



*More than what you think.*

# AI/ML-Based Forecasting: Enhancing Budget Forecast Accuracy

## Why do businesses need accuracy in budgeting and forecasting?

Amidst the backdrop of geo-political shifts and economic fluctuations, businesses worldwide find themselves navigating through a complex landscape of ongoing conflicts and supply chain realignments. Organizations are increasingly aware of the critical importance of accurate budgeting and forecasting in this dynamic environment. While these challenges may seem daunting, they also present an opportunity for growth and resilience.

### Challenges

Existing geo-political challenges and global dynamics have resulted in manufacturing and logistics chain shifts.

The economic slowdowns and the effects of the pandemic have forced companies to operate with caution and tighter budgets.

Companies are cautiously speculating on potential market improvements but are also tightly controlling their spending to weather economic challenges.

### Opportunity/ Resolution

Organizations require an agile supply chain solution that can model scenarios and respond swiftly to supply and demand fluctuations to navigate this.

While companies aim to retain customer demands, they need robust forecasting & prediction tools to navigate uncertainty and make accurate budgeting decisions.

Accurate budgeting and forecasting tools, powered by AI/ML-based algorithms, become vital data-driven decision-making and resource optimization tools.

Advanced AI/ML algorithms can analyze historical data and external factors to make precise predictions, enabling companies to align their resources, supply chains, and operations with changing market demands. Moreover, businesses need flexible frameworks for their SCM operations to reduce shortages in customer orders and fulfillment, thus enabling uninterrupted experiences. However, customizing software to model these external data poses significant challenges.

Part of our already robust SCM services portfolio, YASH Technologies' budgeting and forecasting solution using AI/ML and in-house accelerators empowers businesses with informed decision-making underscored by accurate predictions.

Our solution's key capabilities include holistic data analysis, encompassing external variables like market dynamics and pricing factors to capture intricate correlations between data and influencing factors. This approach builds a robust forecasting model that ensures your organization thrives on informed strategies, nimble inventory, and seamless production.

## Solution Approach

We adopt a comprehensive approach to showcase the true potential of AI/ML forecasting. Our solution encompasses several key capabilities that drive accurate predictions.

### Holistic Data Analysis

Holistic Data Analysis	Domain Expertise	Adapting to Organizational Constraints	Advanced AI/ML Techniques	Continuous Evaluation and Support
We go beyond traditional forecasting methods by incorporating external variables such as market dynamics and pricing factors. This allows us to capture the intricate correlations between product purchase prices and relevant external factors like product export prices.	Our team's deep industry knowledge allows us to incorporate domain-specific factors and variables into our forecasting models, ensuring relevance and precision.	Organizations face unique constraints, such as long-term contractual agreements with fixed prices, etc., which must be incorporated into the model and used for training the algorithm.	Leveraging our expertise in data science, our dedicated team develops and trains multiple AI ML models for budgeting and forecasting. Through continuous fine-tuning and iterative improvements, we achieve exceptional accuracy rates exceeding 80%, arming businesses with reliable insights. The data science team uses multiple AI/ML models like the Facebook prophet model and ARIMA, to name a few.	We evaluate forecast accuracy, measure errors, and refine models to ensure reliability. Our team provides ongoing support, guidance, and consultation throughout forecasting.

## YASH AI/ML Accelerators

### Transforming Demand Predictions with Cutting-Edge Algorithms

YASH Technologies offers a unique solution leveraging cutting-edge algorithms and state-of-the-art technology to transform demand prediction. Our AI/ML accelerators are designed to provide accurate forecasts using advanced techniques.

#### YASH AI/ML Accelerators

Leverages cutting-edge algorithms for accurate demand predictions (Facebook prophet models, ARIMA, and many more)	...	Incorporates external factors like global warming, crude oil pricing, etc., for enhanced accuracy depending on the industry and the applicable external factors	...	Interfaces seamlessly with SAP and non-SAP systems (APO / IBP).	...	In-built tool with plug-and-play approach, minimal customization needed
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# Customer Case Study

## Budgeting forecast and pricing analytics using AI/ML

The Client is a global lead and lead alloy manufacturing leader with smelters across three continents.

### How did we analyze and forecast the major cost items?

*The YASH Data Science and Business Consulting team synthesized the required data from multiple data systems to create a single source of truth for the budgeting exercise*

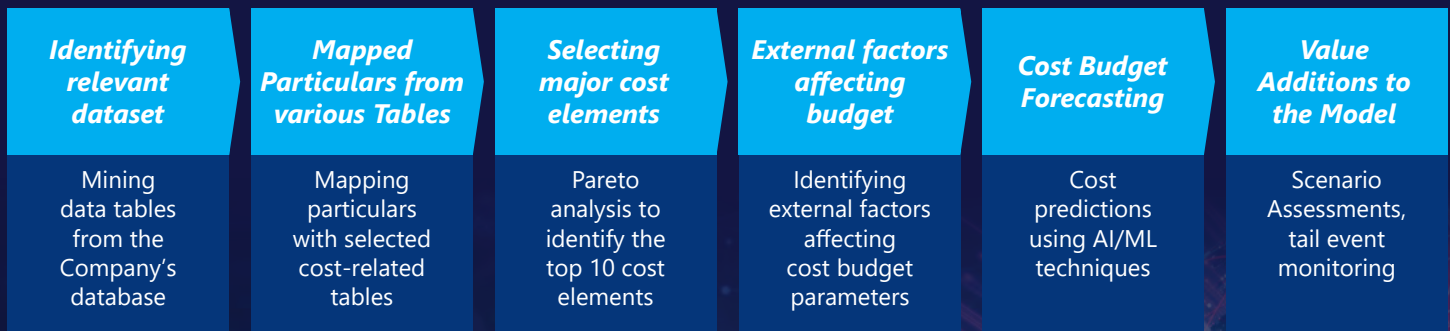
*We extended the cost budgeting capabilities by modeling with tail events, sensitivity analysis, correlation matrix analysis*

*The team performed various analyses to identify significant cost elements and mapped them to the external factors that can impact the cost elements' price movements*

*Achieved an accuracy rate of 85%+ with various AI/ML models like the Facebook Prophet model, ARIMA, etc.*

*We trained multiple AI / ML models for budgeting and forecasting through continuous fine-tuning and iterative improvements*

### Critical Steps in this Cost Budget Forecasting Exercise

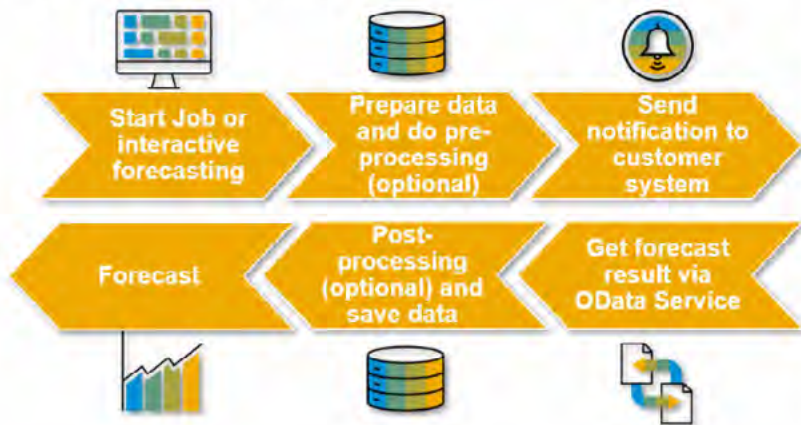




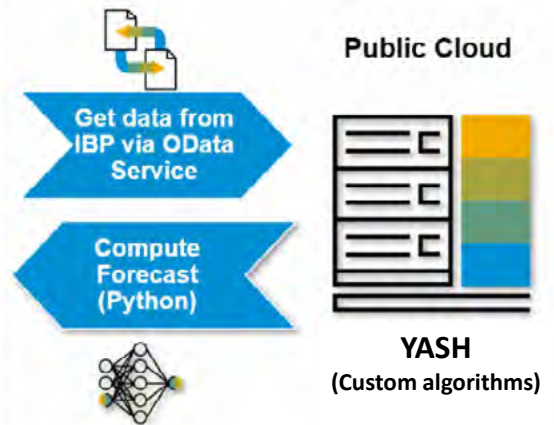
# Integration of YASH Accelerator with SAP/ non-SAP Systems

## SAP IBP for Demand

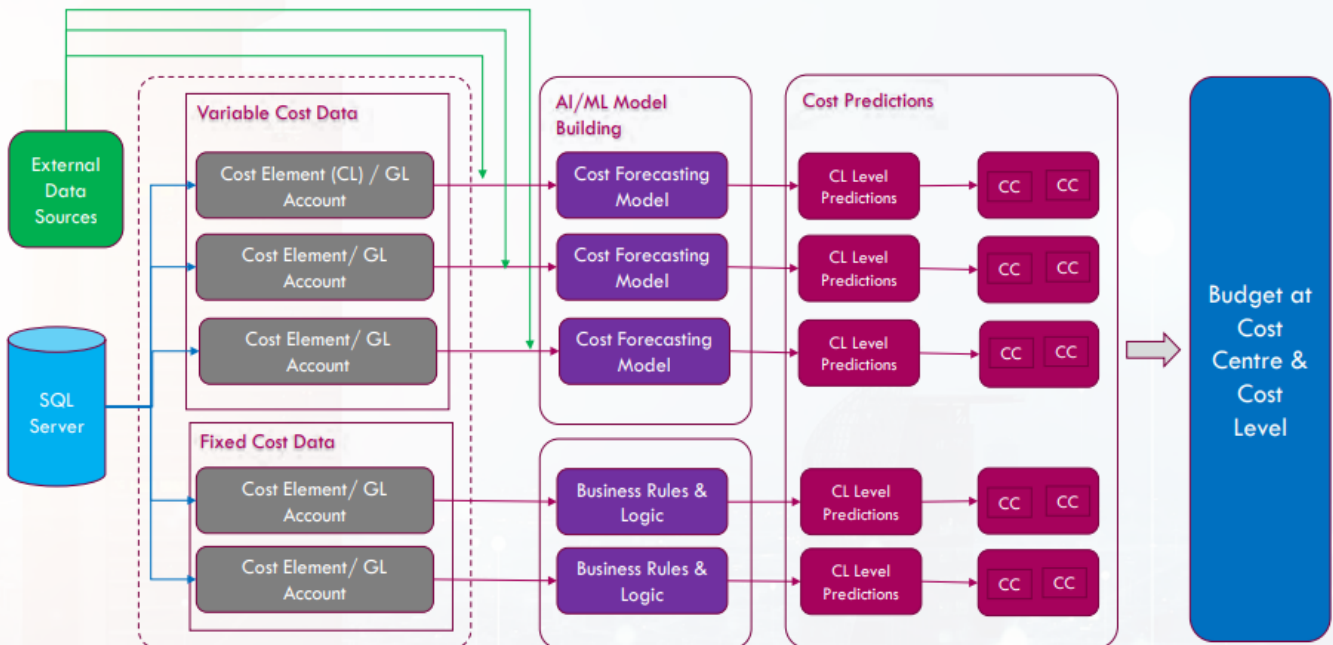
### Communication scenario



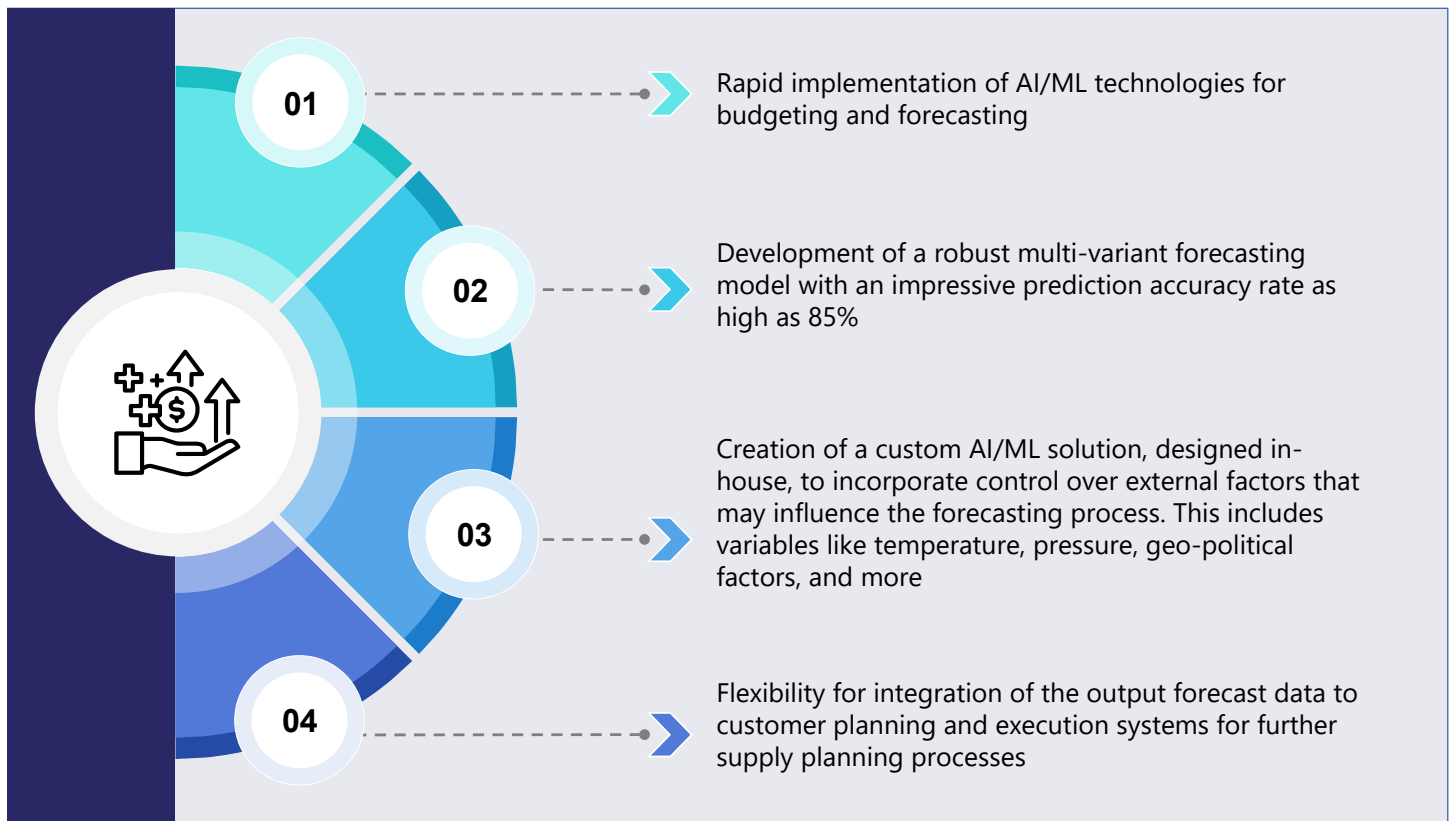
## SAP Data Intelligence (SAP DI) via Business Technology Platform (SAP BTP)



# Solution Approach



# Business Benefits



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**Global Presence: AMERICAS | EUROPE | APAC | MEA**

World HQ: 841 Avenue of the Cities East Moline IL-61244 USA

Tel: 309-755-0433 | Fax: 309-796-1242 | [www.yash.com](http://www.yash.com)



For more information contact  
YASH today at [info@yash.com](mailto:info@yash.com)  
or visit [www.yash.com](http://www.yash.com)