Gartner Webinars

Gartner equips leaders like you with indispensable insights, advice, and tools to help you achieve your most pressing objectives

Gartner

Enhance your webinar experience

Ask a Question

Download Attachments

Share This Webinar

Gartner.

The Critical Machine Learning and Data Science Trends You Should Not Ignore

Connect with Gartner

Svetlana Sicular

VP Analyst

Gartner.

ML Engineering Must Complement Data Science

Engineering

Science

Known

Unknown

Gartner.

ML Engineering Must Complement Data Science

Engineering

Science

Making the Known
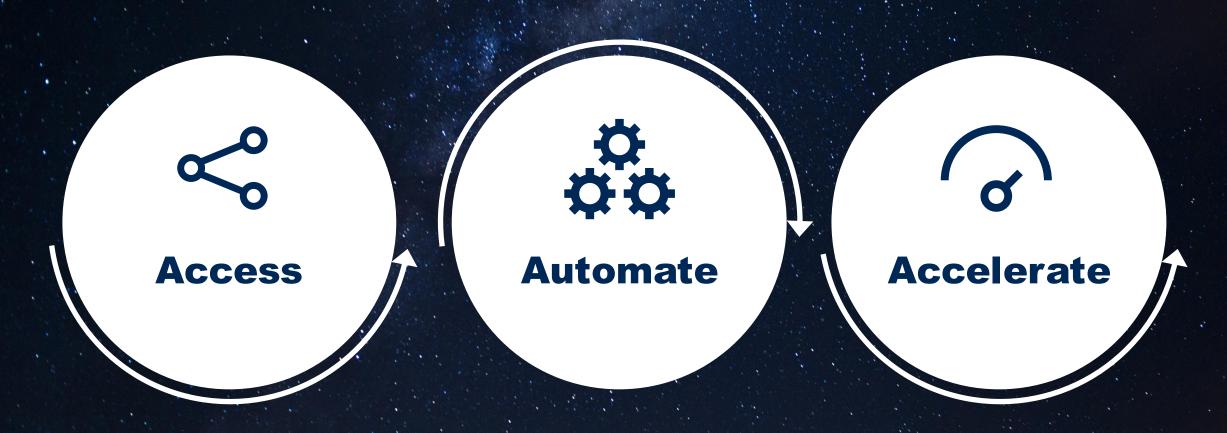
Venturing Into the Unknown Through Learning

Scalable

Supervised

Reliable

Unsupervised

Repeatable

Reinforcement

Gartner.

Make Three Strides to Get Data Science and ML Right

Access

Automate

Accelerate

Gartner
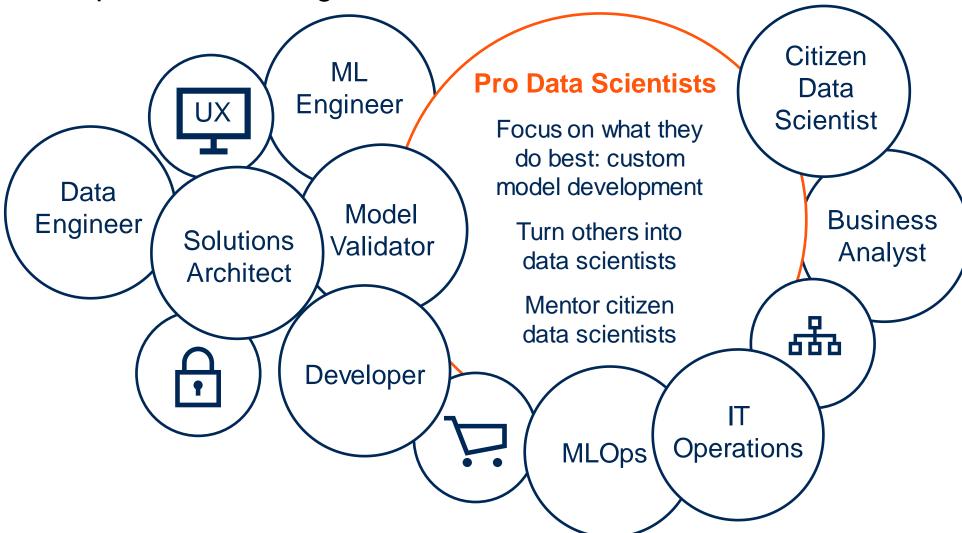
The Role of Data Scientist Is Changing
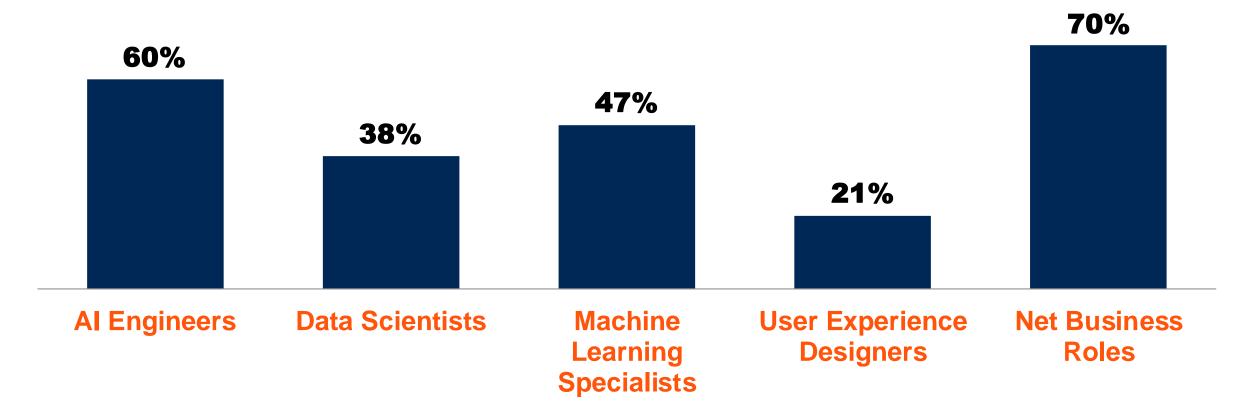
Compound Knowledge Unlocks More Business Value

Pro Data Scientists

Focus on what they do best: custom model development

Turn others into data scientists

Mentor citizen data scientists

ML Engineer

Citizen Data Scientist

Data Engineer

Solutions Architect

Model Validator

Business Analyst

Developer

MLOps

IT Operations

Gartner.

2 Collaboration Unlocks More Business Value

Top 5 Roles That Take Part in AI Interdisciplinary Teams

60%
AI Engineers

38%
Data Scientists

47%
Machine Learning Specialists

21%
User Experience Designers

70%
Net Business Roles

n = 200, All with AI interdisciplinary teams(Q04A), Excluding Unsure, Percentage of Respondents. Multiple Responses Allowed
Q. Who typically takes part of the AI interdisciplinary teams?
S. How would you rate the overall value that AI brings or will bring to your organization?
Source: 2019 Gartner AI in Organizations Survey
Note: Only showing roles for which there are differences by AI development
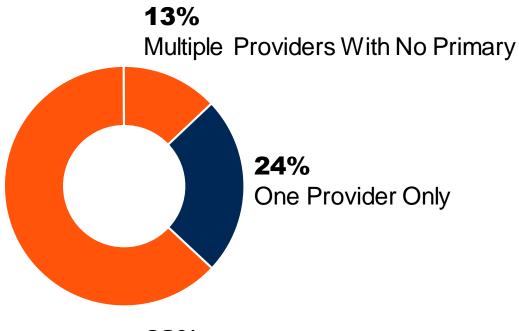
Gartner

ML Where You Need It: Cloud, Multicloud and Edge

3

Instant Access to Specialized Hardware and ML Innovation

Most Organizations Use Multicloud, With a Single Primary Cloud Provider

13%
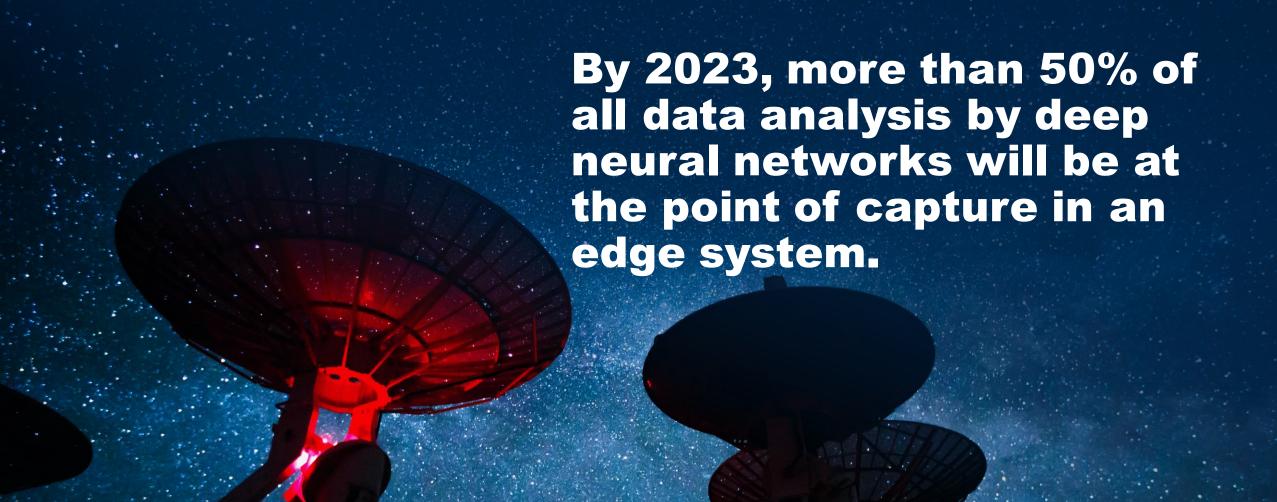Multiple Providers With No Primary

24%
One Provider Only

63%
Have a Primary Provider + Additional

n = 724, Currently Use Public Cloud, Hybrid Cloud, Or Multicloud Infrastructure (IaaS), Excluding "Don't Know/Not Sure"

Question: Which of the following statements best describes your organization's approach to working with public cloud infrastructure (IaaS) providers?
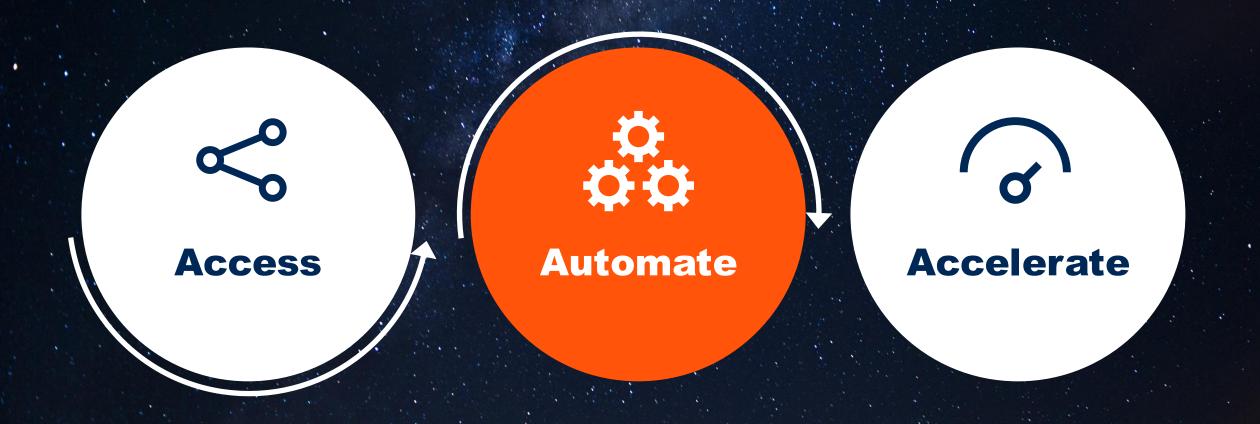Source: 2020 Gartner Cloud End User Buying Behavior Survey

Gartner

By 2023, more than 50% of all data analysis by deep neural networks will be at the point of capture in an edge system.

Source: Predicts 2020: Artificial Intelligence Core Technologies (G00463830)

Gartner®

Enable the data and model pipelines across hybrid, multicloud and edge context by building talent around the operations of ML platforms.
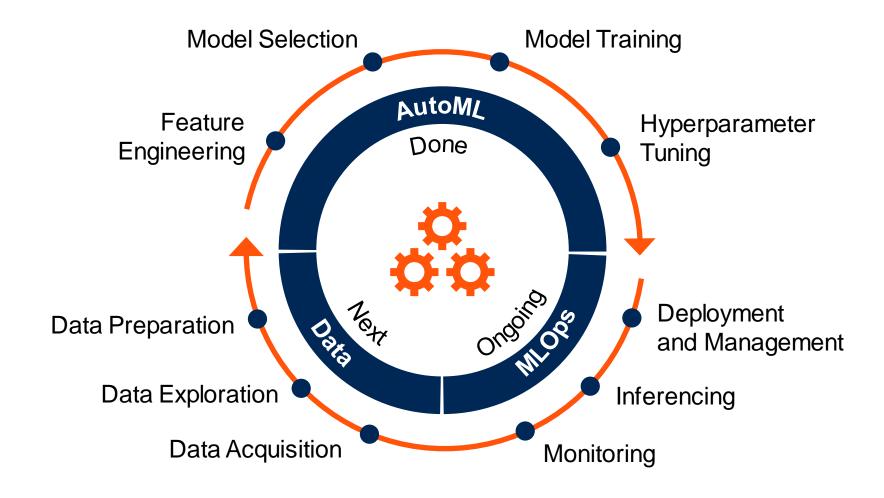
Gartner.

What Does Automation of DS and ML Involve?

Access

Automate

Accelerate

Gartner.

4 End-to-End Automation of ML Workflow
Reuse and Deploy Repeatable Patterns With Speed and Confidence

Model Selection

Model Training

Feature Engineering

Hyperparameter Tuning

AutoML

Done

Data Preparation

Next

Ongoing

MLOps

Deployment and Management

Data Exploration

Data

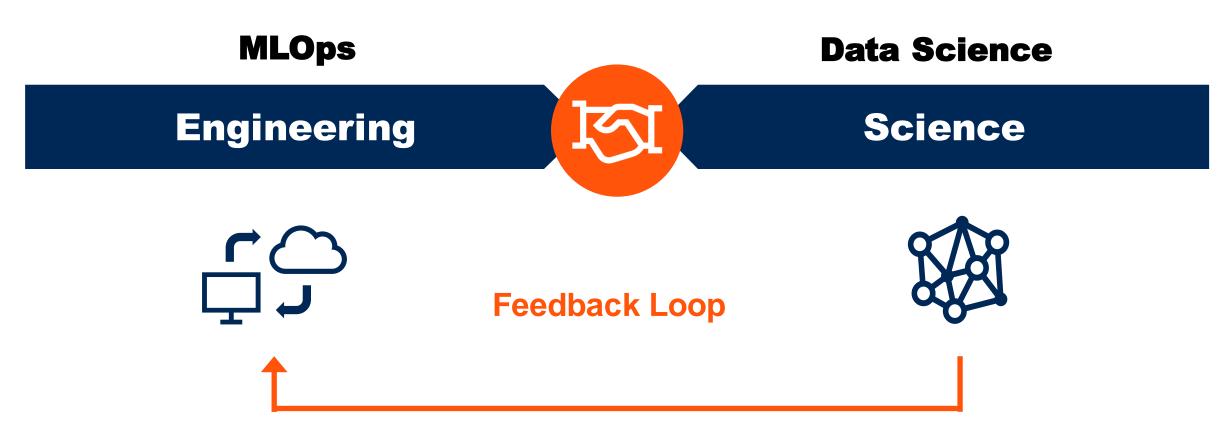Inferencing

Data Acquisition

Monitoring

Gartner®

5 **MLOps** **Takes Care of ML Models in Production**

Streamline the Deployment, Operationalization and Execution of ML Models

MLOps

Data Science

Engineering

Science

Feedback Loop

MLOps is a great career opportunity!

Gartner.

6 Transfer Learning To Use Pretrained Models
Off-the-Shelf Models Free Data Scientists to Do the Highest Value Work

Sample Use Cases

Principle

Model Training on Your Data

Pretrained Model

Example

Model Training on Your Industry Vocabulary
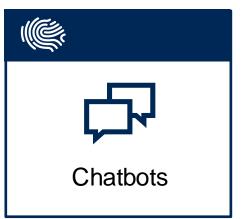
Language Model Pretrained on Wikipedia

Quality Analysis

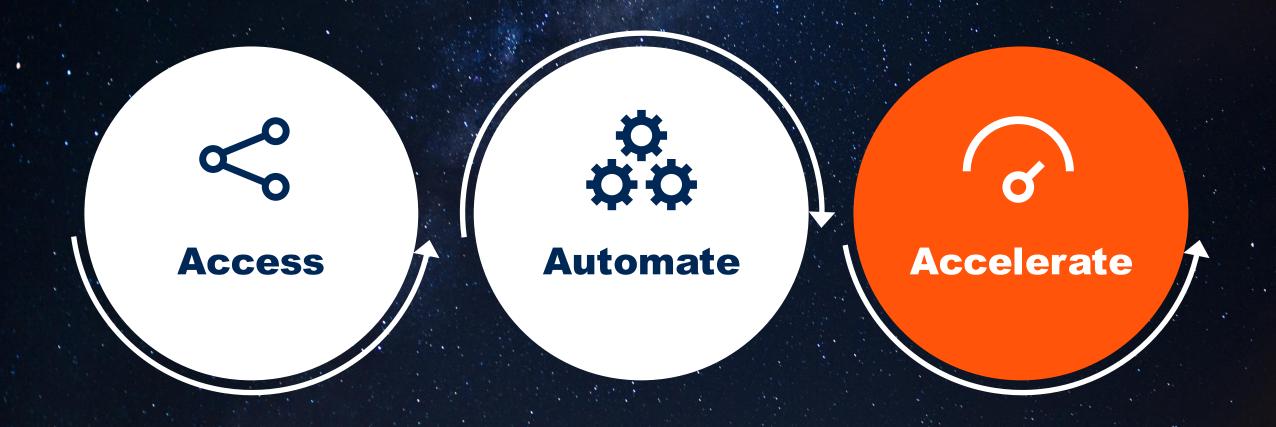Recommendations

Chatbots

Disease Detection

Gartner.

Cultivate ML engineering to configure, deploy and reuse repeatable patterns.

Gartner®

Accelerate the Data Science and ML Cycle

Access

Automate

Accelerate

Gartner®

8 Accelerated Availability of Training Data for Faster Model Development

Collecting Massive Training Datasets Is Not Always Feasible

Small Data
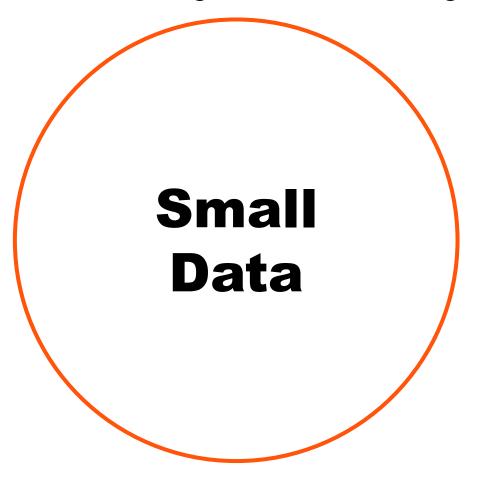
Wide Data
Synthetic Data
Feature Stores
Graphs

Few-Shot Learning
Generative Adversarial Networks
Model Stacking Simulations
Deep Tensor
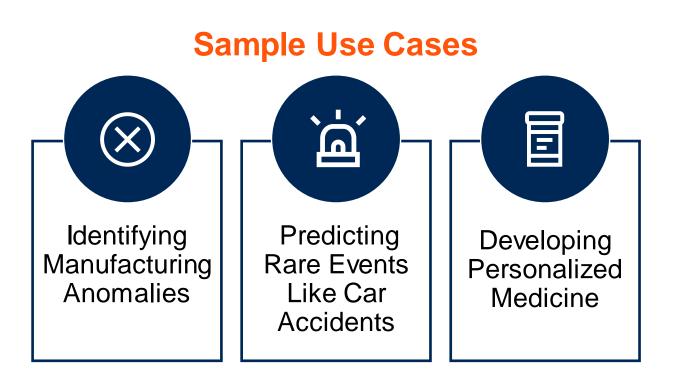
Gartner.

8 Accelerated Availability of Training Data for Faster Model Development

Collecting Massive Training Datasets Is Not Always Feasible

Small Data

Sample Use Cases

Identifying Manufacturing Anomalies

Predicting Rare Events Like Car Accidents

Developing Personalized Medicine

Gartner®
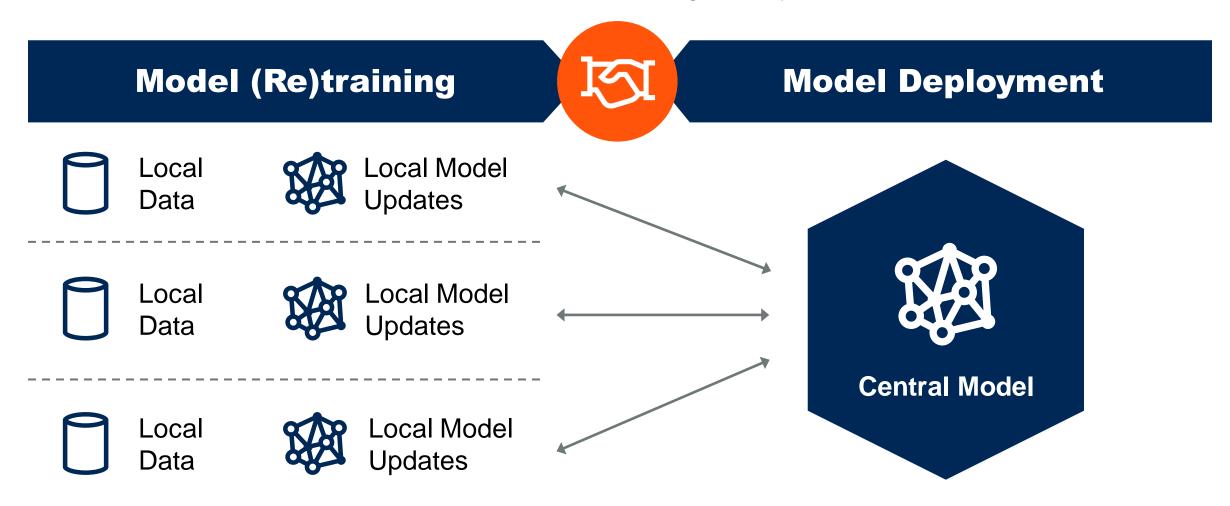
9 **Federated Learning** is an Emerging Practice

Accelerate Model Development While Protecting Privacy

Model (Re)training		**Model Deployment**

Local Data — Local Model Updates

Local Data — Local Model Updates

Local Data — Local Model Updates

Central Model

Gartner.

10 Open Source Accelerates Dissemination of Ideas

Orchestration ▶ Apache Airflow · GitHub · ONNX

Explainability ▶ LIME · SHAP · Fairlearn · Model Cards · FactSheets

Models ▶ python · PyTorch · BERT · TensorFlow · K Keras · R · XGBoost · scikit learn · H$_2$O.ai

Data ▶ APACHE Spark · kafka · elastic · DELTA LAKE

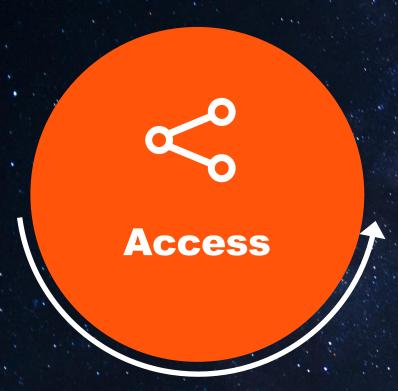**Infrastructure** ▶ kubernetes · Kubeflow · docker

Gartner®

Enable professional data scientists to do the highest value work by offloading some of their responsibilities to engineers.

Gartner.

Three Strides Toward Getting Data Science and ML Right

Access

Automate

Accelerate

1. The Changing Role of Data Scientist
2. Data Science Team Collaboration
3. Cloud, Multicloud and Edge

4. Automation of ML Workflow
5. MLOps
6. Transfer Learning

7. Composite AI
8. Small Data
9. Federated Learning
10. Open Source

Gartner.

Three Strides Toward Getting Data Science and ML Right

Access — New Roles and ML Innovation

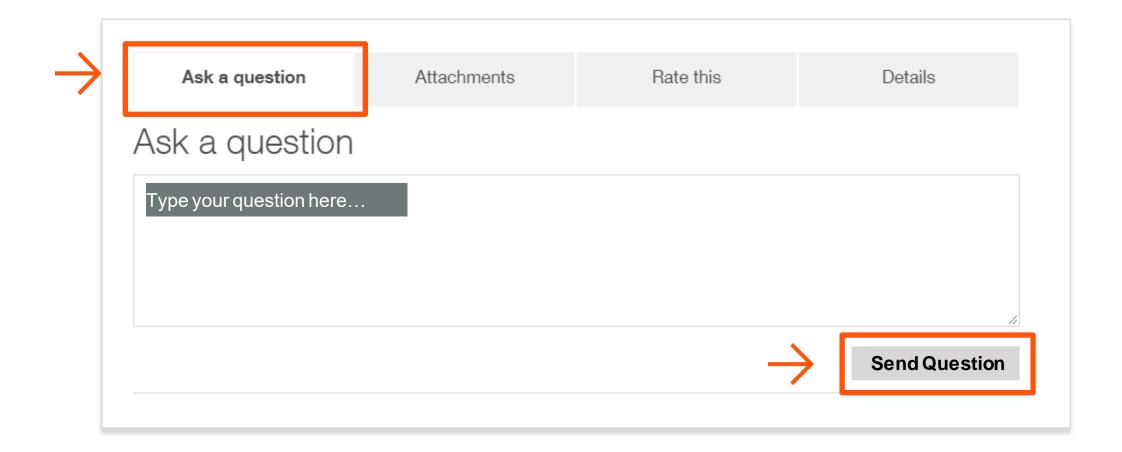Automate — ML Development and Operationalization

Accelerate — DSML Life Cycle and Time to Value

Gartner

Recommendations

- ✅ Develop ML engineering capabilities to make data science and ML agile, performant, reliable and repeatable at scale.

- ✅ Estimate and measure not only the direct benefits of ML solutions, but also the cost of running and maintaining these solutions.

- ✅ Automate data science and ML step by step, where it makes sense to **you.**

- ✅ Accelerate ML at scale by applying productivity tools for data science and monitoring decisions in production.

- ✅ Don't overcomplicate solutions to deliver value.

Gartner®

Ask your questions

Ask a question	Attachments	Rate this	Details

Ask a question

Type your question here…

Send Question

Gartner

Gartner Data & Analytics Summit

Gartner®

4 – 6 May 2021 | Americas | Virtual
18 – 20 May 2021 | EMEA | Virtual
8 – 9 June 2021 | APAC | Virtual
23 – 24 June 2021 | India | Virtual
12 – 13 July 2021 | Japan | Virtual

The virtual Gartner Data & Analytics Summit offers content for every member of your data and analytics team — from technical- to senior-level strategy. Join data and analytics leaders to gain the skills to build and execute a world-class strategy.

Learn more: <u>gartner.com/conf/da</u>

**Register with code DAWEB
for an exclusive discount.**

At this year's conference, you'll learn to:

Accelerate the adoption of AI and cut through the hype to develop a strategy that impacts the business

Lead by building a foundation of trust, accountability, governance, security and privacy

Exploit diverse data, thinking and teams to spark creativity and innovation

Top Priorities for IT: Leadership Vision for 2021

Emerging trends, expected challenges and next steps for **data and analytics** leaders in 2021.

Download

Gartner.

Keep learning

🐦 **@Gartner_IT**   💼 **Gartner for IT**

Gartner

Gartner can help you achieve your most critical priorities

Essential insights and advice for every leader across the enterprise.

Contact Us

U.S.: 1 800 213 4848
International: +44 (0) 3331 306 809

Gartner.

Get more Gartner insights

Download the research slides

View upcoming and on-demand Gartner webinars at gartner.com/webinars

Rate this webinar

Gartner®