PREDICTING CUSTOMER DEMANDS WITH INTELLIGENCE

Abstract

Lack of accuracy in demand forecasting can lead to lost sales, depleted inventories, unhappy customers, and millions in lost revenue. When a leading US-based electronics component distributor found gaps in their demand forecasting – and the issues it caused downstream in the organization – they turned to Infosys BPM for the fix. They collaborated to implement an AI/ML-based solution which led to a reduction in $3 Mn in inventory costs while improving the forecasting accuracy by 25%.

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The client is a leading electronics components' distributor, based out of the US. With revenues of over $30 Bn, the client is among the renowned Fortune 500 companies.

Unprecedented problems in prediction

The client faced a multitude of problems due to a long tail of stock keeping units (SKUs) - unique or hard-to-find SKUs at 'the end of the curve' that did not generate high sales volumes and suffered 'lumpy demand' – and high quantities of slow-moving inventories. They found that a large proportion of components in stock had intermittent demand of ~80%. Their current systems were short equipped for demand forecasting, making it difficult to forecast future demand with high accuracy.

The distributors' teams suffered from a lack of visibility into the drivers of changing demand patterns, and this made it difficult to manage large demand variations, mainly upsides.

Also due to point forecasts (linear and single numbers), it was difficult to perform capacity and resource planning, as both were demand-dependent functions, leading to reactive planning rather than proactive.

Towards accurate forecasting

It is not possible to predict the future with absolute certainty. However, data-backed analytical models can make informed predictions with increasing levels of accuracy. Issues with demand forecasting in most companies are usually to do with missing or improper data usage.

The Infosys BPM team aligned with the client's organizational objective by implementing an innovative forecasting framework. Based on a demand pattern analysis, the team identified parts with continuous demand and classified them as 'forecastable' parts. The team deployed multiple AI/ML-based forecasting models, including some advanced models for parts that had intermittent demand.
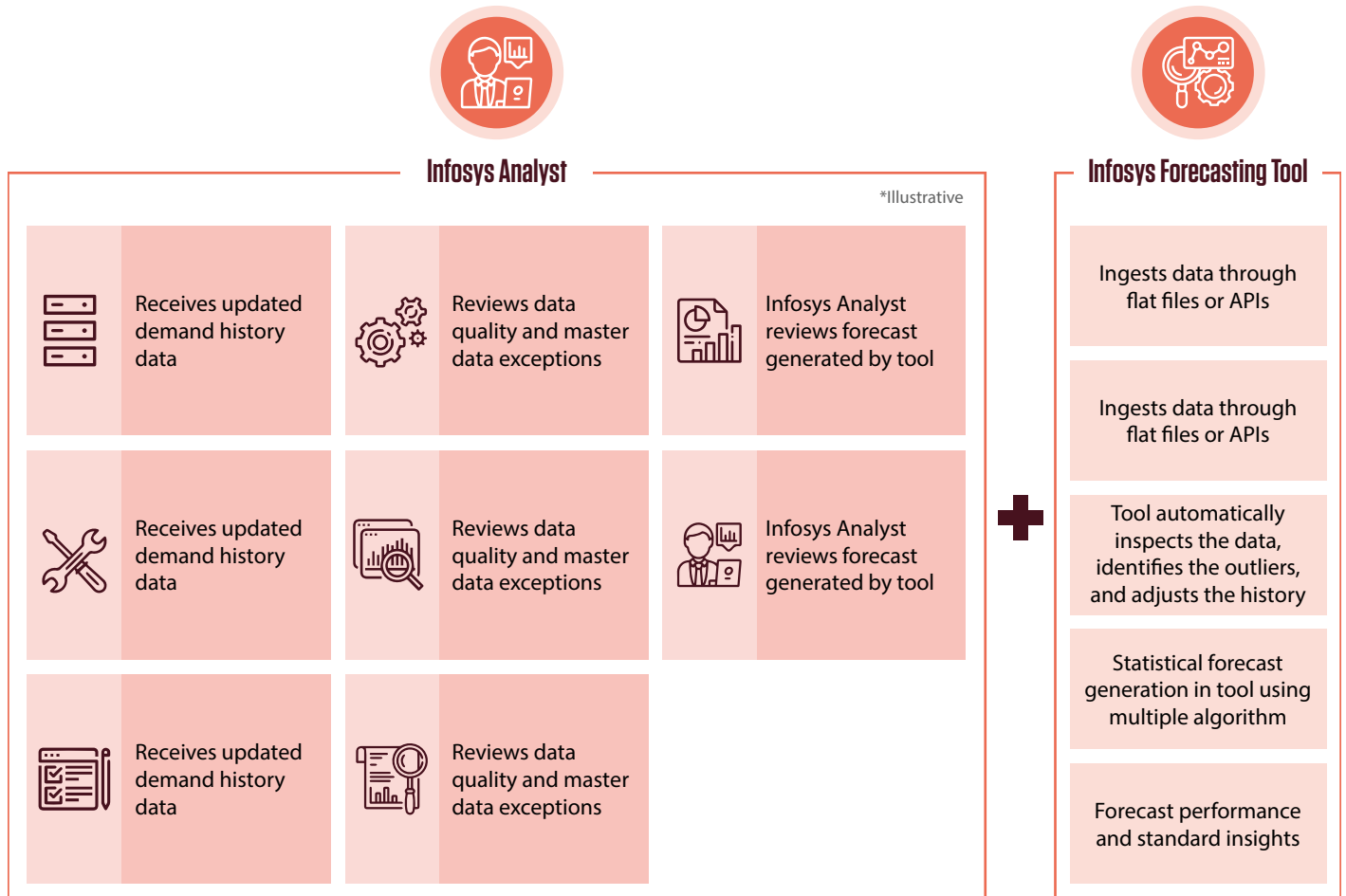
Infosys Analyst

*Illustrative

Receives updated demand history data	Reviews data quality and master data exceptions	Infosys Analyst reviews forecast generated by tool
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Infosys Forecasting Tool

Ingests data through flat files or APIs
Ingests data through flat files or APIs
Tool automatically inspects the data, identifies the outliers, and adjusts the history
Statistical forecast generation in tool using multiple algorithm
Forecast performance and standard insights

Fig: Forecasting-as-a-Service

Range forecasts were generated based on confidence intervals, to give multiple scenarios for capacity planning - optimistic, most likely, and pessimistic values. The team developed the forecast models using a programming language for statistical computing, and the best fit model selected were based on least error.

Outcomes of accuracy

The solution implemented by Infosys BPM helped the client in multiple ways. The analytics-based insights to classify and select the appropriate strategy helped enhance the demand forecast accuracy by 25%. This further led to reduction in inventories, thereby delivering savings of $3 Mn.

In the process, the team also built a library of forecasting techniques including advanced AI/ML models for the client to select from in their demand forecasting function. These multi-fold benefits along with accuracy are a true testament of the robust partnership between the client and Infosys BPM.

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