Geospatial GenAI

Infuse Earth observation data into your business insights

April 2024

Business drivers

Present strategies in risk management and data analysis encounter various obstacles, undermining productivity and inflating costs. They include:

‣ Grappling with high-cost, labor intensive risk detection processes that are predominantly manual

‣ Encountering restrictions in gaining insights from current data collection processes due to extensive analysis timelines and insufficient integration with business operations

‣ Observing capital deficits due to the reactive nature and manual-intensive business processes, inadequate in accurately assessing risk

‣ Employing advanced technologies to facilitate access, processing, and dynamic exploration of geospatial data

Solution overview

The Geospatial Generative AI (GenAI) solution is designed to support diverse use cases, aiding in tasks ranging from vegetation management and crop surveillance, to shoreline evaluations, site selection, and monitoring critical infrastructure. Built on Microsoft technology and tailored to fit the specific requirements of businesses, the Geospatial GenAI solution incorporates several features aimed at streamlining the handling and analysis of geospatial data.

‣ Data integration capability: Facilitates seamless data integration from a diverse range of sources, including satellite imagery, enterprise data, and sensors, thereby empowering you with a 360-degree view

‣ Geospatial GenAI enablement: Incorporates geographic context into your data and introduces an extra insight dimension, enabling the visualization and comprehensive analysis of complex patterns and trends

‣ Superior user experience: Enhances user experience with a GenAI feature which unravels actionable insights from labyrinthine data through clear visualizations

Better analysis integrated with your enterprise data

1. Collect satellite imagery of target areas (current and historical).
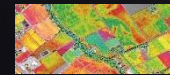
2. Quantify business risk using multiple indices, pair with historical satellite and relevant enterprise data to perform opportunity detection.

3. Leverage Machine Learning (ML) to identify patterns and trends and perform risk assessment.

Actionable insights through your enterprise tools

4. Synthesized information to provide actionable insights via dashboards and internal chatbots in web and mobile application.

Solution benefits

The Geospatial GenAI solution offers the following key benefits:

‣ Supply chain: Assess risk levels to ensure resource availability in high-risk points during high-risk periods.

‣ Business optimization: Maximize business value by identifying opportunities and anticipating issues, mitigating before they occur.

‣ Forecast accuracy: Assess quality and accuracy of forecasts through comparison of outcomes against prediction.

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Joint value proposition

The Geospatial GenAI solution, built on Microsoft technology, leverages Microsoft's seamlessly integrated cloud capabilities with EY teams' business transformation experience. Other key synergies encompass:

▸ Helps deliver client-tailored solutions that are designed specifically for each individual client's use cases and users.

▸ Helps deliver industry-best solutions with the most current and technologically advanced capabilities Microsoft has to offer.

Solution differentiators

The Geospatial GenAI solution stands out with the following differentiators:

▸ Enterprise data integration: Integrating geospatial data with enterprise data and GenAI enables access to advanced insights that are infused with business context and historical data.
▸ Intuitive user experience: Integration with generative AI enables natural language querying of geospatial data and exploration of insights.
▸ Data accessibility: Direct access to geospatial data without the need for specialized tools to access or process.
▸ EY professionals Our distinctive edge lies in our expertise in geospatial data coupled with a proven track record of applying the power of Generative AI. With hands-on experience, EY teams create tailored AI solutions that convert the strategic use of geospatial data and AI into significant business outcomes.
▸ Microsoft-native solution: This solution is Microsoft cloud-native using the most advanced and powerful technologies available such as Azure Databricks, Microsoft Planetary Computer, etc.

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EY and Microsoft: Helping the world work better to achieve more.

Every day, throughout the world, businesses, governments and capital markets rely on EY business ingenuity and the power of Microsoft technology to solve the most challenging global issues.

EY and Microsoft bring a compelling formula to spark the potential of the cloud and unlock the power of data. We solve our clients' most challenging issues by blending trusted industry expertise with innovative cloud technology. Our strategic relationship draws on decades of success developing visionary solutions that provide lasting value.

For more information, visit: ey.com/Microsoft.

Case study

Startup company in the information services sector

Client challenge	Engagement summary	Value delivered

▸ Challenging historically to access and curate geospatial data into useful information for business decisions
 	
▸ Processing computationally expensive and time-consuming satellite imagery for conversion into intricate yet meaningful geospatial visuals presented issues
 	
▸ Handling inconsistent, unreliable, and non-standardized data while managing geospatial information
 	
▸ Excluding geospatial data from modern AI solutions like Generative AI often results in setbacks for enterprises that heavily rely on such data for business strategy formulation
	EY teams undertook the following activities:
	
	▸ Designing and building an end-to-end Microsoft data services and Azure Databricks pilot utilizing planetary computer to define, document, and design the specifications for selected use cases, such as critical infrastructure monitoring
	
	▸ Enabling capabilities to forecast shoreline erosion within a specific area of interest by using Azure Databricks to process satellite imagery using a cloud-first approach
	
	▸ Integrating results with other external data, illustrating the substantial operational enhancements realized using the Databricks platform for enterprise-grade geospatial data science workflows
	
	▸ Utilizing OpenAI's models to develop a Retrieval Augmented Generation (RAG) solution that dynamically retrieves relevant internal and external documents to answer a user's question
		▸ Established the client as a core and long-term partner for Azure Databricks.
		
		▸ Designed and built an end-to-end Microsoft data services and Azure Databricks pilot where the team validated geospatial image processing capabilities using Microsoft data services and Azure Databricks to support different use cases across industries.
		
		▸ Through the selected pilot use case, EY teams:
		
		    ▸ Delivered enhanced insights by combining satellite and business data to support critical infrastructure
		
		    ▸ Improved operational efficiency by leveraging satellite data from multiple sources to drive business decisions
		
		    ▸ Utilized Generative AI to make better decision-making
		
		    ▸ Consumed and used the geospatial data more easily in a simplified process

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Enabled by data and technology, diverse EY teams in over 150 countries provide trust through assurance and help clients grow, transform and operate.

Working across assurance, consulting, law, strategy, tax and transactions, EY teams ask better questions to find new answers for the complex issues facing our world today.