



# *Huffy Bicycles relies on predictive demand planning to increase forecast accuracy*

## **The Challenge:**

Huffy's lead-time for bicycles is 90-120 days. Due to this relatively long lead-time, Huffy places a high-value on correct DC inventory stocking levels. Insufficient inventory at the time the retailer places an order, results in lost revenue and unhappy customers.

## **The Solution:**

Build a platform with IBM Analytics to create a solution that was fully customized to fit Huffy's exact business needs. The solution seamlessly integrated the final, approved forecasts directly into Huffy's order management system.

## **The Benefits:**

Sales associates have a significant reduction in work load through forecast automation. Sale associates also have a wealth of information available that serves to validate and improve forecasts.



## About the Customer

Huffy Corporation designs and markets one of the top selling bicycle brands in the U.S. and internationally. Huffy not only distributes Huffy brand bicycles but is also a key partner with Disney, Marvel, Panama Jack, and others in marketing co-branded bicycles. From its headquarters in Dayton, Ohio Huffy sources from manufacturers in Asia and imports products to its own U.S. based distribution centers to supply both online and traditional brick and mortar retailers.

## Huffy's Business Challenge

Huffy's lead-time for bicycles is 90-120 days. Due to this relatively long lead-time, Huffy places a high-value on correct DC inventory stocking levels. Insufficient inventory at the time the retailer places an order, results in lost revenue and unhappy customers. Traditionally, to prevent inventory short-falls at the DCs, a relatively high level of safety stock is kept on-hand. However, this inventory represents a large carrying cost that reduces Huffy's free cash flow.

Forecast accuracy is incredibly important to Huffy; however, the forecasting process prior to the QueBIT solution was a challenge due to intuition and not enough reliance on analytics. As a result, Huffy was finding that it was difficult to produce accurate forecasts. The accuracy problems were the result of a process that was largely driven by customer input and sales associates intuition. Without a data driven analytics process in place inconsistencies were found at the sales associate and customer levels. Finally, because the process was manual it required a large amount of the sales associate's time which resulted in sales inefficiencies.

The challenge was to replace this laborious, inconsistent, manual process with a fully automated, analytics driven solution that made sales professionals more efficient, improved forecast accuracy, reduced inventory short-falls while maximizing inventory availability at multiple DCs for all the items in the Huffy supply chain.

## QueBIT Introduction

QueBIT was honored to be selected as the IBM business partner to help Huffy transform its inventory forecasting process. QueBIT is a multiple year recipient of the IBM Business Partner of the Year award and has deep expertise in delivering analytically driven solutions for supply chain and finance. QueBIT has delivered hundreds of successful enterprise-level implementations using the IBM Cognos TM1, SPSS Modeler and Cognos BI platforms.

At Huffy, as with all of QueBIT's clients, QueBIT implemented its CARE methodology that enabled Huffy to be active participants in the solution development and deployment. This approach included hands-on training and deep collaboration throughout the solution implementation. At the end of the implementation, Huffy was able to not only manage the predictive demand planning solution but was also able to actively extend the solution.

***“Given the time constraints on our entire business process, QueBIT's implementation set the stage to streamline and improve our forecasting accuracy.”***

*Dan Carlascio, CIO/Director of Global IT*

## Predictive Demand Forecasting

The QueBIT solution is founded in predictive analytics. Using IBM SPSS Modeler's advanced predictive analytics platform, the solution leverages predictive modeling to generate the most accurate demand forecasts possible. Specifically, the QueBIT team employed ensemble modeling techniques (many predictive models working together) to improve Huff's forecast accuracy. Data inputs, such as holiday schedules and POS sales, were analyzed by predictive models to identify trends and complex variable interactions to generate a highly accurate, two-year weekly forecast for all Huff items at the DC level.

In addition to items with existing sales histories, the solution includes bootstrap forecasting models that can predict the demand for new items. If Huff decides to sell a new Disney boy's bike with 20" wheels (has no sales history), the bootstrap model can generate a highly accurate demand forecast using a predictive model. This model leverages all the attributes of the retailer and bike to generate a forecast based on extrapolations from existing bikes. The result is a dramatically improved forecast especially when there is no similar item in the supply chain.

***“QueBIT's ability to rapidly develop prototypes, while delivering continuous feedback through hands-on demonstration, enabled us to optimize the design to meet the business requirements in a remarkably short time.”***

*Dan Carlascio, CIO/Director of Global IT*

## User Interface & Experience

The combination of IBM Cognos TM1 and IBM Cognos BI that are the basis for the QueBIT predictive demand planning solution delivers a rich user interface with the near limitless ability to customize user interactions and visualizations.

IBM Cognos BI delivers user customizable charts/graphs that allow sales associates to view historical demand, forecast and ATP (available to promise) inventory levels in a single view. In addition, the solution delivers configurable dash-boarding and reporting that allow sales associates and their managers to monitor forecast accuracy and forecast value add by customer, brand, sales person, etc. Problems with forecast accuracy generate alerts that allow sales associates/managers to quickly drilldown to problem customers and/or products.

IBM TM1 provides a feature rich interface for viewing and modifying the forecasts. Changes to forecasts can be made in real-time with full auditing of cell-by-cell changes. The solution also supports a workflow that takes the forecast from system to sale person to sales manager through an approval process.

Because the QueBIT predictive demand planning solution is based on IBM platform technologies, QueBIT was able to build the interface to match Huff's exact needs.



## Benefits

The QueBIT predictive demand planning solution represents a significant change in the forecasting business process for Huff y. Sales associates have a significant reduction in work load through forecast automation. Sale associates also have a wealth of information available that serves to validate and improve forecasts. Instead of customer driven forecasts, Huff y now has the ability to deliver accurate, analytical forecasts to their customers to aid in negotiation and supply chain planning. Huff y is now delivering value back to their customers during the planning phase.

In addition to an improved and streamlined planning process, Huff y is also benefiting from a more accurate demand forecast. Forecasts now leverage predictive analytics to incorporate multiple data inputs to drive a more accurate (and responsive) forecast. The high degree of automation allows changes to data inputs to generate updated forecasts in short order.

The end result is that Huff y now has an improved planning process that enables them to deliver more insight and maximize product availability for their customers while maximizing their own cash flow (through reduced overstock levels).



## Solution Overview

The QueBIT predictive demand planning solution is based on the integration of several IBM platforms: **IBM Cognos TM1, IBM Cognos BI and IBM SPSS Modeler**. These products are platform based and allowed QueBIT to create a solution that was fully customized to fit Huff y's exact business needs. The solution seamlessly integrated the final, approved forecasts directly into Huff y's order management system.

## About QueBIT

Trusted experts in analytics, QueBIT is dedicated to helping organizations leverage their data to make more intelligent decisions, that result in significantly improved business value. QueBIT has delivered analytics solutions for more than 450 organizations, including some of the largest and most successful companies in the world. QueBIT solutions span the entire spectrum of analytics, from data management, including Big Data strategy and implementation, Business Intelligence, Business Planning, Predictive Analytics and IoT Analytics. QueBIT's unique CARE methodology coaches customers to achieve independence in solution ownership, while delivering rapid time to value. QueBIT has been recognized by many industry awards. [www.quebit.com](http://www.quebit.com)