



Simplifying Digital Transformation in Industrial Manufacturing

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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



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



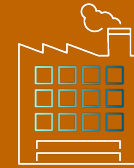
Financial Services



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

[LEARN MORE](#)

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

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Product Carbon Footprint & Sustainability

[LEARN MORE](#)

Smart & Sustainable Buildings

[LEARN MORE](#)

Smart Manufacturing

Enabling data-driven decisions through automation and digital thread visibility

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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

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Product Lifecycle Management

[LEARN MORE](#)

Engineering and Design Desktops

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Computer Aided Engineering

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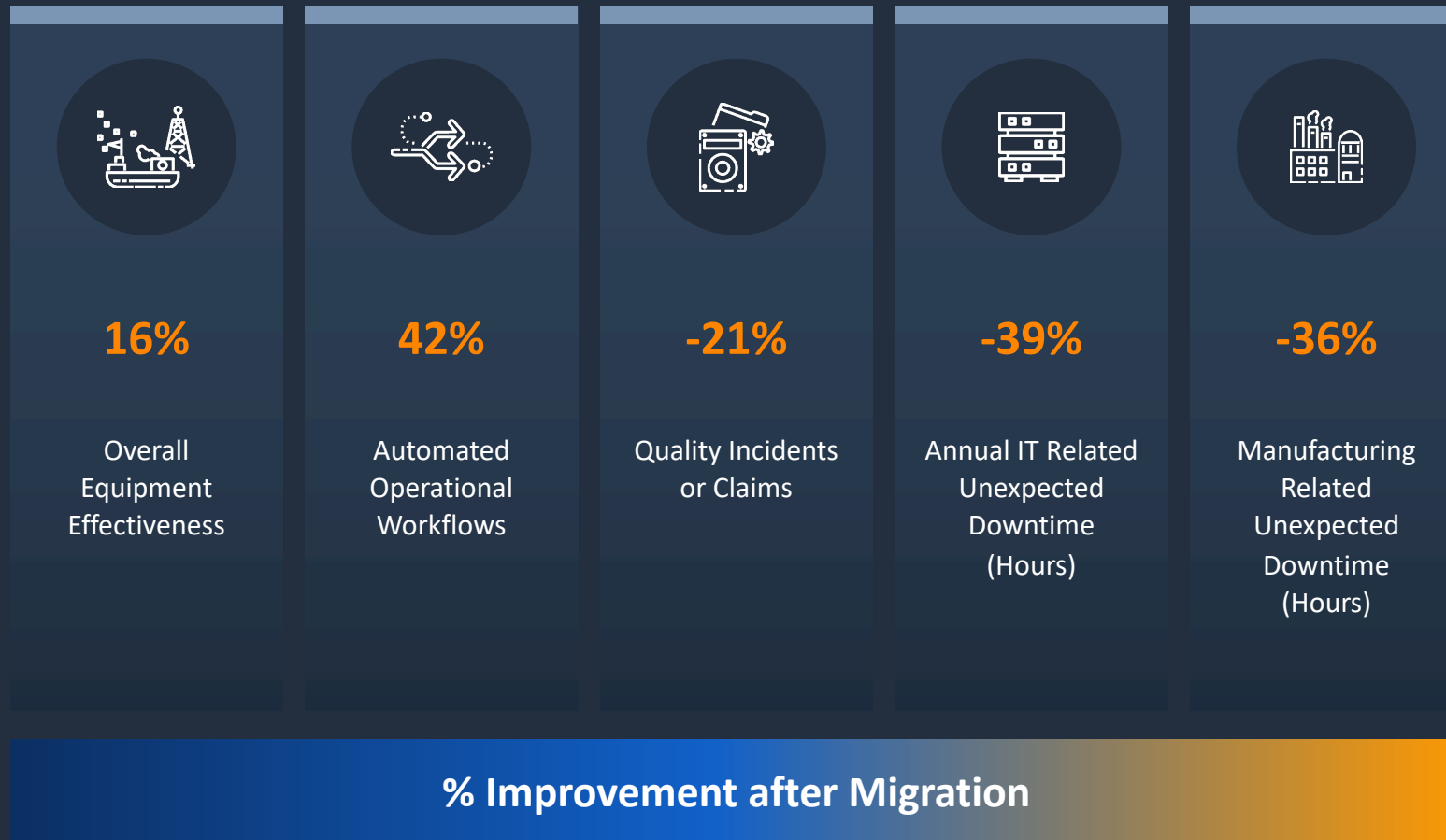
Electronic Design Automation

[LEARN MORE](#)

AWS Manufacturing Solutions Map



Optimizing manufacturing operations KPIs



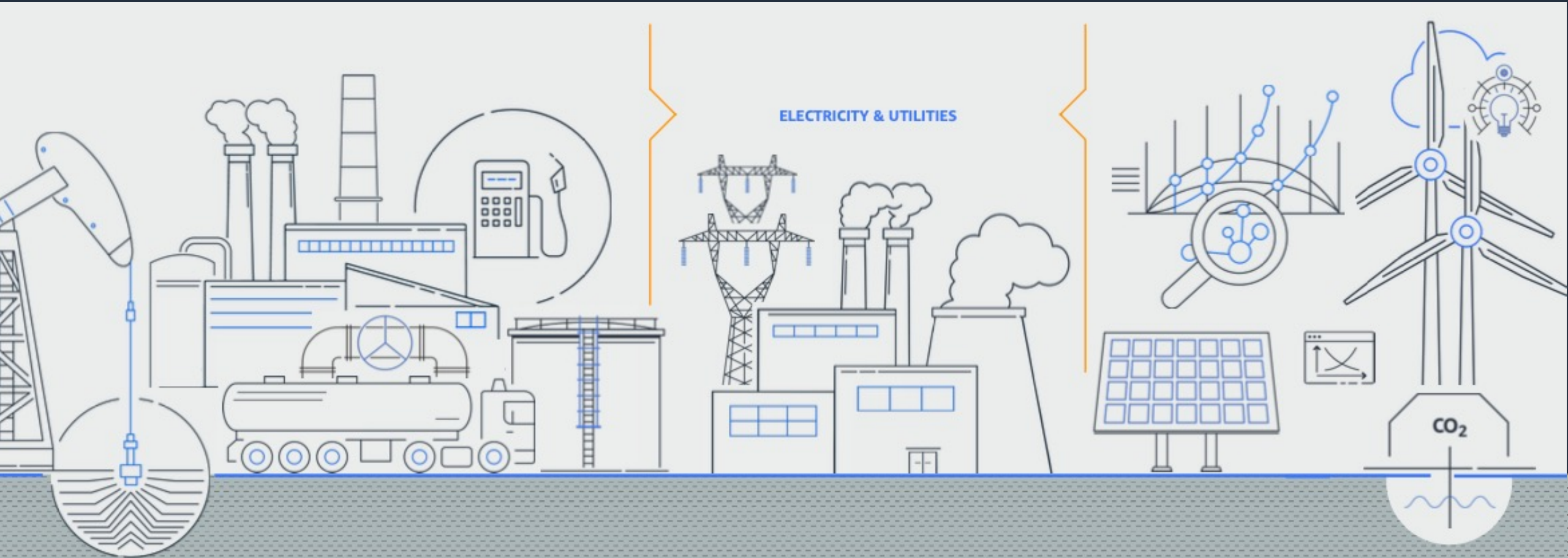
- > Overall equipment effectiveness (OEE) measures the portion of manufacturing time that's fully productive, with a score of 100% indicating maximum output, zero downtime, and no quality problems.
- > Study data findings highlight that moving to the cloud results in increased automation and resilience. 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.

LEGACY

NEW ENERGIES



AWS Energy

UPSTREAM

Drilling & Completions

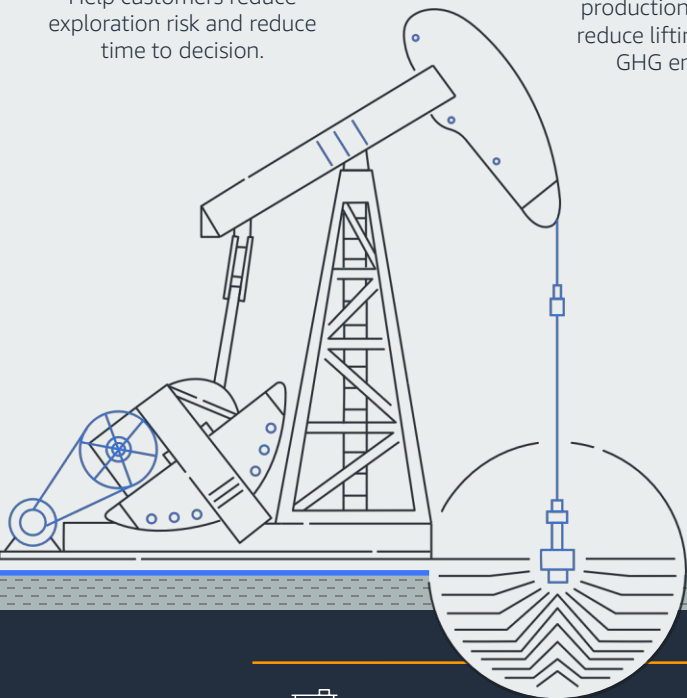
Help customers achieve faster and more accurate drilling operations and more cost-optimized completions.

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.



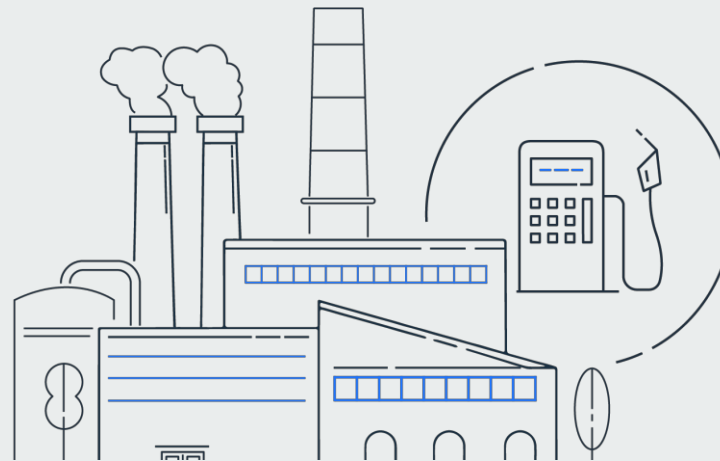
DOWNSTREAM

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

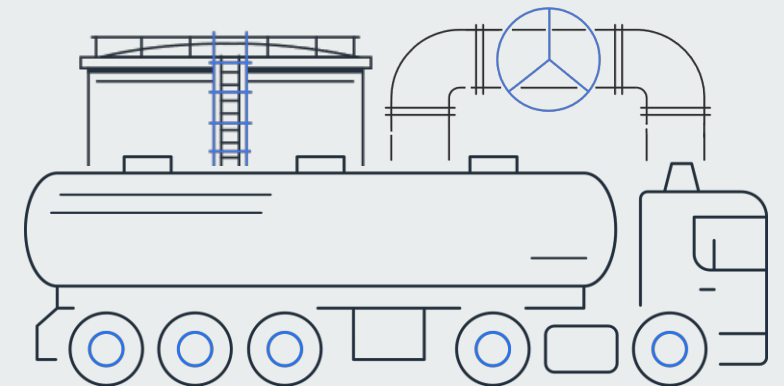
Help customers with storage and delivery of products with streamlined terminal operations and gathering line systems.

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



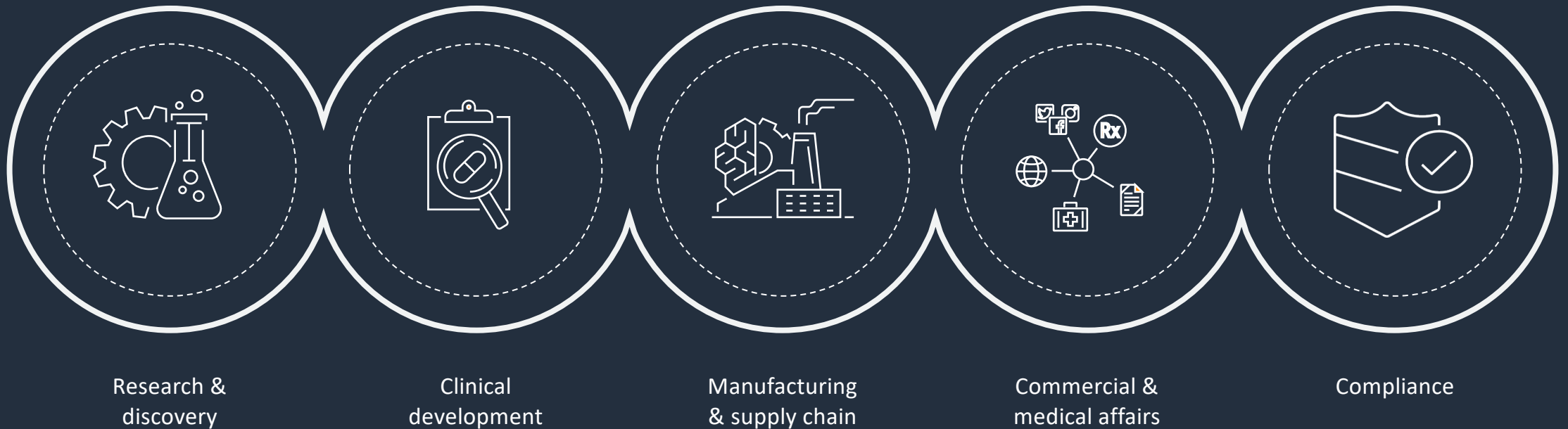
Lower footprint



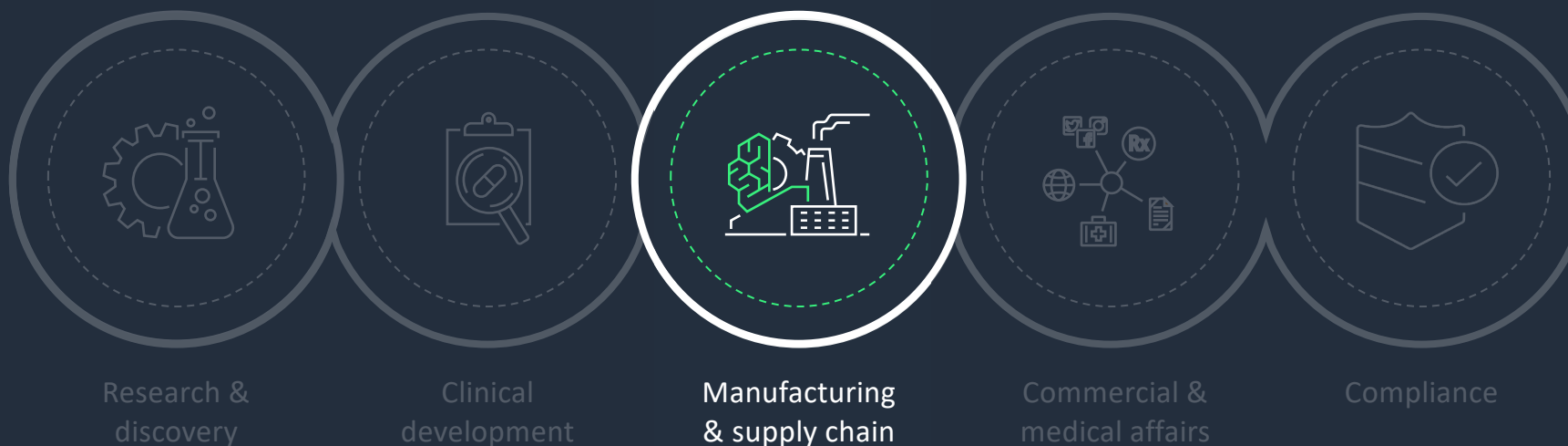
Less risk
aws energy

AWS in Life Sciences

**Supporting innovation & operational excellence
across the value chain**



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

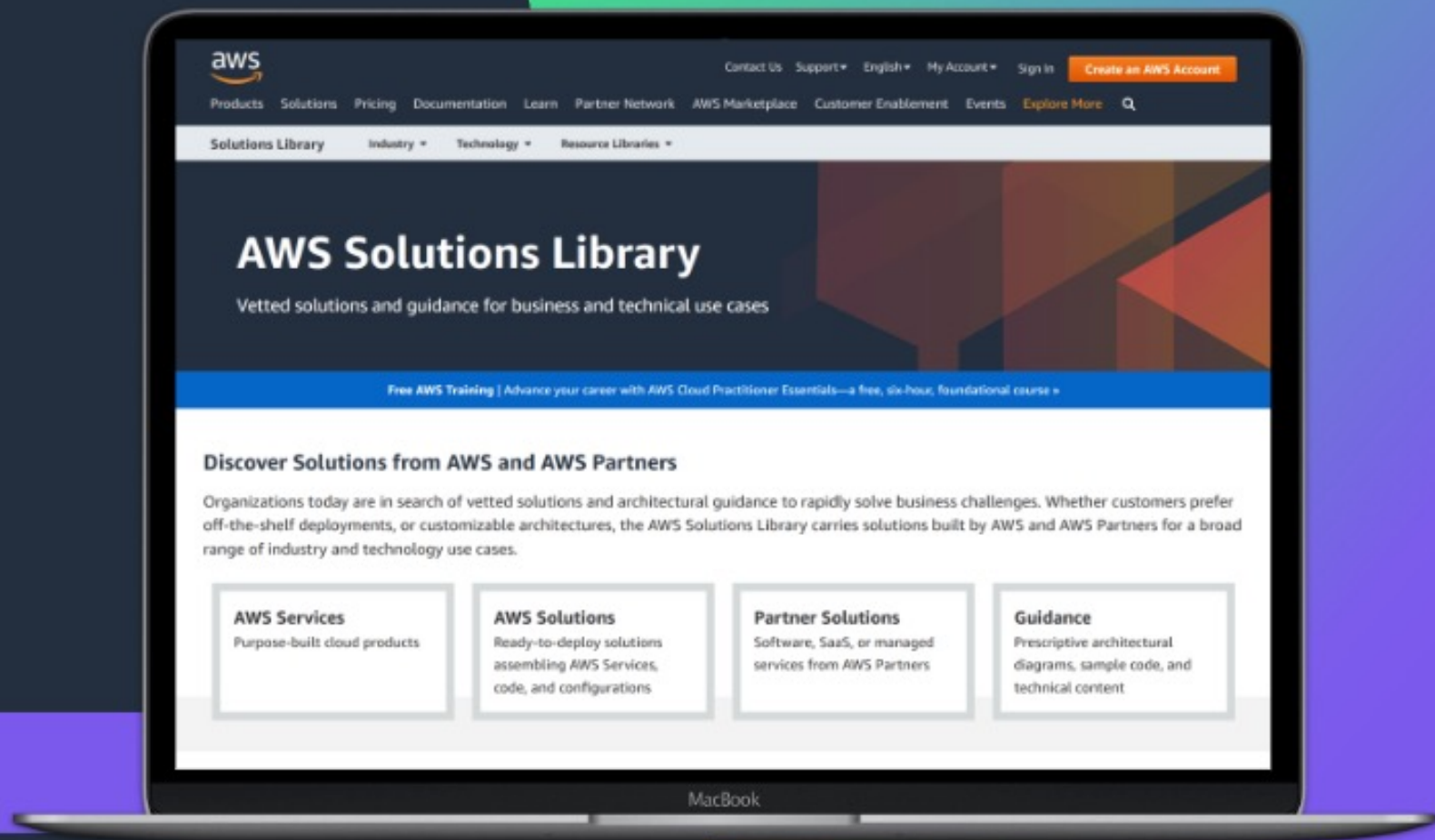
AWS Solutions Library

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.



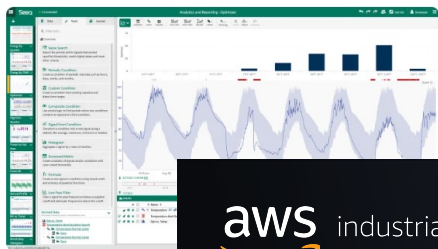
aws.amazon.com/solutions





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 manufacturing analytics, announced today that it has entered into strategic partnership agreements with two of the world's premier chemical companies: Covestro and Celanese. This partnership will enable Seeq to provide its advanced analytics capabilities to these companies, empowering their employees to improve production and efficiency.

Seeq enables engineers and scientists in process manufacturing organizations to leverage the power of the cloud to accelerate their insights and improve their operations. This announcement follows an impressive start to 2021 for Seeq, a year in which the company has seen significant growth in its customer base and revenue.



Process Optimization through Digitalization with Advanced Analytics

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

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

Whitepaper Presented by AWS and APN Industrial Software Competency Partner 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

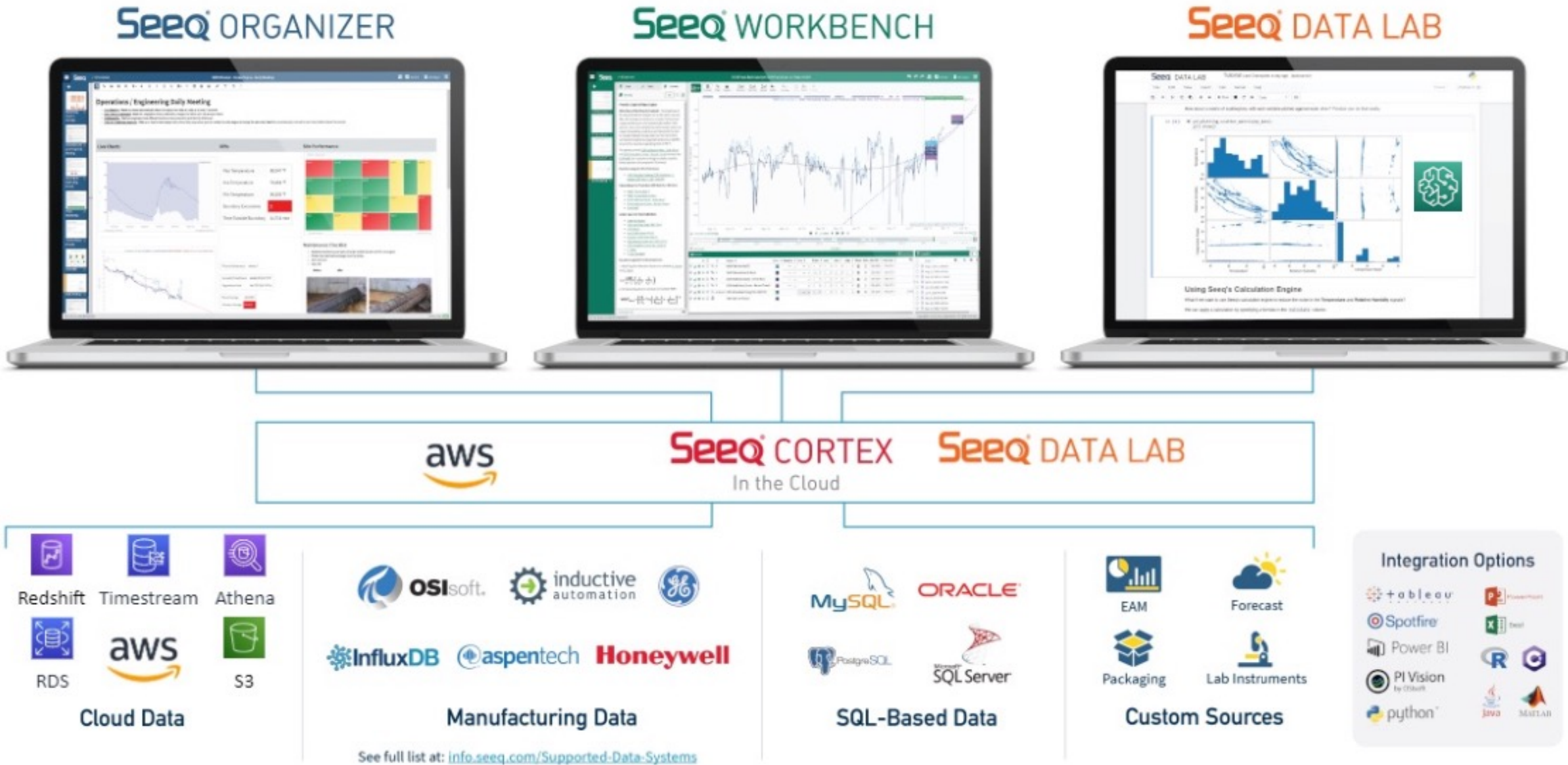
Business Email Address:

First Name:

Last Name:



Seeq + AWS Architecture



Joint Customer Stories



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Covestro Improves Chemical Manufacturing Process Running Seeq on AWS

Connect with Seeq


Executive Summary

Polymers—those useful chemical building blocks in plastics—play a critical role in helping us build a sustainable and circular future. [Covestro](#) leads the polymer manufacturing industry with about 50 chemical plants around the world. By continuously optimizing its processes for high yield and throughput while minimizing machine downtime, the company can efficiently and cost effectively make the innovative plastics and coatings that go into our everyday items. This requires understanding its current operations, which means making sense of the large volumes of machine sensor data, such as temperatures and vibrations, constantly being collected.

Prior to deploying [Seeq](#) on [AWS](#), Covestro relied on trend viewer software and ad-hoc data dumps in Excel to analyze machine sensor data. However, those systems provided limited flexibility and required high-technical aptitude, meaning a lot of stones went unturned. As part of its digital transformation, Covestro adopted Seeq software solution to help unlock the value of its industrial data. Seeq provides engineers and data science teams self-service access to powerful analytical tools that they can use to address business issues. By deploying Seeq within its Amazon Web Services (AWS) environment, Covestro further empowers employees to share data capsules, models, and insights between locations and drive efficiencies at scale.


Legacy Factory Systems Make it Hard to Optimize Processes

Covestro is a polymer manufacturer of polyurethanes, polycarbonates, and specialty coatings. Its products lie at the heart of many of our everyday items. Manufacturing companies use Covestro's polyurethanes to build car seats, furniture, mattresses, housing



About Covestro

[Covestro](#) is a global polymer company. It focuses on the manufacture of high-tech polymer materials and the development of innovative, sustainable solutions for products used in many areas of daily life.



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Marathon Oil Reduces Intelligent Alert Creation Time from Months to Hours Using AWS Partner Seeq

Connect with Seeq Corporation


Executive Summary

Marathon Oil reduced the time it took to create a new intelligent alert for its wells from months to hours using AWS Partner Seeq. Marathon Oil, an independent exploration and production company specializing in oil and gas, wanted to improve scalability and reduce time to value for its intelligent alert system. By running its jobs using Amazon EKS and Amazon MSK, Marathon Oil pulls data from Seeq, which uses Amazon EC2 to run its applications and then initiates field actions to keep wells online and limit deferred production. With a goal of improving production performance, Marathon Oil now has a solution that allows its employees to create intelligent alerts for exception-based surveillance without involving the IT team.

Accelerating Time to Value for Marathon Oil Using AWS

As an independent oil and gas production company, [Marathon Oil](#) wanted to build intelligent alerts from its time-series production data to deliver actionable insights for its digital oil field application. But because it took months to create an actionable alert, Marathon Oil sought a more efficient solution. Nurturing a culture of innovation, the company was eager to move toward the future with its alert system by embracing the cloud. Marathon Oil's main goal was to empower its business users to create their own intelligent alerts and provide a similar user experience and process shared across all its assets.

The company began using Amazon Web Services (AWS) in 2019 as its preferred cloud provider for application development and considered building a custom solution to fit this need but wanted to investigate commercially available options first. AWS introduced Marathon Oil to [AWS Partner Seeq](#). After reviewing other solutions and comparing them with Seeq, Marathon Oil



About Marathon Oil

[Marathon Oil](#) is an independent oil and gas exploration and production company focused on resource plays in the United States—Eagle Ford, Texas; the Bakken, North Dakota; the STACK and SCOOP in Oklahoma; and the Permian in New Mexico—complemented by an integrated gas business in Equatorial Guinea.

Industrial Solutions in AWS Marketplace

Speed time to value and simplify digital transformation.



PRODUCTION & ASSET OPTIMIZATION » | ENGINEERING & DESIGN » | SUPPLY CHAIN MANAGEMENT » | SUSTAINABILITY »

Production & Asset Optimization

Liberate data from your legacy operational technology (OT) systems to improve productivity, quality, and machine availability.

Analytics & Production Optimization

Maintenance & Asset Optimization

Worker Safety

Manufacturing Execution



Advanced analytics solution that enables manufacturers to rapidly investigate and share insights from data.

Try now >



Intuitive platform for manufacturers to create applications that guide operators and collect data.

Try now >



Bosch.io provides a fully managed cloud service that collects, processes and stores IoT data for further analysis.

Try now >



Fast and fully automated preview deployment of OSDU™ Data Platform into your AWS account.

Try now >



Embassy of Things Twin Talk is a secure, scalable, and intelligent ETL++ and Data Integration Platform designed to liberate operational data from PI historians and AF Servers.



Easily collect and analyze data from any piece of manufacturing equipment to deliver powerful, actionable insights for factory workers.



How to Procure Seeq Through the AWS Marketplace

Streamline billing and bolster ROI in a few easy steps.



Smarter Resource Allocation: Leverage Committed Spend on AWS Marketplace

A switch to cloud-hosted Seeq through your organization's existing Amazon Web Services (AWS) account simplifies your Seeq billing, provides more flexible payment options, and allows your organization to pay down committed AWS spend in the AWS Marketplace.

It does this while also opening the door to machine learning and other tools and technologies available through the AWS cloud infrastructure.

One Seeq customer covered 100% of their hard-dollar costs for our software by shifting their billing to AWS, where there was plenty of flexibility to pay for it within their pre-committed spend.

This sort of simple internal maneuver could save your company money, too. Cutting-edge technologies continue to bring new power to future-forward process manufacturing organizations like yours. But sometimes when this power is added to a large or growing organization, opportunities to share resources more efficiently may go unnoticed.

Case in point: Your IT team—another team within your company—may have room in your organization-wide AWS committed spend up to 100% of the costs to utilize Seeq.

Look into this today—we can help—to explore bringing such savings to your organization.

Easily switch to the AWS Marketplace and allocate up to 100% of your Seeq costs toward your AWS Enterprise Discount Program (EDP).

Reduce Administrative Costs with Simplified, Flexible Billing

Another factor to consider when it comes to moving your billing for Seeq over to the AWS Marketplace is simplicity. If you're already paying for Seeq directly, you may be wondering why it would matter to switch.

In addition to the above benefits, consider that in doing so:

- You can continue to enjoy flexible billing **terms** for Seeq.
- On AWS, Seeq payments have the option to be automatically billed (monthly, quarterly, or yearly) in addition to your other AWS services.
- You'll save time and avoid headaches through this automation and consolidation.

Nothing changes monetarily under this specific scenario except that labor costs and stress are reduced for you and your colleagues. You can utilize your existing contract with Seeq, and move your upcoming Seeq payments to the [AWS Marketplace](#) to reduce labor costs and stress for you and your colleagues.

Breadth and Depth of Services



ANALYTICS ANALYTICS DATA EXCHANGE DATA LAKE DATA PIPELINES DATA WAREHOUSE ELASTICSEARCH STREAMING ETL HADOOP / SPARK INTERACTIVE SQL QUERIES VISUALIZATIONS	DATABASE RELATIONSHIP DATABASES HIGH-PERFORMANCE RELATIONAL DATABASE BUILT FOR THE CLOUD MANAGED MARIADB MANAGED MYSQL MANAGED ORACLE MANAGED POSTGRES MANAGED SQL SERVER PURPOSE-BUILT DATABASES DOCUMENT DATABASE GRAPH DATABASE IN-MEMORY CACHING KEY-VALUE STORE DATABASE LEDGER DATABASE TIME SERIES DATABASE	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
BUSINESS APPLICATIONS CONTACT CENTER SHARING & COLLABORATION ONLINE MEETINGS & CHAT VOICE-ENABLED WORKPLACE UNIFIED COMMUNICATIONS MOBILE & WEB APPS WITHOUT PROGRAMMING	DEVELOPMENT TOOLS ANALYZE AND DEBUG APPLICATION LIFECYCLE MANAGEMENT AUTHORIZING BUILD & TEST CONTAINERS DEVOPS RESOURCE MANAGEMENT ONE-CLICK APP DEVELOPMENT PATCHING PIPELINE ORCHESTRATION RESOURCE TEMPLATES TRIGGERS	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
BLOCKCHAIN BLOCKCHAIN TEMPLATES LEDGER DATABASE MANAGED BLOCKCHAIN	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	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
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	MEDIA SERVICES LIVE VIDEO TRANSPORT MEDIA STORAGE TRANSCODING VIDEO ORIGINATION & PACKAGING VIDEO PERSONALIZATION & MONETIZATION VIDEO PROCESSING & DELIVERY VIDEO STREAMING ANALYSIS	
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		

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



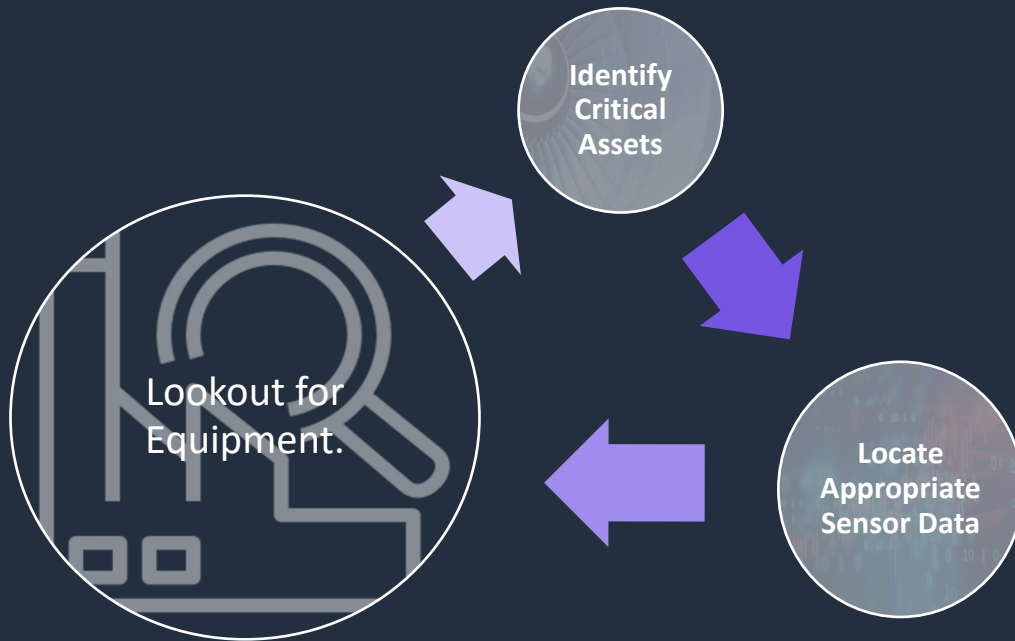
AWS IoT TwinMaker

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

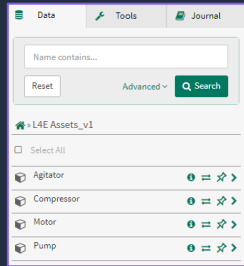


Automated machine learning workflow

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

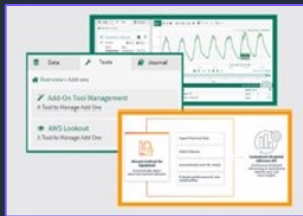
The end-to-end workflow is enabled by the Connector, Add-on and Organizer templates



Connector

Seeq Connector: Enables Data flow

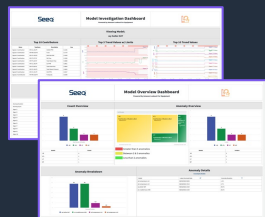
- Access and push historian data to S3 for Lookout for Equipment model training
- Include anomaly label data from maintenance logs or failure codes
- Connect to Lookout for Equipment model result data stored in S3
- Interact with data in Seeq Workbench to perform root cause analytics, create calculations,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



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



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





Thank you!



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