

*Benchmark*



*Forecast as  
Input*



*Inventory  
Management  
Framework*



*Optimal  
Order  
Quantities*



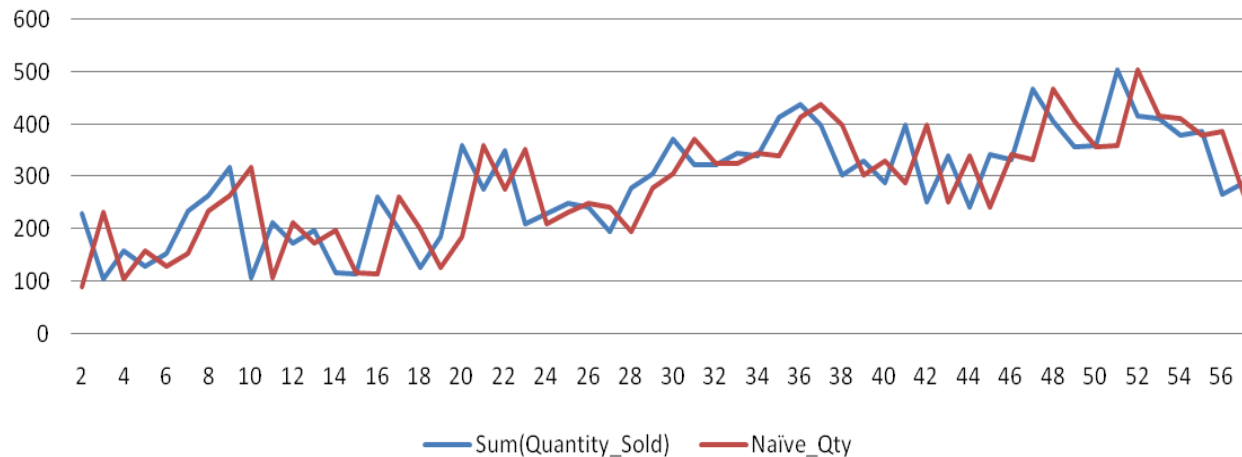
# *Inventory Management Model for Hyper city Mumbai for the Perishable Product Classes of Dahi and Milk*

*Forecasting Analytics | Indian School of Business, Hyderabad*

*Sammilan Dey/Shruti Agarwal/Sanjay Kumar P./Abhishek Bagalkot/Tejveer Bedi*

# Benchmark Forecast and Assumptions

## Dahi Naive Forecast



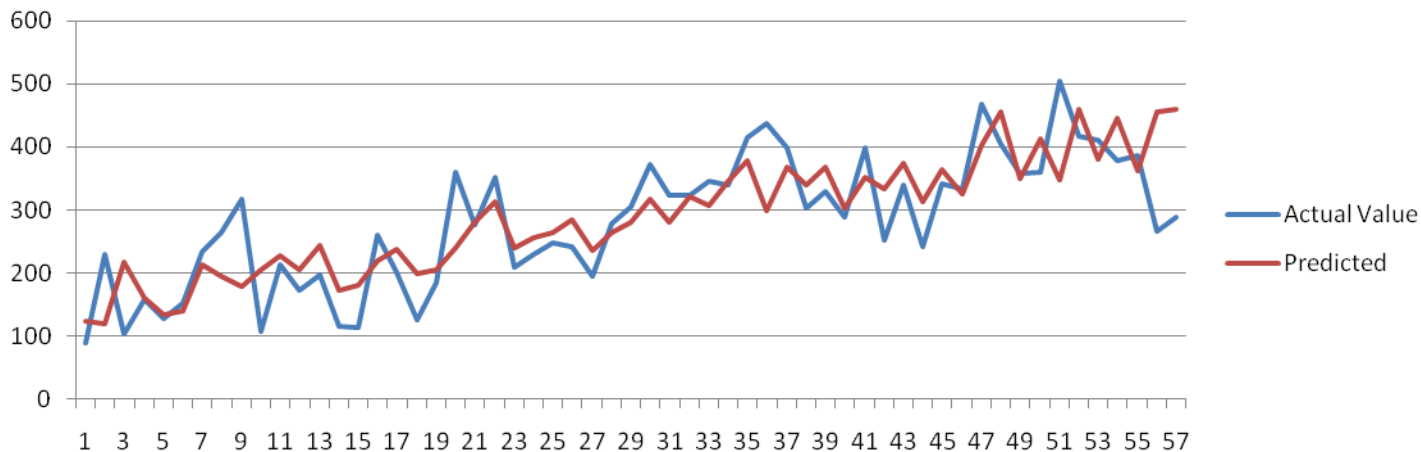
- ▶ Weekly aggregation of data
- ▶ Forecast Outlook- **2 Weeks**
- ▶ Validation Set- **8 Week**
- ▶ **Naïve Cleary is an inaccurate benchmark**
- ▶ **5 Period Moving Average – A better indicator**
- ▶ All data for Dahi, Low shelf life commodity product class

## 5 Period Moving Average- Dahi



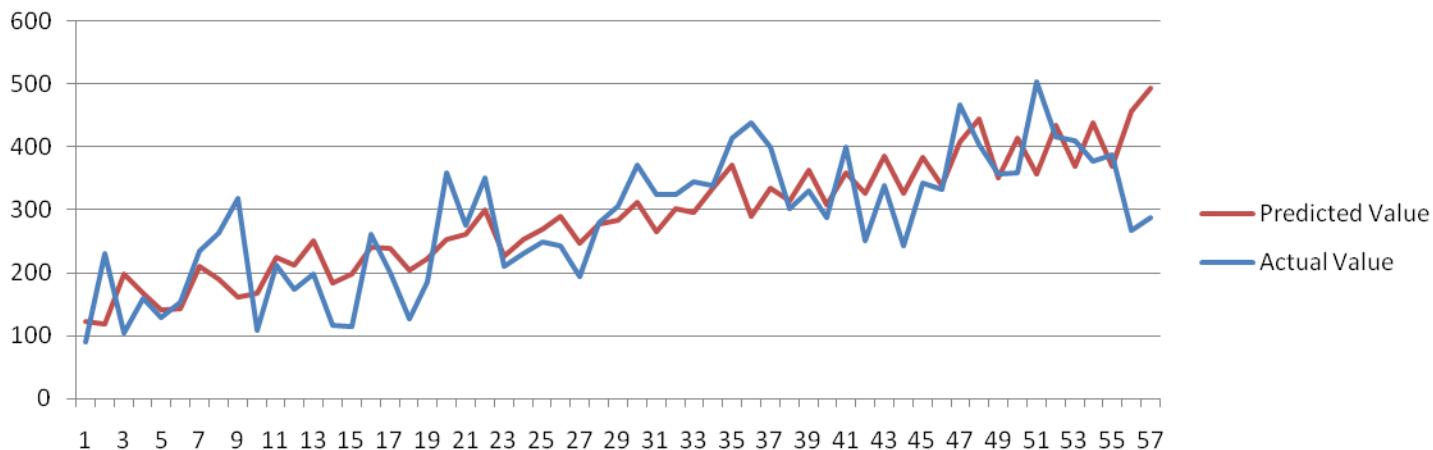
# Forecasting Model Adopted-Forecasting Goal

## Dahi - After Incorporating AR on Residuals



Post AR  
Incorporation  
MAPE  
further  
improves  
0.67%

## Dahi - Before Incorporating AR on Residuals



## Cost of Under Over forecasting-Business Goal

Over forecasting	
Cost/Unit	14.4
Predicted	445.85
Actual	342
Error	-103.85
Revenue Impact	-1495.44

Under forecasting	
Margin/Unit	3.6
Predicted	362.82
Actual	434
Error	71.18
Revenue Impact	-256.25

Week	50	51	52	53	54	55	56	57
<b>Error</b>	-51.48	157.32	-41.94	30.99	-66.65	25.23	-188.6	-170.6
<b>Impact INR</b>	-741.3	-566.3	-604	-111.6	-959.8	90.83	-2715	-2457

# Inventory Management Policy

Sanctity of of Inventory Management policy dependent on accuracy of forecast input



Due to the low margins operating in the commodities business , cost of over forecasting is clearly higher than cost of under forecasting

We have the Optimum Order Quantity however there are other considerations too

This is an important consideration in the Inventory management policy however weightage will be given to a “ loss- leader strategy “ for commodities