ReSense

Redefine Retail Demand Forecasting With Immersive AI Driven Analytics

Assess | Analyse | Augment

Navigating the Headwinds

Globally, retailers are caught in a quagmire. The COVID-19 outbreak has completely upset the retail cart - what was valid a couple of months ago has lost its relevance today. While some retailers are experiencing unprecedented demand surge, others are witnessing shrinking sales numbers at this current juncture. Ability to predict demand accurately is the key to adapt to the present uncertain situation.

Even before the COVID-19 outbreak, retail as a vertical was at an inflexion point - Brick and Mortar retail enterprises started adopting digital technologies to stay in the race and be relevant to market dynamics and face the onslaught of 'born in digital' companies. The tech roadmap that retailers have inked stands at the crossroads. The sudden onslaught of COVID-19 has revealed the current limitations of the retail solutions, mainly in the area of demand forecasting and inventory management.

The time is now to bring in specific technology infusions that will help mitigate the impact and bring in a rapid response model to market realities as retailers quickly realign themselves to the new and for the next normal.

Altered Retail: The COVID-19 Impact and the Pain Areas

Countrywide lockdowns leading to consumer panic and unusual purchase behaviours.

Demand forecasting and inventory management challenges due to traditional dependency on historical sales data, which is now largely irrelevant.

Identification of a new set of fast-moving merchandise for each catchment and store based on external/local factors.

Discounting or any other promotion to liquidate slow-moving items to create shelf space for fast-moving merchandise.

Forecasting oversights, as no single forecasting algorithm is precise across all product categories.

The Panacea: A Retail Insight Ecosystem Powered by AI

Nihilent developed its retail forecasting solution leveraging years of industry expertise and its deep retail industry domain knowledge. ReSense – a Cloud hosted Software as a Service (SaaS) solution provides the demand forecast by utilising multiple forecasting algorithms, including univariate and multivariate time series forecasting models, Machine Learning (ML) including deep learning models. These models are chosen to replicate numerous different demand patterns including extreme volatile patterns. The application refines demand forecasting accuracy by segregating actual demand from sales data, which is generally used for demand forecasting.

The uniqueness of the solution lies in the way it leverages a judicious blend of algorithms, the existing solutions in the market do not have this. The accuracy of the forecast lies in the effectiveness of the algorithms. We do this by leveraging our very strong forecasting library, which is very robust and enables the mix and match of algorithms for a specific product category, the sales and demand patterns. Also, most of the existing solutions in the market use sales data for forecasting and hence give only a sales-driven forecasting picture. We factor in the demand scenarios and predict the consumption patterns of a particular product high to low. This helps in deepening the specific inventory and trimming out slow-moving products.

Reinventing the retail forecasting solution becomes all the more relevant. Nihilent's ReSense analytics solution specifically caters to the current unprecedented times, and infuses the much-needed business alignment with an extremely volatile market dynamics and helps in navigating uncertain times.

The Key Takeaways

Banking on an AI-driven approach, the solution is extremely relevant for the retail industry to navigate through the current uncertain situation and emerge stronger.

- Inventory management and supply chain optimization ensures continuity and no stock out scenarios.

- Capacity to predict demand accurately- most relevant for the present uncertain situation.

- Higher forecast accuracy: This not only ensures on-shelf availability of the product with reduced inventory but also simultaneously helps in managing the firm's cash flows more efficiently.

- Leverages a combination of algorithms from statistical and Machine Learning fields to improve the accuracy of forecasts across different product categories. And AI significantly improves demand forecasting at a micro-level and facilitates the right response to optimize inventory at a store level.

- The solution fosters greater forecast accuracy by integrating external event-specific data with internal data.

Solution Deep Dive: What's in Store?

The solution helps in a drilled down discovery of product segmentation, demand forecasting and price optimization, the three major tangible parameters for any retailer and enriches the insight ecosystem and enables them to achieve:

REVISED ASSORTMENT PLAN	DEMAND FORECAST	PRICE OPTIMIZATION
- Identify slow-moving and fast-moving products - Manage inventory to ensure supply continuity	- Predict daily sales at SKU level for each store - Ensure no stock out scenarios - Inventory tracking	- Determine markdown price for slow moving items - Build product baskets to liquidate stocks

Assortment Plan for devising store and category-specific response:

- Identify slow- and fast-moving products based on recent sales data.
- Create sales and inventory matrix to identify product segments (high sales-low inventory, low sales-high inventory, etc.).
- Utilize insights from segmentation to design customized response plan for optimum demand and supply continuity.

Demand forecasting using advanced analytics:

- Ensemble multiple advanced Machine Learning including Deep Learning, and statistical techniques to enhance forecasting accuracy.
- Refine forecasting model with external situation specific information (e.g. number of COVID-19 cases, time till lockdown notifications, etc.).
- Retrain forecasting models daily with new data.

Develop pricing strategy by analysing demand and price sensitivity:

- Determine discounts using economic models such as Price Elasticity, Substitution and Income Effect, etc.
- Deploy AB testing to refine price optimization across stores.
- Develop product bundles using product affinity rule for higher sales and faster inventory liquidation.
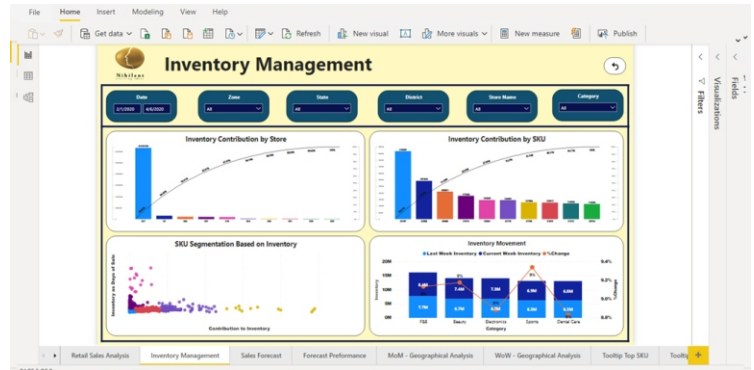
The strong on-demand dashboards provide the user with additional insights to segment SKUs by stores, categories, variants, etc. The user can utilize insights from segmentation to design customized response plan for optimum demand and supply continuity.
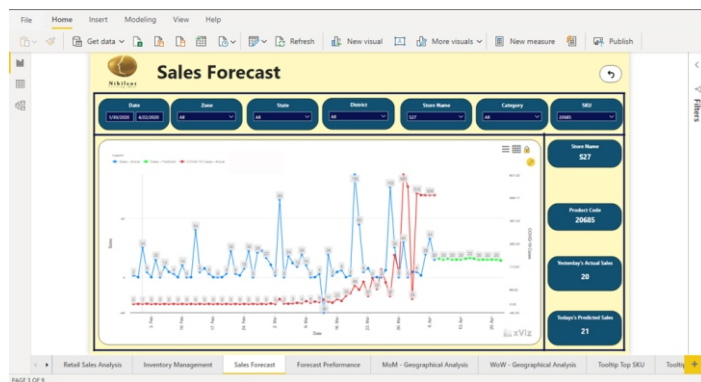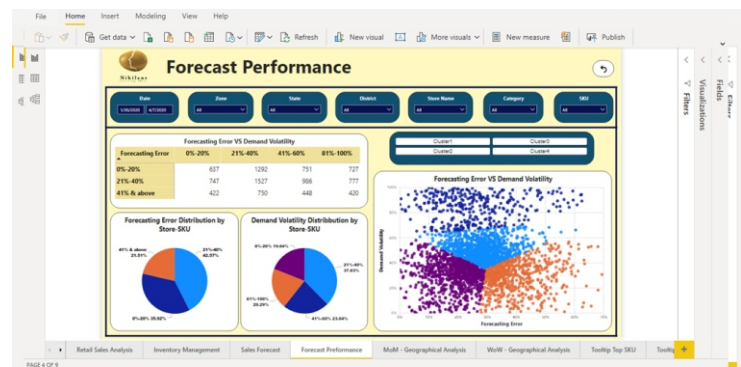
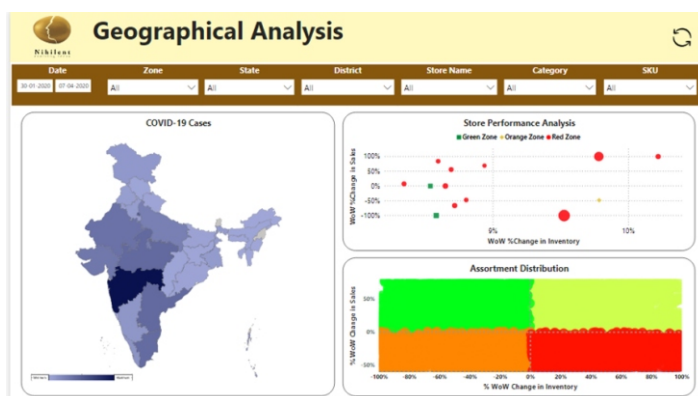## Retail Sales Analysis
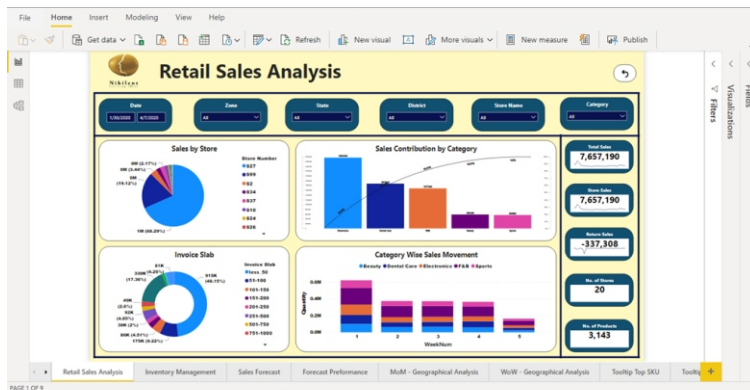
Inventory Management

Sales Forecast

Forecast Performance

Geographical Analysis

Nihilent's Retail Solution Expertise

Nihilent's retail practice is focused on addressing retail industry challenges around customer engagement, omnichannel presence, store design, deployment of business-critical enterprise technologies like ERP systems, along with profitable trading. We have enabled digital transformation for some of the leading retailers in the world with our proven expertise.

We help retailers grow their business through specialized eCommerce, Supply Chain Traceability, PoS (Point of Sale), Retail Analytics and Machine Learning-Driven solutions, UX Testing, Bespoke Application Development, SAP S4 HANA implementation services, Application Integration Services, and Mobile Solutions. At Nihilent, we bring a holistic approach to our customers transform into a digital business.

Let's Talk About Change!

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About Us:

Nihilent is a global consulting and services company that uses human-centered approach for problem-solving and change management. Nihilent's comprehensive range of expertise in customer research, process and technology enables newer heights of business performance.

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