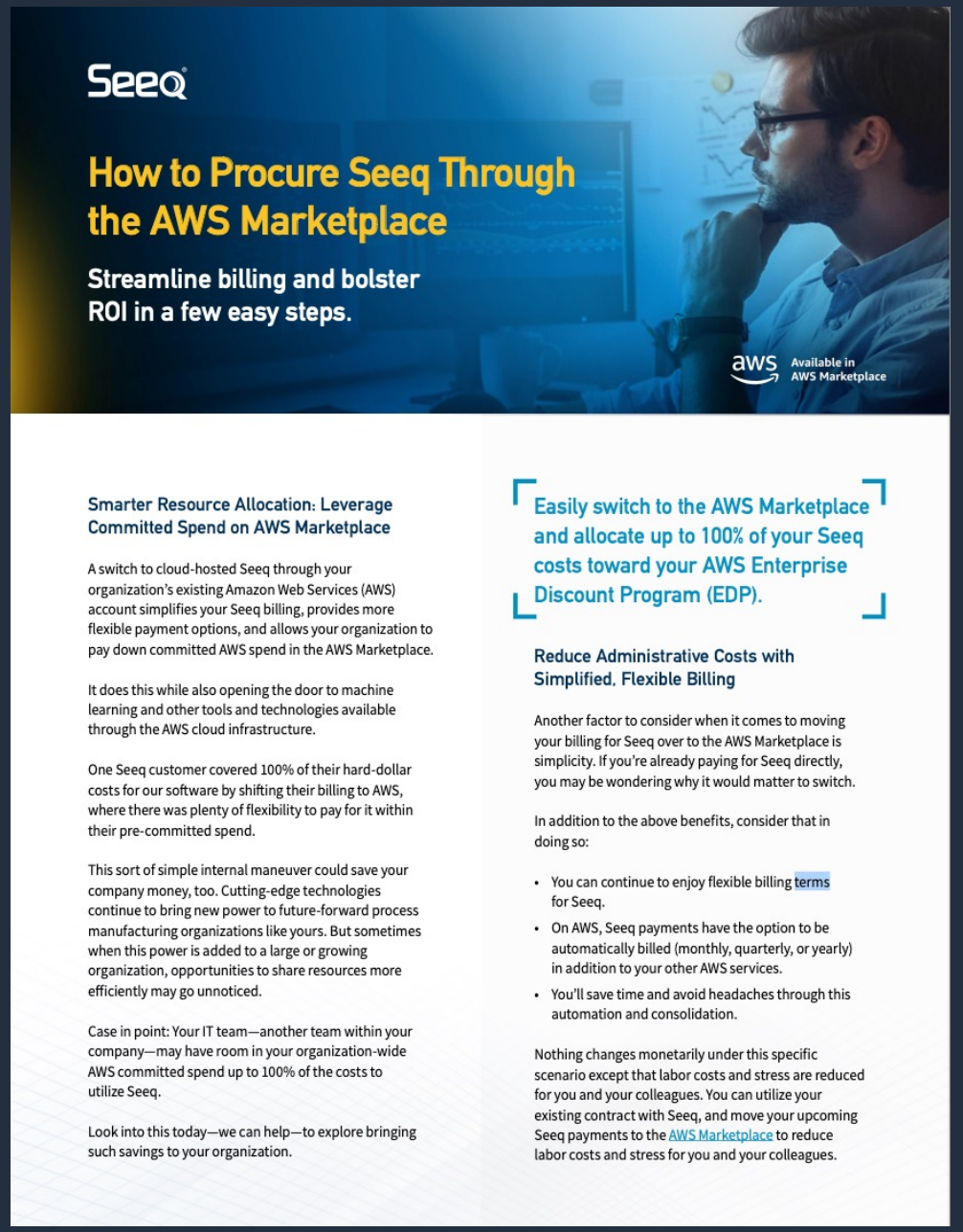


Joint Customer Stories

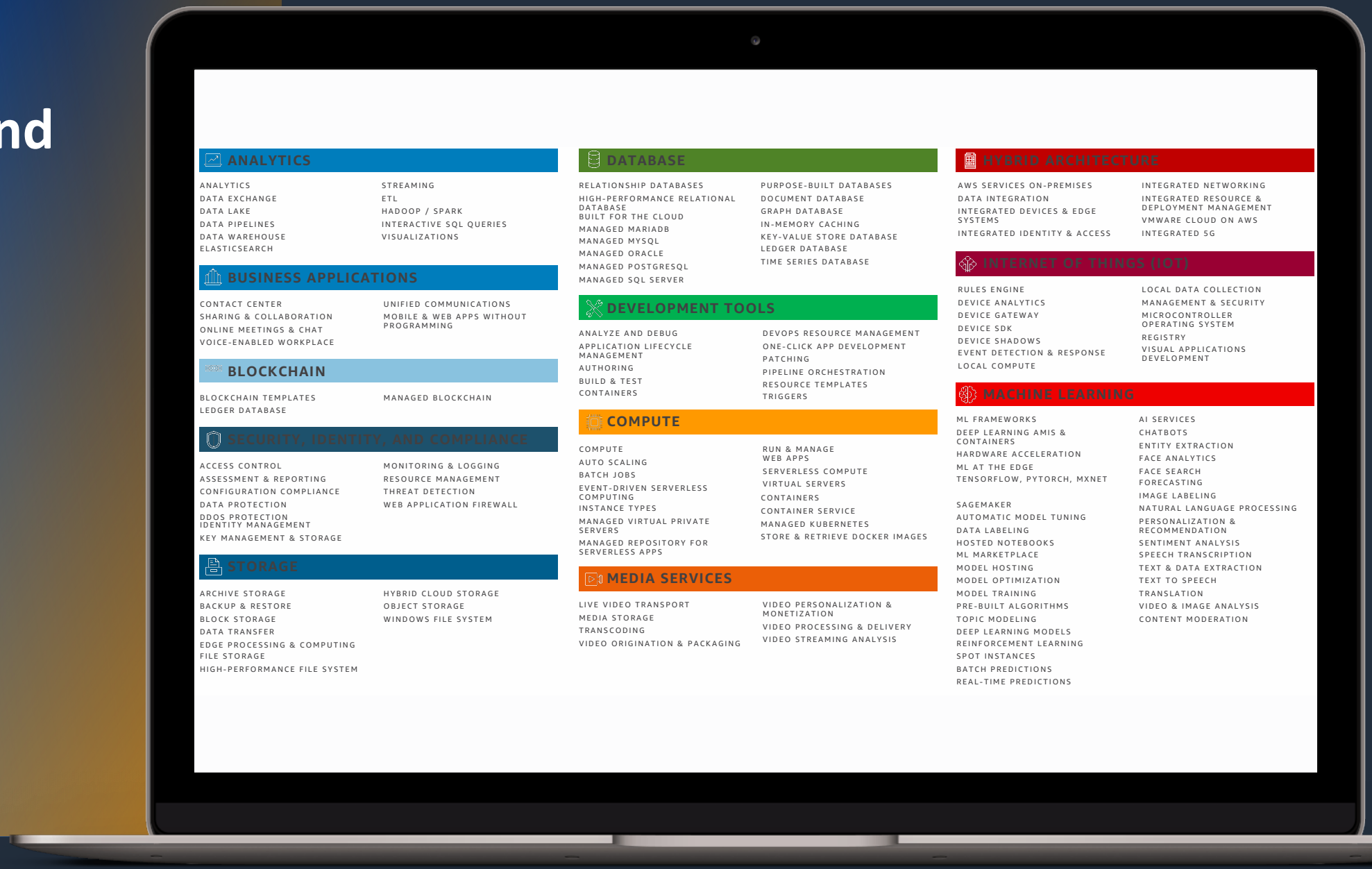








Breadth and Depth of Services



ANALYTICS

- ANALYTICS
- DATA EXCHANGE
- DATA LAKE
- DATA PIPELINES
- DATA WAREHOUSE
- ELASTICSEARCH
- STREAMING
- ETL
- HADOOP / SPARK
- INTERACTIVE SQL QUERIES
- VISUALIZATIONS

BUSINESS APPLICATIONS

- CONTACT CENTER
- SHARING & COLLABORATION
- ONLINE MEETINGS & CHAT
- VOICE-ENABLED WORKPLACE
- UNIFIED COMMUNICATIONS
- MOBILE & WEB APPS WITHOUT PROGRAMMING

BLOCKCHAIN

- BLOCKCHAIN TEMPLATES
- LEDGER DATABASE
- MANAGED BLOCKCHAIN

SECURITY, IDENTITY, AND COMPLIANCE

- ACCESS CONTROL
- ASSESSMENT & REPORTING
- CONFIGURATION COMPLIANCE
- DATA PROTECTION
- DDOS PROTECTION
- IDENTITY MANAGEMENT
- KEY MANAGEMENT & STORAGE
- MONITORING & LOGGING
- RESOURCE MANAGEMENT
- THREAT DETECTION
- WEB APPLICATION FIREWALL

STORAGE

- ARCHIVE STORAGE
- BACKUP & RESTORE
- BLOCK STORAGE
- DATA TRANSFER
- EDGE PROCESSING & COMPUTING
- FILE STORAGE
- HIGH-PERFORMANCE FILE SYSTEM
- HYBRID CLOUD STORAGE
- OBJECT STORAGE
- WINDOWS FILE SYSTEM

DATABASE

- RELATIONSHIP DATABASES
- HIGH-PERFORMANCE RELATIONAL DATABASE
- BUILT FOR THE CLOUD
- MANAGED MARIADB
- MANAGED MYSQL
- MANAGED ORACLE
- MANAGED POSTGRESQL
- MANAGED SQL SERVER
- PURPOSE-BUILT DATABASES
- DOCUMENT DATABASE
- GRAPH DATABASE
- IN-MEMORY CACHING
- KEY-VALUE STORE DATABASE
- LEDGER DATABASE
- TIME SERIES DATABASE

DEVELOPMENT TOOLS

- ANALYZE AND DEBUG
- APPLICATION LIFECYCLE MANAGEMENT
- AUTHORING
- BUILD & TEST
- CONTAINERS
- DEVOPS RESOURCE MANAGEMENT
- ONE-CLICK APP DEVELOPMENT
- PATCHING
- PIPELINE ORCHESTRATION
- RESOURCE TEMPLATES
- TRIGGERS

COMPUTE

- COMPUTE
- AUTO SCALING
- BATCH JOBS
- EVENT-DRIVEN SERVERLESS COMPUTING
- INSTANCE TYPES
- MANAGED VIRTUAL PRIVATE SERVERS
- MANAGED REPOSITORY FOR SERVERLESS APPS
- RUN & MANAGE WEB APPS
- SERVERLESS COMPUTE
- VIRTUAL SERVERS
- CONTAINERS
- CONTAINER SERVICE
- MANAGED KUBERNETES
- STORE & RETRIEVE DOCKER IMAGES

MEDIA SERVICES

- LIVE VIDEO TRANSPORT
- MEDIA STORAGE
- TRANSCODING
- VIDEO ORIGINATION & PACKAGING
- VIDEO PERSONALIZATION & MONETIZATION
- VIDEO PROCESSING & DELIVERY
- VIDEO STREAMING ANALYSIS

HYBRID ARCHITECTURE

- AWS SERVICES ON-PREMISES
- DATA INTEGRATION
- INTEGRATED DEVICES & EDGE SYSTEMS
- INTEGRATED IDENTITY & ACCESS
- INTEGRATED NETWORKING
- INTEGRATED RESOURCE & DEPLOYMENT MANAGEMENT
- VMWARE CLOUD ON AWS
- INTEGRATED 5G

INTERNET OF THINGS (IOT)

- RULES ENGINE
- DEVICE ANALYTICS
- DEVICE GATEWAY
- DEVICE SDK
- DEVICE SHADOWS
- EVENT DETECTION & RESPONSE
- LOCAL COMPUTE
- LOCAL DATA COLLECTION
- MANAGEMENT & SECURITY
- MICROCONTROLLER OPERATING SYSTEM
- REGISTRY
- VISUAL APPLICATIONS DEVELOPMENT

MACHINE LEARNING

- ML FRAMEWORKS
- DEEP LEARNING AMIS & CONTAINERS
- HARDWARE ACCELERATION
- ML AT THE EDGE
- TENSORFLOW, PYTORCH, MXNET
- SAGEMAKER
- AUTOMATIC MODEL TUNING
- DATA LABELING
- HOSTED NOTEBOOKS
- ML MARKETPLACE
- MODEL HOSTING
- MODEL OPTIMIZATION
- MODEL TRAINING
- PRE-BUILT ALGORITHMS
- TOPIC MODELING
- DEEP LEARNING MODELS
- REINFORCEMENT LEARNING
- SPOT INSTANCES
- BATCH PREDICTIONS
- REAL-TIME PREDICTIONS
- AI SERVICES
- CHATBOTS
- ENTITY EXTRACTION
- FACE ANALYTICS
- FACE SEARCH
- FORECASTING
- IMAGE LABELING
- NATURAL LANGUAGE PROCESSING
- PERSONALIZATION & RECOMMENDATION
- SENTIMENT ANALYSIS
- SPEECH TRANSCRIPTION
- TEXT & DATA EXTRACTION
- TEXT TO SPEECH
- TRANSLATION
- VIDEO & IMAGE ANALYSIS
- CONTENT MODERATION

AWS industrial services for industrial customers

PURPOSE-BUILT AI/ML AND IOT SERVICES FOR ASSET-INTENSIVE INDUSTRY USE CASES

AWS IoT SiteWise
collect, store, organize and monitor data from industrial equipment at scale

Amazon Lookout for Vision
spot defects and anomalies in manufacturing using computer vision

AWS Panorama Appliance
hardware appliance to add computer vision to existing onsite cameras

Amazon Monitron
end-to-end system for equipment monitoring to detect abnormal machine behavior and enable predictive maintenance

AWS Panorama Device SDK
build new cameras and devices that run computer vision applications at the edge

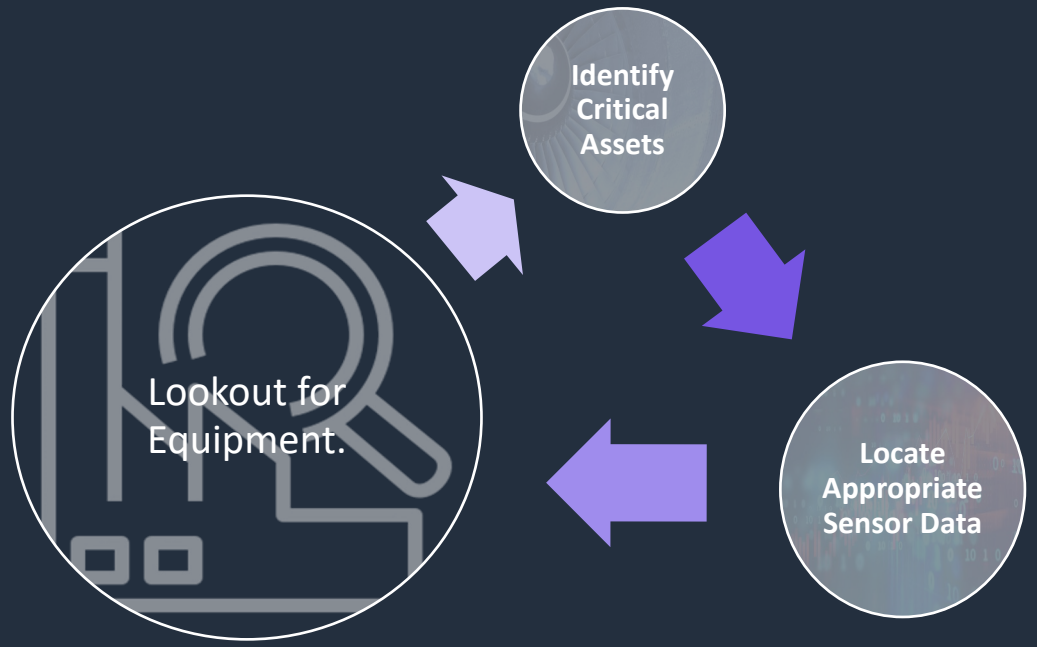
AWS IoT RoboRunner
build applications that help robots work together seamlessly

Amazon Lookout for Equipment
detect abnormal machine behavior using existing industrial sensor data

AWS IoT TwinMaker
create digital twins of real-world systems to optimize operations

Amazon Lookout for Equipment

- Accelerate time to value with automated machine learning



Scales Across the Enterprise

Lookout for Equipment specifically developed to quickly scale from 1 to 1000 assets. Increases execution speed from months to hours

Built for industrial and continuous operating equipment

Lookout for Equipment specifically developed for industrial assets such as turbines, motors, pumps, heat exchangers.

Asset agnostic, relevant from day 1 to year 30

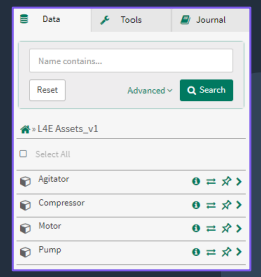
Lookout for Equipment learns normal behavior regardless of the manufacturer, age, or application through current operating data

Automated machine learning workflow

Operationalize machine learning by reducing touch point, touch time, and total cost of ownership of managing ML. No data science required.

Seeq Solution for Lookout for Equipment

The end-to-end workflow is enabled by the Connector, Add-on and Organizer templates



Connector

Seeq Connector: Enables Data flow

- Access and push historian data to S3 for Lookout for Equipment model training
- Include anamoly label data from maintenance logs or failure codes
- Connect to Lookout for Equipment model result data stored in S3
- Interact with data in Seeq Workbench to perform root cause analytics, create calculations, create asset groups
- Visualize trends, report and publish results in Seeq Organizer

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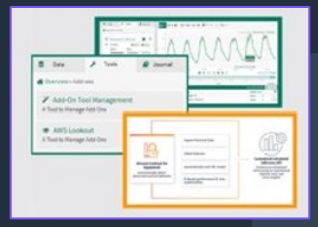

Add-on

Seeq Add-on: Enables SMEs to create and edit models

- Define the data set for training and validation windows using interactive Seeq UI
- Create models, edit models, and schedule models to run as new data is available in Seeq; no need for SMEs to access the AWS Management console
- Select asset groups from the existing data structure for easier analysis
- Validate the model results for continuous improvement

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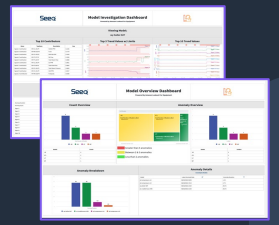

Organizer templates

Seeq Organizer Templates: Enterprise Situational Awareness

- View high-level summary metrics across all models
- Drill into the details of models in an anomalous state
- Easily navigate equipment and model results to assess and make decisions

Services