COMPASS
By Acuvate

A COMPREHENSIVE GUIDE TO AUGMENTED ANALYTICS

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The Business Intelligence Transformation:
From Traditional BI To Augmented Analytics

Data on its own is not of great value unless it can be analyzed to extract actionable insights from. As Gartner puts it, data is akin to oil with analytics being its combustion engine. But despite the growing presence of data and data analytics, organizations haven't managed to leverage its power to the fullest and this perhaps can be attributed to the failure of most data analytics initiatives.

Data is being produced at such a large scale today that exploiting the resourcefulness of data is exceeding the capacity of traditional data scientists. This results in businesses missing out on valuable information during manual data exploration. This problem is also compounded by the overall shortage and the expense of capable data science talent. In addition, the entire process of insight generation involves different sub processes (data preparation, data exploration, insight discovery, insight sharing etc.) which are highly manual and prone to bias and inaccuracy.

In order to understand how Augmented Analytics can help overcome these challenges, we must first take a look at Business Intelligence (BI) and see how it has evolved.



The Different Phases of Business Intelligence Evolution

Phase 1

Traditional BI

High dependence on IT and MIS teams

Descriptive analytics

Pre-defined KPIs and reports

Traditional data integration

Insight generation takes months

Phase 2

Self-service BI

self-service dataexploration

Descriptive and diagnostic analytics

Manual data preparation

Structured data

Data visualization through dashboards

Phase 3

Augmented Analytics

Citizen data scientists

Predictive and prescriptive analytics

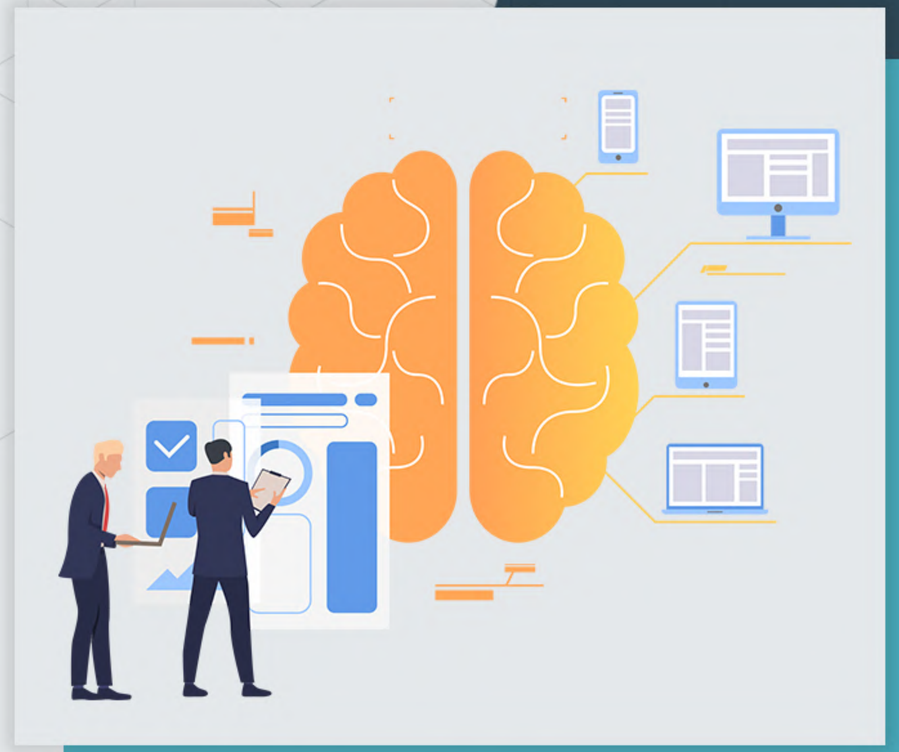
Big data, cloud, and unstructured data

Machine learning and automated data preparation

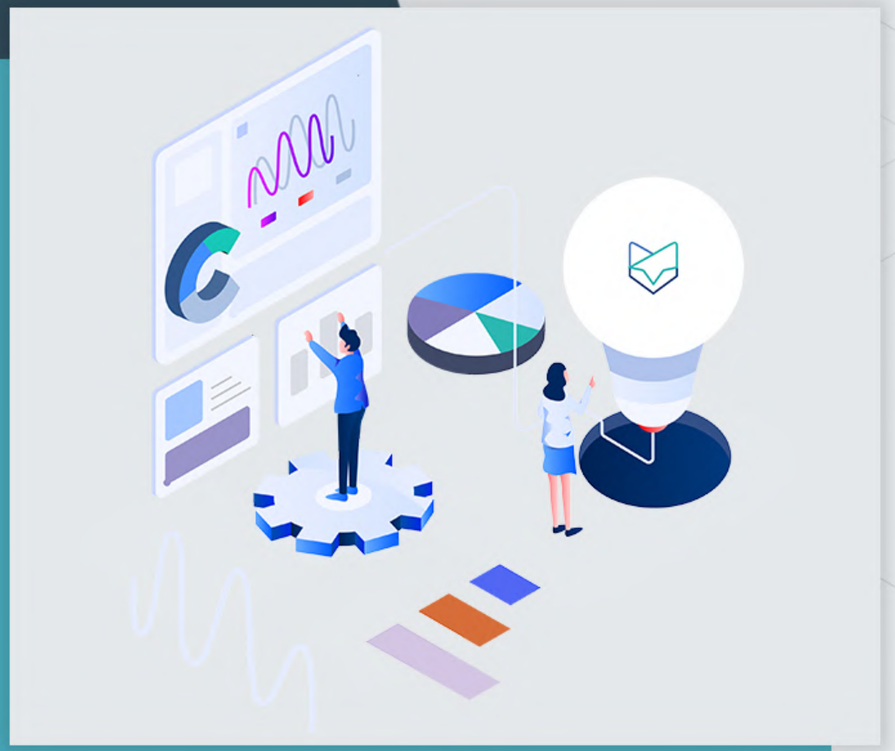
Real-time insight generation

Phase - 1
Traditional Business Intelligence

Traditional BI refers to the general-usage tools that helped organizations generate insights to make better business decisions. While this was helpful, BI at this point could only generate basic reports and was highly dependent on technical personnel like IT and MIS teams to generate reports. This type of approach has had many disadvantages such as:



- The IT department was flooded with requests, leaving no time for them to concentrate on pressing issues
- Employees hover around the IT department for hours only to get some new data but not a fresh report
- Since the data was siloed, delivering data to decision-makers took a longer time.



Phase - 2
Self-Service Business Intelligence

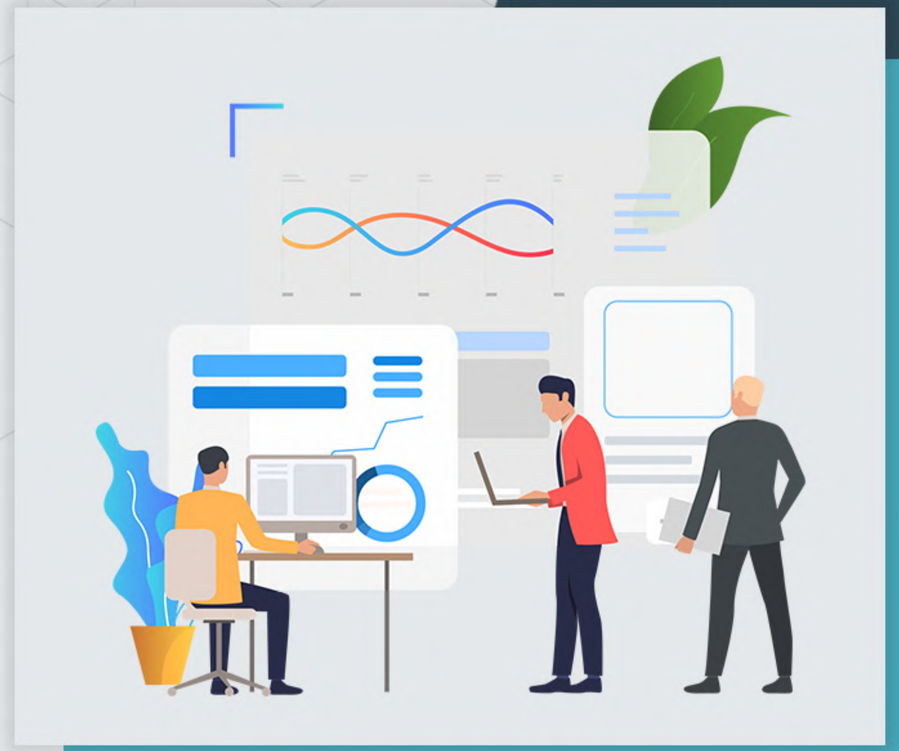
In order to overcome these drawbacks, the self-service BI model was developed. And it was successful - to an extent. Modern self-service BI solutions have managed to democratize data to a large degree by offering graphical interfaces that can be used by a larger pool of business users with little to no help from IT. The emergence of data lakes and data lake houses also fueled the rise of many self-service analytics initiatives. Data lakes became the central repository for raw data and acted as the foundation for self-service BI - eliminating the need for middle men between business users and their BI reports.

Today, non-technical users are successfully able to choose and manipulate the required data sources and ensure they're analysis-ready.

But given the exponential growth of data today, even these advancements won't be enough.

Phase - 3
Augmented analytics

While today's BI systems are equipped with sophisticated capabilities and are able to harness different types of data, there are several parts of BI that are yet to be simplified. For instance, data preparation is still a highly manual process and takes up a lot of data scientists' time. User bias and building advanced analytics models are some more major challenges. All these inefficiencies are compelling companies to relook at the way they think about data.



While BI underwent some essential changes in the past few years, one of the biggest trends that is currently transforming it is Augmented Analytics. Augmented analytics uses various AI technologies like machine learning, automation, and Natural Language Processing (NLP) to **accelerate the time required to transform data into actionable insight.** It automates three key Business Intelligence processes - **data preparation, finding data patterns, and operationalizing insights.** Augmented analytics will be critical to enable unbiased analysis and accurate contextual awareness. It transforms data interaction and consumption for users.

Chapter 4

The Different Benefits Of Augmented Analytics

1

Augmented Analytics helps relieve an organization's dependence on data scientists or other manual processes by automating the insight generation process with the help of advanced machine learning and artificial intelligence algorithms.

2

With an augmented analytics system you can automatically go through your company's data, clean it, analyze it, and convert data into actionable insights for decision-makers with little to no supervision from a technical expert.

3

Augmented analytics can essentially cut down on constant human intervention in insights generation. It also reduces time-consuming exploration and weeds out false or less relevant insights automatically.

4

We also need to understand that data analysts and data scientists, people entrusted with insights generation, are at the end of the day human and prone to making errors. But with the help of augmented analytics that applies a range of algorithms and ensemble learning to data in parallel, the risk of missing important insights in the data or making mistakes is vastly reduced. The resultant scenario is an organization whose data analytics and insight generation process is streamlined and trustworthy.

Augmented Analytics transforms and automates three stages of Business Intelligence which are currently performed manually by data scientists and are prone to human error.

Data Preparation

Modern Business Intelligence systems with advanced analytics capabilities are capable of analyzing large amounts of data. However the process before analysis - **data cleansing is still extremely manual and needs to be performed by data scientists**. They have to manually develop metadata and ensure data profiling, quality, modelling and manipulation. As a result the possibility of human error increases even before data analysis.

The augmented data preparation facet of augmented analytics enables automation and self-service of data preparation. With machine learning, it can identify metadata, recommend best practices for profiling, cleaning, manipulation etc. This accelerates the data preparation phase and increases the productivity of data scientists.

Discovering patterns in data:

With Modern BI and analytics platforms, users can easily find the data they're looking for and visually explore data patterns and relationships. But the limitation is that users may not be able learn hidden data trends and deflections they're not aware of and that can impact the business. This problem becomes more prevalent when the complexity and size of data increases. Users continue to focus on data exploration with their own preconceived notions and past experiences. Or they'll have to **manually explore all the potential permutations and combinations.** This process is clearly time-consuming and there is a high chance of users missing important insights.

Augmented data discovery leverages algorithms to identify outliers and correlations in data. It automatically applies relationships to data and thereby lowers the chance of missing out on important insights.

Operationalizing insights from data:

Most Modern BI systems offer advanced visualizations and interactive dashboards. However, not all business users can comprehend what is truly important in this data. Augmented analytics platforms use **Natural Language Generation (NLG)** to inform users about the most important findings in the data that they should be aware of.

Chapter- 3

How Augmented Analytics Is Fueling The Rise Of Citizen Data Scientists

Due to the successful automation of different data science tasks by augmented analytics and the scarcity of data scientists, the role of "Citizen Data Scientist" (CDS) is fast emerging.

CDS is usually not a part of the analytics team and does not necessarily have core expertise in IT or BI. CDS can be termed as a "power user" in business teams who can use simple to moderately complex BI solutions to generate the needed analytics insights - a process which previously needed traditional data scientists.

> "Citizen Data Scientist is a person who creates or generates models that leverage Predictive or Prescriptive Analytics but whose primary job function is outside of the field of statistics and analytics."
>
> ***- Gartner***

With augmented analytics, citizen data scientists can use machine learning to identify and visualize key insights (correlations, predictions, patterns, links etc.) without building any analytics models or writing algorithms. Augmented analytics does the heavy lifting in terms of data cleansing, preparation, building AI models etc. and makes it easy for CDS to generate insights.

When an organization implements Augmented Analytics, CDS end up spending a lot less time on data exploration and dashboard design with more time to spare for analyzing relevant insights.

Given the dearth of data scientists in the market and how expensive it's to hire one, CDS will be expected to be very productive and do more analytics work. Organizations will train existing information analysts and evolve them into CDS. Equipping CDS with augmented data preparation, augmented data discovery and machine learning tools drives the adoption of higher-value of analytics across business processes.

> "Predicts that through 2020, the number of citizen data scientists will grow five times faster than professional data scientists. With concerted working by citizen data scientists and augmented analytics, data insights will be made available to a wider pool of business users."
>
> *- Gartner*

Chapter 4

The Different Benefits Of Augmented Analytics

Increased Productivity

By automating different manaul processes of business intelligence, augmented analytics increases the productivity of your IT teams and data scientists. Data scientists can focus on strategic projects and developing advanced machine learning algorithms. They no longer have to waste their valuable time on manual tasks like data cleansing and

Reduced costs

Companies no longer have to hire a lot of expensive resources like data scientists for data analytics. Instead they can train their existing information analysts to become citizen data scientists. Also, your existing costs on manual approaches will be greatly reduced since an augmented analytics tool streamlines and automates the entire analysis process.

Time efficiency

Through automation, augmented analytics accelerates the time to insight generation and decision-making.

Increased accuracy

Since the dependence on humans to perform manual and repeated tasks decreases, the data will be less prone to bias and errors.

Chapter-5 Choosing The Right Augmented Analytics Tool

Key considerations while choosing an Advanced Analytics tool:

Natural language processing

BI and citizen data scientists are the most to benefit from the linguistic capabilities of technology. NLP allows users to interact with the system in their natural language through text and even voice commands.

Natural language generation

This empowers BI tools with augmented analytics capabilities to narrate results in an interactive way to help users comprehend the complexities behind the data.

Recommendation:

To counter any confirmation bias, errors and improve the effectiveness of the BI tool, augmented analytics systems should recommend most suitable visuals for specific data, how to enrich data for better analysis and interpretations.

Insight generation

Augmented analytics tools should be able to provide insights free from bias and achieve results coherent with the hypotheses. It is important for these algorithms to describe the data, identify key performance drivers, and elicit the segments/factors that influence the outcome. The tools must also identify the outliers that might behave differently from the anticipated results.

Prediction

Augmented analytics tools should be able to generate forecasts and trends, identify statistical outliers and clusters with convenience. These processes involve using algorithms to train predictive models which are developed based on several business variables like churn, attrition and customer behavior

Integrating augmenting analytics with artificial intelligence and natural language processing are key elements to improve the user experience across the data analytics value stream. Processes of data ingestion, insight discovery, understanding correlations in data, and user interacting become streamlined and effective.

Top Augmented Analytics Tools Available In The Market

Microsoft Azure Synapse Analytics

Azure Synapse, built on Azure SQL Data warehouse, is an evolved analytics service, intended to bridge the gap between data warehouses and data lakes. It offers a unified experience to ingest, prepare, manage, and serve data for immediate BI and machine learning applications.

> “Through 2022, over 80% of data lake projects will fail to deliver value as finding, inventorying and curating data will prove to be the biggest inhibitor to analytics and data science success.”

Moreover, businesses are struggling with manually classifying and inventorying distributed and heterogeneous data assets that deliver value. Considering all this, Azure Synapse might prove to be a game-changer with its varied features and functionalities. Azure machine learning, Power BI and SQL data warehouse form the basic building blocks of most of our Data & AI solutions. This gives us a first-hand advantage of utilizing the Synapse platform to reduce the time to insights.

Enterprise can now fire a query on their terms without much difficulty. With the options of serverless on-demand provisional resources at scale, the user can gather data as per their suitability.

Microsoft Power BI

Microsoft Power BI is a business intelligence platform that provides tools for aggregating, analyzing, visualizing and sharing data to turn it into coherent, visually immersive, and interactive insights. It comprises interactive dashboards that consists of data preparation, data discovery, and augmented analytics from a single product.

Power BI consists of a Windows desktop application called Power BI Desktop, an online SaaS (Software as a Service) called the Power BI service, and Power BI mobile apps for Windows, iOS, and Android devices.

These three elements – Power BI Desktop, Power BI Service, and Power BI Mobile – are designed to let people create, share, and consume business insights in the way that serves them most effectively.

DataRobot

DataRobot is an augmented Data Science and Machine Learning (DSML) platform that provides automation for various processes in the analytics workflow. While citizen data scientists can use the platform to leverage data science techniques, professional data scientists can access new algorithms and test biases.

The tool enables you to create advanced regression and classification models including gradient boosting and neural networks. It also provides several visualization tools to help you better comprehend data and assess the performance of your ML models.

SAP

SAS Visual Analytics include advanced analytics capabilities that are specifically developed keeping the citizen data scientists in mind. The application also brings interactive discovery and dashboards to the table while helping enterprises with their reporting and scheduling needs. SAS Visual Analytics can either be deployed on-premises or through the cloud.

SAP Lumira is a BI platform that caters to businesses and functions of all sizes. It can be deployed both on-premise and in the cloud.

IBM

IBM has two main augmented analytics platforms - IBM Cognos Analytics and IBM Watson Analytics.

- **Cognos Analytics** - Offers the integration of production reporting capabilities with self-service BI dashboards and ad hoc analysis within one modern analytics platform.
- **Watson Analytics** - It is an intelligent, self-service data analysis tool that offers visualization capabilities with the help of which users can discover patterns and insights in data. It also automates the predictive analysis and related cognitive processes that come afterward.

Tableau

Tableau is one of easier-to-use tools since it provides users with a drag and drop analytics function. Hence, the user needn't know how to code in order to make comprehensible reports and interactive dashboards. Tableau comprises three main products which are the Tableau Desktop, Tableau Server and Tableau Online.

Sisense

Sisense provides an integrated analytics and BI platform using which users can collect, explore and store data on a self-contained in-memory columnar database. The platform also offers visual data exploration, in-chip processing, dashboards and an embedded advanced analytics capability as well.

Chapter 6

Getting Started Recommendations For Data And Analytics Leaders

Choose a Pilot Project

Start by selecting a pilot project that can act as an actionable starting point for your journey into augmented analytics. A pilot project helps validate use cases, evaluate the risks and effectively measure the ROI of the implementation. Identify the business problems that are traditionally time intensive and require manual, repeatable tasks prone to bias that can be improved with the help of augmented analytics.

Assess Organizational Readiness

Even the best laid plans can fail if met with employee resistance or lack of adoption. Hence, before implementing augmented analytics in your enterprise, assess whether the organization is ready for augmented data discovery. Based on your business goals, existing challenges and the current employee skill set, establish a roadmap for augmented analytics implementation. Consistently train your citizen data scientists in order to help them hone their skills.

Build a Collaborative Environment

Understand that you will need expert data scientists to run certain machine-assisted models. Build a collaborative environment in which expert and citizen data scientists can work together on machine-assisted and the existing models efficiently. Incentivize expert and citizen data scientist collaboration.

Ensure Governance

Ensure that there are guidelines in place for how the augmented analytics tools and capabilities and capabilities are used in the organization. These guidelines must focus on the people as well as the processes of the BI and analytics framework.

Chapter - 7
Augmented Analytics Is The Future Of Analytics

Data is growing at an unprecedented rate with countless IoT devices and users are creating new digital footprints every moment. With data being captured and processed in a myriad of complex ways, powerful and robust analytical systems backed by AI are much needed to **tap into the potential that lies with data.**

With augmented analytics, the way data science users access data and explore insights will completely transform since augmented analytics has changed the entire analytics workflow

Companies will need an augmented analytics platform to make sense of a large resource of data with automated insights and automated data preparation in order to share their findings quickly and easily across the entire organization. Augmented analytics systems are essential to **automate several key aspects of insight generation,** increase the productivity of data scientists, improve data governance and accuracy, and reduce costs.

There is also an increasing need to **democratize data** and the analytics process, with significant importance being given to self-service BI and citizen data scientists, rather than traditional BI. The democratization of analytics will help increase productivity and bring in an increased awareness in organizations, helping them innovatively use the evolving streams of data and ultimately help citizen data scientists and business users explore data more efficiently

> “According to a report by Allied Analytics, the global augmented analytics market size is expected to reach $29,856 million by 2025, growing at a CAGR of 28.4% from 2018 to 2025.”

How Acuvate Can help

A Microsoft gold partner, Acuvate helps medium and large businesses maximize their business value from data with our AI-powered business intelligence solutions. From BI strategy, consulting, data warehousing to user adoption, we provide end-to-end BI services.We believe AI is the future of Business Intelligence and its incorporation is a necessity to improve the ROI from enterprise data. Our AI-Powered BI solutions include:

- Augmented Analytics
- Advanced Analytics
- AI-Powered business intelligence chatbots



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