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# WHAT IS AUGMENTED ANALYTICS?

Augmented analytics uses artificial intelligence (AI) and machine learning (ML) tools to assist you with tasks across the entire [analytics life cycle](#).

Gartner describes augmented analytics as “the use of enabling technologies such as machine learning and AI to assist with data preparation, insight generation and insight explanation to augment how people explore and analyze data in analytics and BI platforms.”

Rather than building AI and ML models from scratch, you’re interacting with them to better inform your decisions, automate your workflows and even create other models.

## what would you do?

Imagine at mealtime, you stand in your kitchen pantry and write down all your ingredients. You can make all sorts of meals with them, but which one? You may have certain preferences, there may be meals you don’t like, or there may be nonsensical food combinations. Wouldn’t it be great if an intelligent assistant looked at that list for you and suggested relevant meals and explained why? Take this concept and apply it to your data. What’s interesting in my data? What connections are there between groups? What data is important? That’s what augmented analytics does for you.



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# WHY AUGMENTED ANALYTICS MATTERS

Augmented analytics breaks down the limitations of business intelligence (BI) and brings forward insights from data using AI and machine learning.

In the past, BI revolved around manually exploring your data and creating reports based on questions your organization is trying to answer. In a typical case, decision makers need to regularly review content to monitor a process, make a future decision or simply be informed of how their business is doing today.

The problem with classical BI is that reports are purpose-built. They are made to answer a specific question, and report designers might get tunnel vision by creating a report that answers exactly the one specific question that was asked.. New questions often arise when a report is created: What is affecting my revenue? What causes low customer satisfaction scores? Why does this month's average volume seem abnormally low?

They may be able to answer those questions depending on how the report was designed. Often, new questions require changes to the report or a consult with a data scientist. While this reaffirms that the report is leading the decision maker down the path of data-driven insights, such changes can take days, weeks or even months of data analysis, redesign and testing. This creates a frustrating delay for the decision maker who needed those results yesterday.

What if you could automatically get answers to those questions faster? That's where augmented analytics comes in: reports packed with AI/ML helpers that answer those questions more quickly.



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# USING AUGMENTED ANALYTICS FOR BI

BI, analytics and data science all help organizations discover insights in their data. Advanced analytics and data science can bring transformational discoveries, but through significant time and effort. Complex capabilities like forecasting and building models are automatically generated when they collide with augmented analytics. Letting augmented analytics take on heavy lifting from data scientists allows for insights to be viewed by anyone.



Augmented analytics benefits BI and advanced analytics users by taking away complex or time-consuming ways to find answers in your data and automating the process.

**Six advantages of using augmented analytics are:**

1

### Automated Explanation

A no-code interface generates a view that summarizes important relationships between key variables - giving viewers immediate insights into their data.

2

### Automated Insights in Reports

Users can identify data within a report and view an explanation that dives deeper into critical information about the data.

3

### Automated Forecasting

Automated forecasting provides accurate future predictions by selecting the best model.

4

### Automated Outlier Detection

Data outliers are detected, which helps users have certainty in their data or easily learn which aspects may need further questioning.

5

### Augmented Analytics Delivers Value to Data Scientists

Augmented analytics helps data scientists simplify the exploratory work needed before in-depth engineering and modeling can begin.

6

### Trusted, Easy-to-Understand Results

Augmented analytics should come with built-in transparency, so it's easy for anyone to understand trusted and reliable insights.



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# AUTOMATED EXPLANATION

Have you ever encountered data with hundreds of factors and thought, "Where do I start with this?" There are incalculable ways to slice and dice it. You could start by creating a regression model. But unless you're a statistician, how do you know that you've created a valid model or even know which variables to use? That model tells you just one part of the story and only creates more questions. Is the model any good? How can I interpret it? How important is one variable compared to other variables? The list of questions goes on and on.

Automated explanation helps answer all these questions and more with natural language and visualizations to help anyone gain analytics insights.

Let's say you've been asked to identify your product's drivers of customer satisfaction. Your data has more than 50 potential factors to choose from. You can start building a dashboard from scratch and picking/choosing items to drill into, but you'll go off gut instinct. How do you know that you're choosing important variables? Use automated explanation.

Instead of building an entire dashboard, automated explanation allows users to analyze all their factors, letting it sort out what data is essential using ML in the background.

With automated explanation, BI users get advanced analytics insights in a no-code interface. That's right, no coding required! Look for the ability to provide:

- Automatically generated visualizations on key insights, including important variables.
- Natural language generation (NLG) explanations of data.
- Variable screening results.
- Any anomalies within the data.



## what would you do?

In a fraction of the time it would have taken to build an entire dashboard and explore combinations of factors using best guesses, automated explanation delivers answers. Therein lies the beauty of automated explanation: It acts as an intelligent guide to your data, giving you findings for decision making or further exploration.



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# AUTOMATED INSIGHTS IN REPORTS: BRINGING ANALYTICS TO EVERYONE

Automated explanation is an excellent way for report builders and consumers to get the most out of their data.

Augmented analytics can provide a natural language summary of data items in a visualization so that anyone looking for analytics insights can easily access answers without much analytics expertise.

Anyone can use analytics to make decisions with access to information about key variables such as:

- The range and average price.
- Top drivers.
- The total number of outliers.
- The differentiating factors between the highest and lowest values of the variable.
- Forecasts.



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## what would you do?

For example, you own a grocery store chain, and pretzels are your most popular product. You'd like to make a 12-month forecast of pretzel sales and see how the sale price of pretzels affects the revenue from pretzels sold. You can add your data items to the forecasting tool, use scenario analysis and get immediate results. Now, suppose you want to make a certain amount of revenue from pretzel sales, but you don't know what price your pretzels should be to meet that revenue. You can use goal-seeking with automated forecasting to see what price pretzels need to be to meet that revenue target.

# AUTOMATED FORECASTING

When you need to predict the future, you need accurate results and potential scenarios of what could happen. Automated forecasting takes the guesswork out of which model to use, including inputs that are important for your forecast.

With automated forecasting that's easy to use and understand, anyone can have the power to see into the future by:

- Generating an accurate, reliable forecast.
- Identifying which external factors affect the forecast.
- Creating what-if scenarios both for goal-seeking and scenario analysis.

Automated forecasting allows non-data scientists to gain access to advanced insights by:

- Testing multiple forecasting models to find the best one.
- Generating a natural language summary of the chosen model.
- Identifying significant input variables.
- Forecasting the significant input variables to be used in what-if analysis.

What-if analysis can perform scenario analysis to identify how your forecast is affected by inputs. Look for the ability to provide goal-seeking to identify your necessary input values in order to meet a certain forecast. Similarly, scenario analysis does the opposite of goal-seeking: You can change your input to see how it affects revenue forecasts.



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# AUTOMATED OUTLIER DETECTION

Outliers are tricky: They throw off your calculations and are easy to miss unless you're specifically looking for them. Automated outlier detection can make sure you don't miss anything hiding in your data.

If outliers are present, an augmented analytics tool should have the ability to automatically inform you that outliers could affect calculations on this data item if used for reporting. Outliers affect statistics like average (mean) and standard deviation. Data with outliers may drastically affect these statistics if they are not accounted for appropriately. When outliers are automatically identified, you might want to consider using statistics like the median instead of the mean.

If you have data with outliers, you can scan an entire report for visualizations affected by outliers and generate outlier reports. For example, if you analyze all visualizations in your report, you can see the impact outliers have on each visualization.

The outlier report highlights each outlier, taking all the effort needed to identify them out of the equation. You can choose to investigate them further and determine which aggregation method would be most appropriate in their presence.





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# AUGMENTED ANALYTICS DELIVERS VALUE TO DATA SCIENTISTS

Data scientists can benefit from augmented analytics by simplifying exploratory data analysis (EDA), a critical phase before feature engineering and modeling. For example, if a data scientist performed EDA and needed to understand which variables to review first, they might run automated exploration to get quick results before feature engineering. In another case, a forecaster might want to identify if their data is even forecastable. Creating simple, fast models will determine how well a series can be forecasted before advanced forecasting.

Just like the ATM did not replace the bank teller, augmented analytics does not replace the data scientist. It is designed to bring self-service analytics and insights to users while reducing the time data scientists spend on tedious tasks so they can spend more time modeling.



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# TRUSTED, EASY-TO-UNDERSTAND RESULTS

Augmented analytics is convenient, but with automation often comes a sense of doubt. How can I trust these results? How do I know it's doing what I expect?

Augmented analytics capabilities should provide transparency. Automated explanation gives detailed explanation results, such as:

- Variable screening results.
- Most important factors.
- Underlying model used.
- Any anomalies.

Augmented analytics drives BI into the future. You're not just getting business intelligence; you're getting AI-driven augmented analytics that lowers the barrier of entry to powerful insights. In a comprehensive reporting package, augmented analytics reduces multiday questions to mere minutes at the click of a button.

Learn more about and experience [augmented analytics](#) for yourself. Check out a few of our interactive [SAS® Visual Analytics demos](#) or [dive right into SAS® Viya® for free](#).





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