



MASTER BIG DATA &  
ARTIFICIAL INTELLIGENCE

# AUGMENTED ANALYTICS & AI

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# INTRODUCTION

In the last five years, over 90% of the world's data has been created.

- Yet, **traditional Business Intelligence (BI)** tools are struggling to keep up with the speed, volume, and complexity of this modern data.

Organizations face major challenges in preparing, analyzing, and making decisions from their data especially with limited technical skills, slow manual processes, and overloaded analysts.

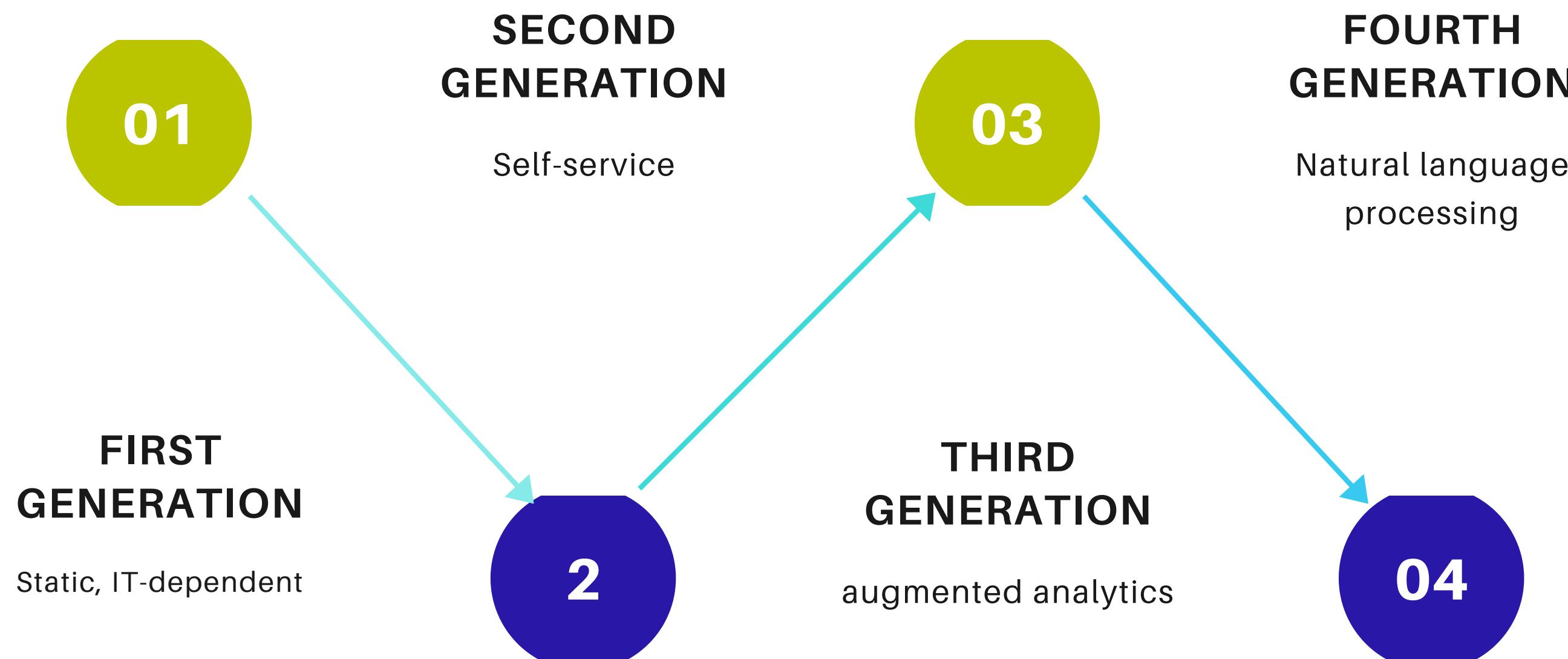
# INTRODUCTION

This is where **Augmented Analytics (AA)** comes in.

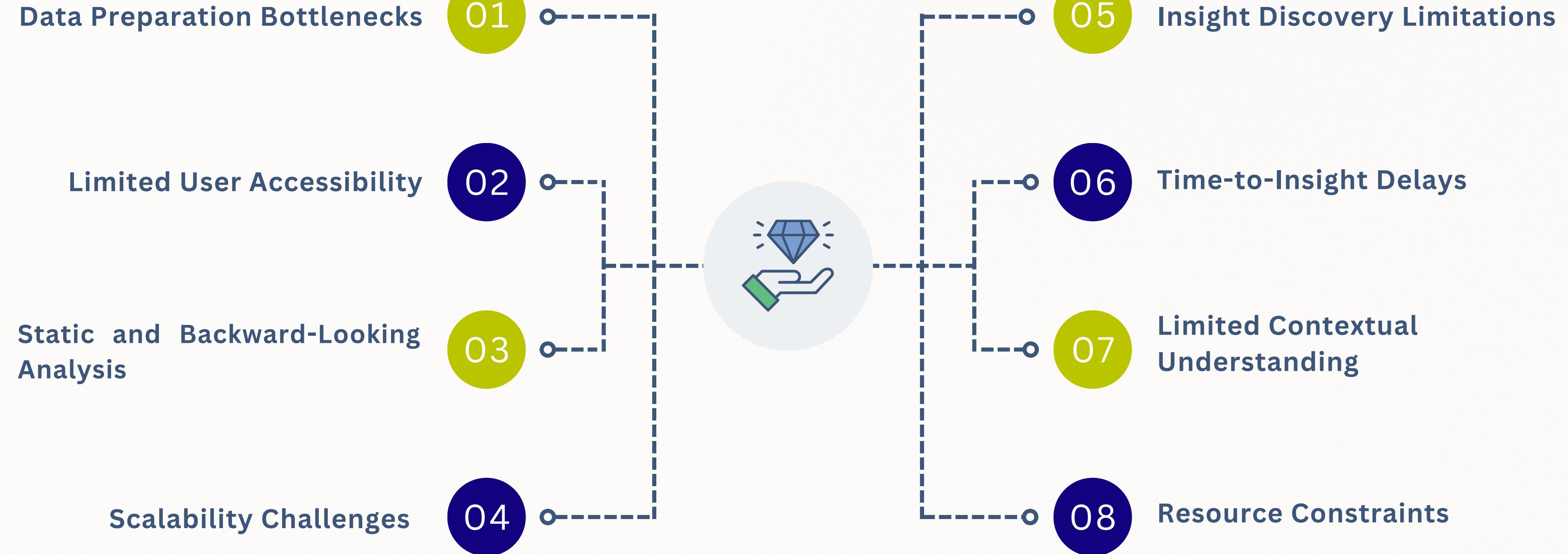
By integrating advanced technologies like Machine Learning (ML), Natural Language Processing (NLP), and Natural Language Generation (NLG), AA automates much of the data analytics process.

It empowers both data scientists and business users to uncover insights faster, make smarter decisions, and drive real digital transformation.

# The BI EVOLUTION



## Background and Problem Statement



## AUGMENTED ANALYTICS : DEFINITION & KEY CAPABILITIES

### Augmented analytics

is a combination of Business Intelligence (BI) and advanced features of Artificial Intelligence (AI). including Machine Learning (ML), Natural Language Processing (NLP), and Natural Language Generation (NLG), used to automate the analytics cycle. from data preparation to insight generation and interpretation.



# KEY CAPABILITIES OF AUGMENTED ANALYTICS



## Natural Language Processing

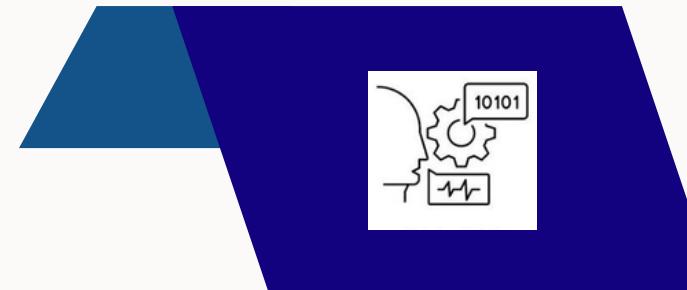
BI and citizen data scientists are the most to benefit from the linguistic capabilities of technology. NLP allows users to interact with the system in their natural language through text and even voice commands.



## 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.



## 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 the most suitable visuals for specific data, and how to enrich data for better analysis and interpretations.

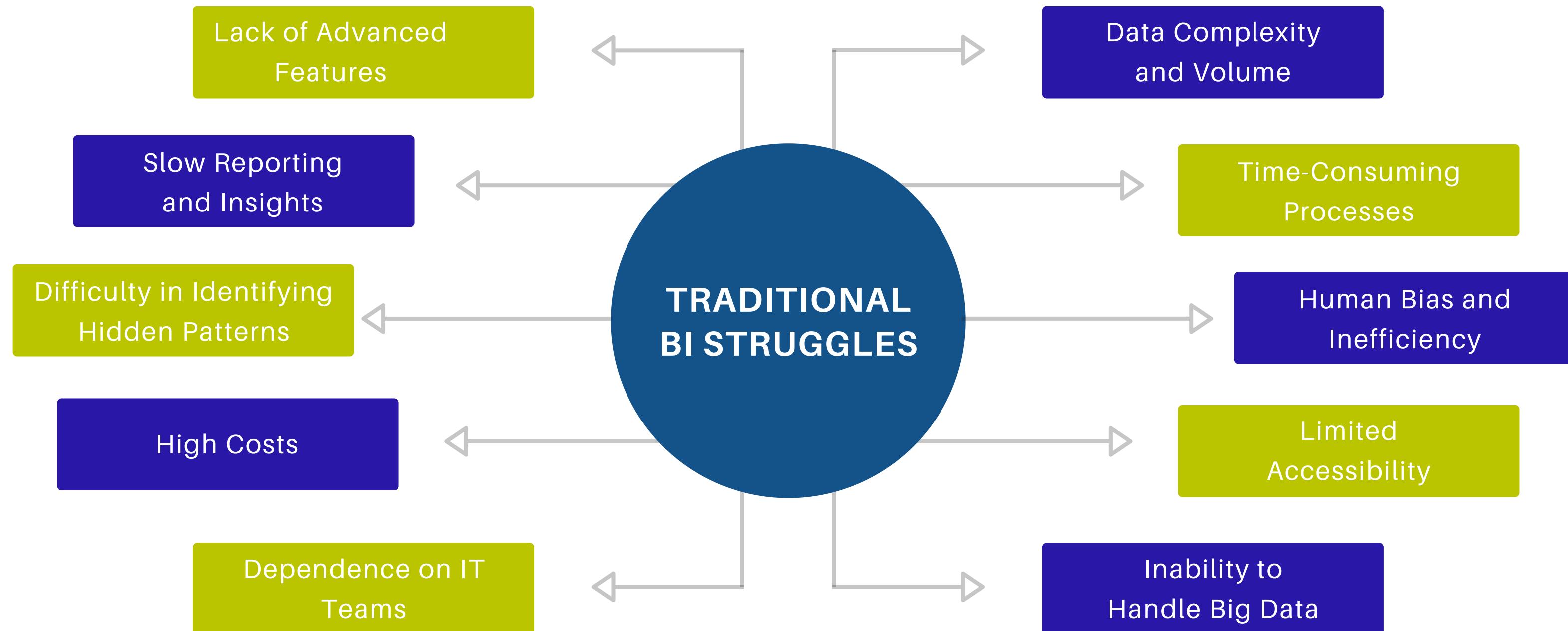


## Insight Generation

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.

# Why we need Augmented Analytics



# CURRENT PLATFORMS AND TOOLS

1.

## Microsoft Azure Synapse Analytics

- **AI-ML-Integration** - Provides comprehensive machine learning capabilities and SynapseML library for scalable ML pipelines
- **Cognitive-Services-Integration** - Incorporates Azure AI services for document intelligence, text extraction, and structured data analysis
- **Sentiment-Text-Analytics** - Provides built-in sentiment analysis and text analytics capabilities through Azure AI Language
- **Third-Party-AI-Partnerships** - Supports integration with third-party machine learning and AI solutions

# CURRENT PLATFORMS AND TOOLS

2.

## Microsoft Power BI

**AI-ML-Algorithm-Integration** - Combines artificial intelligence and machine learning algorithms for essential BI tasks including data preparation, analysis and visualization.

**Automated-Data-Preparation** - Facilitates data preparation and insight generation, acting like a virtual data scientist who executes analysis activities

**Task-Automation** - Offers task automation that saves time and energy in data preparation, discovery, and statistical analyse

**Business-Science-Capabilities** - Brings data science capabilities to business domain experts using AI, machine learning, and statistical methods

**Workflow-Automation** - Automates repetitive tasks, boosts efficiency, and creates reliable business processes directly from charts and summaries

# CURRENT PLATFORMS AND TOOLS

3.

**Qlik**

**Associative-AI-Engine** - Leverages unique associative engine combined with AI and ML and business logic for automated insights

**Natural-Language-Query-API** - Offers NL Query API that lets users embed Augmented Analytics capabilities into their products and existing chatbot platforms

**AI-Powered-Decision-Making** - Empowers users of all levels with AI-powered insights and data exploration tools

**Machine-Learning-Pattern-Recognition** - Leverages advanced algorithms and machine learning models to handle complex data, identify patterns, and make accurate predictions

# CURRENT PLATFORMS AND TOOLS

4.

## MetaBase

**Natural-Language-Querying** - Enables users to interact with data using conversational queries through the 'Ask a question' feature, allowing intuitive data exploration without complex SQL

**ChatGPT-SQL-Integration** - Integrates with ChatGPT to interpret natural language questions and automatically generate SQL queries for execution

**AI-Agent-Automation** - Automates data tasks like querying databases, generating reports, and providing insights using AI algorithms to analyze data efficiently

**Real-Time-Data-Processing** - Enables automated data tasks and real-time insight generation through AI agent integration

# CURRENT PLATFORMS AND TOOLS

4.

MetaBase

# Demo

4.

5.

# REAL-WORLD INDUSTRY IMPACT

## Healthcare Industry

- improves services by continuously monitoring patients' physical, personal, social, and medical data through AI analytics
- augmented BI enhances disease diagnosis, speeds up treatment recommendations, and optimizes drug development and manufacturing.
- augmented BI platforms boost healthcare service quality by saving time and streamlining data tracking for doctors and specialists.
- reduce long-term costs, improve electronic health record management, and allow specialists to dedicate more time to patient care.

# REAL-WORLD INDUSTRY IMPACT

## Financial Industry

Market Base

- Findings showed that AA implementation in banks, financial services, and insurance improves forecast accuracy, reduces costs, increases revenue, enhances fraud detection, and mitigates risks through continuous auditing and monitoring.
- AA also supports marketing strategies and customer loyalty programs by building trust, encouraging greater customer investment.
- Research stressed the need for finance leaders to adopt real-time data processing tools to boost organizational agility, efficiency, and business growth.

# REAL-WORLD INDUSTRY IMPACT

## Logistics and Transportation Industry

- Research shows that **Augmented Analytics (AA)** effectively supports **digital supply** chains by enabling continuous data analysis and automated, insight-driven decision-making
- Companies that invest in analytics experience higher ROI, increased revenue, and improved profits compared to competitors.
- **Augmented BI** and **predictive analytics** offer key competitive advantages by addressing **logistical challenges** through enhanced data analysis and visualization.
- The focus was on improving **supply chain reporting** for managers and **optimizing cargo spending** on both inbound and outbound shipments.
- The project used **qualitative analysis methods** to recommend process improvements.
- The solution involved building a **data warehouse** and using **Power Query and Power BI** to create freight dashboards.
- The outcome: the system helped identify new **trends**, resolve logistics issues, and reduce **freight** operation costs.

# REAL-WORLD INDUSTRY IMPACT

## Manufacturing Industry

- Augmented Analytics (AA) adds value to manufacturing through data **storytelling**, making complex data easier to understand and act upon.
- It was implemented in a chemical company's shop floor manufacturing cell to improve real-time visibility.
- Real-time data stories were created using Power BI dashboards, simplifying the interpretation of operational data.
- These dashboards leveraged human visual and cognitive strengths to provide clear overviews of shop floor activities.
- The system enabled real-time detection of errors or discrepancies in manufacturing processes.

## Applied to Manufacturing Control Systems:

- Company status reports were analyzed to identify and set optimal alarm thresholds.
- Machine Learning (ML) was used to classify alarms intelligently.
- The final solution included Power BI dashboards that visualized plant performance and process status more effectively.

# FUTURE TRENDS & OUTLOOK

In the future, analytics tools will get smarter and easier to use. Three big changes are coming:

- **Proactive Insight Delivery:** Instead of waiting for users to ask, analytics tools will automatically send useful insights. For example: “Sales in Region A dropped 20% this week.”
- **AI-Native Analytics Platforms:** New platforms will be built with artificial intelligence at the center. They can automatically clean data, find patterns, build models, and give smart insights with very little human effort

## CONCLUSION

Data is the oil of the digital economy, and businesses must harness it to stay competitive. While traditional BI tools help in decision-making, they struggle with the growing complexity of modern data.

Augmented Analytics (AA) represents the next evolution, combining BI with AI to simplify data preparation, automate insight generation, and enhance data storytelling through NLP and AutoML.

Our study showed that AA improves the speed, accuracy, and usability of analytics, making it more accessible to non-technical users. While AA does not replace human judgment, it significantly enhances the analytics process.

Going forward, more research can explore how AA can shift the focus from analysts to everyday users—the “augmented consumers” of the future.

# THANK YOU

Thank you for your time and attention today.

