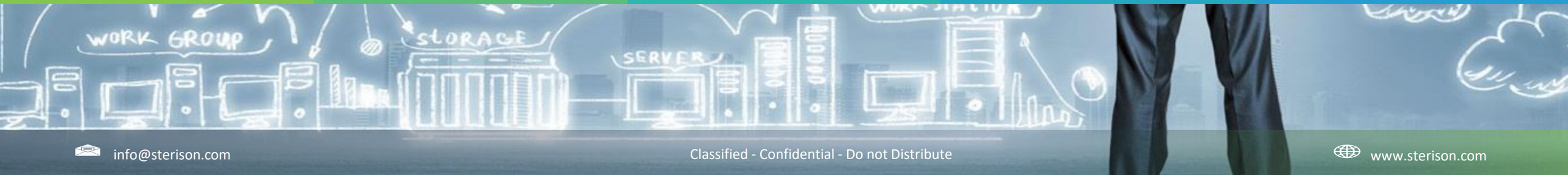
Sterison Technology Private Limited

Automated Demand Forecasting For FMCG / CGP / Pharma Companies

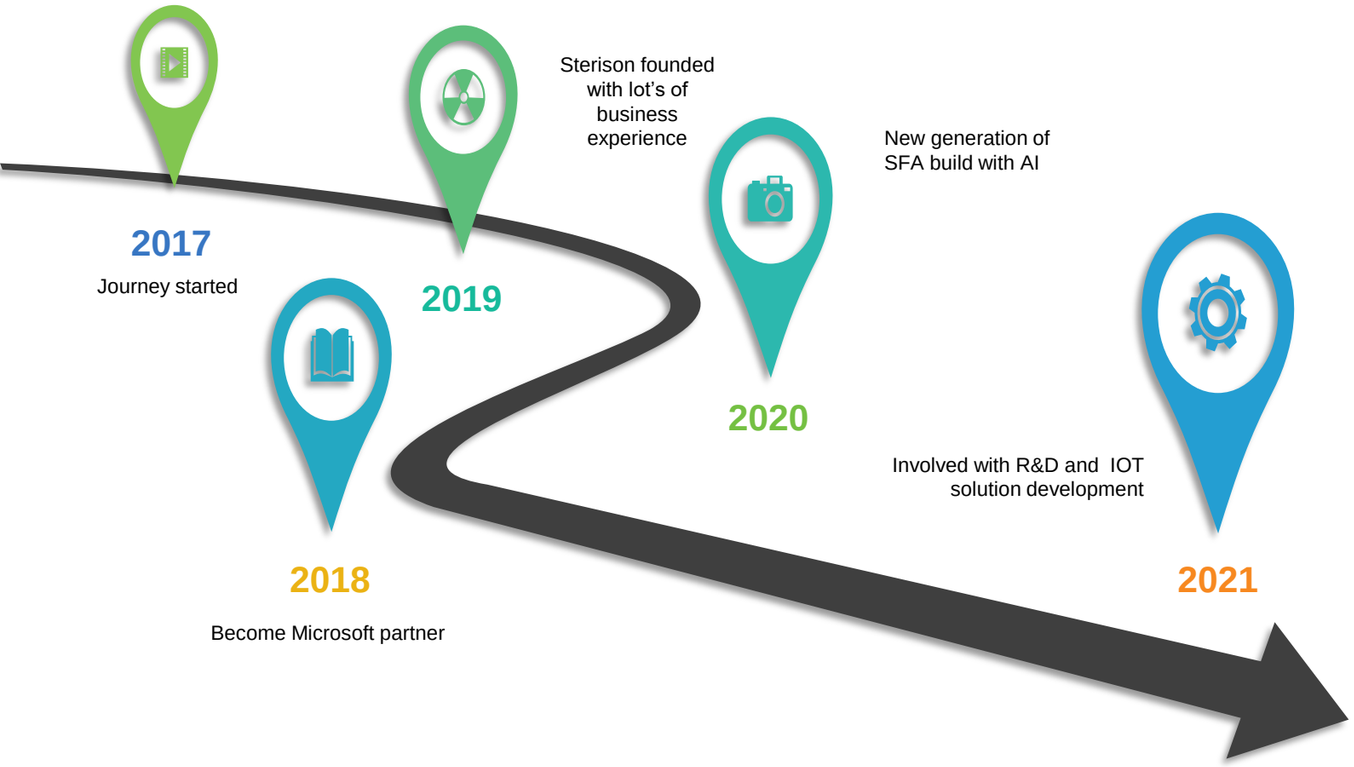


Agenda

- About Sterison
- Recognition
- Case Study
- Solving Business Challenges With AI
- Representative forecast methods and characteristics
- Demand Planning SOP
- 5 Key Challenges Facing Retailers Today
- The Road to Business and Financial Success
- Source data models and attributes
- Architecture

About Sterison

JOURNEY SO FAR



ABOUT STERISON

Sterison relies on decades of industry experience to solve the unique challenges that come from working with customers on the front lines. Our real world experience, deep business understanding, and commitment are key elements that ensure the success of your technology initiatives.

Our expertise in technology staffing services, process re-engineering, application development as well as internet of things, bridges the gap between your business and your information technology driven goals.

Partner Network

Clutch · Software Suggest · NASSCOM · GoodFirms · SelectHub · Google Ads · DMCA · G2 · Sencha · Microsoft · techjockey · VendorPortal

Our Key Customers

Coca-Cola · Skillwormz · nadec

Our Ongoing Customers

Dufil – Making Life Taste Better! · عمان ريفكو Oman Refco

Our Global Presence

A Global Company With A Local Presence

Sterison Technology Private Limited has teams gave position of across the round map of earth giving FMCG/CPG companies make use of to business expert knowledge and quality of being a chief support in every time zone.

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Recognition

Indian Achievers' Award for IT Excellence, 2020

In Recognition of Outstanding Professional Achievement &
Contribution in Nation Building

INDIAN ACHIEVERS' AWARDS
India's Most Coveted Award
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INDIAN ACHIEVERS' FORUM

Case Study – Demand Forecasting for CPG

Accuracy Enables the best decision

Sterison's best in class forecast analyzes every demand driver to determine the real need for a product at any point in time. solution learns and self-tunes to generate highly accurate forecasts for all products including new, slow-moving, and end-of-life products. That accuracy becomes self-propagating with each forecasting round, streamlining the planning process and enabling the best decisions. From sales planning to supply chain planning to store fulfilment, a unified demand signal helps grow sales, eliminate inefficiencies, and lower costs.

The Problem - A multinational manufacturer, distributor, and retailer of health and beauty products was struggling with driving growth and managing volatility in one of their business units. Only 40% of their product line was using statistical forecasts, and those that were being forecast were unable to ingest new data sources, hence accuracy suffered.

The Result - Realizing their issues, developed extensive knowledge of the company's inner workings, and had expert-level experience with their data. Despite these inherent advantages, forecast outperformed the incumbent's by nearly 1400 basis points and increased their forecasting coverage to over 90% of their product line.

Results

2500 BPS — **Improved forecast accuracy**
for a CPG company from demand forecasting

$60M — **Increase EBITDA**
for a beverage company from demand planning

20% — **Inventory reduction**
for a global company from improved forecasting accuracy

Case Study – Collaborative Planning for CPG

Revolutionizing Demand Planning

Drive efficiencies and respond better to market changes through AI-powered collaborative demand planning. Today, companies continuously respond to ever-changing market dynamics. Omni-channel, click & collect, and shifting consumer preferences challenge the planning process. They create inefficiencies at a time when pressures dictate the opposite. Steiron's Collaborative Planning solution revolutionizes the demand planning process. With the world's best forecast and AI in the UI, the solution expedites collaboration, decision making, and troubleshooting. Scalable and able to work cross-category, planners reduce their planning cycle time while fostering consensus with sales and the whole organization.

The Problem - Good Intentions. Smart People. Poor Results. It's an all too familiar story. With the current market turbulence, a global manufacturer and distributor needed to speed their decision making, shorten their planning cycle, and improve their forecasting accuracy. But in a large organization, quickly creating an accurate, executable plan that people support was impossible with their current process and technology.

The Result - Working with Sterison, the team combined technology, AI, and domain expertise to transform the company's planning process. After a successful pilot, which verified the results, smoothed out the process, and drove the change management approach, the company deployed the solution in support of 50+ countries. Planners and sales teams continue to gain confidence as the workflow is easy to understand, and the forecasts match the actual results.

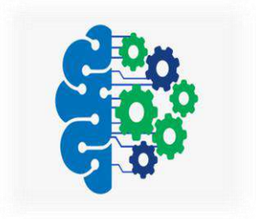
Results

15% Reduction in Planning Time

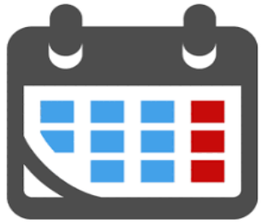
40% to 60% No Touch Demand Planning

10% Improvment in Planner Productivity

Solving Business Challenges With AI



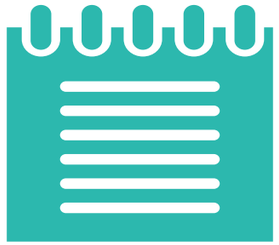
Machine learning tackles retail's demand forecasting challenges



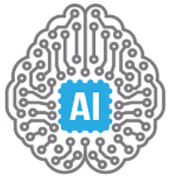
Weekdays, seasonality, and other recurring demand patterns

price changes, promotions, and other business decisions impacting demand

Weather, local events, and other external factors impacting sales



Unknown factors impacting demand



Make machine learning work for your retail demand planning

Working with retail's long-tail products

effective human-computer interaction

Representative forecast methods and characteristics

Forecast method	Description	Forecast accuracy			Predictor	
		Magnitude of number to be forecasted		When volume of learning data is small	Possibility of incorporation into the model	Ease of understanding of influence of factors and its extent
		Large	Small			
Random walk	The simplest method, which uses the latest actual value as the prediction value	Low	High	High	No	—
Multiple regression	Prediction from correlation between factors (holidays, weather, etc.) and sales figures	Medium	Low	Low	Yes	Easy
Poisson regression	A model in which the error distribution of multiple regression follows the Poisson distribution. This method allows accurate prediction for products with low actual value volume	Medium	High	Low	Yes	Easy
ARIMA	Prediction from correlation with past actual values	Medium	Low	Low	No	Difficult
ARIMAX	A combination of the ARIMA model and multiple regression	High	Low	Low	Yes	Easy
Dynamic linear model	Each time data is added, the internal latent state is updated and prediction is executed accordingly. This model can handle dynamic change.	High	Medium	High	Yes	Easy
Exponential smoothing state space	Prediction focusing on trends and periodicity	Medium	Low	High	No	—
Neural network	Prediction by mathematical model imitating the human brain	High	High	Medium	Yes	Difficult

Demand Planning SOP

The S&OP process consists of five steps:

1) Forecast

Deliverable: Statistic forecast

2) Demand Plan

Deliverable: Demand plan agreed upon with Sales, Marketing and, in some cases, with end-customers.

3) Supply Plan

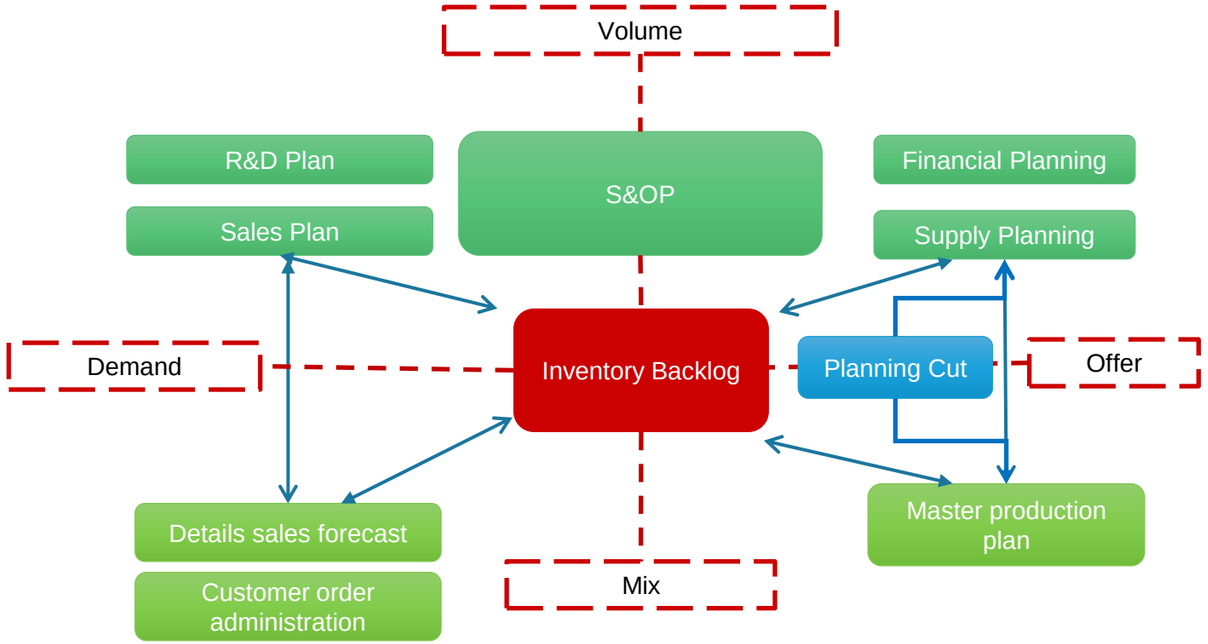
Deliverables: Production high-level plan, raw materials purchasing plan, resale products purchasing plan and report of supply restrictions such as plant capacity and raw materials availability.

4) Pre-S&OP Meeting

During this meeting the demand and supply plans are reconciled. Issues are communicated. Human Resources and Financial first recommendations are drafted.

5) S&OP Executive Meeting

A summary of the Demand and Supply plans are presented to the CEO accompanied by a summary of recommendations.



The Demand Planning step uses the statistic sales forecast and the experience of other areas in order to estimate future demand. S&OP is a communication and decision making process whose main goal is to balance offer, demand, mix and volume. The buffer to achieve this balance is inventory and orders backlog. It integrates financial, supply, sales and development plan.

5 Key Challenges Facing Retailers Today

1

- **Consumers are Choosing Multichannel Buying Experiences**
- With more complete e-retail experiences available, and shipping times greatly reduced, it is little wonder around 96% of Americans utilize online shopping in one way or another. However, those same Americans **spend about 65% of their total shopping budget in traditional brick-and-mortar** locations

2

- **Customers Expect a Seamless Experience**
- When transitioning between online and in-store experiences, customers not only want the same products to be available, they also want their experience to be seamless

3

- **To Attract Customer Loyalty, Retailers Need an Experience Which Stands Out**
- Customer experience is the biggest contributor towards brand loyalty, with a negative experience being the most significant factor in affecting a customer's likelihood to make a repeat visit

4

- **A Siloes Marketing Infrastructure Makes It Expensive and Unwieldy to get Your Message Across**
- Modern marketing makes it necessary for businesses to engage with their customers across many different channels. From SMS, to email and social media, multi-channel communications are essential to engagement which, in turn, drives the creation of the perfect customer experience

5

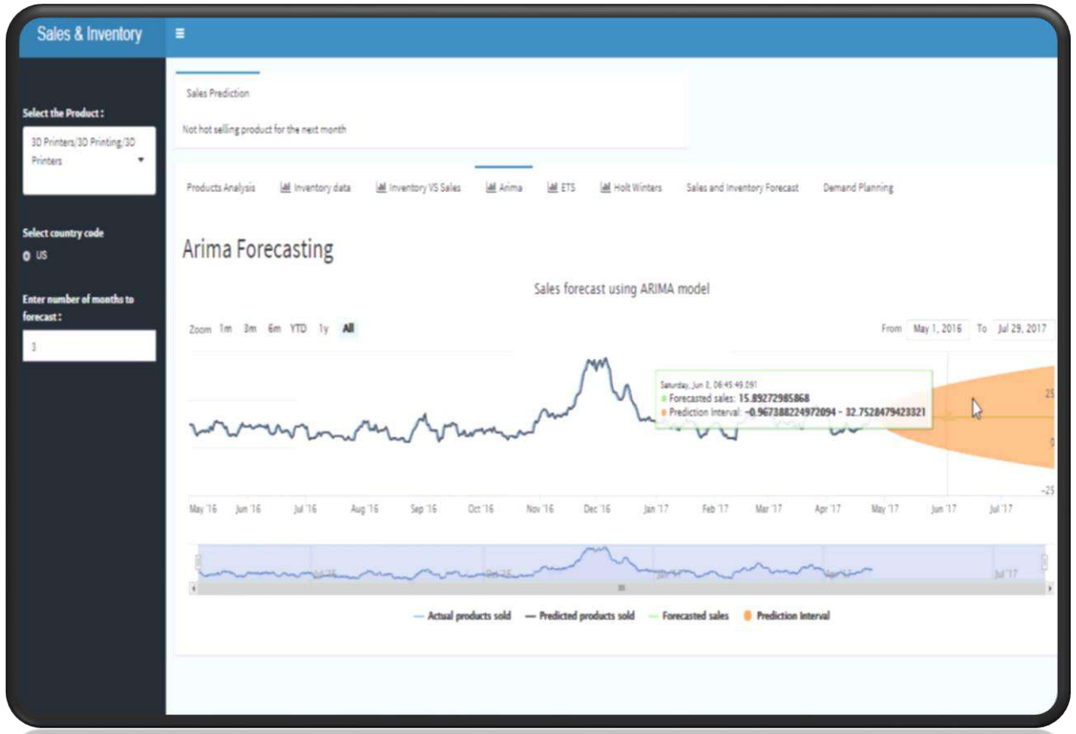
- **So Many Technologies Exist to Drive Marketing and Sales, but They Don't Seem to Work Together**
- While the amount of data gathered by businesses keeps growing at an alarming rate, the number of staff available to analyze it is staying more-or-less the same.

The Road to Business and Financial Success

Phase 1: Data Driven Forecasts. Companies often start this journey with the recognition their forecasts are inaccurate. This may be inevitable given the prevalent use of intuition and spreadsheets and legacy systems lacking more advanced causal models that take into account price and promotion activity. It leads to a highly negative impact on demand fulfillment, supply chain cost, and loss of profit from inaccurate decisions.

It makes sense to start the demand planning journey to create a basic forecasting capability that builds confidence in the quality of the forecast and the demand and supply plans that are based on the forecast. When the baseline statistical forecast is more accurate, demand planners can pay more attention to exceptions, rather than touch and examine every forecast. Forecast Value Add Analytics guide the demand planner into the changes that may be needed

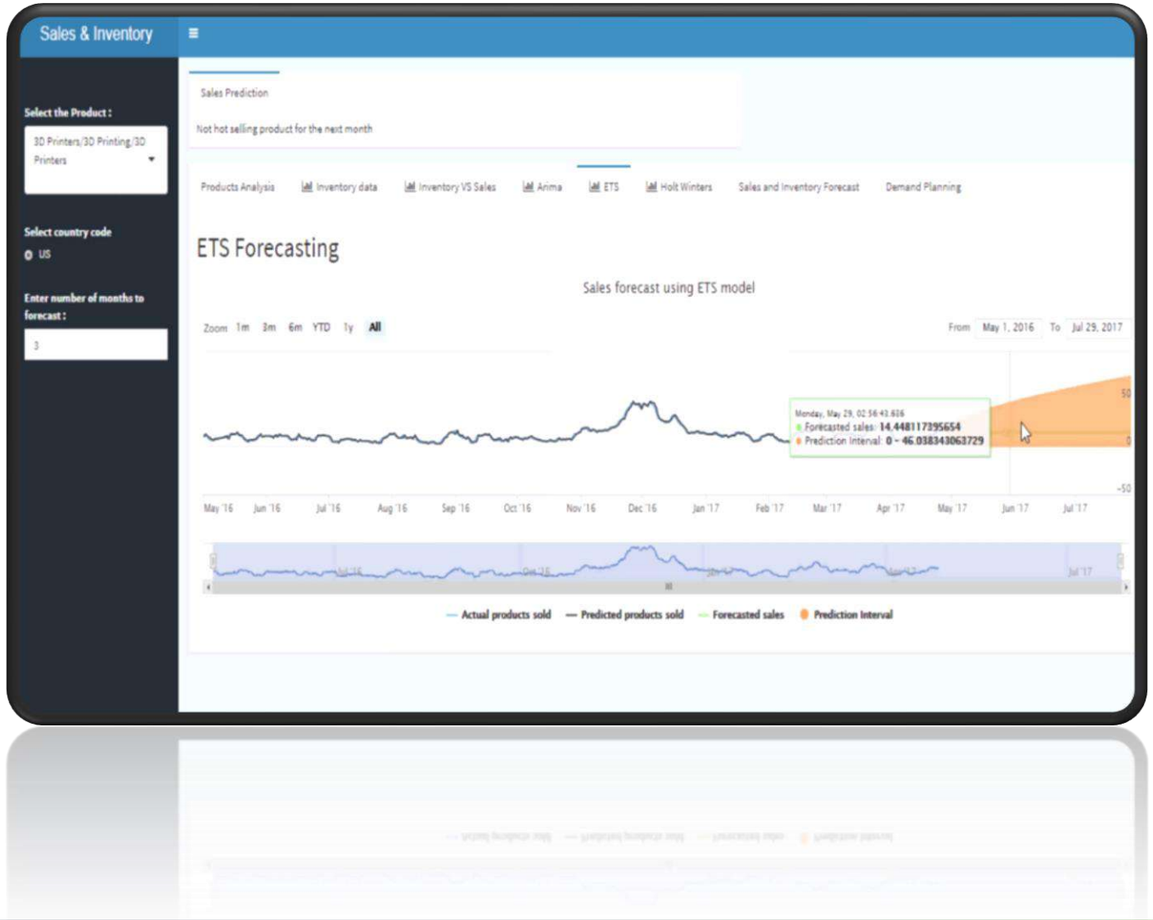
Forecasting is a data driven process, and attention must be paid to accessing needed internal and external data and automating the data feeds needed to build accurate forecasts. Research confirms planners spend as much as 80% of their time accessing and moving data and jockeying spreadsheets. This doesn't leave much time for analysis for the thousands of products and locations they are responsible for. This manual and inefficient planning process also negatively impacts management who may spend as much as 50% or more of their time reviewing and responding to the forecast results. How can demand planning be a strategic business partner with an inefficient process like this? This is the time to fix this problem and enable both accurate forecasting and shift work away from manual effort to value-added analysis.



The Road to Business and Financial Success

Phase 2: Consensus Planning. Once the forecasts are built, they are shared with other stakeholder teams including sales, marketing, supply planning and operations. A barrier to successful demand planning may be the lack of process for efficient and effective collaboration. This lack of process can be quite significant given that all the teams must meet in person to discuss the forecasts, share their plans, communicate changes, absorb changes proposed by other teams, and collectively agree on the final demand plan. This is never easy, but in companies where there are many SKU's, distribution centers, plants, customers etc. there may be thousands, or millions of forecasts needed which is an impossibility with an informal and manual collaboration process. In these situations, the planning process is not scalable or sustainable

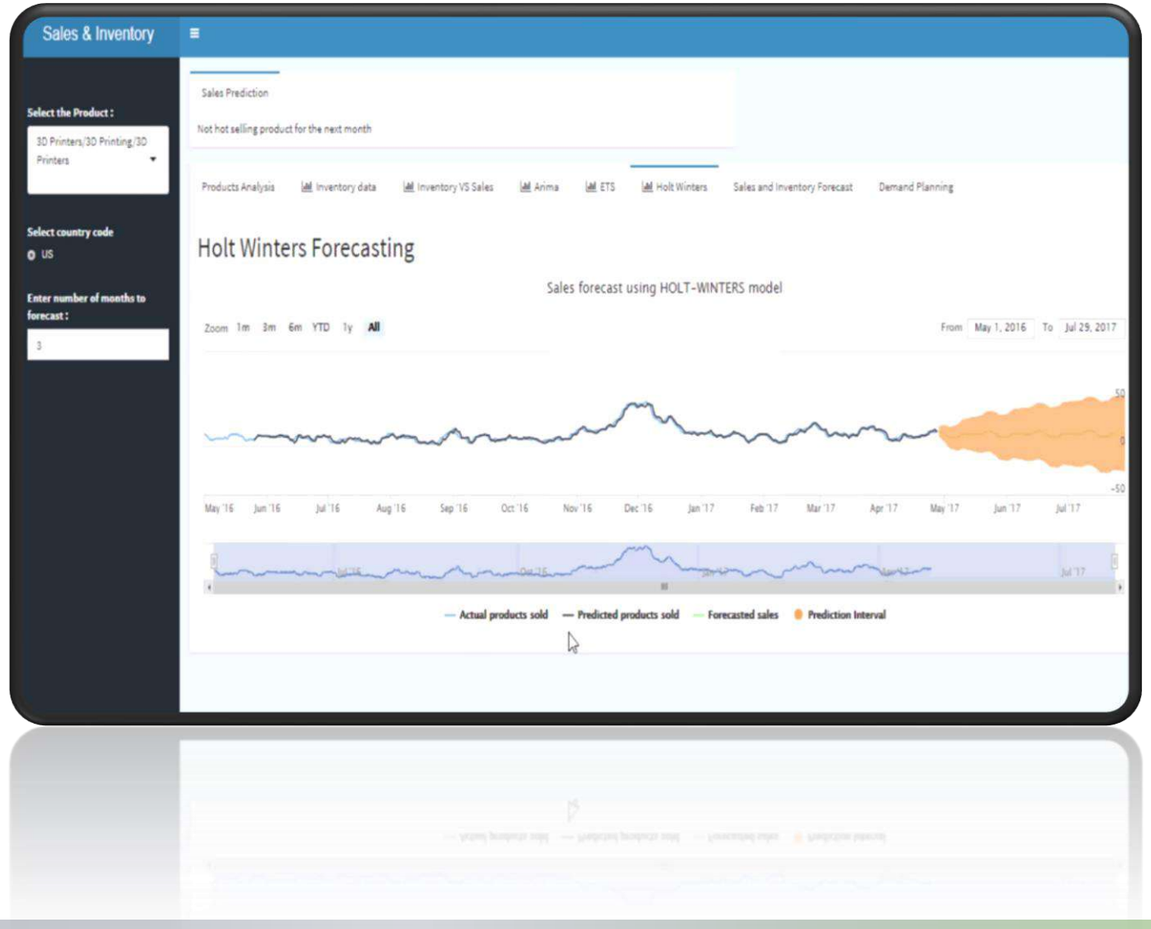
The SAS Demand Planning uniquely includes consensus planning. This is a process, user interface and powerful analytical tool that replaces the difficult, time intensive, and drawn out collaboration process. Consensus planning automatically distributes the output of the statistical forecast to the different teams. It provides an intuitive way for each team to use the forecast to work on their plan and share their work in a standard format that can be easily absorbed by the other teams. For example, suggestions or overwrites can be proposed to the base forecast or planned promotions and reviewed by stakeholders. It is easy to convert these changes into a financial outcome to enable financial as well as business decisions. Importantly, it helps tie the demand plan to financial goals. This process supports the emergence of new consensus planning and financial scenarios with proven impact for review and approval by the teams.



The Road to Business and Financial Success

Phase 3: Advanced Forecasting. Phase three builds on the more accurate forecasting of phase one, and the scalable infrastructure of phase two. It is now time to add capabilities that build on the knowledge gained in the first two phases, as well as leverage the new automated process to deploy advanced capabilities. Examples include new product and location forecasting and includes price and promotion activity as well as macro-economic data. New product forecasting is a challenge because there is no data available to develop the forecast. Using analogous data from other products and locations and applied using ML embedded in the SAS software, New Product and Location Forecasts can be applied in a trustworthy fashion.

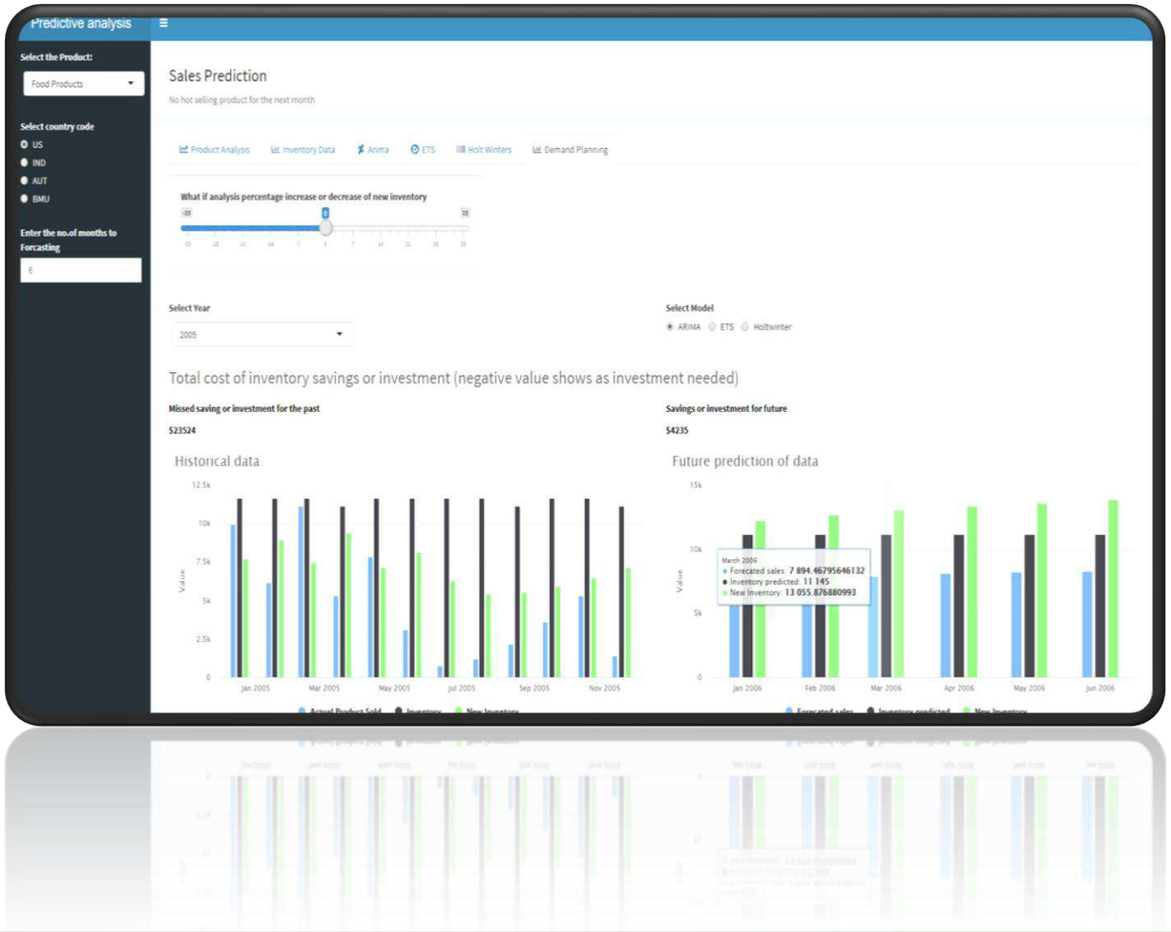
The ML embedded in the SAS software selects the most analogous products, and automatically updates the model as new data emerges Promotions can also be a challenge because the data will reflect previous promotions which may not be repeated and fail to reflect planned promotions and price changes. Often promotions occur to the side and are not included in the demand forecast. This challenge is solved in this phase by including the forecast impact of promotions in the demand plan. This allows planning and marketing to perform shaping and simulation exercises to match demand with supply. It also allows marketing to understand the effects of marketing promotions and pricing elasticity



The Road to Business and Financial Success

Phase 4: Optimal Decisions. Demand and supply decisions that fail to use the robust forecasts and processes developed in prior phases will result in lower customer satisfaction, lower market share, lower revenues, lower prices, inaccurate production plans, more stock outs, higher levels of inventory and the wrong mix of product. Phase four is the time to fix these problems and grab the business and financial dividends that accrue from the investment in forecasting and infrastructure. This combines the power of advanced analytics to perform scenarios for both supply and demand so that alignment within organizations are a single version of the truth. If done correctly, demand decisions will reflect market potential, and also yield optimal inventory levels and mix to profitably fulfill the market potential. The goal is to create certainty on the supply side and successful business execution on the demand side with the highest possible ROI. Examples of optimal decisions include:

- Price, Promotion and Revenue Management Optimization
- True Multi Echelon Inventory Optimization to optimize inventory across the end to end supply chain including instant what if simulations and Supply Management
- Managing expiry dates to increase inventory turns and reduce obsolescence.
- Managing Interchanges, including Phase In/Out, Serial numbers, Substitutes. Etc.
- And much more… just ask!



Source data models and attributes

List of data points in order of collection / sources

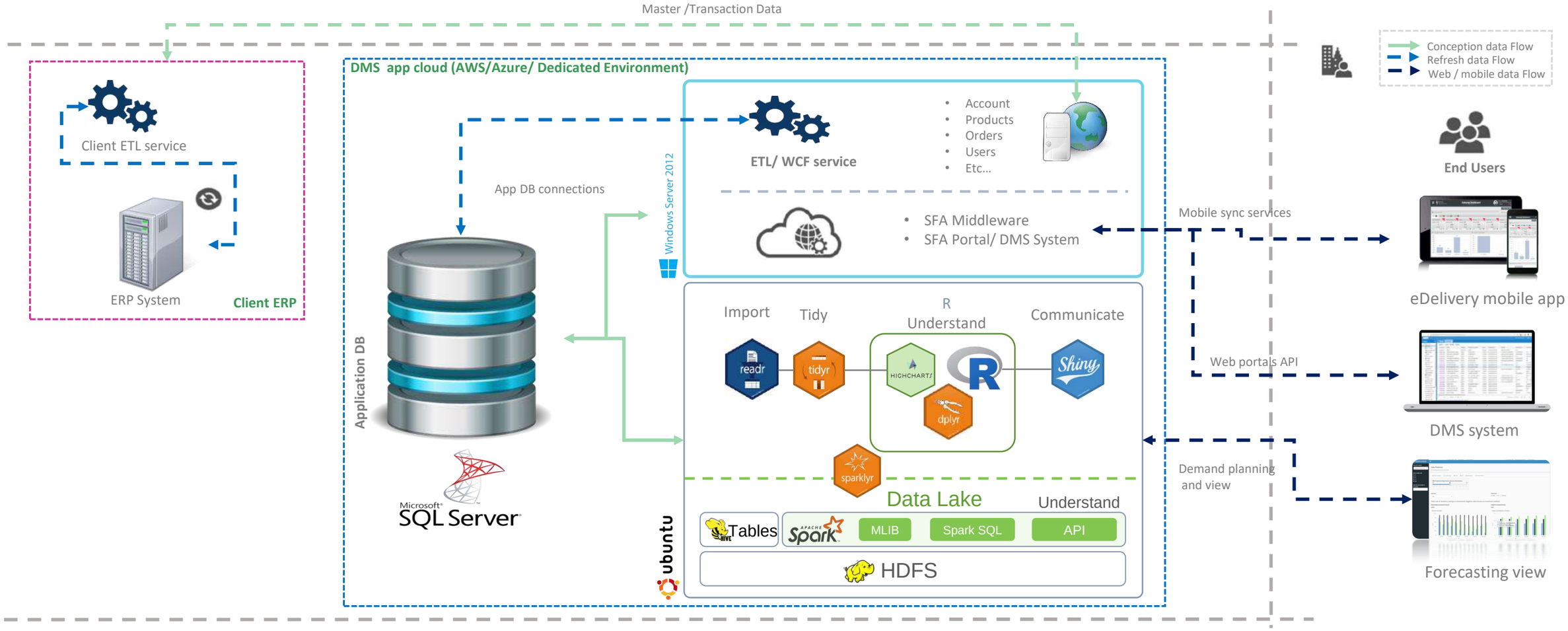
	Variables	Descriptions
Frequency & Market Break-down	Period	Data at modeled period level (daily/weekly/monthly)
	Market Break-down	States/Cities/Zones/ASMs
	Channel	MT/GT/Hypermarket/Supermarket/Convenience/Pharmacy/ Ecommerce
Product details	Product Hierarchy	Category, Segment, Brand, Sub Brand, Variant, SKU
	SKU transition / re-alignment mapping	If any SKU is phasing out & replaced by a new SKU, good to have that mentioned
	Parent-Child SKU mapping	Mapping of Master SKU & its Sub-SKUs
	Pack size	75g/100g etc
	Competition	If available
Sales Measures	Sales Volume	kgs/ litres
	UOM	Packs/Cases/Each
	Sales Value	INR/USD

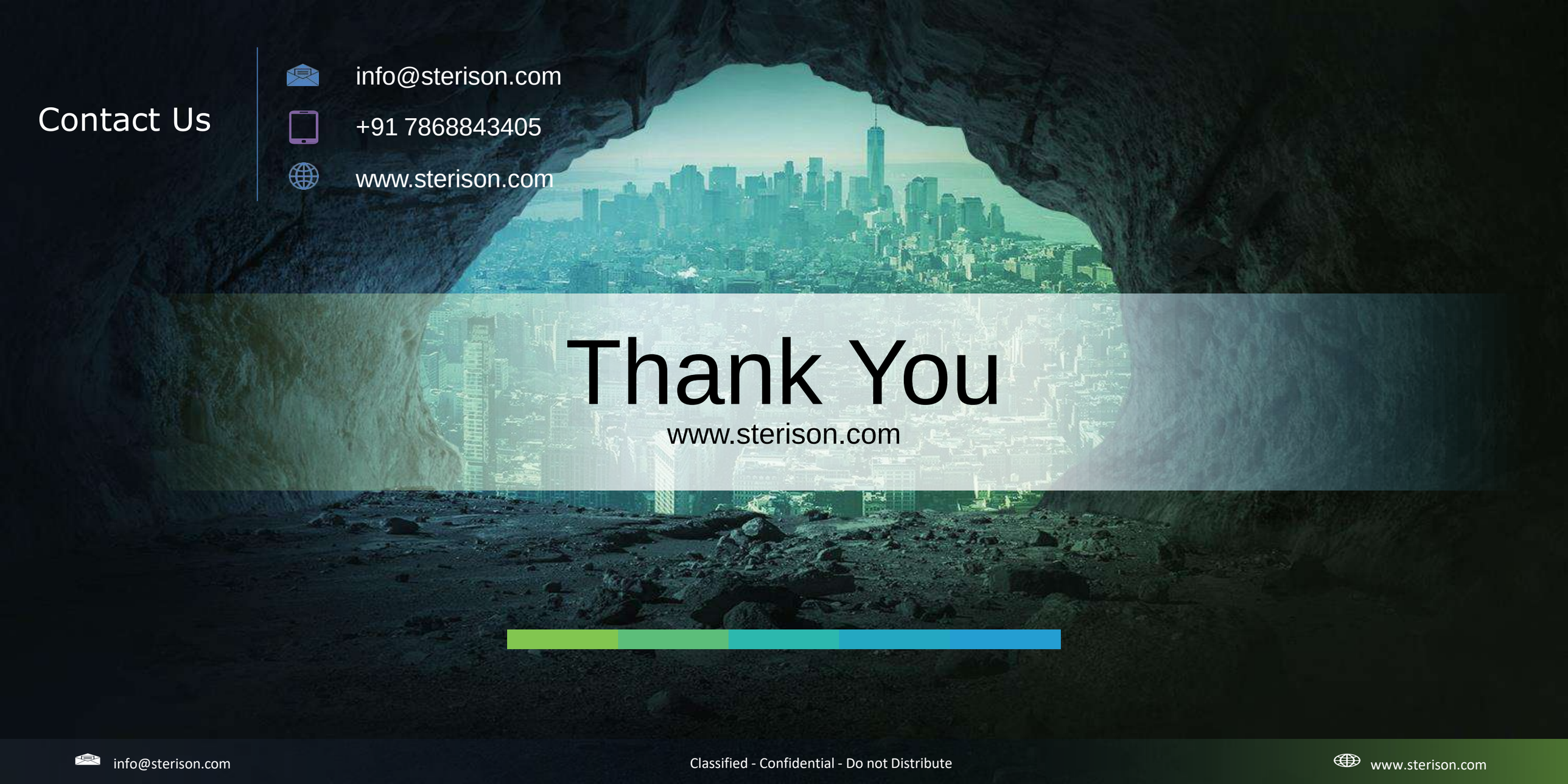
Source data models and attributes

List of data points in order of collection / sources

	Variables	Descriptions
Pricing & Promotions	Actual Price / Selling Price	INR / USD
	MRP	INR / USD
	Promotion	Multipack / Free gifts / Banded packs/X% off, Buy1 get X% off on second
Inventory & Distribution	Inventory	Inventory Produced, Production capacity
	Distribution & Storage	Lead time for delivery, closing stock at DCs, storage capacity of DCs
	Fill-rate	Order fulfilment at every DCs
	Invoice Qty	75g/100g etc
	Order Qty	If available
Events	Events	Big-billion days, Black-friday, Amazon festival, End of Season sale, etc.
	Holidays	Weekends, etc
	Festivals	Christmas, Diwali, etc.

High level solution Architecture





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Thank You

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