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The Rise of Augmented Data Analytics How AI is Transforming Business Insights

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ABSTRACT: The development of augmented analytics is a breakthrough in business intelligence through the use of Artificial Intelligence to improve the effectiveness, efficiency, and speed of analytics, enabling insight generation and democratizing analytics to everyone regardless of level of access to technology. This paper will illustrate how Automated Insights using natural language processing and machine learning are changing the way businesses make decisions moving away from traditional methods of Business Intelligence towards new Intelligent Systems powered by AI. The paper will describe how intuitive User Interface enables users without technical skills to access and utilize analytics, create a data-driven company culture, and eliminate data silos. Using multiple case studies from various industries, this paper will provide evidence of organizations' success in increasing productivity, cost savings, and operational efficiency. It will discuss both the challenges related to augmented analytics today as well as highlight newly emerging trends like generative artificial intelligence (AI) and agentic workflows impacting how organizations utilize analytics in the future. Organizations that intend to succeed in the rapidly growing data-driven economy will have to adopt augmented analytics into their overall strategies.

KEYWORDS: Business Intelligence, Democratizing Analytics, Automated Insights, Natural Language Processing, Machine Learning

I. INTRODUCTION

Recently companies are leveraging Artificial Intelligence (AI) and Advanced Analytics to improve their analysis capabilities, as these technologies enable companies to retrieve and analyze data more quickly, accurately and easily than they could before. Additionally, through the use of Augmented Analytics, companies can process that data faster than with previous traditional Business Intelligence (BI) systems, allowing for quicker access to information to support more informed decision-making. With organizations consuming more data through more sources than ever before, companies that employ Augmented Data Analytics will be capable of conducting in-depth analyses of that data to yield actionable information that would otherwise be difficult to ascertain using standard analysis techniques. The fast-paced nature of business today has caused many companies to develop ways to adapt to changing market conditions and improve efficiency to generate a better experience for their customers [1].

Enhanced analytics is changing how businesses interact with insight generation, enabling real-time decisions based on insights rather than waiting for periodical generating reports, using human analysis tools. AI analytics in retail allows a more rapid understanding of consumer purchasing behavior, thus enabling retailers to optimize inventory levels for the best customer service. Enhanced analytics also enable supply chain management through the ability to identify potential disruptions in the supply chain. Businesses also leverage enhanced analytics to better assess their consumers' behaviors, allowing for the prediction of network – quality issues and support to reduce customer churn. Enhanced analytics are being used to improve treatment outcomes for patients by better diagnosing and predicting treatment therapies within the healthcare sector. Enhanced analytics are being used to improve the accuracy of financial transaction reporting and fraud detection for organizations. Overall, improved analytics will allow for the movement of businesses to become more proactive rather than reactive thus allowing for a quicker response time and subsequently improved results for the stakeholder, customer and business each and every time [2].

II. EVOLUTION OF DATA ANALYTICS

In the 1950s, data analytics was still in its infancy. Manual processes and computing methods were the standard at this time; in addition, punch cards and very straightforward forms of statistics were commonplace. During this time, the development of business intelligence technology along with data warehousing systems meant that it was now possible to automate data capturing. Instead of needing to collect all of the previous data before making decisions, now all historical data could be available for business intelligence purposes. The 1980s and 1990s were characterized by the

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boom of personal computers and user-friendly software. Software packages such as SPSS and SAS were not only developed in this era, but enabled statistical analysis to be completed by a large population of non-statisticians. With the advent of large datasets and horizontal computing capabilities in the 2000s, new approaches were required to gain valuable insights from them. The idea of data science emerged during this time, integrating domain knowledge with computer science and statistics [3].

In today's world, the most advanced phase of data analytics is the AI-powered augmented analytics. The most recent addition to the technology stack for augmented analytics is the combination of business intelligence tools and advanced machine learning to automate the process of generating insight from data. Augmented analytics allows companies to take advantage of automated real-time recommendations based on their data. There are a number of key technologies that are enabling the transition from traditional BI to augmented analytical systems. By automating the analysis of large datasets, the use of machine learning and deep learning improves both the speed and accuracy of data-driven decisions. Additionally, the emergence of natural language processing allows users the ability to communicate with a [data analysis] system via conversation-style queries. By making it easier to obtain information from their analytics systems, this increase in conversational capabilities has made analytics more available to users at all levels [4].

Data Lakes and advanced Data Integration have provided the ability to collect real-time data from many different sources. In addition, there are now automated data preparation tools that simplify and automate the cleaning and converting of data. Finally, the introduction of advanced visualization and Interactive Dashboards has promoted the idea of using data-driven decisions throughout an entire organization. Additionally, the advancement of Edge Computing and the Internet of Things (IoT) has permitted organizations to perform real-time analysis of their data directly within a working environment. In the past, methods using traditional forms of business intelligence (BI) have relied primarily on manual analysis, meaning they required large amounts of time and expertise for both cleaning data, and then creating predictive models based on cleaned data and checking for errors after completing a prediction, causing delays and more opportunity for human error. These traditional methods of BI usually only allowed companies to extract information from data that had already happened (historically), meaning they did not give real time insight into data. Additionally, in the current information-driven business environment, most BI systems only generate static reports based on past information. Therefore, it is very challenging for businesses to make decisions rapidly based on accurate predictive information from current data. In addition, many BI systems require advanced analytic skills to use; therefore the employees who analyze and interpret the data (analysts) will usually be the only ones with access to data-driven certified decision support systems. This results in only a small number of analysts having access to business intelligence [5].

As businesses generate various types of data and at an increasingly fast growing rate, the availability of manual processes for analyzing and interpreting data has become increasingly limited. This just shows how much of a need there are for automation of analytical processes and also for the application of artificial intelligence (AI) and machine learning (ML) technology. Automation of analytics will greatly minimize the number of errors made by analysts and free up their time to perform more strategic tasks. AI and ML technology will also change the way in which companies are able to analyze their data through increasing proactivity versus being just reactive. As companies become more and more proficient at using AI and ML technology, they will continue to identify hidden patterns and predictive trends, generate insights into their business as it occurs, and thus be able to make faster and more accurate decisions regarding their business. Augmented analytics consists of automated insights, machine learning, natural language processing (NLP) and interactive data visualization that integrate these technologies into one streamlined process, providing businesses with an enhanced way to prepare, analyze, and interpret data. The use of augmented analytics allows data preparation, analysis and interpretation to occur more quickly than traditional methods and enables a larger audience to participate in the data preparation and analysis process.

Machine learning automates the process of cleaning and transforming raw data to minimize human error; using NLP allows non-technical users to interact with and prepare data using natural language. Automated insights identify trends and patterns from multiple datasets during an analysis phase, display them in the form of dynamic dashboards for deeper analysis and understanding and to help the user understand and interpret these findings using natural language, much like talking to a person. Machine Learning will also use feedback from users and their newly obtained information to enhance their interpretation on what was discovered. The organizations implement a new type of reporting model with real-time intelligent decisions whereby:

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- Organization Use Machine Learning,
- Move from Traditional Type Reporting; to Intelligent Real-Time Decisions, and
- Results in Higher Levels of Productivity and Strategic Outcomes.

III. AI TRANSFORMS BUSINESS INSIGHTS

Through the application of Artificial Intelligence, companies can better analyze their Business Intelligence (BI) capabilities using automation of time-consuming labor-intensive types of tasks; This way the BI Analyst will have much more time available for the real analysis and development of the BI Analyst's preparation work. The application of Artificial Intelligence to automate BI analysts' tasks of identifying outliers in the data, filling in missing gaps in data sets, and establishing a standardized data format will significantly reduce the level of preparation work for BI Analyst's Day-To-Day Preparation. Artificial Intelligence creates a new and more efficient method for BI Analysts by using Machine Learning Algorithms (MLAs) to identify patterns and trends that might not otherwise be visible. As a result, BI Analysts will have valuable insights and summaries of the major changes in Consumer Behavior and the most pressing issues faced by many Organizations.

AI provides insight to Organizations on how to forecast future trends based on both Historical and Time-based Databases so they are in a position to make informed and timely decisions to help improve their business growth and maximize profits while minimizing potential losses. Finally, AI allows Organizations to provide real-time recommendations to respond to changes in the Market Conditions. In addition, AI provides Organizations with an immediate ranking and prioritization system that helps organizations to quickly adapt and respond to sudden changes in the Market Environment. Together, all the capabilities of AI will create the ability to make real-time data-based decisions, increase the availability of Organizations to be more Accessible, Scalable and Flexible. It means that all roles within an organization can leverage BI data more easily than they have been able to do so in the past due to the improvements achieved in BI through the application of AI.

To assess how implementing AI has affected the performance of an organization's BI, there are a number of performance metrics organizations can use. These metrics provide a means to evaluate how AI has contributed to the improvement of BI performance by increasing productivity, accuracy, insight, and time to make decisions. Key performance indicators (KPIs) that represent the benefits of integrating AI into a BI process include the amount of time saved processing data (indicating increased automation), the amount of time saved producing insights (supporting faster decision-making), forecasting accuracy (showing the predictive power of AI) and levels of user adoption and engagement (indicating the democratization of BI tools).Also, decreasing errors means that the data is more reliable, while increasing the speed of decisions shows that AI is being used to speed up strategic decisions being made in the future. Metrics to quantify a business's impact consist of: increasing income from revenue growth and the amount of money being saved from automation; increasing operational efficiency through enhancement of business operations; and increasing customer satisfaction through the use of predictive analytics. Together, all of these metrics provide the full picture of the extent of how much value AI has contributed towards improving BI performance, resulting in measurable ROI for investors and creating additional long-term strategic value.

Businesses leverage augmented analytics to improve operational efficiency, discover anomalies, and generate more accurate forecasts, thereby enhancing productivity and competitiveness across multiple industries. Retailers use augmented analytics in conjunction with historical data and other factors to generate accurate sales forecasts that they use for inventory management and targeted marketing. Energy companies implement similar methods to forecast consumption which enables them to improve production schedules and allocate resources more effectively. Financial institutions use augmented analytics to continuously monitor transactional data to detect fraudulent behavior, while manufacturing industries implement AI-enabled analytics for real-time anomaly detection in production machinery, enabling better efficiency through rapid resolution of production issues. Supply chain managers utilize augmented analytics to predict potential disruptions to logistics resources as well as evaluating their overall supply chain activities in order to deliver products to customers faster and at lower costs. In healthcare, physicians use augmented analytics to analyze patient data to improve patient outcomes and make processes more efficient. Overall, augmented analytics allow businesses to have up-to-date information to make informed, quick decisions in the real world.

There are various different techniques that can be effectively augmented through augmented analytics to forecast; the specific technique and the specific application of forecasting, combined with the particular characteristics of the data being used, will affect how the data can be applied to create a forecast. The use of augmented analytics assists organizations with administering, interpreting, and understanding data. It simplifies the complex process of creating

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reports and presents data in a user-friendly manner that enables employees who may be less technical to gain insights from the data without being unable to obtain coding or statistical training. Through Augmented Analytics, Businesses can take advantage of natural language queries and AI-driven recommendations for interacting with the data and breaking down the barriers that previously existed between traditional analysts and business professionals. In addition to providing users with the ability to create reports from multiple sources of data in one platform, it also decreases the reliance on centralized IT departments and speeds up the rate at which Organizations have access to the data and gain insight into their operations. By providing Employees with self-service capabilities, Organizations foster collaboration and instantaneous access to data across multiple functions, resulting in faster decisions. Finally, Augmented Analytics builds a data-driven culture in Organizations and empowers employees to access and understand insights, allowing them to be more agile in their approach to work and increasing their knowledge of the data [6].

Many tools and platforms have been developed to facilitate data access for non-technical employees and to provide an environment where Data-Driven Decision Making can become part of the Organization's culture. Tableau's Augmented Analytics capability allows users to query data using natural language. Power BI provides users with automatic insights and predictive analytics for identifying patterns. Google Looker Studio allows users to explore different data sources and receive AI suggestions and perform natural language searches. IBM Cognos Analytics gives users access to build predictive models using Watson AI and has user-friendly dashboard capabilities. While all of these platforms utilize artificial intelligence to offer automatic insights and visual presentations of data, each has unique characteristics. Qlik Sense uses natural language processing (NLP) to help users prepare and report their data. Zoho Analytics uses the NLP capabilities to help users prepare and report their data. ThoughtSpot provides a simple search interface that gives users immediate access to AI-based answers. Alteryx does not require coding to prepare data. Sisense offers a platform driven by AI analytics with low-code options for obtaining insights from data. In a nutshell, these tools and Platforms enable Users of Data Analytics to be able to work on the data in an environment where everyone can benefit from the insights that the data provides to them [7].

IV. BACKGROUND WORK

Through its implementation in various industries, augmented analytics has had a significant positive impact on improved decision-making and enhanced productivity or operational performance. In Retail, augmented analytics has been applied to predict the level of demand from customers, improve efficiency and inventory management and make adjustments to marketing strategies to improve sales or create a better overall shopping experience. Retailers such as Canadian Tire and Nike have effectively used augmented analytics to reduce their order fulfilment timeframes and to create more efficient or streamlined supply chain processes to expedite the delivery of goods or services. In addition to supporting retailers, augmented analytics is also widely utilized by Charlotte Tilbury through various uses of augmented reality mirrors within Visual Merchandising, creating interesting, interactive experiences for customers and providing opportunities to increase both in-store traffic and sales through immersive experiences.

In Healthcare, augmented analytics has assisted in improving the prediction of patient re-Admission rates, while it has also provided the ability to create customized, personalized, or tailored care plans. Additionally, clinical data is available to provide improvements in the quality of patient care and cost-effective means to deliver healthcare Services. Augmented analytics has the capability to assist the Financial Services Industry in providing improved fraud detection in real-time and also provides improved credit scoring and increased accuracy in creditworthiness assessments through the aggregation of customer data and establishment of historical trends in customer behavior. Companies engaged in Industrial Manufacturing and/or Supply Chain Management also utilize augmented analytics to enhance operational Logistics and enhance or improve predictive maintenance.

Examples of Adding Value and Enhanced Customer Relationships Demonstrated by Case Studies: Based on Case Studies referenced within the Retail Segment, companies have increased their sales after implementing augmented analytics, and various Retailers have achieved increased growth in sales levels. Sephora has leveraged AI-generated recommendation engines to create personalized product suggestions. Increased customer engagement and growing numbers of purchases resulted in Sephora's report of a sales increase of 15%. Using augmented reality and artificial intelligence (AI), Walmart has been able to provide personalized product recommendations to customers. This has led to a decrease of 40% in product return rates and an increase of 35% in sales conversion rates over customers not receiving personalized recommendations (Keppler, 2016).

Retailers employing AI-driven shopping applications including positive engagement have had much higher levels of customer engagement and sales than Flipkart and Glance. In addition, retailers have experienced 30% less likelihood of

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purchase (PL) due to increased availability of products and/or services and ATC (Added-To-Cart) rates that are over 25% higher. Augmented Analytics have provided many retailers with the benefits of Demand Planning, Inventory Optimization, and Customer-Centric Product Marketing through an abundance of success stories, showing the overall profitability of this technology and increasing retailers' capacity to retain customer satisfaction.

Augmented Analytics allows retailers to improve operations while also increasing their revenue-generating capacity. A Successful Global Retailer recently implemented an Augmented Inventory Analytics approach with a Business Focus, resulting in increased sales of Stock through improved Reallocations and Distribution Efficiency. Using Alert Automation, retailers can start proactively managing their inventory, allowing them to better identify sales opportunities while allowing their employees more time to innovate rather than simply collect and analyze redundant data. Automated data preparation has increased Retail Analyst productivity and enabled them to spend their time on value-added activities throughout the sales cycle. Near real-time data sources from Sale Forecasts and Customer Engagement enable Retailers to provide higher levels of Customer Satisfaction and Increased Conversion Rates through the use of Augmented Analytics by optimizing their Operational Costs, Increasing Operational Efficiencies, and optimizing their Overstock Management, Automated Reporting, and Automated Trend Analysis. Businesses can use Augmented Analytics to provide better insights to aid in decision making related to time and resource expenditures, resulting in Increased Productivity and Enhanced Customer Experience by significantly lowering total costs [9].

Successful implementation of Augmented Analytics will require Retailers to overcome multiple challenges. Most organizations still struggle with issues associated with Data Quality, Data Privacy, Data Protection, and Compliance with Data Security and Related Regulatory Requirements that impair their ability to successfully implement Augmented Analytics. Organizations can manage and govern Data Quality by implementing and maintaining Quality Data Sets (which are properly managed), preventing the generation of inaccurate insights and building a foundation of trust in the automated outputs generated [10].

When implementing an Augmented Analytics solution, organizations must also address the Security and Privacy Issues associated with Sensitive Customer Data as well as potential Regulatory Changes. By developing and implementing Security and Privacy Measures, Organizations will be able to protect and secure Sensitive Customer Data, as well as meet Compliance with Evolving Laws and Industry Best Practices. If Organizations do not have a clear plan of how to integrate Augmented Analytics into their Legacy IT Systems, it will result in Significant Costs to Organizations and an Increase in the Time to Market. Also, many employees will not be familiar with AI and Analytics-related tools; therefore Organizations must implement Change Management Initiatives to Educate Employees on the Benefits of Data-Driven Decision Making and Develop Training Programs to Enable Employees to Use Augmented Analytics Properly.

To build trust in AI-generated insights, organizations should focus on Transparency and Maximize Participation and Access to Augmented Analytics. Organizations that do not involve and engage Stakeholders during the Implementation Process are likely to underutilize the full potential of Augmented Analytics. For organizations to have effective augmented analytics implementation the accompanying analytics tools should be user-friendly; data governance requirements need to be adhered to; piloting should be done through small use cases; and organizations should cultivate an environment that encourages a culture of collaboration and continuous learning. Currently, only AI and data aggregator providers possess the expertise to build AI applications with the potential to offer organizations robust reporting functionality. Finally, continuous monitoring and iteration create the most effective use of augmented analytics for organizations.

V. SYSTEM ARCHITECTURE

The DMAIC structure of augmented analytics project frameworks provides a systematic way to implement augmented analytics. DMAIC, or Define, Measure, Analyze, Improve, Control, methodologies, are rooted in the CRISP-DM methodology and the SAP Analytics Cloud methodology, and provide a systematic and repeatable process to help organizations implement augmented analytics across the organization. When organizations align Augmented Analytics (AA) to their overall company objectives; they can use Augmented Analytics to augment their day-to-day operations. Improved Augmented Analytics can come about through continual improvement of Augmented Analytics made possible by the iterative nature of both the DMAIC Process and the CRISP-DM framework. The DMAIC Process includes five stages:

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1) Identify/Define Stakeholders & Goals,
2) Establish Baseline Data Sources and Measure Data,
3) Identify Trends through Machine Learning & NLP technics,
4) Improve Processes through Automation & Integrated Platforms, and
5) Manage Operations & Governance through Continuous Monitoring & Improvement.

The delivery roadmap for Augmented Analytics will consist of three key areas (Select & Implement Platform, Test & Create Use Cases, Deploy to Enterprise Level and Maintain Ongoing Support of the Platform/System). The successful deployment of Augmented Analytics will result in Decreased Inefficiencies and a commensurately larger Return on Investment than when using Traditional Analytics Methods over an Extended Time Frame. According to various organizations' feedback, organizations using the first four phases of the DMAIC framework for their Augmented Analytics Projects can reduce risk and speed of decision-making by approximately 38%-40% [11].

By developing an Augmented Analytics System based on a 3-layered architecture; data flow can occur and provide users with actionable insights. This Layered Design allows the integration of AI and automation, which makes it possible for end-users to utilize Easy to Use user interfaces. The Augmented Analytics System Layers include:

- The Data Layer is where real-time data collection, storage, and streaming of data from Different Sources occur, and enables the transmission of data, and the use of Data-Streaming Technologies (Including Apache Kafka, NiFi, & Airflow).
- The Data Preparation Layer utilizes Dataiku, Pandas, and Apache Spark to Clean, Structure, and Prepare Data.
- The Machine Learning Layer uses Frameworks like TensorFlow, PyTorch & XGBoost to automate pattern recognition and create Insights, and includes prescriptive and predictive analytics.
- The Natural Language Processing Layer allows Users to interact with their data through Natural Language using Libraries like NLTK, SpaCy & Hugging Face Transformers.
- The Visual Analytics Engine Layer is integrated with Visualization Tools (like Tableau, Power BI) to create Dashboards with Summaries of the Data analysis for their users, thus providing their users with the ability to access real-time Analytics and Data.
- The Security and Governance Layer ensures Compliance with Applicable Data Privacy Laws, as well as Safe Guarding sensitive Information through Strong Security & Governance Practices.

The scalability of the Infrastructure is Critical to the whole process of deploying AI and can be accomplished through the architecture that supports the cloud, on-premise, and hybrid computing environments, as well as easily connecting to Modern Data Warehouses. In addition to Creating Greater Transparency and Trust in Human-Machine Collaboration, it allows individuals to Evaluate & Act on Insights that are Developed by Utilizing Numerical Information. The combination of these layered architectures and their effective integration increases the overall efficiency, security, and value of all levels of the organization, while the integration of AI and Augmented Data Analytics within 3-Tier Auto-Scalable Web Applications improves real-time insights, allows for processing of scalable data, and elevates data accuracy. Ultimately the advancement of generating and utilizing business insight is shown in Figure 1 below:

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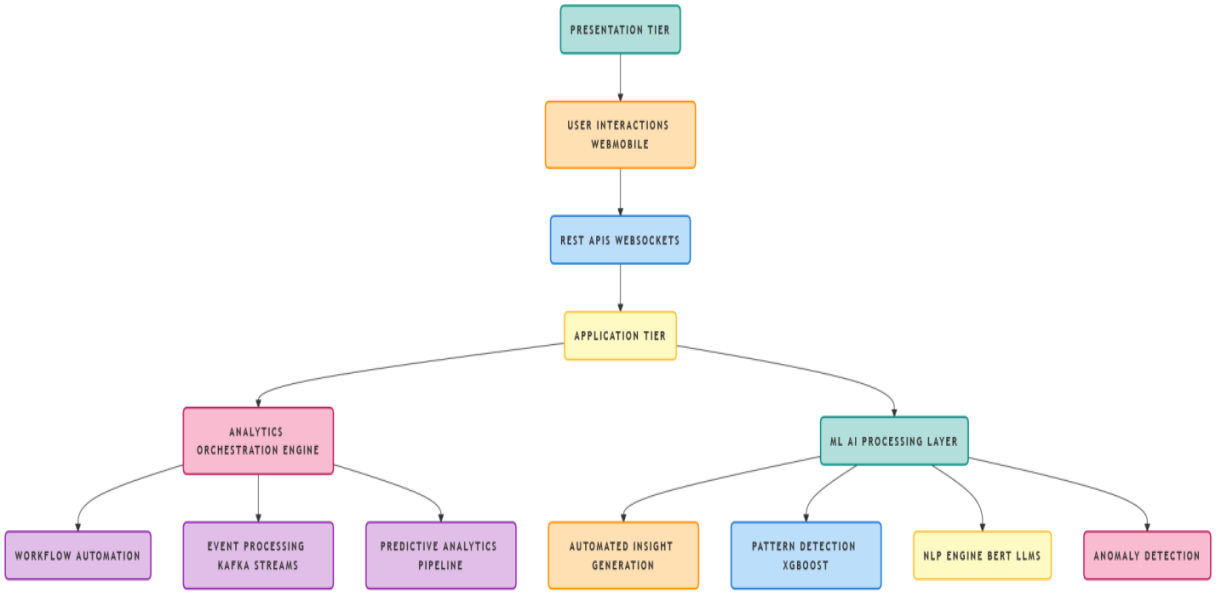


Figure 1: 3-tier Augmented Analytics Architecture

1. **Frontend Tier – Presentation:**
- A user interface that has visually-based tools that enable non-programmers to visualize data.
- Dashboards that provide insights in real-time, uniting the ability to ask questions using natural language with the use of Artificial Intelligence (AI).

2. **Mid-Tier – Applications:**
- The application will allow for the management of your insights generated by the machine learning (ML) models and Natural Language Processing (NLP) to enable data analysis, an event-driven analysis-capable of using the cognitive power of AI.
- The application will support modular functionality by integrating cloud-native orchestration functions (e.g. containerization (Docker) and platform services (AWS Step Functions)).

3. **Data Tier – Database:**
- Stores all the structured and unstructured data collected from business systems, IoT devices, and other API sources.
- Provides for the automated management of data so that it remains secure and consistent.
- Automatically scales itself based on the volume of data your application receives for analytics and AI workloads.

4. **All Integrated Across Platforms:**
- Address all components of the architecture from a governance, security, and observability perspective to meet compliance and provide accessible insight.
- Provides for the Auto-Scalability of Resources based on demand.

The evaluation of the three-tier Augmented Analytics Architecture consists of evaluating the key metrics of performance, accuracy, usability, scalability, and business impact. The performance metrics consist of the end-to-end latency and throughput of the system and the rate of data ingestion, with the objective of the system being rapid delivery of insight and high query execution rates. The accuracy metric consists of precision/recall for AI insights, data quality scores, and performance metrics for the model. The scalability metric consists of the response time during traffic spikes, resource utilization, and cost effectiveness of the insight based on a ratio. Usability metrics consist of the user adoption rates, time-to-insight, and user satisfaction scores. Business impact metrics consist of the improvement of sales, data preparation time, out-of-stock occurrences, and the speed of decision-making regarding stock purchases and/or inventory replenishment. The continuous monitoring of the system's health happens through the use of multiple KPIs to ensure the quality of the data, the accuracy of the applications, and uptime of the systems. Continuous

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Optimization should be an ongoing effort supported by routine monitoring tools to generate alerts related to SLA transgressions anywhere across the architecture as is represented by Table 1 [12]:

Category	Metric	Target Improvement
Revenue	Sales uplift from insights	15-25%
Efficiency	Data prep time reduction	70-80%
Operations	Stockout reduction	30%
Decisions	Decision speed	40% faster

Table 1: Business Impact Metrics

There are multiple means of assessing the quality of retrieval in Retrieval-Augmented Generation (RAG). Two of the most common are the following: Precision@k indicates how appropriate the top k retrieved documents were to the user's query. Recall@k indicates how well the system retrieved all appropriate documents for the same queries. F1-Score is the combination of these two measurements, indicating how well the system balances precision with recall. There are also Mean Reciprocal Rank (MRR), which rates the rank of the first retrieved document that is relevant to the user's query and emphasizes that systems which return relevant documents at a higher position in the ranking will achieve a higher MRR than those that do not return them at a high position; Mean Average Precision (MAP), which averages the precision values for every rank; and Normalized Discounted Cumulative Gain (nDCG), which highlights the significance of showing relevant documents at the top of the ranking and provides a way of determining the weighting of relevant documents based on their rank. Combining these approaches together creates an ideal method for evaluating the ability of a RAG to return appropriate results relevant to a user's requested information.

Between 2018-2022, there was tremendous growth in global augmented analytics, climbing to over 13.6 B in 2022 compared to about 4.8 B in 2018, attributing large amounts of growth due to increased adoption of AI and ML technologies being used for Business Analytics. With a compound annual growth rate (CAGR) of approximately 30.6% from the years 2018 to 2022, the above image illustrates this enormous growth throughout the years.

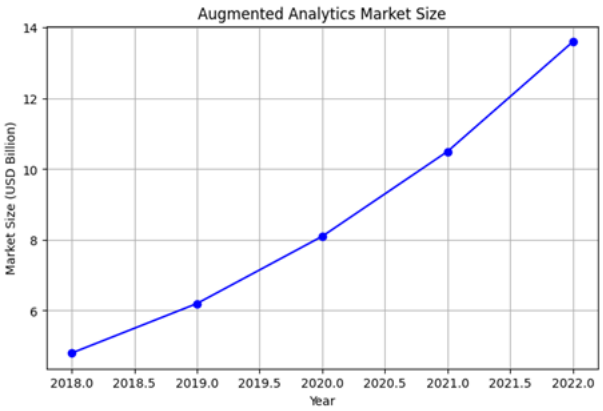


Figure 2: Augmented Analytics Market Size

VI. CONCLUSION

The business intelligence landscape has experienced a tremendous amount of change because of innovations in Artificial Intelligence and Data Analytic advancements; however, these changes are occurring at a rapid pace due to the development of Artificial Intelligence tools that drive and improve the efficiency of decision-making processes for businesses every day. In addition to that, the implementation of Autonomous Systems will enable organizations to provide real-time insight into multiple areas of their operations. As companies continue to innovate and develop new technologies to support the growth of Autonomous Systems, they will also develop other tools to support those automated systems such as Explainable AI and Automated Data Governance. Augmented Analytics through GenAI are enabling businesses to create personalized insights using user behavior data and to make better recommendations for products/services based on that data. Agentic workflows enable organizations to achieve proactive goals through the use of autonomous AI systems, which streamline business processes. Generative AI's unique capability to process and

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analyze vast quantities of unstructured and structured data establishes it as a significant business differentiator by supporting innovation and improving business decision-making in the digital era.

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