Enable the intelligent enterprise with machine learning
Drive competitive advantage with machine learning

Successful disruptive companies are data- and insights-driven. This mindset demands relentlessly measuring, monitoring, predicting, and acting on the pulse of business, in a continuous, automated manner, using new-generation technologies. Your enterprise can identify untapped opportunities, expose hidden risks, and automate knowledge work by leveraging Big Data and the Internet of Things – all in real time – with the power of machine learning.

Ubiquitous digitization is creating a rising tide of data, most of which is unstructured, such as images, audio, videos, and conversations. Smart enterprises realize data is a priceless strategic asset and a resource for competitive advantage. But data by itself is of little use. No matter what business you’re in, your future success depends on one thing: deploying machine learning across your enterprise.

Machine learning is the core of artificial intelligence (AI). It’s a whole new breed of software that continuously learns and improves, every time you feed in new data, without being explicitly programmed. Machine learning has the power to access, analyze, and find patterns in Big Data in a way that is beyond any human capabilities. The ability to continuously monitor data and make precise, intelligent predictions has a massive impact on business success.

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Machine learning is already having a huge impact on our lives. When we talk to a call center, our interaction is often with a robot. Articles that we read online might have been written by a machine. In many cases, such as online shopping, machine learning understands our behavior and intent, and makes precise, intelligent recommendations.

Successful companies realize the potential of machine learning used across business processes, applications, and line-of-business solutions to sustain a competitive advantage. Learn how your organization can leverage SAP Leonardo Machine Learning capabilities to drive a real-time understanding of your business to confidently anticipate what comes next to guide better, more profitable, forward-looking decision making.
SAP Leonardo Machine Learning is part of an innovation system

SAP Leonardo is the digital innovation system that enables companies to rapidly innovate at scale and redefine their business for the digital world. It brings machine learning, the Internet of Things (IoT), blockchain, analytics and Big Data together on SAP Cloud Platform, using design thinking services.

With SAP Leonardo, SAP delivers innovation capabilities and services as industry accelerators that integrate with core business applications so that customers can seamlessly bridge between operating and innovating.

SAP Leonardo Machine Learning is at the core of the SAP Leonardo system. Embedded into enterprise systems, machine learning lets customers augment and automate repetitive tasks and unlock entirely new kinds of digital innovation by learning from data, rather than programming explicit rules.

Natively integrated into SAP applications, cloud, and business networks, SAP Leonardo Machine Learning ensures digital intelligence can be easily consumed across the entire business to create better customer service, optimize business operations, improve employee job satisfaction, reimagine existing business processes, and more.

Transform all your enterprise software systems into intelligent applications.

SAP Leonardo Machine Learning is part of an innovation system

Deliver predictive results at the point of decisions

Discover and exploit patterns for competitive advantage

Leverage APIs to enrich enterprise applications with intelligence

Extend problem solving with machine learning applications
Deliver predictive results at the **point of decisions**

Automating the end-to-end machine learning modeling process is key to increasing productivity and getting accurate results. SAP Predictive Analytics software allows anyone, not just data scientists, to create thousands of derived variables faster, from a wide variety of data sources, without writing a single line of code. It offers self-service using a guided workflow to create models in just minutes through automation, with a high degree of accuracy and actionable insights.

The factory-based approach enables you to govern, manage, retrain, and score the probability of thousands of models using a browser-based, modern user interface, so you can scale each model quickly and keep it running at an optimal performance.

SAP Predictive Analytics allows you to deliver predictive results at decision-making points in systems and applications. With the open interface, you can generate predictive probability scoring for a wide variety of target systems and directly embed the results wherever they will be most useful, such as databases, business processes, and line-of-business solutions.

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**Deliver predictive results at the point of decisions**

Discover and exploit patterns for competitive advantage

Leverage APIs to enrich enterprise applications with intelligence

Extend problem solving with machine learning applications

Embed machine learning in the business processes where it’s needed to guide better, more **profitable decision-making.**
Discover and exploit patterns for competitive advantage

The in-memory and in-database machine learning capabilities of the SAP HANA platform provide text analysis, predictive, spatial, event streams, and time series to build intelligent applications that provide deeper insights at unprecedented speed.

Gain support for a variety of data types with the ability to analyze high-speed event streams from sensors and other sources. By combining your static and streaming data, you can leverage machine learning algorithms that predict in real time, with the ability to scale for large data sets.

In-database machine learning lets you analyze any type of data, and seamlessly integrate with Hadoop, R, Tensorflow, and SAS.

Leverage more than 90 native machine learning algorithms and extension capabilities via open source R integration, or custom develop algorithms in C++ using an SDK. Further integrating spatial processing with SAP HANA allows you to process and analyze massive amounts of data in real time to reveal new patterns and trends, adding a valuable spatial dimension to business data.

Whether you are monitoring price fluctuations, season patterns, machine efficiency, energy consumption, or network flow, the ability to process both structured and unstructured data over time, in one platform, gives you broader, contextual insights to improve decision making while benefiting from less data duplication and movement.

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Extend problem solving with machine learning applications
Leverage APIs to enrich enterprise applications with intelligence

SAP Leonardo Machine Learning Foundation brings intelligent functional and business services to SAP Cloud Platform. This foundation is the basis for SAP Leonardo Machine Learning applications and is accessible to customers, partners, and developers through the SAP API Business Hub. This solution offers developers two types of service APIs:

- **Solve specific business problems** – Apply one set of machine learning services to automate any business process, such as classifying service tickets or matching resumes to a job posting, with no special expertise.

- **Support your digital transformation** – Functional services are more generic and can be assembled for your specific business challenges. They analyze trends in a time series, classify images for analysis, and detect topics in natural language texts.

Using SAP Cloud Platform as a scalable backbone, machine learning services supports a tight and secure integration with SAP solutions and third-party applications. SAP Cloud Platform eliminates the need for special on-site hardware to handle deep-learning algorithms. You can combine robust, intelligent services reliably with your existing business processes.

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Extend problem solving with machine learning applications.
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SAP Leonardo Machine Learning offers a variety of intelligent applications, each designed to precisely meet a unique business need:

- **SAP Brand Impact** – This fully automated video analysis cloud application detects logos and other brand assets in video content, providing accurate reports on visibility by time, size on screen, location, and other parameters that influence viewer recognition. It allows marketing executives to optimize spend by determining and measuring brand exposure.

- **SAP Cash Application** – This automates the process of matching incoming payments to open receivables, reducing the time required.

- **SAP Customer Retention** – This application addresses the universal challenge of customer churn by automatically monitoring the behavior of customers and assessing their churn risk through a 360-degree view of their digital interaction.

- **SAP Job Standardization and SAP Resume Matching** – These applications use intelligent algorithms to automate matching of candidates and job postings, eliminating biases that cause qualified candidates to be misjudged or overlooked.

- **SAP Service Ticket Intelligence** – This application builds a model based on successful past ticket completion, using it to automatically categorize service tickets and provide recommended solutions to service agents.

SAP Leonardo Machine Learning is part of an innovation system that delivers predictive results at the point of decisions, discovers and exploits patterns for competitive advantage, and leverages APIs to enrich enterprise applications with intelligence. Extend problem solving with machine learning applications.
Becoming the intelligent enterprise with machine learning

Artificial intelligence and machine learning are redefining the jobs we hold, the cars we drive, the medical procedures we undergo, and the games we play.

Organizations can no longer focus solely on delivering the best product or service. To thrive and win in the era of digital transformation, they must uncover hidden trends and insights relevant to their customers, employees, vendors, and partners. They must anticipate behaviors and be proactive. And they must empower their teams with intelligent next steps to exceed customer expectations. SAP Leonardo Machine Learning makes it possible.

- **Faster insight delivery** – End-to-end automation reduces errors and allows insights to be easily embedded into end-user applications
- **More efficient processing** – With in-database machine learning, you can extract, analyze, apply, and develop powerful machine learning applications using high-performance machine learning functions as well as Tensorflow and R
- **Reduce development time** – A wide variety of services allows developers to build and extend machine learning capabilities across applications and business processes
- **Automate knowledge work** – Addressing specific use-cases with intelligent applications and extensions removes roadblocks of time lapses and human biases
**Summary**

SAP Leonardo Machine Learning brings unprecedented insights and automation of knowledge work across the enterprise by enabling business users, analysts, data scientists, and developers to take advantage of machine learning. You can build, extend, deploy, manage, and infuse machine learning insights and take advantage of intelligent applications and extensions for your enterprise.

**Objectives**

- Automate end-to-end machine learning processes
- Develop, build, and extend machine learning applications
- Remove human error and biases by automating knowledge work
- Gain machine learning insights where people interact
- Deliver insight in near-real time with Big Data and IoT

**Solutions**

- Automation of data preparation, model building, deployment, scoring, and retraining
- Natively process and analyze structured and unstructured data with full connectivity to SAP HANA and third-party data sources
- Develop, build, and extend machine learning applications both in the cloud and on premise
- Automate the knowledge work with industry and line-of-business-specific intelligent applications and extensions

**Benefits**

- Quickly access machine learning that is fully embedded in SAP applications and platforms
- Find patterns in Big Data previously impossible for humans to discover on their own
- Deliver unprecedented insights, enterprise wide, in real time
- Automate routine tasks and focus staff on higher-value work
- Foster accurate predictions in business functions

**Learn more**

To find out more, call your SAP representative today or visit: [www.sap.com/ml](http://www.sap.com/ml).