

# AI IS EVERYWHERE, WITH A GROWING RANGE OF USE CASES

The components for artificial intelligence are in place, and forward-looking organizations are seizing the opportunities.

Artificial intelligence and its supporting computing models — machine and deep learning — are decades-old technologies that are just now beginning to take off. Why AI now? There are multiple important reasons for the growing adoption of AI.

First, the industry has made amazing advances in AI modeling. Open-source algorithms and frameworks are now readily available for download. These sets of rules and tools are enabling organizations of all sizes to begin experimenting with and deploying AI solutions, even on relatively modest budgets.

Another driver for AI is the rise of affordable, easily deployed high-performance computing infrastructure. From the advent of relatively low-cost CPUs, GPUs and FPGAs to the proliferation of all-flash storage, today's infrastructure delivers has all the elements necessary for accelerating AI workloads. And, most important, the key driver for AI is in place — we have data, and lots of it. Data is the fuel for AI, and it's growing at an exponential rate, thanks in part to the proliferation of IoT devices and sensors, continued social media growth, and biomedical research in HPC.

This confluence of data creates fertile soil for the growth of AI, which is taking root in virtually all industries, segments and geographies. Today, AI is everywhere, and it is poised to change the way we live and the way we conduct business. We are entering an era of AI-enabled user experiences, AI-driven business processes and AI-optimized infrastructure.

## AI use cases abound

Across all verticals we see innovative and compelling use cases that are driving improvements in all we do. Let's consider some common use cases for AI across a range of verticals.

Healthcare and life sciences	Financial services	Government security and defense	Media and entertainment
<ul style="list-style-type: none"> <li>• Drug interaction</li> <li>• Cancer detection</li> <li>• Chronic illness prediction</li> <li>• Drug discovery</li> <li>• Gene mutation</li> <li>• Sanitation</li> </ul>	<ul style="list-style-type: none"> <li>• Fraud prevention</li> <li>• Risk management</li> <li>• Investment predictions</li> <li>• Customer service</li> <li>• Digital assistants</li> <li>• Network security</li> </ul>	<ul style="list-style-type: none"> <li>• Facial recognition</li> <li>• Video surveillance</li> <li>• Cyber security</li> <li>• Satellite imagery</li> <li>• Event prediction</li> <li>• Emergency services</li> </ul>	<ul style="list-style-type: none"> <li>• Video captioning</li> <li>• Content-based search</li> <li>• Real-time translation</li> <li>• Language processing</li> <li>• Content suggestions based on selections over time</li> </ul>

Manufacturing	Energy	Transportation	Retail
<ul style="list-style-type: none"> <li>• Smart manufacturing systems</li> <li>• Factory and demand analytics and optimization</li> <li>• Preventative maintenance</li> <li>• Relationship intelligence</li> <li>• Product and service quality</li> </ul>	<ul style="list-style-type: none"> <li>• Wind power generation</li> <li>• Solar forecasts</li> <li>• Oil production optimization</li> <li>• Weather prediction</li> <li>• Prediction of consumption demand</li> </ul>	<ul style="list-style-type: none"> <li>• Autonomous vehicles</li> <li>• Pedestrian and object detection</li> <li>• Lane tracking and traffic patterns</li> <li>• Preventative maintenance</li> <li>• Risk assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Supply and demand planning</li> <li>• Predicting buying behavior</li> <li>• Loss prevention</li> <li>• Upsell, cross-sell opportunities</li> <li>• Customer and product movement tracking</li> </ul>

These use cases listed here aren't the substance of a brave new world where AI watches over everything in an uncomfortable manner. They are all with us today, helping organizations build improvements across their environments to benefit from the data they collect. With AI, organizations are gaining deeper, more robust data-driven insights which enable them to improve operational efficiencies, transform decision-making and drive net new revenues to grow the business.

## AI success stories

To make this information more tangible, let's consider a few examples of the importance of AI for some organizations we have worked with across the globe.

- Drawing on the power of AI, OTTO Motors digitizes material flow for the world's largest manufacturers. It does this with 90 percent accuracy in forecasting what the company will sell over the next 30 days. The forecasts are so reliable that OTTO now builds inventory in anticipation of the orders AI has forecast. OTTO is confident enough in the technology to let it order 200,000 items a month from vendors with no human intervention.
- Zenuity, a joint venture of Volvo Cars and Veoneer, is using AI to develop advanced driver-assist systems and autonomous-driving technologies that promise to take vehicle safety systems to a new level. Zenuity is expected to have its first driver-assistance products available for sale by 2019, with autonomous-driving technologies following shortly thereafter.<sup>1</sup>

- To identify and stop fraudulent transactions, Mastercard leverages machine-learning algorithms running on compute-intensive AI-capable systems to process large data sets at lightning-fast speeds and a mind-boggling scale. The company processes 160 million transactions per hour, using machine-learning algorithms and applying 1.9 million rules to examine each transaction. It all happens in a matter of milliseconds.<sup>2</sup>

## Getting started with AI

AI adoption brings both opportunities and challenges. If your organization is starting down the road to AI, it's important to remember that AI is a journey — largely a data journey. In the experience of Dell EMC, there are three keys to a successful journey: AI fuel, AI engine and AI expertise.

The AI fuel is data, so the start of the journey focuses on storing, managing, analyzing and protecting data. AI systems need enormous data assets to be properly trained. That data varies dramatically in structure, but almost always includes substantial quantities of unstructured data.

The AI engine is a high-performance computing infrastructure with the ability to accelerate AI-driven workloads, data analytics and solution deployment. A robust AI system will likely include GPUs and FPGUs for workload acceleration, as well as CPUs that make up the heart of the system.

Finally, there's AI expertise. To be successful with your AI project, you don't have to take the journey alone. It is important to find a trusted partner, a partner with experts in the field who understand the opportunities available to you and can help you to define your goals, identify your use cases, determine what your solution will entail and outline your steps in AI adoption. They can help put your organization on a successful route to AI that includes the most modern technologies, proven solutions, proofs of concept and more.

Ready to get started? A first step is to identify those important business-driven use cases that are right for your organization. The use cases covered in this blog post are just a small sample of a virtually limitless pool of AI possibilities. The key is to think creatively about how you might use AI to make your processes more efficient, to reach more accurate decisions in less time and to drive bottom-line growth.

## To learn more

To explore technologies, solutions and services for your AI initiative, visit [DellEMC.com/AI](https://DellEMC.com/AI)

## Author

David Graham, Director, Emerging Technologies, Dell Technologies

With over a decade of experience in data centers and their technologies, Dave brings a multivariate background in both psychology and technology into the burgeoning world of emerging technology. His passion for what technologies come next and their inherent benefits to furthering human progress drives him in his role with Dell Technologies.

---

<sup>1</sup> Volvo Cars news release, "[Volvo Cars and Autoliv announce the launch of Zenuity](#)," January 03, 2017.

<sup>2</sup> Dell EMC white paper, "[Fighting fraud the smart way — with data analytics and artificial intelligence](#)," July 2018.