

The background of the slide features a dynamic pattern of numerous thin, blue lines radiating from the center towards the edges, creating a sense of motion and depth. The lines vary in length and thickness, giving the overall effect a textured, sunburst-like appearance.

# Cloud-based machine learning in healthcare creates patient-centered treatments

Takeda, a leading global R&D pharmaceutical company, was seeking to improve the accuracy of its prediction models for various disease states. They believed AI could be a powerful tool in this effort but needed to create a model that could prove their hypothesis.

They enlisted Deloitte for help. Using a small, proven data set Takeda had collected previously on treatment-resistant depression and a severe form of hepatitis, Deloitte partnered with (AWS) Amazon Web Services to deploy a scalable, cloud-based cognitive learning solution for rapid testing of predictive models within the pilot data. Just as Takeda hoped, the solution generated unprecedented insights their teams can now apply across a range of data to refine drug development and planning of clinical trials.

The cloud-based solution proved highly accurate in its predictions, vastly outperforming traditional analysis methods Takeda had tested previously. Accuracy jumped almost 40% and will enable Takeda to more effectively manage their product pipeline and improve patient outcomes.

## Issue

In order to maintain competitive edge and advance patient outcomes, healthcare organizations of all types must effectively use data to improve patient care and inform strategic decisions across the value chain. Global pharmaceutical manufacturer Takeda generates large data sets within its chosen disease states. But their teams need the agility to recombine, analyze and test the data quickly and accurately in order to continually create new insights for the business. As an industry leader, Takeda was already using advanced modeling but had reached the limits of what its more traditional analytics infrastructure would allow.

## Solution

Working closely with Deloitte, Takeda implemented Deloitte's cloud-based Deep Miner solution, which allows data analysts to apply cognitive learning to data across the patient lifecycle. As part of Deloitte's ConvergeHEALTH suite of cloud-based cognitive learning solutions, Deep Miner is a modular toolkit that allows analysts and researchers to rapidly investigate emerging hypotheses in complex disease states and generate new insights. Running on Amazon Web Services, Deep Miner is enabling Takeda to leverage cloud computing as an engine for each step of model development, testing and knowledge sharing across their vast repository of data.

## Impact

The new cloud-based solution delivered immediate results, and fully confirmed Takeda's initial hypothesis about the value of AI in their analytics and predictive modeling. Within the test data alone, the accuracy of predictions jumped from 53% accuracy rate to a 92% accuracy rate. This scalable solution will allow Takeda to combine and analyze data and countless new ways and improve their ability to drive innovation and meet the needs of patients—especially those in high-risk groups.

(Client quote or key takeaway)

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# Deloitte.

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