DELL Technologies

Solution Brief

Create Data with Generative AI for Safe Simulations

The role of synthetic data

Nearly every organization wants to enhance its ability to make data-driven decisions. However, many are unable to unlock these capabilities due to the sensitive, private, and regulated nature of their data. With Generative AI, organizations can design highly realistic but simulated data to test and validate systems without relying on the use of sensitive production data. Synthetic data can also be paired with existing data sets to provide a more complete picture and account for a variety of needs, such as simulating a rare event or supporting predictive analytics.

Synthetic data combined with digital twins

Innovative organizations are finding success by combining Generative AI-produced synthetic data with digital twins of their business and/or products, taking full advantage of both AI and Generative AI. This creates endless opportunities to simulate changes and ideas with realistic representative data. Examples include developing improved products, testing adjustments to physical processes, and modeling potential interruptions to global supply chains.

Key design and data creation use cases

Product design and engineering

Use virtual prototyping to test multiple designs concurrently, saving time and money while ensuring improved design quality and faster time to market.

Manufacturing

Leverage simulated data to execute preemptive maintenance and automate quality inspection on manufacturing floors, eliminating risk and improving yields.

Supply chain and logistics

Generate data to simulate the entire supply chain for end-to-end visibility, enabling supply chain event modeling, and discovering opportunities for optimization, expansion, and addressing potential disruptions.

Marketing and business strategy

Create representative customer and market data to simulate the customer journey for visualizing campaign touchpoints, performing A/B testing, exploring expansion, and personalizing opportunities.

How it works

With Generative AI, organizations can begin to rapidly generate synthetic data for use across a variety of systems and processes that require data to function. The process is:

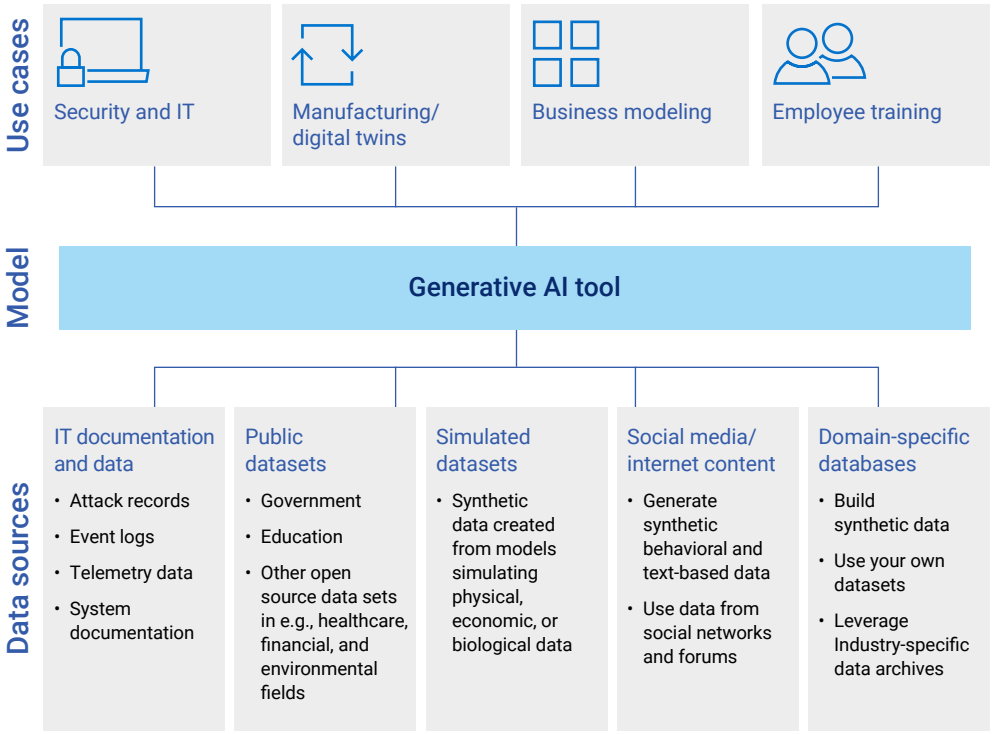
- Organizations will want to determine which questions they have, and what simulations and data are needed.
- Create a template of the needed data.
- Use generative AI to create synthetic data aligned to the template.
- Review and adjust the synthetic data to ensure it is representative.
- Finally, use the data to run predictions and answer questions.

Why your data is critical

Integrating your organization's unique data with a Generative AI-powered tool facilitates more accurate and realistic data creation. It also enables forecasting of future scenarios and explores the potential of improving product quality and optimizing operations. Organizations can synthesize data fields, structures, and data relationships to drive innovation, manage risk, maintain compliance, and forecast hypothetical business scenarios with realistic but ultimately generated synthetic data.

Organizations can choose to augment existing data with synthetic data or leverage generated synthetic data in place of sensitive data to keep sensitive data safe, secure, and compliant while running simulations or testing. Organizations can deploy synthetic data as needed to ensure the right balance of real data and synthetic data and enable more accurate simulations and forecasting.

Data sources and use cases for design and data creation



About Dell Generative AI

Dell Technologies offers the world's broadest Generative AI solutions portfolio, from client devices to data center to cloud, all in one place.

You can accelerate your AI journey with Dell Technologies Services and a broad partner ecosystem that includes support for many open source Generative AI models. Regardless of whether a team member is working with purpose-built Dell infrastructure to power organization-wide Generative AI applications, or simply prompting AI from a Dell laptop, they are working with the industry's broadest and most advanced portfolio of AI-enabled solutions.

Our approach is to bring AI to your data. This means meeting strict data sovereignty and compliance requirements while right-sizing AI infrastructure to reduce costs, support sustainability objectives, and keep you in control of the model and your data.

Next steps

Get started with a fee-waived Accelerator Workshop for Generative AI, which can help you gain consensus among your business and technical stakeholders on your solution and prioritized use cases.

Learn more

Accelerator Workshop for Generative AI

Learn more about Dell solutions for Generative AI.

Contact a Dell Technologies Expert.

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