Data Interpretation & Modelling Document

What is the problem?

ABInBev has shown a decline in Sales Volume in the financial year 2016.

What did we do?

We have aimed to study the provided Sales Summary data to **identify the relationship between Sales and key Internal (Price, Promotion & Marketing) and External (Consumer Price Index, GDP & Weather) metrics.**

Based on our findings, we have identified key 'Problem Areas' and customised strategies to drive sales.

Additionally we have formulated a **Sales Forecasting Algorithm**, created a **BI tool** inclusive of a '**What If' scenario analyser** to leverage our knowledge of the relationship between Sales and key internal drivers.

What was our approach?

Based on our understanding, we have assumed Sales Volume to be the key metric to inspect Sales Performance.

Additionally we understand that ABInBev has certain Push SKUs which are the prime focus of Promotional & Marketing Strategies. We have limited our study to these particular SKUs. The prime reason for this step is that that we wanted to capture the effect of Promotion on Sales.

For example, while ABInBev may choose to run promotional activities for 'Corona Light -Pack of 12' the effect of these activities would also be reflected on 'Corona Light -Pack of 6' although the particular SKU was not put up for promotion. To eliminate this bias, we will only work with the SKUs having Promotional activities.

For modelling purpose, we have aggregated the data at a weekly rollup level.

- We have used Lasso regression to establish the relationship between Sales Volume, Price & Marketing Channels (Display Count & Feature Count) at both an Industry, as well as ABInBev as a corporation level.
  The external factors used in the model are Employment, Temperature, Humidity and Consumer Price Index for Beverage as well as Wine.
  Our model also includes interaction terms for Display Count, Feature Count & Temperature, Humidity.
- We have further deep dived to understand the above relation at a Segment level for each of ABInBev's products, to allow us to formulate specific strategies to increase Sales Volume.
- We have built a long term Sales forecasting algorithm, with a Prediction period of 12 weeks, for investment planning, inventory management & procurement planning.

What is the Solution?

Based on our findings, we have the following observations and recommendations:

- At an overall level, **ABInBev has a greater 'Brand Equity' as compared to its competitors.** This can be inferred firstly from the Intercept term, which suggests that other factors being non-existent, ABInBev will still be relatively outselling its competitors. Secondly, we can observe that CPI Index for Beverage, expectedly is negative for both ABInBev and well as its

rivals. However the effect of CPI on ABInBev is relatively lower, compared to its rivals, signalling higher 'Brand Equity'.

- At an overall level, **ABInBev has a relatively (Price) Inelastic demand** as compared to its competitors who face a relatively (Price) Elastic demand.
- However **ABInBev suffers from relatively lower ROI in the Marketing domain**. This may be due to ABInBev having a rather loyal customer following, as can be seen from a relatively price inelastic demand, or due to poor packaging & labelling, due to which promotions do not appeal to the customer.
  Amongst the 2 given channels, Display has higher Per Unit Returns.
- We also observed a high level of correlation between Display Count & Feature Count, which suggests, that ABInBev tries to parallel push its products for both Marketing Channels. However we believe that this might not be the best approach, as **we do not see any substantially increased returns, when both Marketing channels are simultaneously utilized.**
- At a segment level, Value & Premium Plus show the most elastic demand. For the Value segment, we further observe a tendency of customers to shift when their income increases. Similar outward movement can be observed for Premium as well, while Premium Plus and Craft shows an inward movement.
- Given the relationship between Sales & Price, we as of now cannot say that reducing price is a feasible solution.
- Our aim must be to focus on sorting out issues in the marketing channels.

Industry level Sales Prediction Output is shown below: