# Maximizing the Use of Generative AI Technologies

Artificial intelligence (AI), machine learning (ML), and generative AI (GenAI) technologies have evolved in maturity and use in recent years. Many established companies are still trying to identify the best use cases to leverage these tools to impact their bottom lines positively.

A predominant challenge for these organizations is laying a solid foundation based on clean, reliable, sanitized data to enable AI to generate useful, actionable results for the company and its customers.

## The Downfalls of Historic Data Structure

Companies collect vast amounts of data, but not all of it is useful or relevant. Additionally, nearly all of this data has been collected and structured to provide insight into past events. Businesses have historically wanted to understand what happened last week, last month, or last year so that reports could be provided to executives to support business decisions.

Companies have looked at historical reports in an effort to determine the most popular product or service, how to improve process efficiencies, or where to invest money in the future. The efforts to generate these reports often required a lot of time, as data was pulled from multiple sources to compile meaningful and easy-to-interpret information.

The problem is that what happened in the past does not necessarily accurately predict what will happen in the future.

## Leveraging Predictive Data Analysis

Technologies like ML and GenAI promise to help organizations better predict what will happen in the future by hyper-analyzing this vast amount of data. Companies feed data into statistical models that look at the probability of future conditions, including user segmentation, revenue projections, and expected return on investment for specific business decisions.

These technologies can successfully help businesses stay ahead of the curve by forecasting inventory needs, expected service demands, and customer preferences. GenAI presents an opportunity to create accurate future models. Ultimately, the goal is to provide a better user experience for the customer as well as a more seamless workflow for the organization itself.

# Navigating the Roadmap to GenAI

Despite their power, most organizations do not have their data structured in a way that makes these advanced technology models easy to use.

Some companies may choose to employ specialized engineers to define what data is required, what model to use, and how to train data models to provide these forward-looking forecasts and results. However, it's often more accessible and more effective to rely on open-source technologies, allowing engineers or programmers to leverage the expertise behind cloud service providers such as AWS managed services.

## Establishing a Data Strategy

Regardless of technology, companies must begin with setting a clear data strategy. While it's true that ML and GenAI solutions have the potential to make a significant difference for organizations, setting a destination is a critical first step in creating a roadmap.

Here are some possible data strategies:

- **Improving user experience.** Using these technologies to help prospective or existing customers find the right product or service at the right time is valuable. Ideally, a retail or service organization knows what its customers need to purchase before they do.

- **Understanding local market conditions.** By having a better handle on currency behavior and regional economic conditions, businesses can make better investment and expansion decisions for specific geographic regions.

- **Streamlining tedious tasks.** Any organization that requires employees to assimilate vast amounts of information may benefit from a data strategy focused on efficiency. For example, financial institutions must analyze large volumes of data for their operations; GenAI can assist by compiling essential documents and highlighting critical insights.

Without a specific data strategy, ML and GenAI solutions are expensive investments that add little value.

## Creating Efficient Testing

Once a data strategy is selected, choose a single department, product line, or beta test before conducting a widespread implementation. Remember that many models support unstructured data; cleaner data makes analysis faster and easier but working with unstructured data through a few extra cycles is possible and may be more efficient than cleaning up the data itself.

First, AB testing will be conducted, and the process will be improved on a small scale. Once success is reached, it can be replicated across multiple product lines, departments, or uses much more quickly.

## Leveraging Existing Expertise

Organizations don't require data experts to use AWS's high-level AI and ML technologies. Providers such as AWS have already invested a great deal of resources to refine their offerings and expertise. For example, businesses can tap into the same tools that Amazon.com uses to forecast customer behavior.

Begin by taking advantage of these high-level services and then refine them in the future for specific situations. Services like Amazon Bedrock are available, allowing businesses to start further along the path of adoption instead of starting at the very beginning. Because Amazon Bedrock is a fully managed service, it is easy to build and scale generative AI applications with foundation models (FMs). Bedrock offers access to a variety of powerful FMs from top AI startups and Amazon's own Titan models. This service allows businesses to easily integrate and utilize these advanced models without needing to manage the underlying infrastructure.

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## THOUGHT LEADERSHIP

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