

ANALYTICS

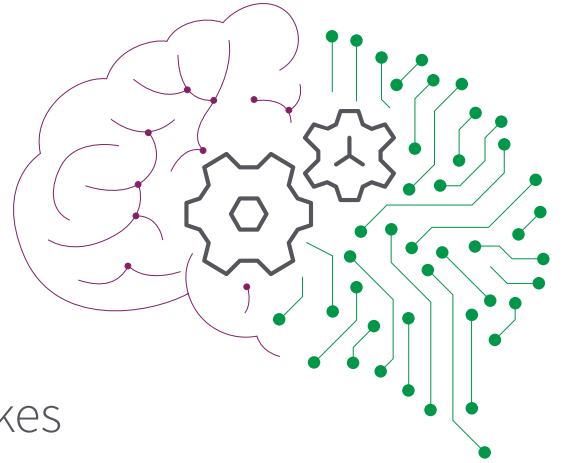
Deeper Insights and Data-driven Decisions

Augmented Analytics by Qlik



INTRODUCTION

The AI paradox is a simple notion. People think AI will make analytics less human, replacing human decision making. But the truth is, AI actually makes analytics more human.



Most business problems can't be solved purely by algorithms or machine learning. They require human interaction and perspective. At Qlik®, we've always believed in empowering people and maximizing their potential. To that end, we use AI that works in combination with human-centric analysis, helping more people uncover the best insights that accelerate business value.

Augmented analytics allow organizations to finally break through the low levels of adoption and limitations of second-generation visualization tools, reaching the “other 75%” – information workers who are not necessarily analysts. For example, business users struggle with accessibility, typically lacking data literacy skills and the desire to create visualizations or even navigate dashboards. But they need answers to make informed decisions. Business analysts tend to have an efficiency problem. They spend 80% of their time wrangling with data and creating visuals, leaving little time to actually analyze your business. This means they often miss opportunities to make a real impact. And data scientists need broader reach. They build robust models that can generate important predictive information but lack the means to put this power into the hands of decision makers in a usable way. This is where AI comes in. Augmented analytics, if done right, can lift these constraints and allow organizations to realize the full value of their data.

With Qlik, you get the most complete set of Augmented Analytics capabilities available, across the full range of users and use cases in your organization. Insight Advisor in Qlik Sense is your intelligent, AI assistant that auto-generates advanced analytics and insights, assists with analytics creation and data preparation, and supports natural language interaction including search-based discovery and conversational analytics.

Augmented Analytics Help Everyone

Business Users – More accessibility through search and conversation

Business Analysts – Efficiency gains through automation and assistance

Data Scientists – Broader reach by delivering interactive calculations

Qlik AutoML provides automated creation of machine learning models, predictive analytics, and scenario analysis, specifically designed for analytics users and teams that want to apply the power of machine learning to a broad set of use-cases. And with advanced analytics integration, you can deliver the power of third-party data science and machine learning platforms directly to business decision makers, allowing them to explore calculations in real-time through visual dashboards.

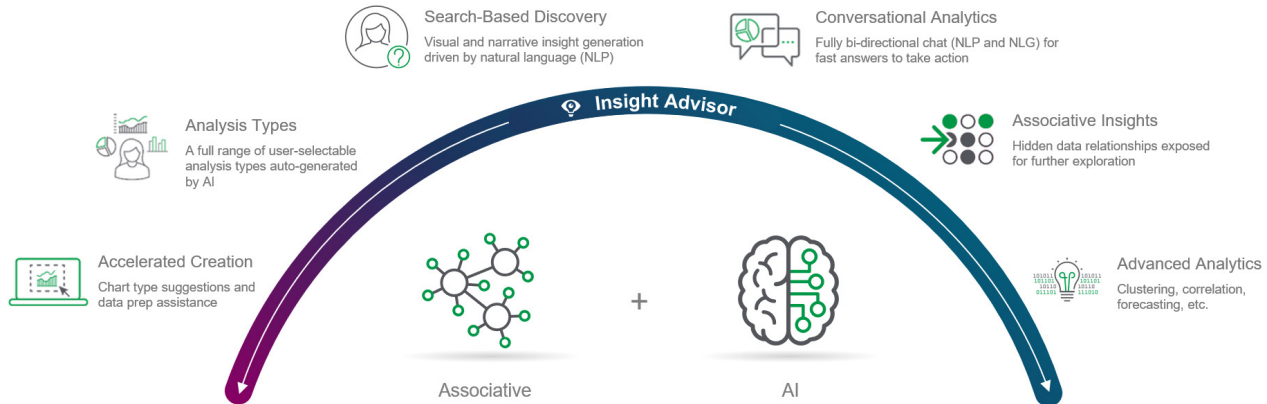
With Qlik, you get true augmented analytics that that create a powerful synergy between man and machine. It's an integral part of our technology, built into our platform and not a bolt-on or black box. And the proof is in the user experience – there are no compromises. Everyone can reach their full potential with data.

Insight Advisor – Your Intelligent Assistant

Qlik offers a unique technology advantage, delivering true augmented analytics built into our platform at a foundational level. We support human exploration with our one-of-a-kind Associative Engine – which provides interactivity, context, and speed you simply can't get with SQL/RDBMS query-based tools. And we combine this with AI and cognitive technology that broadens insight and simplifies interaction with data. The result is augmented analytics with a full picture of your data and powerful, context awareness.

Drawing from these core technologies, Insight Advisor in Qlik Sense® is your intelligent assistant that enhances just about everything you do across the analytics lifecycle. It auto-generates analyses and insights based on selections, search, and a variety of user-selectable analysis types, automates and accelerates analytics creation and data preparation, and supports natural language interaction for search and conversational analytics.

It includes a robust business logic for customization of insight generation and NLP, precedent-based learning for more relevant insights over time, and leverages the Qlik Associative Engine for context awareness and peripheral vision.



The Associative Difference®

When you're using data to transform your organization, you need the expertise of your entire workforce – and that means enabling everyone to freely explore all their data. Most query-based tools, however, limit people to predefined questions based on partial subsets of data. This blocks free exploration and puts the brakes on discovery.

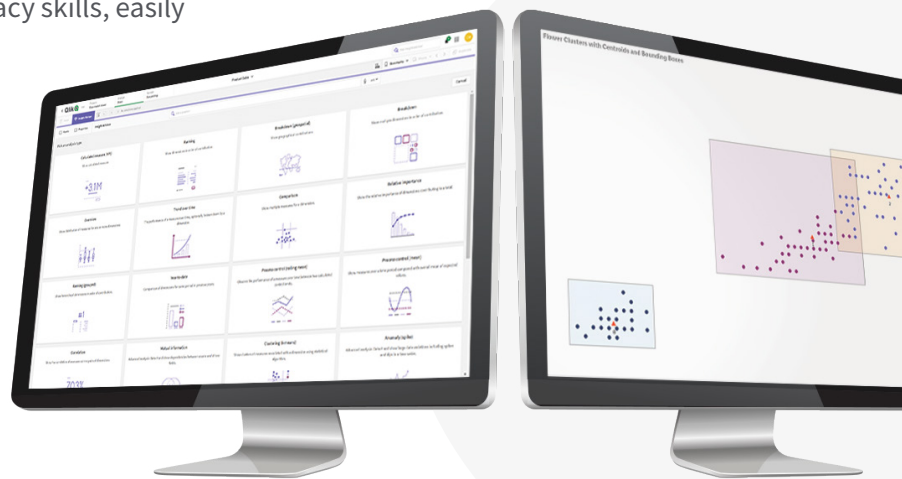
Qlik does things differently. At the heart of our platform is a one-of-a-kind, high-performance Associative Engine, built from the ground up to give people interactivity, context, and speed. With Qlik, users of all skill levels can easily search and explore across all datasets, in any direction. By keeping all analytics in context together and exposing both related and unrelated data relative to selections, our Associative Engine helps users consistently discover hidden insights that would be missed with query-based tools.

Advanced Insight Generation

Insight Advisor surfaces new, hidden insights while minimizing cognitive bias, amplifying discovery, and driving data literacy. It provides AI-generated analyses and insights that are delivered in multiple forms through a variety of user experiences. Users get a full range of analysis types to choose from, which are auto-generated complete with visualizations, narrative insights, and even entire dashboards for exploration. Advanced analytics generation includes comparison, ranking, trending, K-means clustering, correlation and statistical analysis, geographic analysis, key drivers, period-over-period analyses, time-series forecasts and more.

Organizations are increasingly looking for better ways to generate self-service content. With analysis types, business analysts can unlock their full data literacy skills, easily

and quickly generating the analyses they are looking for without needing to manually create visualizations or write complex expressions. Insight Advisor delivers the right analytics to solve business problems using AI, instead of just giving people developer tools to build visualizations. Your business becomes more agile, allowing you to quickly understand and respond to what your data is telling you.



Search-based Visual Discovery

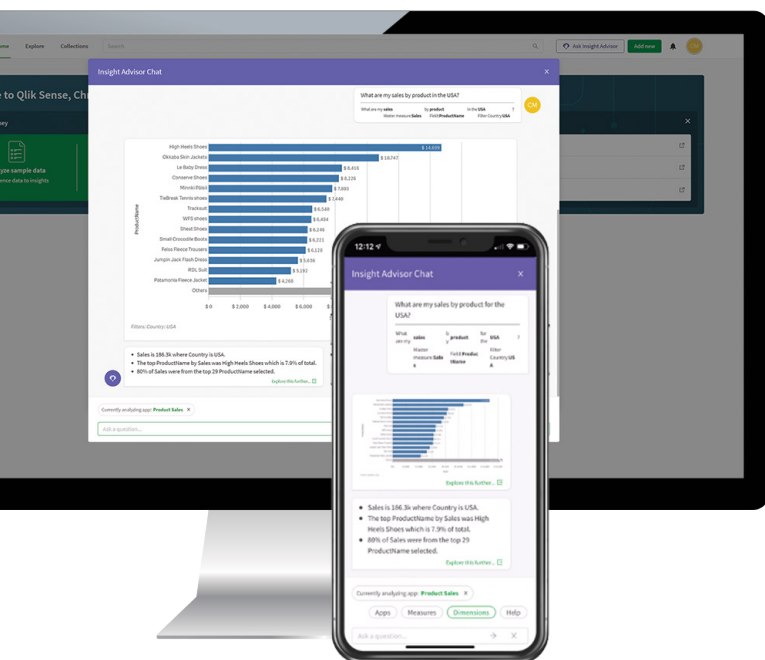
With search-based discovery, Insight Advisor auto-generates the most relevant and impactful visualizations and analyses for users, based on natural language processing. Users get a series of newly created and prioritized charts, which they can edit and adjust and then directly add to fully interactive dashboards for further exploration. And Insight Advisor is uniquely context aware — working in conjunction with our Associative Engine to reflect the user's selection state in auto-generated visualizations.

In addition, Insight Advisor provides associative insights, directly combining the power of our Associative and Cognitive Engines to suggest the most significant data relationships for users to explore further. Our Associative Engine identifies data values unrelated to user selections, and our Cognitive Engine analyzes these values to assess potential impact and offer suggestions about the most significant areas to explore further. Users can then directly apply selections and generate visual analysis using the new context. This capability magnifies peripheral vision — offering people guidance to hidden data relationships and prompting them to ask additional questions.



Conversational Analytics

Conversational analytics allow people to interact through natural language, boosting adoption and unlocking the power of data for less sophisticated analytics users. With conversational analytics, your organization can reach far more users with a faster and easier way to ask questions, generate insights, and make data-driven decisions. Insight Advisor Chat offers a fully conversational, natural language analytics experience in the Qlik Sense hub. Multi-language natural language processing (NLP) understands user intent, while natural language generation (NLG) delivers added insight



and perspective for a deeper understanding. Insights include auto-generated charts, narrative insights, observations and more. And because it works across Qlik Sense apps, people find the right insights even if they don't know where to look.

Conversational Analytics in Qlik Sense bridge the gap between natural language and visual analysis. Accessible to users of all skill levels, they are a great way to quickly ask questions and get answers. However, open-ended questions and business challenges often require visual discovery to dig deep and uncover hidden insights. Because Qlik Sense runs on our unique Associative Engine, users can ask questions in a conversational manner, and then dive directly into search-based visual analysis for further exploration. Unlike standalone products, this approach offers the best of both worlds – giving people the right tools for the problem at hand.



Accelerated Creation and Data Preparation

Even with AI-generated insights, business analysts and power users still need to manually create analytics using a traditional build process. And here again, Insight Advisor is your assistant. You can easily create, modify, and personalize based on their own skill level, with Insight Advisor accelerating and automating the process. This includes association recommendations – to easily combine different data sources, chart suggestions that render the best types of visualizations based on the data, as well as a variety of smart data preparation and authoring functions. And because it's our Associative Engine, there's no need to wire visualizations to update together or construct complex SQL queries.

Qlik Sense provides a complete set of data preparation and integration capabilities, allowing users to work with nearly limitless combinations of data, both big and small. This allows non-technical users to visually combine, transform, and load data from multiple sources — without leaving any data behind. Users can easily combine data sources using visual drag-and-drop functionality, with Insight Advisor helping to identify the best associations to link them together. Intelligent profiling automatically processes various data types and provides descriptive statistics. And Qlik Sense includes a full set of visual transformation features such as derived fields, binning, and concatenation.

Qlik AutoML – Machine Learning for Analytics Teams

Qlik AutoML (automated machine learning) brings AI-generated machine learning models and predictive analytics directly to your organization's larger community of analytics users and teams, in a simple user experience focused on augmenting their intuition through machine intelligence. With AutoML, you can easily generate machine learning models, make predictions, and plan decisions – all within an intuitive, code-free user interface.



Qlik AutoML easily connects and profiles data, identifies key drivers in the dataset, and generates and refines models. You can then make future predictions and test what-if scenarios. Results are returned with prediction influencer data (Shapley values) at the record-level, allowing you understand why predictions were made – which is critical to making the best decisions and taking the right actions. Predictive data can be easily published into Qlik Sense® and other cloud platforms, and models can be integrated using advanced analytics integration for real-time exploratory analysis.

With limited data science resources, most organizations struggle to make future predictions about what might happen in their business and why. Are you missing key opportunities to apply the power of predictive analytics to drive the best action? Qlik® AutoML is for you. With Qlik AutoML, your analytics teams can go beyond descriptive analysis to predictive and prescriptive analytics, with detailed insight that's uniquely powerful when combined with our best-in-class, associative exploration.

Advanced Analytics Integration – Real-time exploration of data science calculations

Advanced analytics integration allows your organization to deliver the power of third-party data science and predictive models directly to business decision makers. Qlik Sense allows people to directly interact with advanced analytics and predictive models, updating calculations in real-time as users make selections. This interactivity allows people to refine context and then evaluate the results within visualizations. It's a radically different approach than typical batch processing and static delivery, putting the power to ask unique questions in the hands of everyone.



Open APIs provide direct, engine-level integration between Qlik Sense and third-party tools, with data being exchanged and calculations made in real-time as the user explores. Our Associative Engine only passes relevant data based on user selected context, minimizing processing times and providing an interactive, real-time experience. Advanced analytics integration can be used with any third-party calculation engines. We offer native connectors for Amazon SageMaker, Amazon Comprehend, Azure ML, DataRobot, and connectivity for custom models built in languages such as R and Python.



Deeper Insights and Data-driven Decisions for All

Augmented Analytics enabled solutions are only as good as their weakest link. Some may have robust algorithmic capabilities, but if they can't support the human mind and how it thinks, insights will be flawed and mistrusted. Or, if a solution is based only on a single type of user experience (i.e. search), it will only handle one type of business problem well. And if AI is simply a bolt-on, you lose the real power of augmented capabilities core to the analytical experience.

Qlik Sense is the most complete solution available for third-generation, augmented analytics. With Qlik Sense, you can empower a full range of users with augmented capabilities, driving more value from data in more areas of your business, and supporting everyone with the right types of experiences to make the best decisions. And you can do this with unmatched performance, robust governance, and the choice of SaaS, multi-cloud and on-premises deployment for the most demanding enterprises.



About Qlik

Qlik's vision is a data-literate world, where everyone can use data and analytics to improve decision-making and solve their most challenging problems. Our cloud-based Qlik Active Intelligence Platform® delivers end-to-end, real-time data integration and analytics cloud solutions to close the gaps between data, insights and action. By transforming data into Active Intelligence, businesses can drive better decisions, improve revenue and profitability, and optimize customer relationships. Qlik does business in more than 100 countries and serves over 38,000 active customers around the world.

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