



Demand planning & forecasting

Dairy products manufacturer

Generated an integrated demand forecast at retailer level based on historical data normalized for promotions, distribution, stock-outs and non-recurring events, and adjustments for future promotions & distribution changes

Dairy product manufacturing company needs demand forecasting and operations planning

Picture this...

You're looking for a long-term basis to revamp and manage their demand planning and operations planning processes by creating demand forecasting models, shipment scheduling tools and operations related models. Currently, there is no mature forecasting process, resulting in relatively low forecast accuracy, which causes production planning issues. Additionally, sales, promotion, and stock-out data are not properly tracked, posing challenges for future growth planning.

You turn to Accordion.

We partner with your team to generate an integrated demand forecast at retailer level based on historical data normalized for promotions, distribution, stock-outs and non-recurring events, and adjustments for future promotions & distribution changes, including:

- 1) Forecasting for top-retailers using statistical tools based on historical data normalized for promotions, distribution, stock-outs and non-recurring events; Adjusting the forecast for future promotions & distribution changes
- 2) Generating 100% consolidated forecast which includes forecast for tail of retailers
- 3) Creating a model to overlay various corporate adjustments at a customer and category level on the consolidated forecast
- 4) Developing a model to generate the wholesale shipment schedule for the operations planning team based on the forecast after overlays

Your value is enhanced.

You have Accurate demand forecasts helped reduce raw material wastage during manufacturing process by 90%. Given the relatively low shelf life of the raw materials (2-5 days), this led to 5 pps increase in the overall margins. You have improved demand planning process, and the models helped the company improve their production planning and service levels

KEY RESULT

- 90% reduced raw material wastage
- 5 pps increase in overall margins

VALUE LEVERS PULLED

- Demand forecasting and operations planning

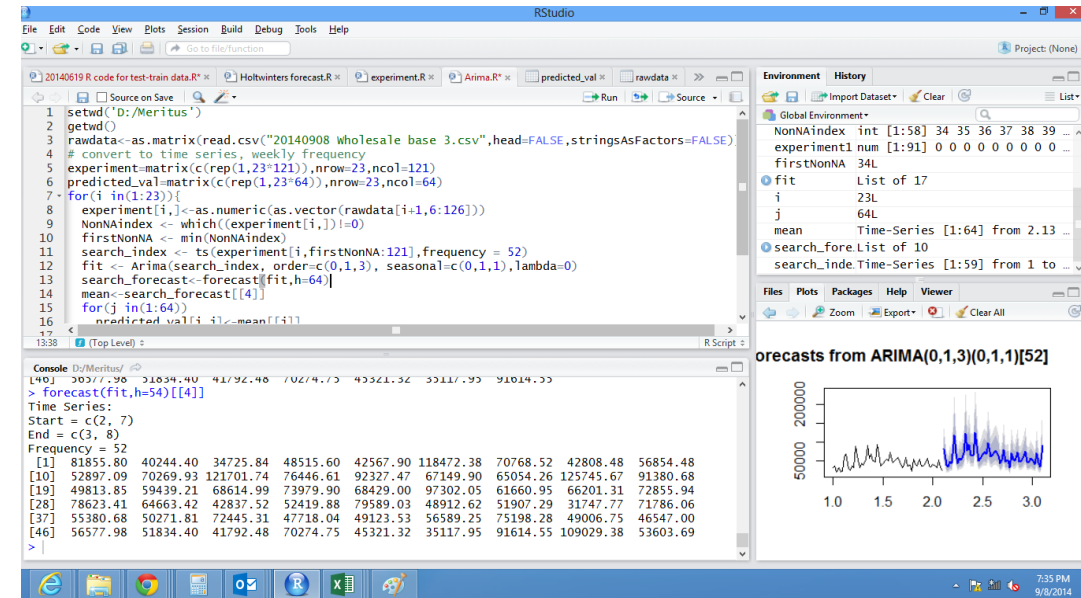
Statistical forecasting models for top retailers

Objective

- Generate **forecast for top-retailers using statistical tools** and account for future promotions, distribution strategy and new product launches

Approach

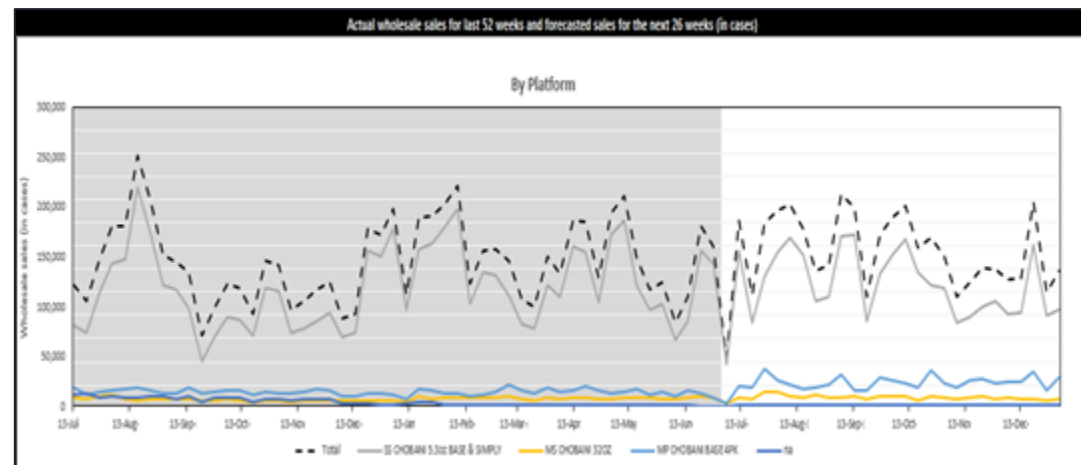
- Normalized historical data** for gaps, noise, out-of-stock, promotions, distribution changes and non-recurring events to generate historical base demand
- Generated **statistical base demand** forecast using forecasting tools at a SKU and week level, applying **Auto Regressive Integrated Moving Average (ARIMA)** method
- Generated base demand **forecast for new product launches** based on user inputs
- Adjusted the baseline forecast** for future promotions, distribution strategy, discontinued SKUs and exception-based inputs
- Generated aggregated views/reporting** at a category and sub-category levels for the forecast period



Control Panel

No. of forecast weeks	26	Expected reach of promotions (%)	100%	Include discontinued SKUs in historical sales?	Yes
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Select from drop down menu



Shipment scheduling tool to generate expected weekly shipments by SKU and warehouse for operations planning

Objective

- Generate **wholesale shipment schedule** (by SKU, warehouse, customer warehouse) for the Operations planning team based on the retail forecast (after overlays)

Approach

- Use the final consolidated retail forecast (after overlays) as input
- Split the retail forecast by direct and indirect (through distributor) sales
- Estimate the **retail-wholesale time lag for each retailer and sub-category combination using optimization techniques** (minimize error between retail sales and time-adjusted wholesale shipments)
- Apply the calculated lag to **convert retail forecast into wholesale forecast** at customer level
- Generate shipment schedule** ((by SKU, 'From' warehouse and 'To' customer warehouse) based on the wholesale forecast

					Total	1,275,905	1,766,778	1,723,334	1,731,959
Weekly shipment schedule by SKU and primary warehouse for key customer accounts (in cases)									
SKU ID	SKU Desc.	Planning unit	Primary warehouse	Customer account	27-Dec-	03-Jan-	10-Jan-	17-Jan-	
4	12/5.3oz Chobani 0% Strawberry	CoreSS	New York	Giant Carlisle	225	303	1,329	373	
5	12/5.3oz Chobani 0% Blueberry	CoreSS	New York	Giant Carlisle	279	376	1,647	463	
4	12/5.3oz Chobani 0% Strawberry	CoreSS	Idaho	Kroger - Layton	78	257	127	248	
5	12/5.3oz Chobani 0% Blueberry	CoreSS	Idaho	Kroger - Layton	102	338	167	326	
4	12/5.3oz Chobani 0% Strawberry	CoreSS	New York	Shaws	713	482	487	457	
5	12/5.3oz Chobani 0% Blueberry	CoreSS	New York	Shaws	843	570	576	540	
4	12/5.3oz Chobani 0% Strawberry	CoreSS	Idaho	Target-Phoenix	206	797	404	1,021	
5	12/5.3oz Chobani 0% Blueberry	CoreSS	Idaho	Target-Phoenix	208	806	409	1,034	
4	12/5.3oz Chobani 0% Strawberry	CoreSS	New York	Wakefern	4,177	5,084	5,140	4,818	
5	12/5.3oz Chobani 0% Blueberry	CoreSS	New York	Wakefern	5,144	6,260	6,330	5,932	
4	12/5.3oz Chobani 0% Strawberry	CoreSS	Chicago	Walmart-Olney	63	76	77	72	
5	12/5.3oz Chobani 0% Blueberry	CoreSS	Chicago	Walmart-Olney	62	75	76	71	
4	12/5.3oz Chobani 0% Strawberry	CoreSS	New York	Weis Markets	209	122	149	347	
5	12/5.3oz Chobani 0% Blueberry	CoreSS	New York	Weis Markets	234	137	167	387	
6	12/5.3oz Chobani 0% Peach	CoreSS	New York	Weis Markets	223	130	159	369	
10	12/5.3oz Chobani 2% Pineapple	CoreSS	New York	Weis Markets	209	122	149	347	
12	12/5.3oz Chobani 0% Raspberry	CoreSS	New York	Weis Markets	234	137	167	387	

Primary warehouse	27-Dec-	03-Jan-	10-Jan-	17-Jan-	24-Jan-
Idaho	534,854	550,210	658,146	616,848	626,617
Chicago	760,746	779,537	936,110	877,370	891,265
New York	1,316,681	1,363,898	1,620,195	1,518,531	1,542,579
Arlington	131,077	134,657	161,292	151,171	153,565
Florida	379,335	392,113	466,777	437,488	444,416
Hazleton	54,928	54,809	67,590	63,348	64,352

Planning unit	27-Dec-	03-Jan-	10-Jan-	17-Jan-	24-Jan-
CoreSS	1,587,370	1,777,183	1,953,273	1,830,710	1,859,708
CoreMS	250,060	121,723	307,707	288,400	292,960
FlipSS	314,160	336,435	386,577	362,323	368,060
CoreMP	0	0	0	0	0
LightMP	0	0	0	0	0
LightSS	579,500	620,587	713,080	668,337	678,920

Customer parent	27-Dec-	03-Jan-	10-Jan-	17-Jan-	24-Jan-
C&S Wholesale	284,949	303,197	350,634	328,632	333,836
Walmart	79,440	81,881	97,753	91,619	93,070
Kroger	79,361	81,801	97,655	91,527	92,977
Alhold	37,600	37,573	46,268	43,364	44,051
Publix	79,441	81,881	97,753	91,619	93,070
Safeway	72,711	74,693	89,471	83,857	85,185