

# A telco CxO's guide to Augmented Analytics



- Augmented Analytics is one of the emerging trends that leverages artificial intelligence (AI) and machine learning (ML) techniques causing a wave of disruption in the data analytics market. It has revolutionized the way data analytics is transformed as well as data science models are developed and consumed.

White Paper



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# EXECUTIVE SUMMARY

The data landscape is changing. Digital transformation has been creating significant strides in the expansion of Big Data. The work from home culture fuelled by the COVID-19 pandemic has expedited the accumulation of data furthermore. More data has been generated in the past two years than in the entire human history. Handling such titanic volumes of data using traditional analytics methods would be highly inefficient or even impossible. Because these methods come with a myriad of challenges including data analyst talent crunch, silos, discrepancies, and data loss. This is where Augmented Analytics comes in to save the day. By **automating over 40% of the data analysis** process, it reduces data scientists' time spent on data preparation and allows them to focus on more productive tasks. It eliminates human errors, improves accuracy, accelerates the whole process. It also mitigates the talent crunch problems. Self-service analytics has empowered everyone in the organization (including the non-technical staff) to become citizen data scientists. With augmented analytics, anyone can generate meaningful insights and make data-driven decisions without having to depend on a data scientist.

## Current Data Landscape

Data volumes have soared. It streams in from connected devices at dizzying speeds, in an array of formats, from billions of users. Every second, 127 new devices are linked to the internet every day and they generate 5 quintillion bytes of data. We send 40,000 Google search queries per second which are 1.2 trillion searches per year. 300 new hours of video are uploaded to YouTube every minute, creating 1 billion gigabytes of data on its server. Over 100 terabytes of data are exchanged daily on Facebook. Users send 31 million messages per minute and post 2.7 million videos. This growth is to be expected to accelerate further as we consistently generate new data. Every person will produce about 1.7 megabytes of data per second in 2021 and by 2025, the aggregate volume of Big Data would amount to 150 trillion gigabytes 2025. The question is would we be able to handle such volumes of data with existing infrastructure? Absolutely not! Because even today, 99.5% of the data obtained were never used or analyzed.

Two factors make the current data landscape different from the past evolutions. The first is an exponential increase in the volume and the diversity of data being generated by billions of users and devices. The second is a demand for immediate access to high-quality data and insights. It has brought an urgency to how companies should manage the data.

Managing data would be easier if growth were limited to a few sources. The challenge lies in the diversity of sources and formats. As the data is stored in different locations, accessing all the data at the same time is difficult. This creates silos and redundant data across the organization. There is a lack of data governance due to disorganized data stores and the absence of metadata. These are some of the major reasons that lead to inefficient data management in an organization. A processing infrastructure that is on par with the human brain is required to handle such volumes of diverse data. This is where Augmented Analytics comes in to save the day. Augmented analytics leverages simplifying technologies like machine learning and AI to ameliorate data preparation, report generation, and insightful presentation.

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## Challenges Across Data Management

Organizations are trying to stay ahead in the competition by adopting a data and technology-centric approach towards data management. But failure to effectively manage their data can end up costing them heavily in lost productivity and missed opportunities. On average, employees waste two hours a day searching for relevant data, resulting in a 16% drop in workforce efficiency. Companies that fail to address the challenges with data management have less ability to make strategic decisions, are less agile, more vulnerable to security threats, and experience customer dissatisfaction. The challenges across data management are as follows:



### Manual data preparation

59% of data analysts say they depend on IT resources to prepare or access data. The exponential growth in data creates ample opportunities for the organizations that use it intelligently. Unfortunately, most organizations waste precious time and resources on searching and preparing the data manually in disjointed IT ecosystems. It has a severe impact on employee productivity and the profitability of the business.



### Data Silos and lack of Data Asset Centralization

72% of companies struggle to derive accurate insights due to data silos. Silos prevent analysts from getting a comprehensive 360° view of the organization. Without a business-wide view of data, company-wide efficiencies cannot happen. Also, the opacity created by silos leads to data duplication. These discrepancies eventually affect sensitive business decisions. It is because of a lack of data asset centralization. This can be achieved by operationalizing all the legacy data onto a common enterprise platform to enable visibility and communication across all business units.



### Data Integration and lack of Data Governance

Another challenge that organizations face is to integrate different data types from multiple data sources which lead to inconsistencies. It is due to data silos, manual collection of data, duplicate data in the pipeline, lack of data governance, and poor quality of the data. Poor data governance ends up creating complex data flows that require low-level employees to obtain a myriad of approvals for accessing a single database. The only way forward is to automate the data integration process that ingests the data in real-time, removes duplicates automatically, and improves the overall process efficiency.

Now, the time has come to take a different approach to data management challenges. The answer is DataOps. It is the missing link in data management. DataOps can exploit AI/ML technologies to automate the data management process, help an enterprise correlate data from disparate sources, create a common data structure, and provide an end-to-end view of the business impacts. Implementation of DataOps leads to better outcomes such as cost savings, revenue growth, etc. However, only 10% of organizations have fully operationalized it.

Nowadays, many organizations are adopting emerging trends to manage data. These trends democratize an entire data value chain. One trend which is gaining traction these days is Augmented Analytics. It leverages AI/ML techniques to augment human intelligence and contextual awareness and to transform data management, analytics, and BI as well as many aspects of data science and AI/ML model development and consumption.

## Augmented Analytics: The Next Wave of Disruption in Analytics

Augmented analytics is a data analytics approach that leverages Artificial Intelligence technologies like Machine Learning, Natural Language Processing (NLP), Natural Language Generation (NLG), etc., to automate data preparation, insight discovery, and sharing. It also automates data science and ML model development, management, and deployment. It surfaces the hidden insights in the business in a fraction of the time. It does it with minimal data science skills and without any prior knowledge of the relationships in data. It includes natural language processing and conversational interfaces, allowing all users to interact with data and insights in a natural language. Augmented Analytics democratizes AI across an entire value chain and widens the accessibility to new citizen data science roles. Deployment of AI automation in data

analytics mitigates human errors, increases accuracy, enhances efficiency, and accelerates the entire process.

## How Augmented Analytics workflow changed the current workflow of Analytics?

As digital businesses become overwhelmed with data, augmented analytics become crucial for presenting the most pertinent insights to users that drive less-biased decisions and more impartial-context awareness than the current manual approaches.



### Pre-processing of the data

Data preparation is the most time-consuming and daunting task. Using the current manual data preparation approach, data scientists spent around 80% of their time on data preparation tasks such as data cleaning, data profiling, data cataloging, and data enrichment. The rest 20% spent their time deriving insights from the data. To speed up the availability of data for analysis, **augmented data preparation** uses AI/ML techniques to augment and accelerate data preparation tasks. It also automates various aspects of data management including data integration and data lake administration. It enables algorithms to detect schemas, identify data lineage, and recommends the best actions for enrichment.



### Modeling and Analysis

As more organizations digitally transform, they want to expand the accessibility of data science and AI/ML and embed it into existing applications. However, the scarcity of expert data science skills has become a significant barrier. Current data science requires data scientists to spend a lot of time on manual feature engineering, model building & selection, etc. With **augmented data science and machine learning**, it uses AI/ML techniques to automate time-consuming and bias-prone tasks such as feature selection and model selection (AutoML), model operationalization, model explanation, model tuning, and management. This widens the

accessibility to a new breed of citizen data scientists (the business analysts and the application developer) and makes expert data scientists more collaborative and productive, freeing them to focus on higher-value tasks.



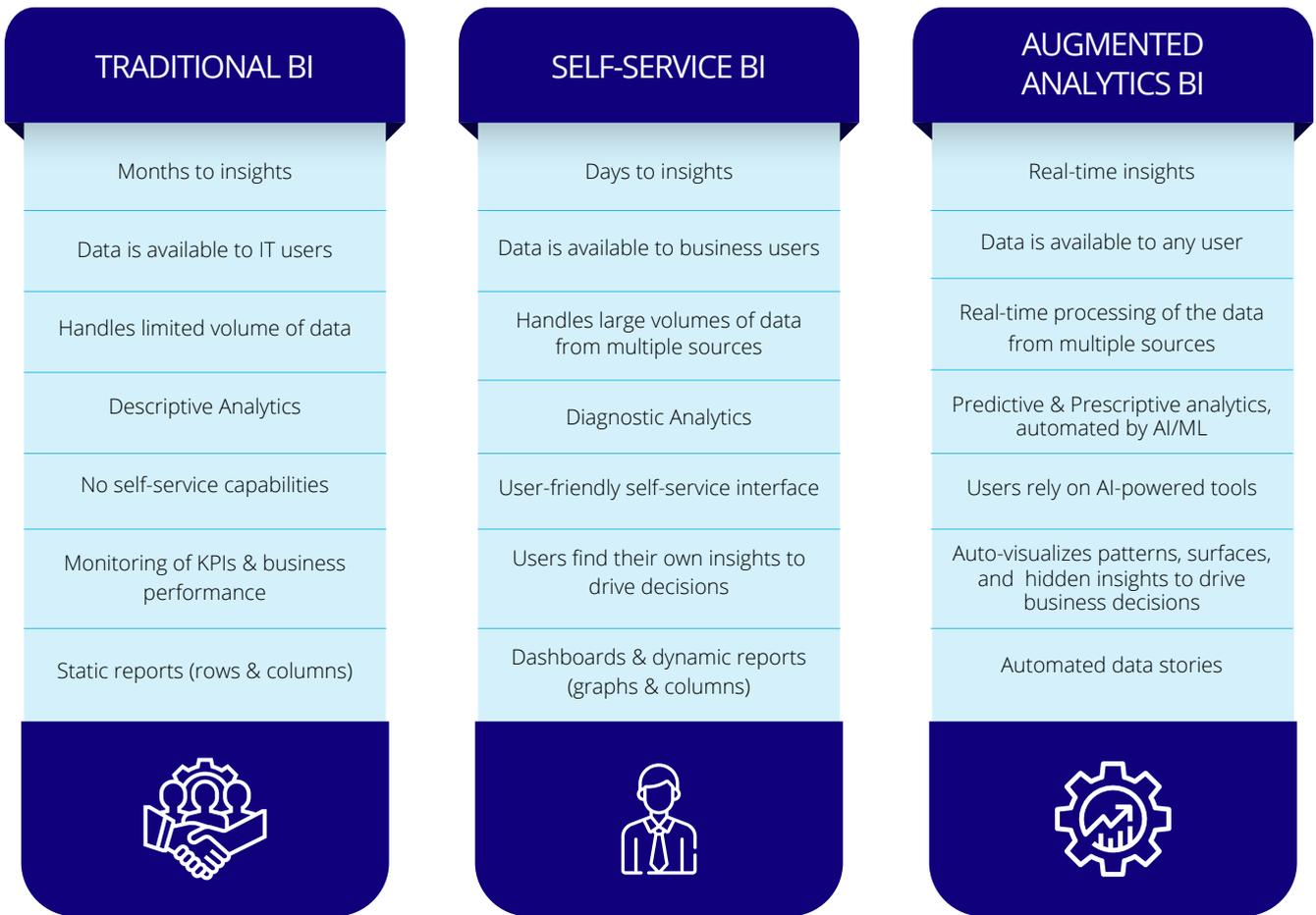
### Discovery & Interpretation

The current visual-based data discovery approach used in modern BI platforms enables business users to visually explore the relationships and patterns in data using interactive techniques such as filtering, sorting, pivoting, linking, grouping, and user-defined calculation. **Augmented analytics in BI platforms** enables business users and citizen data scientists to use ML to automatically find, visualize, and narrate relevant findings without having to build models or write algorithms. Users explore data via visualizations and conversational interfaces, including natural language query (NLQ), supported by natural language generation (NLG). Only the most statistically relevant insights are presented and narrated to the user in the form of smart visualization and natural language.

## Impact of Augmented Analytics in Business Intelligence

Over the decades, business intelligence technology has evolved, and it shows no signs of slowing down. While the inherent meaning has remained the same, but BI as a set of processes, technologies, and tools has changed a great deal, right from Traditional BI to Augmented Analytics BI. It has evolved from monitoring of KPIs to auto-visualization driven by Artificial Intelligence.

**Traditional BI tool** was largely owned and driven by IT and data specialists. The IT department used to run queries, retrieve the data for reporting, and delivers static reports to the business owners with restricted access to the reports. This entire process could take weeks or months to produce insights and hence unable to make timely data-informed decisions. To make BI more accessible to business users, self-service BI became the next generation of analytics and BI.



**Self-service BI** is well-equipped with an intuitive graphical user interface (GUIs) that focuses on providing data discovery and visualization tools to business users. With this tool, business users get the information they need to make better decisions without relying on data analysts and IT professionals. As compared to traditional BI systems, these tools can process large volumes of data, allowing for deeper analyses. But as the volume of data increases, manual data preparation makes the process inefficient and prone to error. Also, insights generated are limited to the type of queries made by business users. This is where AI-powered BI known as Augmented Analytics BI comes into the picture.

**Augmented Analytics BI** automates the data preparation process and also auto-visualizes the relevant patterns, surfaces the most significant insights automatically that are crucial for the business, and free of human biases. It widens the accessibility to citizen data scientists to provide recommendations based on their domain and primary skill sets. Natural language processing (NLP) enhances the BI reporting process by allowing the users to query and narrate the insights in a natural language.

## Rise of Citizen Data Scientists

### Data Analytics talent crunch

2020 witnessed a data scientist talent crunch that history hasn't seen before. **With 83% of the companies investing** in Big Data projects, hiring went up by 67%, and the average salary hiked by 14%. Looking at the dynamics in the industry, the global tech talent shortage would hit **85 million in 2030**. According to Gartner, AI can **automate over 40%** of data science jobs. AI can only replace the lower-level rule-based tasks like data cleansing, ingesting, visualization, delivery, and model fitting. Data Scientists will still be needed for complex operations. Although automation cannot replace data science experts, it gives rise to a new breed of citizen scientists. Citizen Data Scientists is an advanced data analytics professional who creates and generates models that use diagnostic, predictive & prescriptive capabilities to perform analytics tasks that would previously have required more expertise. They provide a complementary role to expert data scientists. They do not replace data scientists, as they do not have specific skill sets to do so. But they certainly bring their

own business expertise and unique skill sets. The citizen data scientist role has evolved as an extension from the other roles within the organization such as business and data analysts, data engineers, application engineers, and business line managers.

Predictions suggest that citizen data scientists will be handling more advanced analytics than today's professional data scientists soon. An organization must implement an upskilling program for developing citizen data scientists from existing roles. In addition to that, it is also important to ensure a data-driven culture across the company to increase their acceptance and bring about change amongst employees.

### Self-Service Analytics

In a data-driven organization, self-service analytics enables non-technical staff to input queries and generates a report for themselves with minimal IT support. Companies are starting to realize that they don't need a highly qualified data scientist for every operation. With Self-Service Analytics, anyone in the organization can become a citizen data scientist with the right know-how and less expert technical skills. Advanced features such as a centralized semantic model and metadata help to establish a single source of truth from the data. Self-service analytics eliminates waiting time for reports from weeks or days to few hours and allows users to make critical business decisions by quickly accessing the data.

### Natural Language Processing (NLP)

Modern analytics and BI platforms have evolved from traditional BI platforms by visualizing data in interactive dashboards or storyboards. But many users cannot interpret statistically significant visual-based insights. Augmented Analytics embeds natural language processing and conversational analytics capabilities that auto-visualize and surface the most relevant insights for the users. Natural Language Query (NLQ) allows citizen data scientists to query the input in a simple language, eliminating the need to learn SQL. Whereas, Natural Language Generation (NLG) articulates the insights in a straightforward language and offers data interpretation in the form of readable narratives, making it convenient for those who are not very good with charts and tables.

## Benefits of Augmented Analytics

The benefits of augmented analytics are numerous. Augmented analytics allows the organization to produce fast, dependable insights and improve the value of the business analysis across the enterprise by democratizing the use of AI. Some of the significant benefits are as follows:

01

### FASTER ANALYSIS:

Legacy data workflows required the data scientists to spend considerable time on data preparation. Augmented analytics uses AI/ML automation techniques to suggest which datasets to include in analyses based on the business context and even recommends new datasets if users are not getting the results expected. This eliminates the need for manual data cleaning and auto-detects hidden correlations, clusters, outliers, relationships, and segments. It accelerates the analysis process and derives the results in a fraction of time.

02

### IMPROVED PRECISION:

Augmented Analytics workflows analyze data on a granular level, taking every detail into account. Automating the tasks involved using AI techniques prevents human errors, improves precision, eliminates bias, and reduces the risk of missing important insights. Since mundane tasks are automated, analysts get more time to concentrate on creative value-added tasks. Besides improving precision, automation reduces the costs which incur due to manual hours and the time taken for data analysis.

03

### DECIPHERABLE INSIGHTS:

The data visualization part of the conventional data analysis process involved charts and tables. However, interpreting the data for unique business contexts and extracting insights was still a challenge for non-technical users. But with NLG, Augmented Analytics produces readable reports in conversational language. It gives insights to users in natural language and visualizes it in form of data stories rather than data charts.

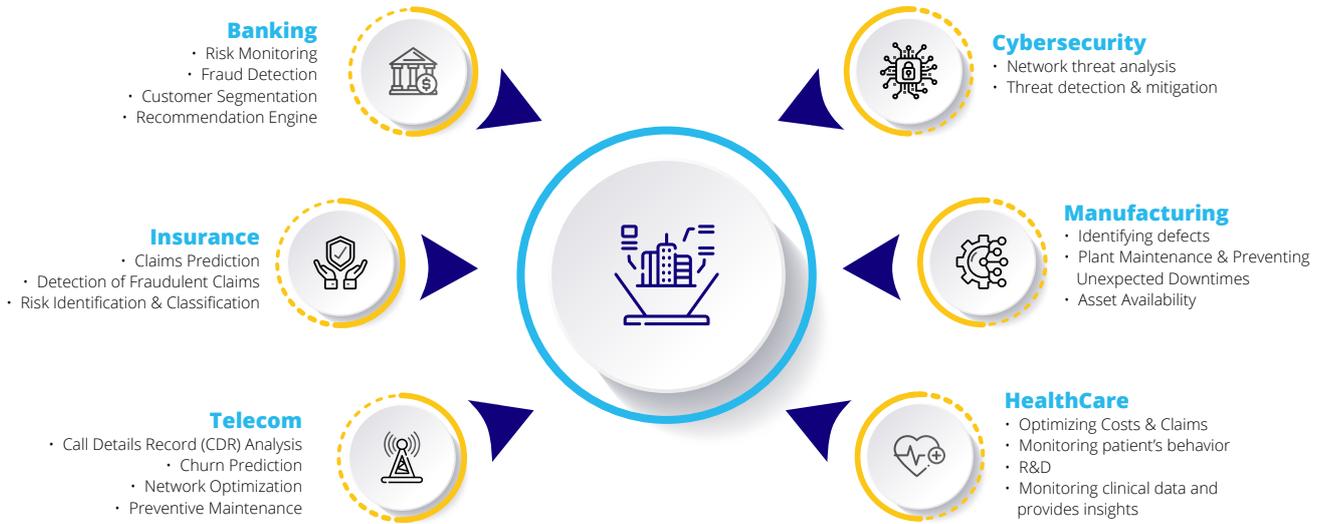
04

### DEMOCRATIZATION OF ANALYTICS:

Conventional data analysis required every department of the organization to depend on the inputs of a data scientist even for making minor decisions. But with augmented analytics, anyone in the organization can derive insights from the organizational data and make data-driven decisions without having to depend on a data scientist. Thanks to the simplification and easy-to-use interfaces. Such democratization improves the data literacy and overall efficiency of the organization.

## Use cases of Augmented Analytics

There are many use cases of augmented analytics spanning across different industries.



There are many use cases of augmented analytics across many industries such as telecom, banking, healthcare, insurance, etc. The below table shows examples of how augmented analytics has an impact across these industry use cases.

Industry	Before Augmented Analytics	After Augmented Analytics
Financial Services <i>(Algorithmic Trading)</i>	It helps financial service companies with a demand for rapid pricing and portfolio risk calculations. This requires GPU processing to execute calculations at a rapid pace.	Calculations run in minutes instead of hours, improving speeds by 40x by placing GPUs in production.
Insurance <i>(Claims Processing)</i>	Claims processing used to take weeks	Augmented Analytics automates manual and process-driven complex claims to estimate the cost and impact of the claim. It accelerated the decision leading to claims being paid in hours or days.
Telecom <i>(Call Detail Record (CDR) Analysis)</i>	Too much time was spent on the analysis of tens of millions of CDRs	Augmented Analytics accelerates this process by identifying anomalies, create scalable data visualizations, predict and take appropriate actions. This improves customer experience.
Financial Services <i>(Credit Scoring)</i>	Determining whether to extend a line of credit to a business or individual is a critical financial service, requiring high-quality data to make informed decisions.	Using AI, transactional information and behavioral datasets, and newly developed classification models can give instant credit decisions with higher accuracy reducing the cost & improves the profitability of a loan portfolio.
Manufacturing <i>(Identifying defects)</i>	Fail to monitor and predict the failure of a potential asset well in advance.	Augmented analytics analyzes historical and real-time data to predict when maintenance of an asset is required. As a result, manufacturers can move from the repair-or-replace current maintenance model to a predict-and-fix model.
Healthcare <i>(Hospital Operations)</i>	A considerable part of patient care quality involves patient wait times.	Augmented analytics allows employees across a hospital to engage with and understand performance through data. It provides transparent insights and uncovers hidden inefficiencies.

# CONCLUSION

Subex offers cutting-edge platforms, solutions, and professional services that can be leveraged to improve business outcomes, including top-line growth, bottom-line returns, etc. HyperSense is an augmented analytics platform that uses enabling technologies such as machine learning and AI to assist with data preparation, insight generation, and insight explanation to augment how enterprises explore and analyze data. It is a cloud-native, subscription-based platform that democratizes AI across the entire data value chain. It also augments the expert and citizen data scientists by automating many aspects of data science, machine learning, and AI model development, management, and deployment. It accelerates data to insights journey. With its unique no-code AI capabilities, it broadens data analytics and AI/ML avenues to anyone in the organization.

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## About Subex

Subex is a pioneer in enabling Digital Trust for businesses across the globe. Founded in 1994, Subex helps its customers maximise their revenues and profitability. With a legacy of having served the market through world-class solutions for business optimisation and analytics, Subex is now leading the way by enabling all-round Digital Trust in the business ecosystems of its customers. Focusing on risk mitigation, security, predictability and intelligence, Subex helps businesses embrace disruptive changes and succeed with confidence in creating a secure digital world for their customers.

Through HyperSense, an end-to-end augmented analytics platform, Subex empowers communications service providers and enterprise customers to make faster, better decisions by leveraging Artificial Intelligence (AI) analytics across the data value chain. The solution allows users without a knowledge of coding to easily aggregate data from disparate sources, turn data into insights by building, interpreting and tuning AI models, and effortlessly share their findings across the organisation, all on a no-code platform.

Subex also offers scalable Managed Services and Business Consulting services. Subex has more than 300 installations across 90+ countries. For more information, visit [www.subex.com](http://www.subex.com).

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