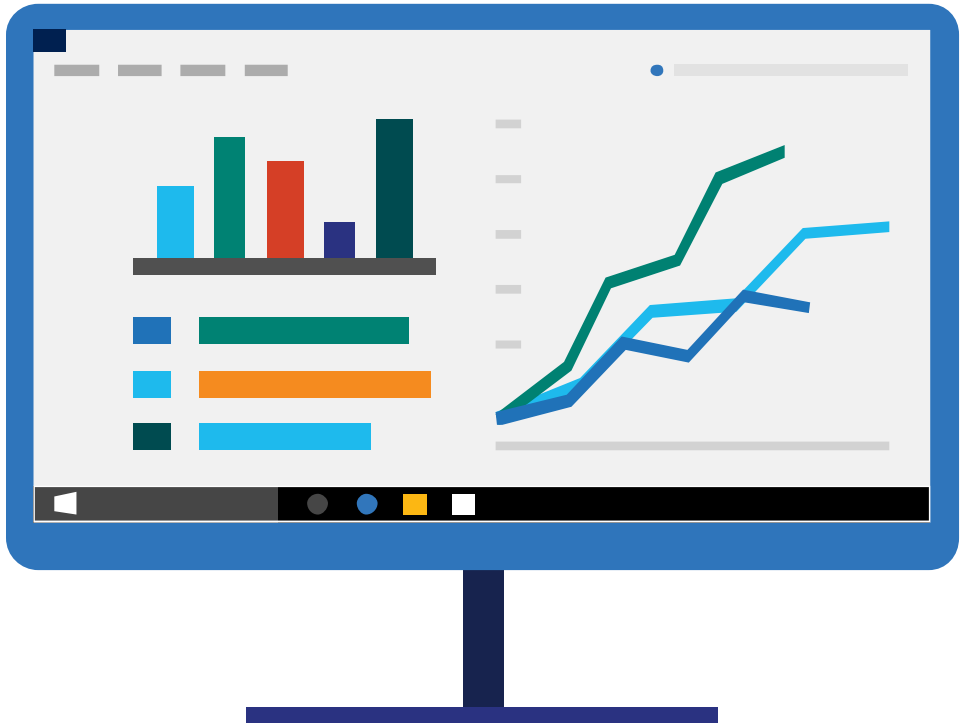
Microsoft

Demand Forecasting and Price Optimization for Retail

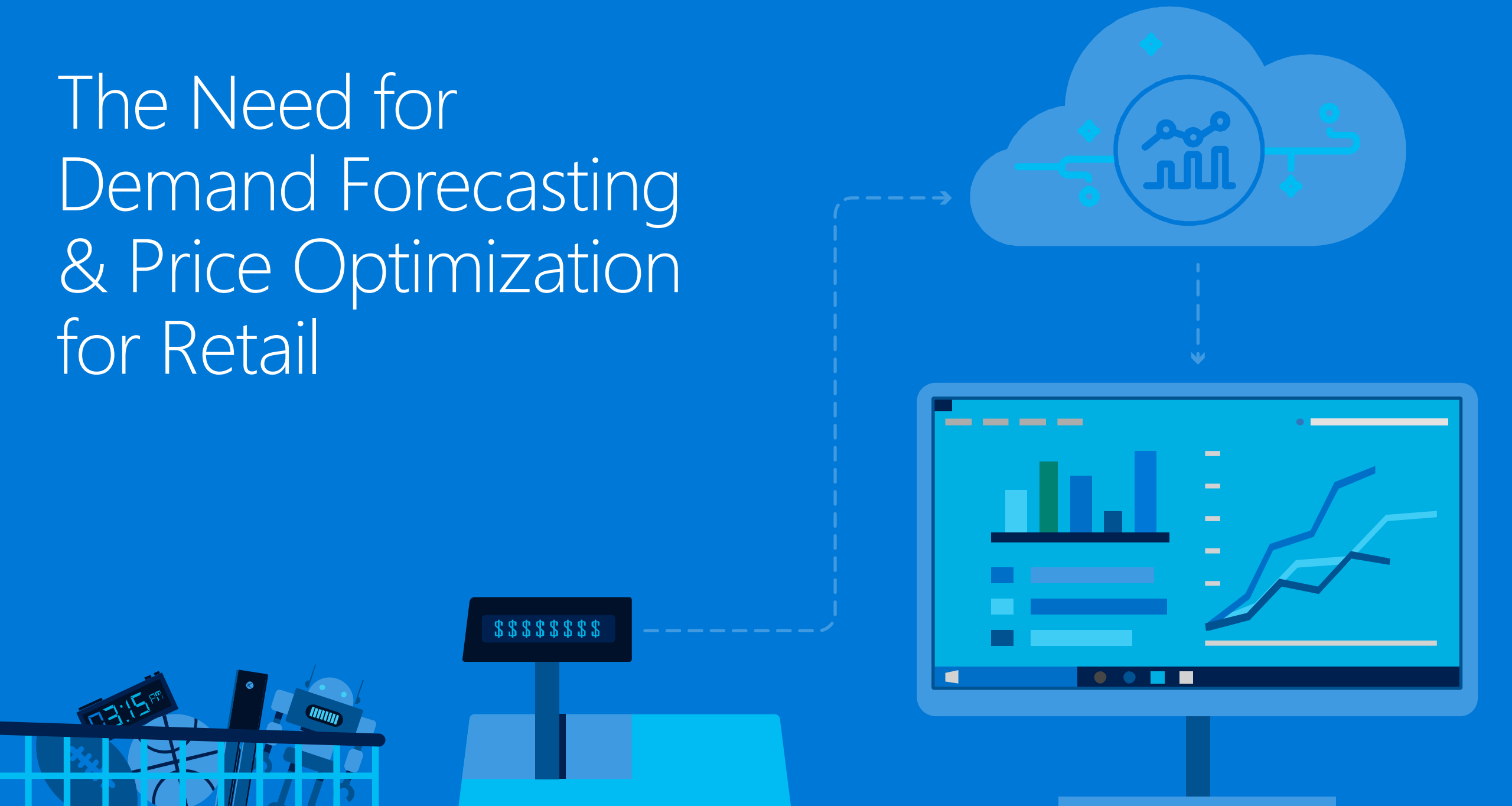
Cortana Intelligence Suite

Two key factors for improved profitability in retail are inventory and pricing. **Ordering products at the right time and offering them at the right price is essential** to avoid costly overstock and stock-out.

Demand Forecasting and Price Optimization for Retail **unlock the unrealized potential of existing historical transaction data** and empower retailers with insight into their business. Equipped with predicted price elasticity, demand, and optimal pricing, retailers can **improve profit margins, manage inventory and reduce the time and effort allocated to inventory and pricing.**



The Need for Demand Forecasting & Price Optimization for Retail



Out-of-stock and
Overstocks account for

$1.1 TRILLION

in worldwide losses
each year.

Business Wire - http://www.businesswire.com/news/home/20150506005233/en/Research-Report-Retailers-Lose-1.75-Trillion-Revenue

20%

Increase in Profit

is typical during the first 2-3 years of Price Optimization implementation

Retail Info Systems News
- http://risnews.edgl.com/retail-news/What-Retailers-Don-t-Know-About-Price-Optimization-is-Killing-Them89480

Challenges in Demand Forecasting & Pricing

Quantity of Products

The multitude of products has increased the workload associated with inventory and price decisions.

Product Configurations

Size options and bulk-packaging of the same product can either have a halo effect or cannibalize sales.

Strategy Consistency

Staying informed of product sales performance and its relationship to pricing is key to profit potential.

Profit Margins

Adjusting inventory orders and pricing at the right time and the right amount is essential to maximize profits.

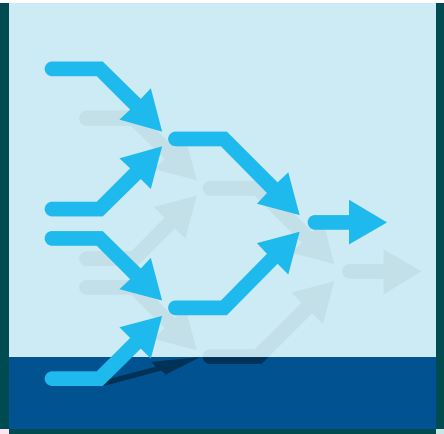
Inventory Management

Knowledge of product inventory is imperative to reduce costly overstock, stock-outs and to optimize pricing

Benefits of Data-driven Demand Forecasting & Price Optimization

IDENTIFY
Profit Potential

CAPTURE
Price Elasticity



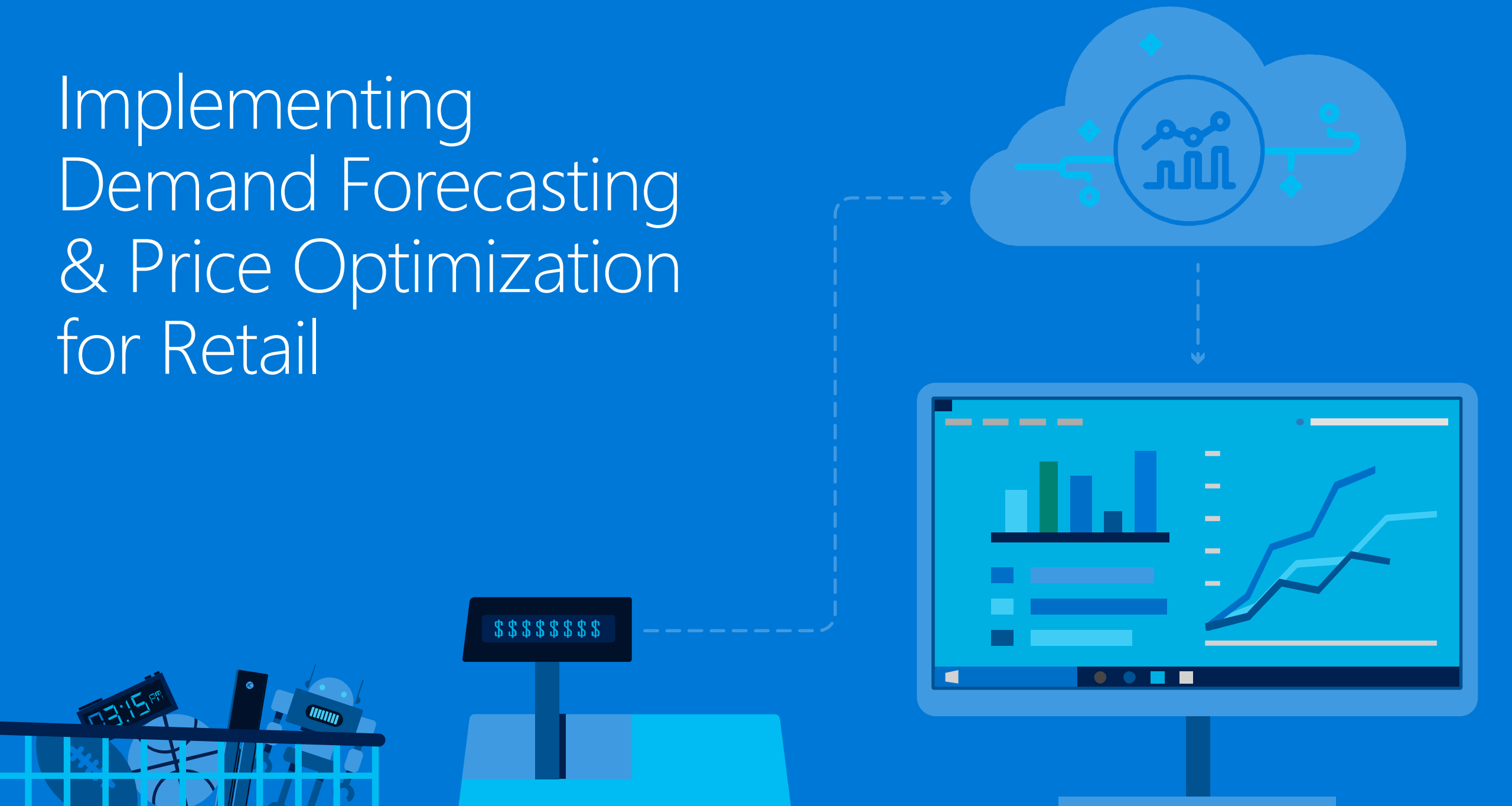
IMPROVE
Inventory Management

MAXIMIZE
Profit Margins

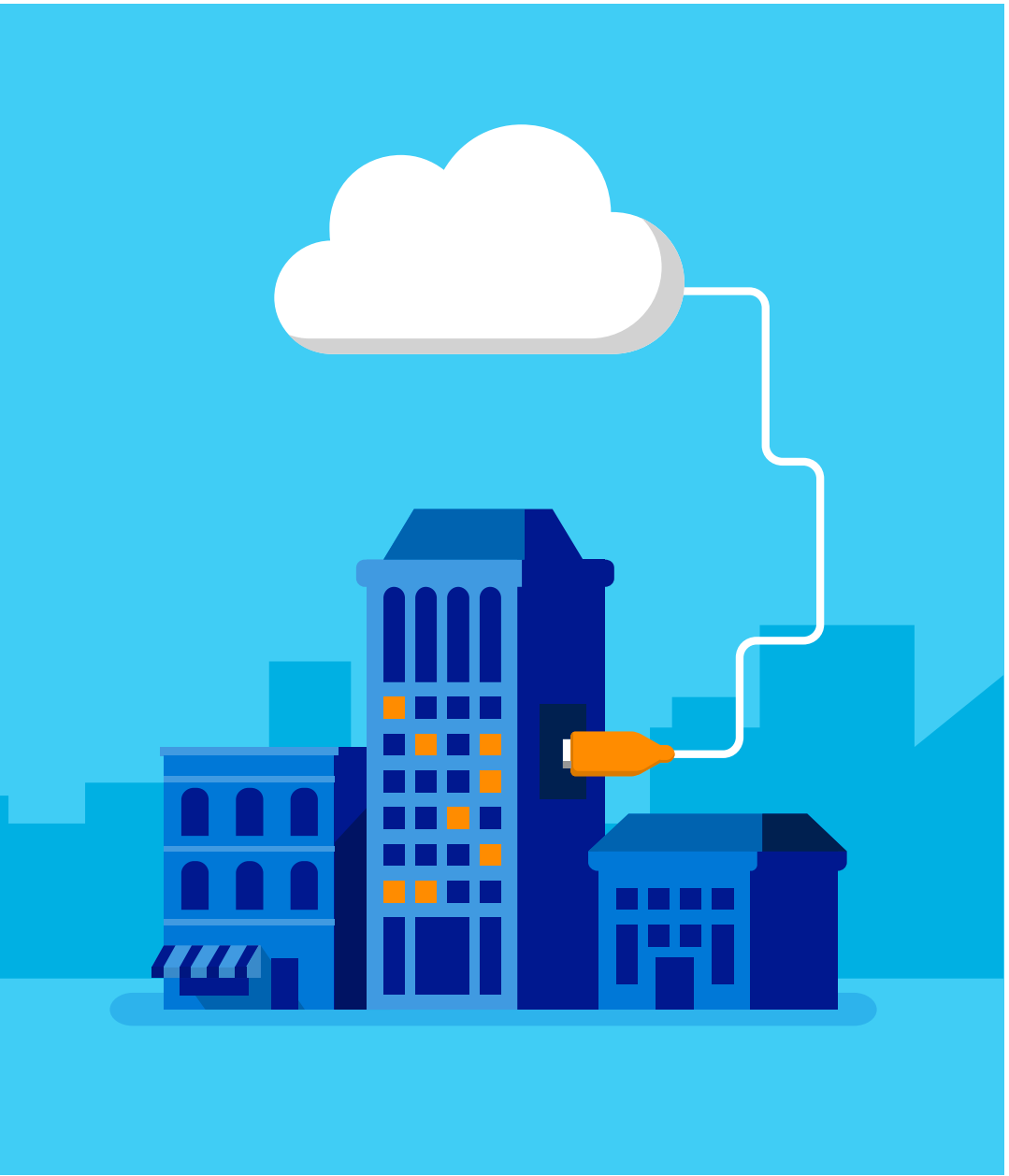
GAIN
Data Insight

SIMPLIFY
Pricing & Inventory

Implementing Demand Forecasting & Price Optimization for Retail



Solution Principles



Forecast Product Demand

Minimize inventory investment and increase revenue opportunities. Reduce inventory errors and stock-outs.

Make Calculated Price Changes

Intelligent price recommendations are made using price elasticity and product demand forecasts

Strategize by Category

Try different strategies based on product category/type to optimize revenue or profit

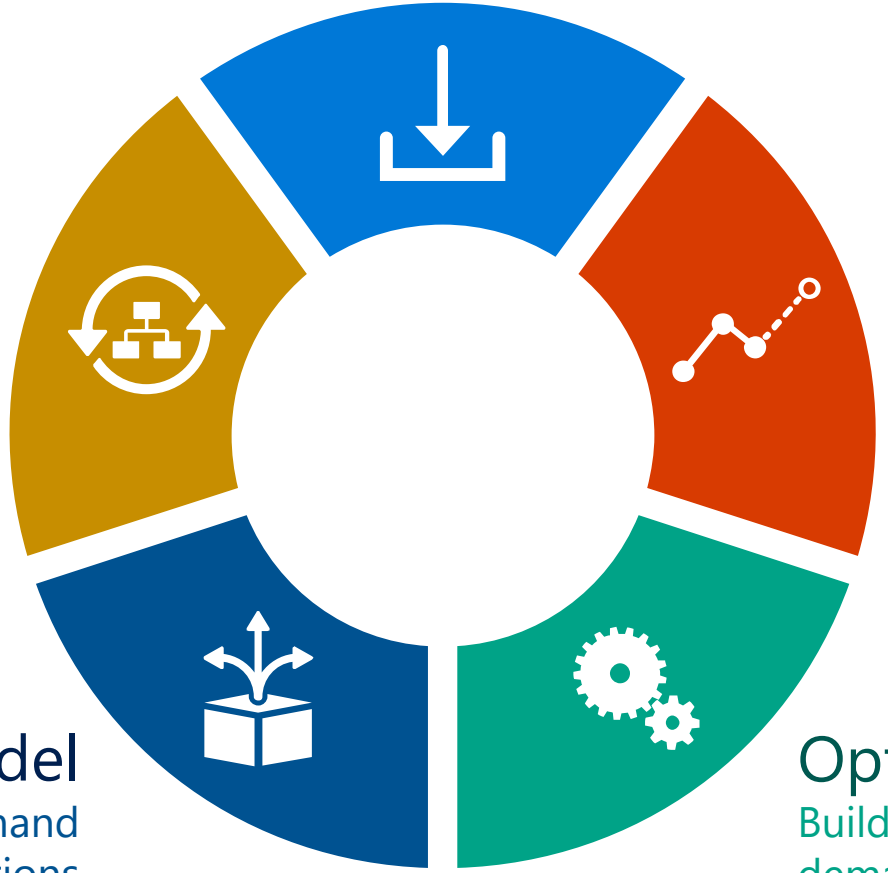
Continuous Testing

Stay current with market changes, but test prices and act on results to create a winning strategy

Solution Path

Input Transactional Data

Quantity and quality affect the success of forecasts and recommendations.



Forecast Product Demand

Knowing product demand effects price elasticity and recommendations which maximize profits

Optimize Pricing

Build strategies based on product demand and price elasticity and compare the predicted results.

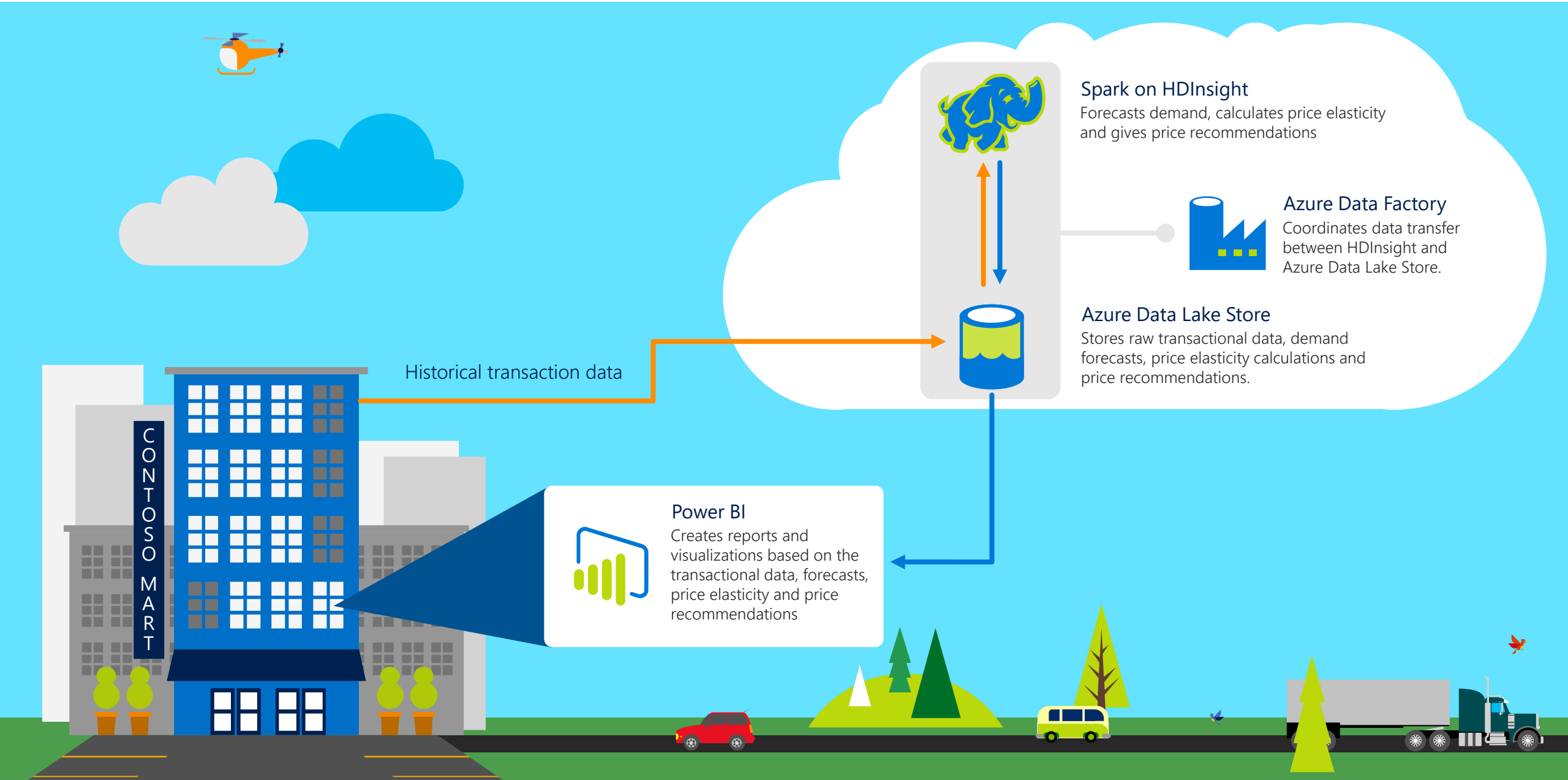
Deploy new pricing model

Adjust prices according to demand forecasts and employ recommendations within the business to realize success.

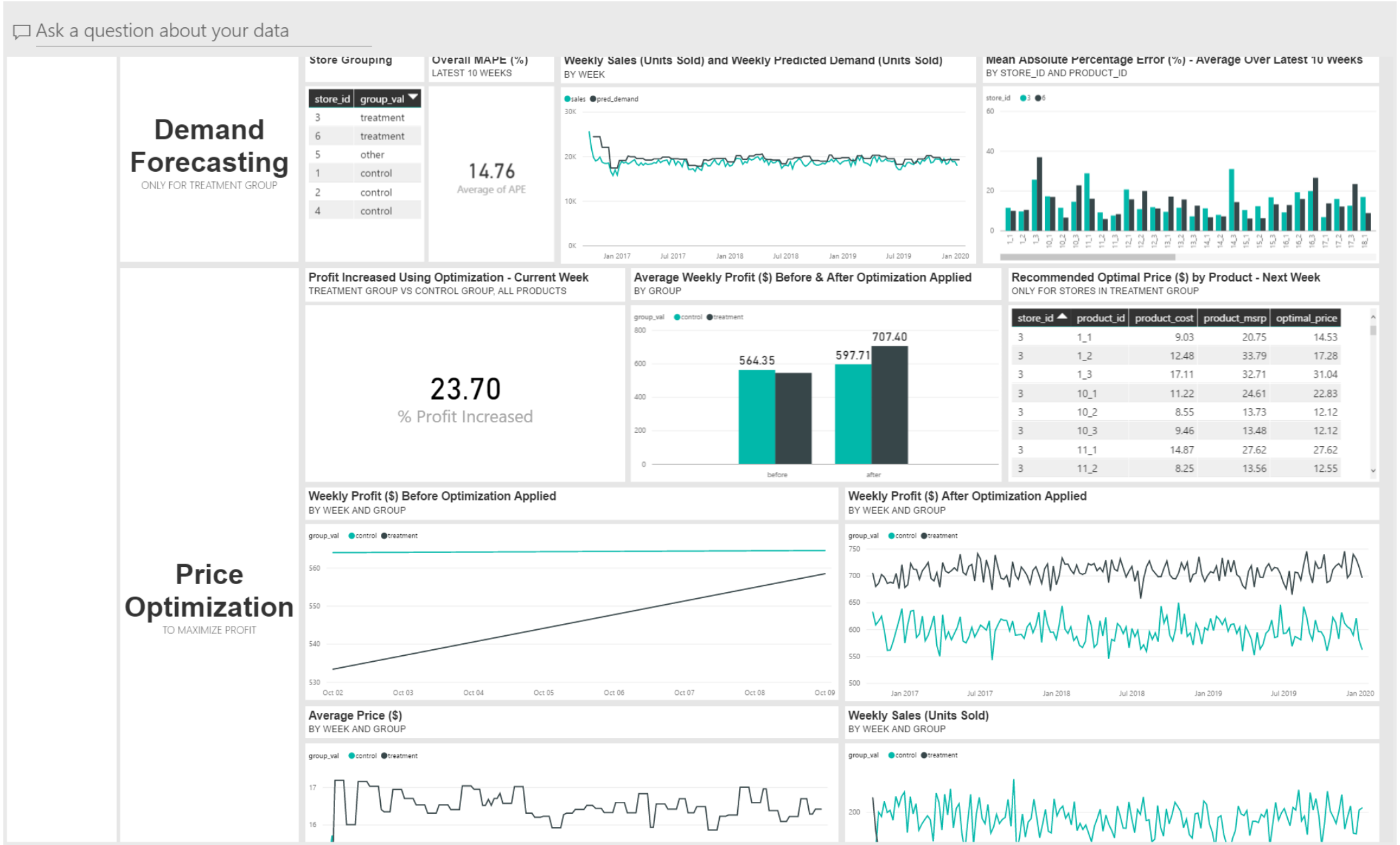
Retrain the Model

Update the model with new transactional data to improve forecasts and recommendations

Solution Path



Sample Dashboard



Cortana Intelligence Suite

Cortana Intelligence Suite | Overview

Cortana Intelligence is a fully managed **big data and advanced analytics suite** in the cloud that **transforms data into intelligent action.**

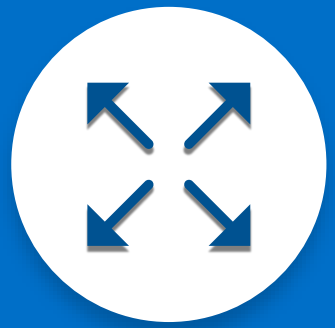
Cortana Intelligence…

- Allows you to collect, manage, process and store all your data that can seamlessly and cost effectively grow over time in a **scalable** and **secure** way.
- Provides **easy** and **actionable** analytics powered by the cloud that allow you to predict, prescribe and automate decision making for the most demanding problems.
- Enables **intelligent** solutions through cognitive services and agents that allow you to see, hear, interpret and understand the world around you in more contextual and natural ways.

Cortana Intelligence Suite | Advantages

COST

There are no upfront costs or COGS (Cost of Goods Sold) component costs associated. Meaning there is no need to invest in hardware, software, and/or IT maintenance. This translates into a substantial reduction in business risk.



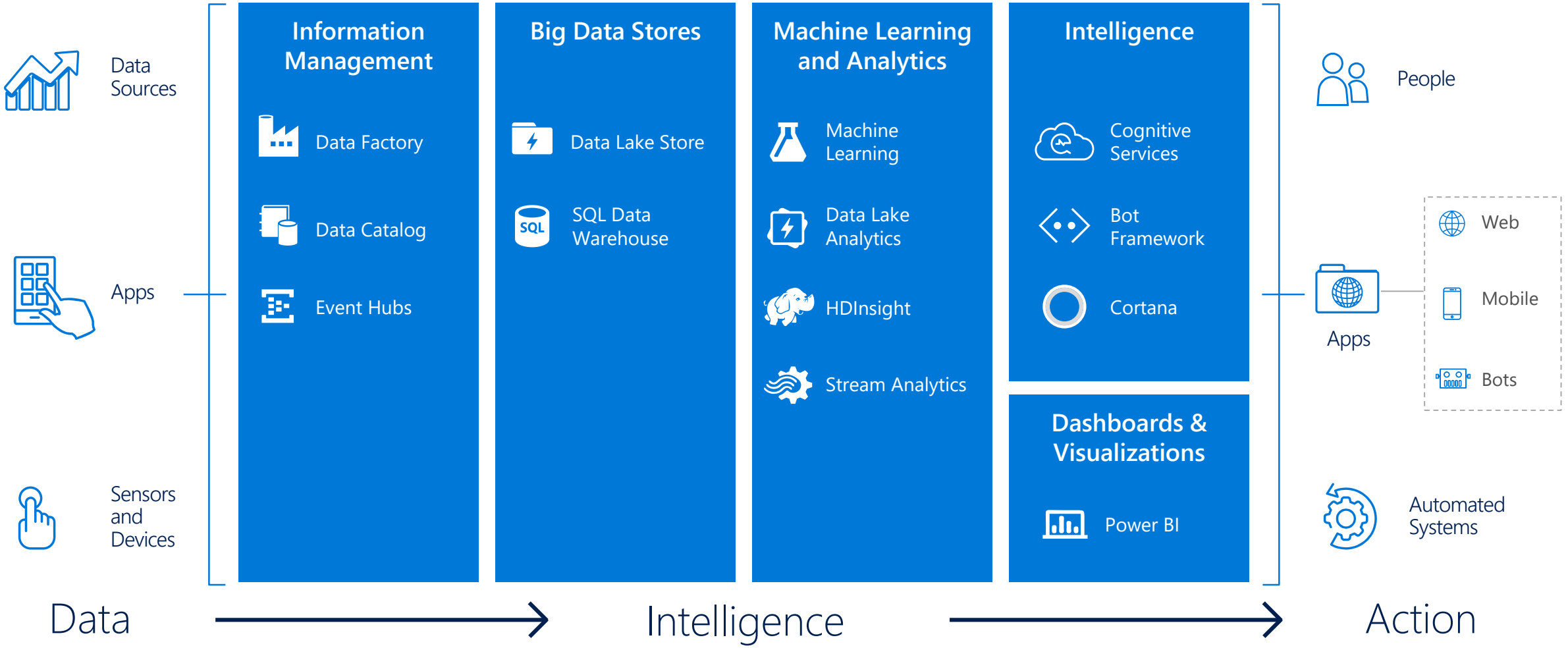
SCALABILITY

Servers for computing and/or storage can be deployed and scaled on an as-needed basis and can be done quickly and easily. This effects the cost efficiency advantage of a cloud-based solution with a pay-for-what-is-used policy.

GROWTH

Features, components, and capabilities are consistently being introduced and evolved in Cortana Intelligence Suite. As such, they can easily and quickly be implemented in a cloud-based solution.

Cortana Intelligence Suite | Overview

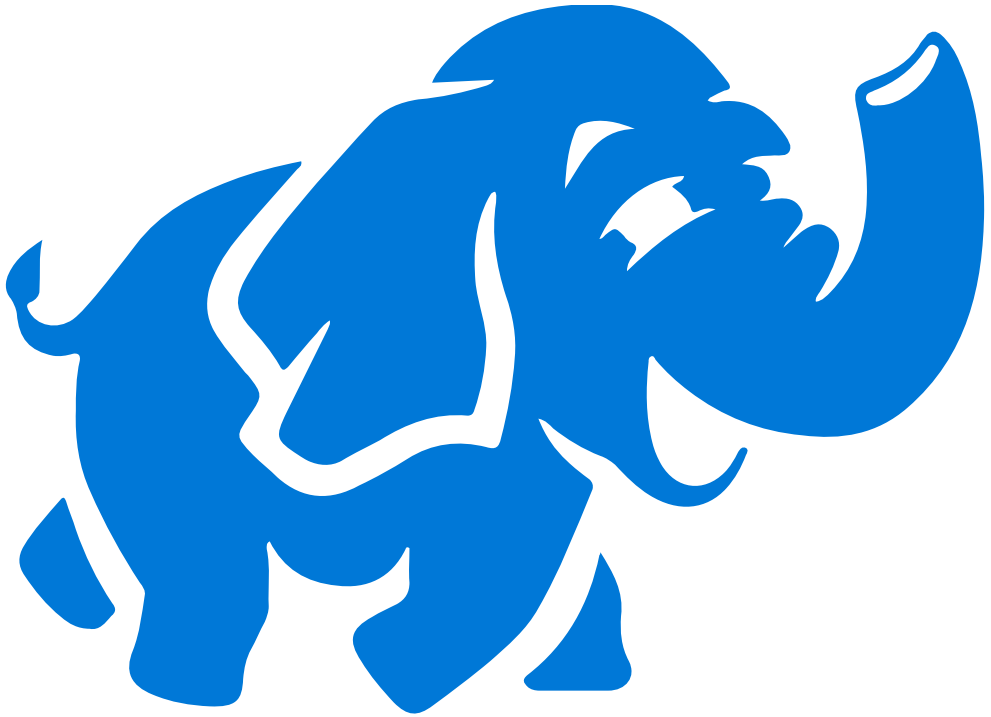


Appendix

Cortana Intelligence Suite | Used in this Solution

HDInsight

HDInsight allows you to easily spin up **enterprise-grade** open source cluster types guaranteed with the industry's best **99.9% SLA and 24/7 support**. We guarantee this SLA for the entire big data solution, not just the VM instances. HDInsight is architected for **full redundancy** and **high availability** including **head node replication**, **data geo-replication**, and **built-in standby NameNode** making HDInsight resilient to critical failures not addressed in standard Hadoop implementations. Azure also offers cluster monitoring and **24x7** enterprise support backed by Microsoft and Hortonworks with **37 combined committers** for Hadoop core, more than **all other managed cloud providers combined** to support your deployment and the ability to **fix** and **commit code** back to Hadoop.

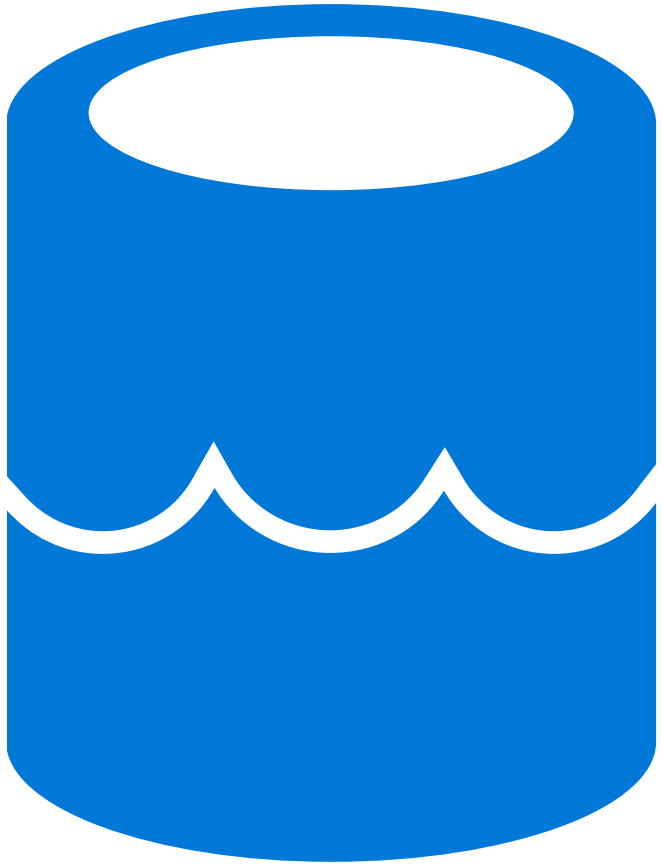


Cortana Intelligence Suite | Used in this Solution

Data Lake Store

With Azure Data Lake Store your organization can **analyze all of its data in a single place** with no artificial constraints. Your Data Lake Store can store **trillions of files** where a single file can be greater than a **petabyte in size** which is **200x larger** than other cloud stores. This makes Data Lake Store ideal for storing **any type of data** including massive datasets like high-resolution video, genomic and seismic datasets, medical data, and data from a wide variety of industries.

Without redesigning your application or repartitioning your data at higher scale, Data Lake Store scales throughput to support any size of analytic workload. It provides massive throughput to run analytic jobs with **1,000+ concurrent executors** that read and write **hundreds of terabytes** of data efficiently.



Cortana Intelligence Suite | Benefits

Cortana Intelligence Suite enables you to realize your business outcomes by providing tools to transform data into intelligent action. It transforms entire systems of production, management and governance by enabling you to reap business benefits such as:

Improve visibility and prediction accuracy

Get the right products to the right places efficiently

Offer customers exactly what they want, when they want it

Fix problems proactively before they start

Capture new business opportunities

Use Cortana Intelligence Suite to improve outcomes and solve challenges across all aspects of your business.

A 1% improvement in price can increase profit by 11%

Harvard Business Review - https://hbr.org/1992/09/managing-price-gaining-profit

"For all the moments that matter in business, there is only one point when money changes hands—the point of negotiation and purchase. That's when **the price you charge captures or fails to capture the profit you are in business to generate.**"

"The Problem with Pricing"
Deloitte