



# A dynamic machine learning approach to supply chain forecasting

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# ...and those disruptions cost a fortune

#### Supply-chain-disruption losses equal 42 percent of one year's earnings before interest, taxes, depreciation, and amortization on average over a decade.





#### Business leaders cite multiple sources of supply chain vulnerability.

Which of the following conditions currently makes your company most vulnerable to value chain disruptions due to any cause, including COVID-19?, % of respondents

leaders on where they see the greatest vulnerabilities in their supply chains. Respondents highlighted demand variability and the difficulty of accurate forecasting as the top concern (32%). Covid-19 has made forecasting more difficult, with varying impacts on consumer behavior and preferences, global economies, and uncertainty about the length and severity of pandemic-fueled changes. Automotive and chemicals firms were especially concerned about demand variability.

McKinsey also surveyed company

Demand variability

Sole sourcing/ nonsustainable inputs

Long input lead times

Low/just-in-time inventory

Lack visibility on supplier risks

Concentrated production

**Risk-prone logistics** 

Aging plant and equipment

Short shelf life of products



#### THE BULLWHIP EFFECT



#### **TOP SUPPLY CHAIN ISSUE: 73% SAY INABILITY TO ADJUST TO FLUCTUATIONS IN DEMAND**

Source: <u>RIS, Supply Chain Tech Study, 2020</u>

Customers (Demand Signal)



Manufacturers (Forecast)

## **Forecast error ranges** from 15% - 50% or more

**Forecast inaccuracies are driven by:** 

- Internal data access challenges
- Lack of supply chain data sharing
- **Exogenous or unplanned events**
- **Item + channel proliferation**
- **Complexity of forecasting models and** processes
- No easy way to manage exception and restate forecast dynamically



# Success in a world of structural change

"The ability to generate customized and adaptive models quickly will be a key determinant of success: It's a different world from the relatively stable data and analytics world of the past."

-MIT Sloan Review





real-time?



#### **AI & AUTOMATION POWERED PROCESSES**



## What if data can be shared instantly throughout your supply chain, to all participants, and then AI applied to balance supply and demand in

#### Real time Visibility instead of EXCEL





# Machine learning: Algorithms learn from past data to differentiate between anomalies and predict trends quickly





Trends can be reacted to and modeled Anomalies must be investigated and better understood Combined with Automation, ML powers AI systems



Results at the speed of your business

# The Paradigm Shift of InstantML





## A Machine Learning Revolution

# InstantML





## Results in Seconds Integration in hours



Hyper Automation for the Data-ML-DEVOps Cycle

Easy to use

No-code



Accurate, award-winning results



Human-readable models

Explainable to business



## Available on the Azure Marketplace

Microsoft

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Products > Dynamic Demand Forecasting - Production & Services



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Overview Plans + Pricing Reviews

Dynamic Demand Forecasting with TIM Tangent Works InstantML and Alteryx Analytic Process Automation

The current market conditions have created an immediate market opportunity specifically within the supply chain function to deliver low-code, automated, integrated solutions that cannot be delivered by existing supply chain software players. With Alteryx Analytic Process Automation (APA) you can achieve Supply Chain Automation across eco-systems through real time cross data sharing and automated analytics without forcing your organization to adhere to specific standards and technologies.

Create a set of validated solution frameworks that leverage APA and preferred technology partners to deliver enterprise scale value to customers at a strategic level.

TIM from Tangent works, providing Real Time Instant Machine Learning, can be used to complement what-if and simulation scenarios for budget exercises, adapt maintenance for product support strategies, run forecasting and anomaly detection on digital twins in product design, do risk assessments in your business transformation process, etc. With TIM users can shorten the time to run and compare scenarios, include different future market projections as predictor candidates and easily interface with simulation tools.



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## Case Study: Adaptive Demand Planning

Analytics for Retail and Consumer Products Demand Better, Faster, Deeper Data





#### **DATA AT SCALE** 80,000,000 Sales

Transactions 400 Store Locations 90,000 Products



### COLLABORATION

Live sharing of scenarios and results to external and internal stakeholders



#### NO CODE DATA PREP

Data cleaning One hot encoding Time-series preparation



N

#### **INSTANT ML FORECASTING**

Real time models Dynamic scenario planning Extremely low MAPE



Integration with live weather forecasting

TECHNOLOGY alteryx snowflake

