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## Highlights

- Harmonizes enterprise data with IBM-curated hyper-local datasets, city by city.
  - Uses pre-built statistical models to help solve industry specific challenges like demand forecasting, asset allocation and product mix.
  - Identifies relationship between demand and key drivers, both external and internal.
  - Provides actionable insights and estimated financial benefit of taking action.
  - Offers modular approach, focusing on core requirements for having the right products in the right place at the right time.
  - Allows for configuration to match your enterprise's unique requirements.
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# IBM MetroPulse unlocks purchasing behavior insights, block by block

*Drive hyper-local recommendations for retail and CPG companies*

Brick-and-mortar stores face increased pressures as e-commerce dominates any growth figures. Yet, stores have a significant role to play in a multi-channel strategy; they allow shoppers immediate access to their favorite products while providing a tangible connection with the retail brand. To gain positive differentiation, stores must address their customers' unique needs—not the average customer, because averages don't drive good results. These unique characteristics can be seen in customers that shop in a specific neighborhood. That requires a deep and dynamic understanding of hyper-local demand.

IBM® MetroPulse provides recommendations for retailers and consumer packaged goods (CPG) companies on what products to list where, predicts demand at the SKU level and helps identify potential locations for new stores and assets based on projected sales. The insights are derived from an extensive data lake provided by IBM, combined with the enterprise transaction data, all at the location level. Pre-built analytics process the data, identifying the key predictors of demand. Using the insights to take the right action in the appropriate systems, you may see a three to five percent net sales increase.



**Pre-built analytics and proprietary data lake**

MetroPulse is a modular cloud-based platform designed to support retailers and CPG manufacturers in addressing the most pertinent strategic and tactical questions; where to have a physical presence, how to stock it and with how much inventory, to enhance sales, margins and customer satisfaction. Each module consists of pre-built predictive models, which have been fine-tuned by IBM's data scientists based on years of delivering analytics and outcomes to clients across the world.

The modules are powered by a rich and dynamic, location and time-stamped dataset consisting of the enterprise's transaction and product data combined with a data lake of third party data, which IBM provides and curates. By using advanced analytics, drivers of performance (such as sales and profit) are originated, location by location, and SKU by SKU, as the models are trained on historical data, and continuously refreshed as new data is entered. Product and category affinity is defined, to incorporate relationships causing halo or cannibalization effects into the analyses, as recommendations for each store or neighborhood are generated.

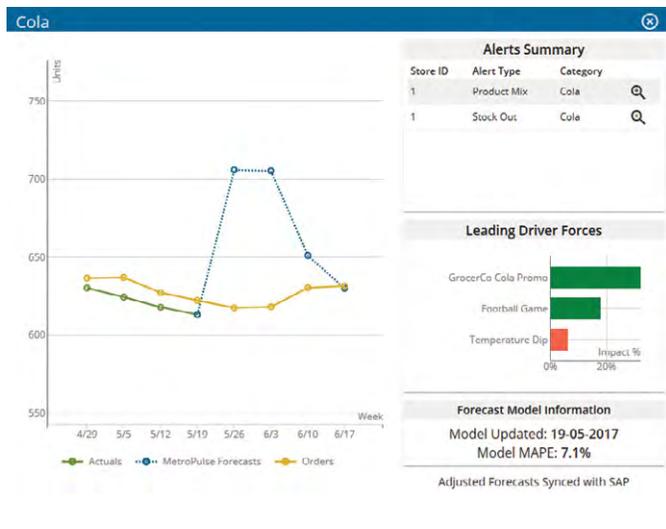


Figure 1: Demand Forecasting helps predict demand at the SKU level.

MetroPulse currently offers three core modules, which can be deployed separately or together:

- Asset Allocator identifies opportunity for new locations for point of sale locations (vending machines, stores and so forth).
- Product Mix recommends changes to the assortment in each store.
- Demand Forecasting predicts demand at the SKU by location level.

New modules will be added over time, and additional functionalities can be developed on a case-by-case basis.

**Data lake**

The data lake is procured and curated by IBM, to help ensure that the most reliable data sources for each geography and each purpose feed into the analytics. Datasets used in the core modules\* are:

- Census and socio-demographics
- Weather
- Events
- National holidays
- Points of interest
- Competitor locations

\*Other datasets can be procured and integrated into the analytics if identified as relevant to the specific geography and sub industry.

**Analytical approach**

Each module utilizes the type of advanced, predictive analytics that provide the specific outcome with the greatest possible degree of accuracy. The analytical approaches include linear regression, parametric regression and non-parametric time series modelling.

While IBM's data lake is hosted in a multi-tenant cloud, the analytics and enterprise data are deployed in a single tenant cloud, maintaining the privacy of the enterprise's own data and outcomes.

### Turning insights into action

The SaaS platform delivers insights that support processes and decisions across multiple business functions. MetroPulse has pre-configured dashboards for an intuitive visual representation of trends and predictions, useful for business reviews and for prioritizing actions to deal with ad-hoc opportunities or issues. Providing shared access to predictive insights, cross-functional collaboration is expanded. Store managers can review with the respective category buyers the impact of changing the assortment to reflect the persona of the neighborhood as well as short term drivers.

Meanwhile, the underlying data is available to feed into the organization's reporting, planning, assortment and other operational tools for integration into existing workflows. The data flows can be configured to allow for as much or as little human intervention that is considered appropriate for each decision area. The enterprise is in control of striking the right balance between automation for efficiency and scale, and making decisions where the data driven insights, the business users' expertise and other factors come together.

*Centralized buying organizations have helped drive efficiencies throughout the buying process, but they have also led to ranges looking more similar across retailers. Enabling stores to mirror the local flavor of their neighborhoods will help tie shoppers to those stores for longer.<sup>1</sup>*

### CPG company learns where to create or grow distribution

The MetroPulse platform is based on the cumulative learnings of IBM's analytics and industry experts that work with retail and CPG businesses across the world.

One example is a global CPG manufacturer who deployed the technology in major cities to boost sales of a flagging product category. Over 600 input sets were collected and curated to create a 360-degree hyper-local view of neighborhoods, comprising external and internal data including transactions by SKU with attributes including channel type and retailer; economic and demographic data such as median household income, age range, ethnicity and number of children; and points of interest located around stores.

The analytical engine developed microclusters—a precise, holistic and micro-view of locations, consumers and point of sale—and generated detailed and actionable recommendations on product mix and market potential. The characteristics of the highest performing clusters gave the marketing and sales teams clear guidance as to where to seek new distribution. Furthermore, account managers now had the insights with which to convince retail buyers to provide a greater brand presence in an existing location without paying for more shelf space. These insights helped them identify a 7 to 15 percent growth opportunity at store and SKU level.

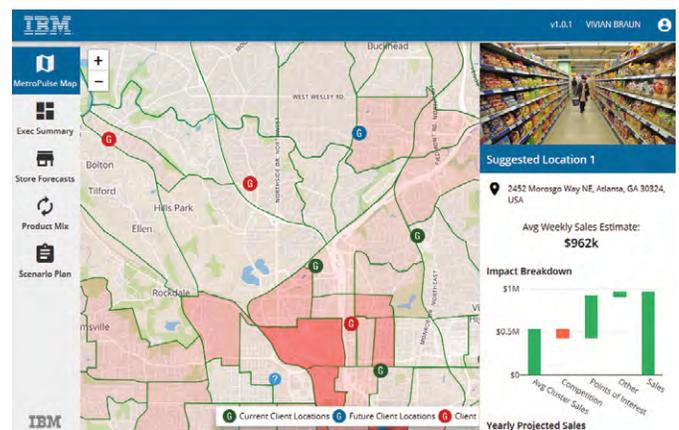


Figure 2: Asset Allocator identifies opportunity for new point of sale locations.

**Anticipating your catchment area requirements**

For another example of the power of IBM MetroPulse, consider the following scenario.

Antonio is a store manager, working for a national grocery chain. The merchandise planners at the head office issue national base assortment plans for three store types defined by size (small, medium, large). Corporate also manages the replenishment calculations. However, stores have discretion over 25 percent of the range, which they can tailor to their local demand, and can adjust the centrally calculated demand forecasts. Antonio has worked in the store for nearly 10 years, so he has a good sense of the local shopping patterns. However, to quantify and weigh up the factors that impact his business potential, he uses MetroPulse’s Product Mix and Demand Forecasting modules.

*74% of retail winners surveyed claim to have a solid understanding of forecasting tools and techniques, versus 32% of others. 40% of retailers surveyed say that out of stocks remain a persistent problem while 34% rate underperforming inventory as a top three challenge.<sup>2</sup>*

MetroPulse understands that demand changes if a major event is taking place in the local park and nearby stadium. Its sophisticated data aggregation capabilities enable it to predict how weather can affect demand when leading up to an event. The vicinity of a school causes fluctuations in demand during holidays, as two competitor stores are located more closely to the largest residential area.

With the help of MetroPulse, Antonio can enter more accurate demand forecasts into the ordering system and issue an assortment plan that reflects the dynamic nature of synergistic and competing forces in his neighborhood. He has seen revenue grow and has nearly eliminated costly clearance promotions caused by excess inventory. Importantly, his customers are satisfied that Antonio’s store meets all their grocery requirements.

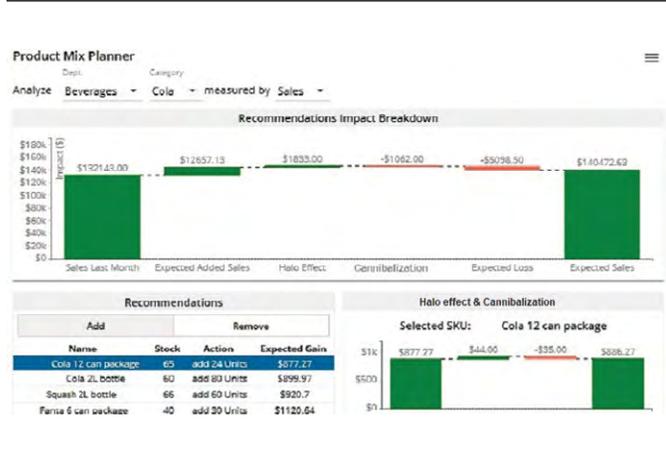


Figure 3: Product Mix recommends changes to the assortment in each store.

### Getting started in a matter of weeks

The pre-configured modules and the curated data lake that come with MetroPulse help ensure faster time to value. Organizations can decide on the pace of the roll-out, addressing city-by-city, country-by-country according to the size of the prize, and implementing the modules that best support the business objectives.

The enterprise data that form part of the analyses are to be configured for ingestion by the analytical engine. Historical data is required to train the models to make them unique to each business situation, and an ongoing data refresh supports the machine learning while keeping the SKU plans and locations current.

The level of integration of MetroPulse's outcomes into the incumbent order, replenishment and assortment systems is subject to the organization's desire to automate workflows vs having manual decision points. If the business' requirements extend further than the capabilities of the current core modules and data lake, IBM's services teams can bring together other data sources and augment the analytics engine to deliver the insights required for meeting the priority business objectives.

*48% of retail winners (23% of others) view location-based intelligence as a key technology for enabling better store site selection.<sup>3</sup>*

To learn more about how MetroPulse helps you improve revenue, margins and customer engagement, contact your IBM representative or visit: [www.ibm.com/us-en/marketplace/local-data-for-business-intelligence](http://www.ibm.com/us-en/marketplace/local-data-for-business-intelligence)

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- 1 The Consumer Goods Forum: E2E VALUE CHAIN Learning Series: *Delivering thought-provoking content on the industry’s latest trends*. Accessed February 2018. <https://www.theconsumergoodsforum.com/initiatives/end-to-end-value-chain/key-projects/learning-series/>
- 2 Retail Systems Research. *Merchandising 2017. The Real and the Unreal*. <https://www.rsresearch.com/research/merchandising-2017-the-real-and-the-unreal?EID=63380612&CID=9937606>
- 3 Retail System Research: Analytics eBook: *The Case For Location-based Intelligence in Retail*. Accessed February 2018. <https://www.rsresearch.com/research/the-case-for-location-based-intelligence-in-retail>



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