SAP Solution Brief
SAP HANA
Spatial Analytics

Objectives

Solution

Benefits

Quick Facts

Supercharge Your Business Applications with Spatial Analytics from SAP HANA®

SAP

The Best-Run Businesses Run SAP®

Reveal a new dimension of your business data

Your enterprise collects and analyzes huge volumes of data about everything from products and customers to assets, operations, and transactions. Yet you may be overlooking one type of analysis that delivers proven insight and can be run using your existing data. Spatial analysis can help you make smarter and faster decisions, save time and money, and increase revenue.

Take your analytics to the next level with the SAP HANA® platform. By analyzing spatial data, you can add a new dimension of intelligence to your business, answering complex questions and gaining unprecedented competitive insight. Spatial data describes a physical object or person using numerical values in a geographical coordinate system. Much of the data you already collect includes spatial data such as addresses, zip codes, and latitude and longitude coordinates.

SAP HANA uses high-performance in-memory processing to enable spatial analysis of disparate business, customer, and location-based data sources, offering real-time or near real-time insight. With SAP HANA, you can solve key challenges such as pinpointing events, resolving boundaries, locating customers, and visualizing routing. And spatial processing functionality comes standard with full-use SAP HANA licenses, along with predictive, graph, text, search, and other advanced analytics capabilities.

Location-enable your enterprise data

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Deploy powerful geospatial solutions – or develop your own

Increase the speed of geospatial processing

Sample industry use cases for spatial analysis

By combining business data with geographical data, SAP can help you learn more about your business. The high-performance, in-database geospatial data processing in SAP HANA helps you quickly location-enable your enterprise data. Business intelligence and analytics tools directly leverage SAP HANA so you can perform rapid calculations, get precise answers to queries about proximity, distance, and location, and create detailed, geographically relevant insights in the form of maps, reports, and charts.

These spatial analysis features help you identify hidden revenue opportunities within your customer base. You can make targeted, location-specific offers to customers and vendors, improve engagement and retention, and gain immediate insight about object locations to help you increase cross-sell and up-sell effectiveness. Location intelligence can also help you identify key product, store, employee, and equipment performance drivers.

WHAT IS SPATIAL ANALYSIS?

Spatial analysis allows businesses to analyze and use location intelligence. The data may describe land geographies, bodies of water, thermal or 3D images, and even elevation. Any person or thing that exists can be located. Understanding the location of a person or an object can provide insight about behavior, next possible action, common patterns, and more – intelligence that can make your organization smarter, no matter the industry or market where you compete.

Where is your next-best opportunity? With the spatial analytics features of SAP HANA, you'll know.

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Location- and asset-intensive businesses often need more insight than simple queries allow. SAP HANA offers a geospatial application development platform that helps you rapidly create and deploy powerful analytic tools. A unified modeling environment also supports other advanced analytics, such as predictive analysis, text and search analysis, and graph functionality. And SAP partners with leading geographic information system (GIS) providers – including Esri, HERE, and TomTom International – enabling their products to easily interoperate with the spatial data features in SAP HANA.

Unlike other databases that store geospatial information and attempt to move it to memory as needed for analysis, SAP HANA natively stores and processes the data in-memory. Tasks such as ad hoc and nontraditional queries, data attribute blending, and complex joins of spatial and business data run fast, and results are immediately available to end consumers for critical decision making. In-memory processing provides up to subsecond response, depending on your implementation and use-case requirements. This speed supports complex applications such as fraud detection; risk assessment of assets, equipment, and property in hazard areas; asset integrity analysis; and analytics for real estate, parcel, and land management.

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For enterprises that already use GIS mapping tools, SAP HANA can help you automate certain analytics functionality, increasing processing speed and analyst productivity. You can load GIS data into the SAP HANA database, where it is natively integrated with your enterprise data. And GIS tools can leverage the power and performance of SAP HANA. By storing data in-memory, SAP HANA allows GIS tools to optimize their strengths: display and interactivity.

The high performance SAP HANA offers is ideal for applications that analyze both geospatial and nongeospatial enterprise data. For example, you can use SAP HANA to create asset management intelligence, identify risk, and increase operational safety. SAP HANA supports integrity management analysis for companies that need to identify and assess high-risk transportation and distribution processes or predict maintenance requirements. You can also run what-if analyses on operations, considering diverse data about routes, personnel, assets, and location-specific conditions such as weather.

Spot location-specific risks before they become liabilities. SAP HANA can provide Live Business insight.

Sample industry use cases for spatial analysis

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Sample industry use cases for spatial analysis

Analyzing spatial data can provide new insight to organizations in many industries. Here are just a few use cases for the spatial analytics features of SAP HANA:
- **Defense and intelligence:** Assess terrorist targets, improve battlefield planning, manage military facilities
- **Education:** Help students develop a greater understanding of our world
- **Retail:** Understand where your customers are and when to send them the next-best offer
- **Government:** Improve coordination of services, locate assets, and enhance transparency and accountability

- **Health and human services:** Deploy limited resources more effectively to positively impact individuals, families, and society
- **Mapping and charting:** Implement a streamlined, efficient workflow for aeronautical, cartographic, and nautical mapping processes
- **Natural resources:** Make informed decisions while managing the earth's resources
- **Public safety:** Visualize relationships and reveal trends critical to response and planning
- **Transportation and logistics:** Proactively manage, plan, evaluate, and maintain transportation systems

Make smarter decisions by analyzing all of your enterprise data. SAP HANA can provide fast, precise insight.

Uncover new insights fast to seize competitive advantage

The spatial analytics features of SAP HANA offer value to both your business and your IT organization.

Your business will benefit from the ability to exploit geospatial data, adding precise location dimensions to your applications. By combining business and geographical data, you can gain deeper insights, identify new opportunities, and discover root causes of complex issues. The high-performance, optimized SAP HANA platform supports instant analysis and actionable insights that help you make better, faster decisions. With the other processing engines that are part of SAP HANA, you have the flexibility to perform text and search analysis, predictive analysis, graph analysis, and geospatial processing – all in one unified platform.

Using SAP HANA also helps simplify your IT landscape, reducing redundant data, persistency engines, data movement effort, and optimization requirements for analytics processing. Because you need just one unified, open platform for a variety of advanced analytics, SAP HANA reduces your total cost of ownership. What's more, the ability to quickly develop and deploy geospatial applications – thanks to the native development environment, content, and integration services of SAP HANA – can help you realize a quicker return on your investment.

Summary

The spatial analytics features of the SAP HANA® platform can help you supercharge your business with location-specific data. By analyzing geospatial information, much of which is already present in your enterprise data, SAP HANA helps you pinpoint events, resolve boundaries, locate customers, and visualize routing. Spatial processing functionality is standard with your full-use SAP HANA licenses.

Objectives

- Answer complex queries not addressed by traditional analytics
- Improve competitive insight with enhanced business intelligence
- Identify opportunities and risk faster with less manual effort

Solution

- High-performance, in-database data processing for fast results
- Geospatial application development platform for rapidly creating analytic tools
- Automated geographic information system functionality, increasing business insight

Benefits

- Deeper insights through addition of geospatial data to analysis
- Faster decisions with a high-performance analytics solution
- Increased flexibility to perform analyses in a unified technology platform
- Simplified IT landscape by reducing analytics solution redundancies
- Lower total cost of ownership with an open analytics platform

Learn more

To find out more, explore our advanced analytics solutions.

SAP

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