Internship Project Report

Cement Company Data Model

Company: Celebal Technologies

Role: Power BI Intern

Branch: B.Tech CSE with Spl. in Business Analytics and Optimization

Team Members:

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ABSTRACT

We have created Power BI Report showing the visualizations created from the given dataset

We have performed data cleaning and further we have plotted different charts showing different visualizations as per the given project Description.

Project Description:

Description
Variation in manufacturing of cement plant wise and on the basis of Fiscal year (Quantity in Tons).
Production target and target achieved in a particular year.
Quantity of Orders and quantity delivered(shipped) plant wise and month wise.
Total quantity of cement sold to date, total delivery last year, average delivery per day.
Total budget and production cost region wise.
Quantity delivered(shipped) on yearly basis and plant wise.

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INTRODUCTION

Microsoft PowerBI:

Connect to and visualize any data using the unified, scalable platform for self-service and enterprise business intelligence (BI) that’s easy to use and helps you gain deeper data insight.

Power BI helps to bridge the gap between data and decision making.

Power BI is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights. Your data may be an Excel spreadsheet, or a collection of cloud-based and on-premises hybrid data warehouses. Power BI lets you easily connect to your data sources, visualize and discover what's important, and share that with anyone or everyone you want.

Power BI consists of several elements that all work together, starting with these three basics:

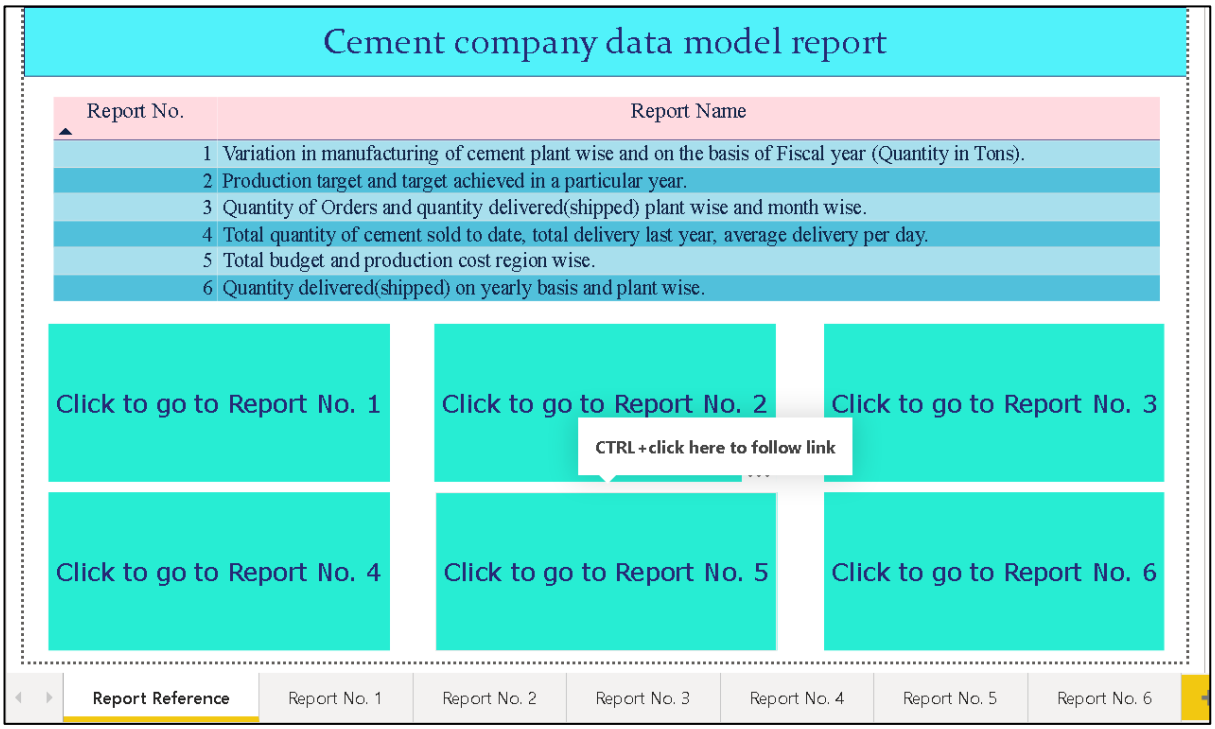
A Windows desktop application called Power BI Desktop.

An online SaaS (Software as a Service) service called the Power BI service.

Power BI mobile apps for Windows, iOS, and Android devices.

Power BI Desktop is a free application you install on your local computer that lets you connect to, transform, and visualize your data. With Power BI Desktop, you can connect to multiple different sources of data, and combine them (often called modeling) into a data model. This data model lets you build visuals, and collections of visuals you can share as reports, with other people inside your organization. Most users who work on business intelligence projects use Power BI Desktop to create reports, and then use the Power BI service to share their reports with others.

REPORT DETAILS



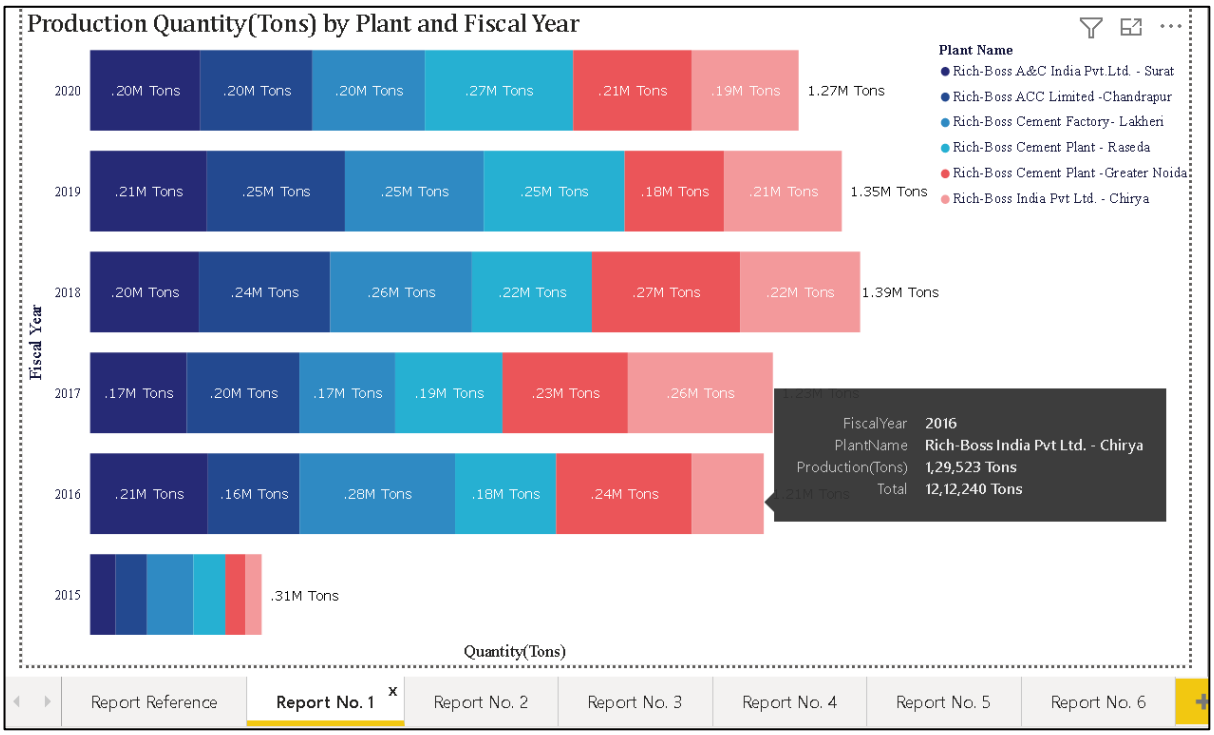
This page basically shows the overview of our report pages.

Each page name as Report No. 1, Report No. 2….., consists of different visualization in a serial order as per the index.

Users can hover to any specific page to look into the visualization just by CTRL+Click on the box of their choice.

Report No. 1

Variation in manufacturing of cement plant wise and on the basis of Fiscal year (Quantity in Tons).



Description:

This visualization shows the variation in production of cement plant wise on the basis of Fiscal Year. Here, Quantity of cement is shown in Tons.

Here, we have used stacked bar chart for better visualization and understanding.

We can see the total quantity of cement produced in each Fiscal Year summing up all quantities produced by each plant.

Different colours have been used of different Plant and Plant name can be identified using the legends present on the top right corner.

Tooltip provides us with insight as and when we move the mouse pointer over any point inside the chart. The tooltip here shows Fiscal Year, Plant Name, Production (Tons), Total quantity of production.

For the Plant: Rich Boss India Pvt. Ltd. -Chirya,

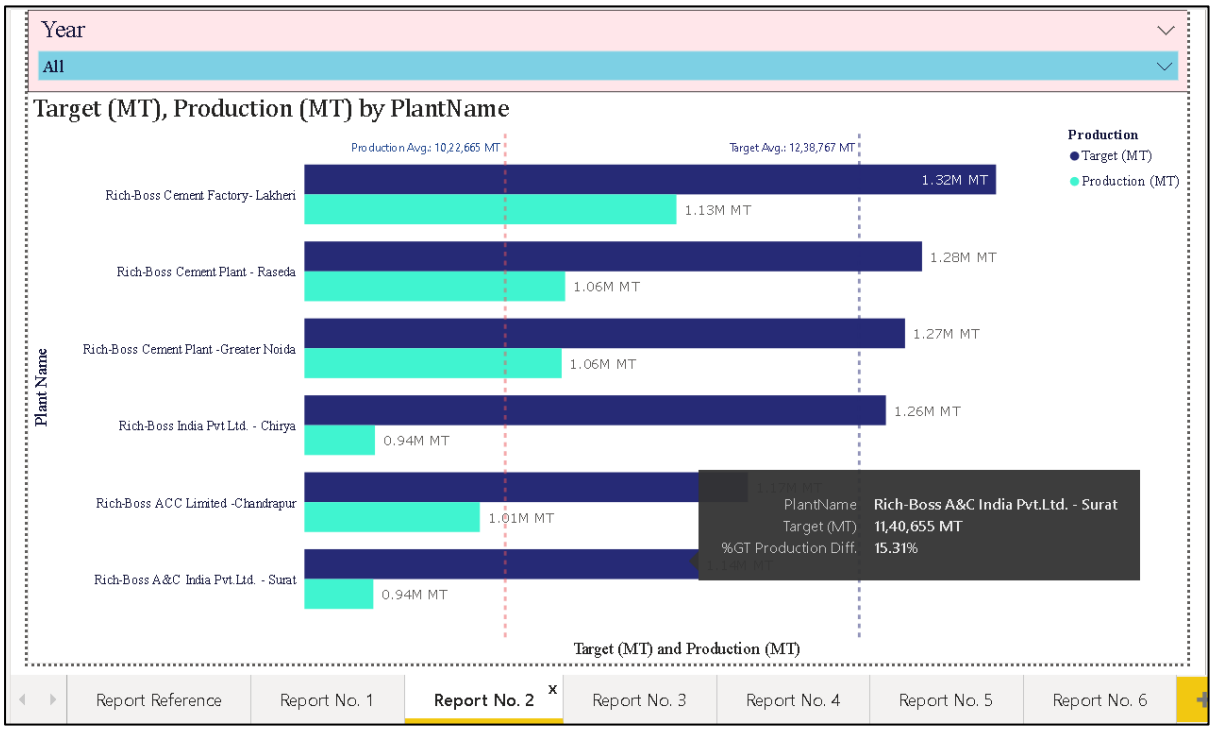
Fiscal Year 2016,

Total production = 1,29,532 Tons

Total production of all Plants in the year 2016 = 12,12,240 Tons.

Report No. 2

Production target and target achieved in a particular year.



Description:

This visualization shows the variation in production target and production target achieved plant and year wise.

Here, we have used clustered bar chart for better visualization and understanding.

We can see the total production target quantity of cement production for each plant for all years, and also the total production target achieved for each plant for all years.

Two different colours have been used for two different categories of data shown in the visualization.

We have added average lines for production target and target achieved.

Average Target production = 12,38,767 MT

Average Production = 1,22,665 MT

Tooltip provides us with insight as and when we move the mouse pointer over any point inside the chart. The tooltip here shows Plant Name, Target (MT), %Grand total of Production Diff. (showing the difference between target and target achieved).

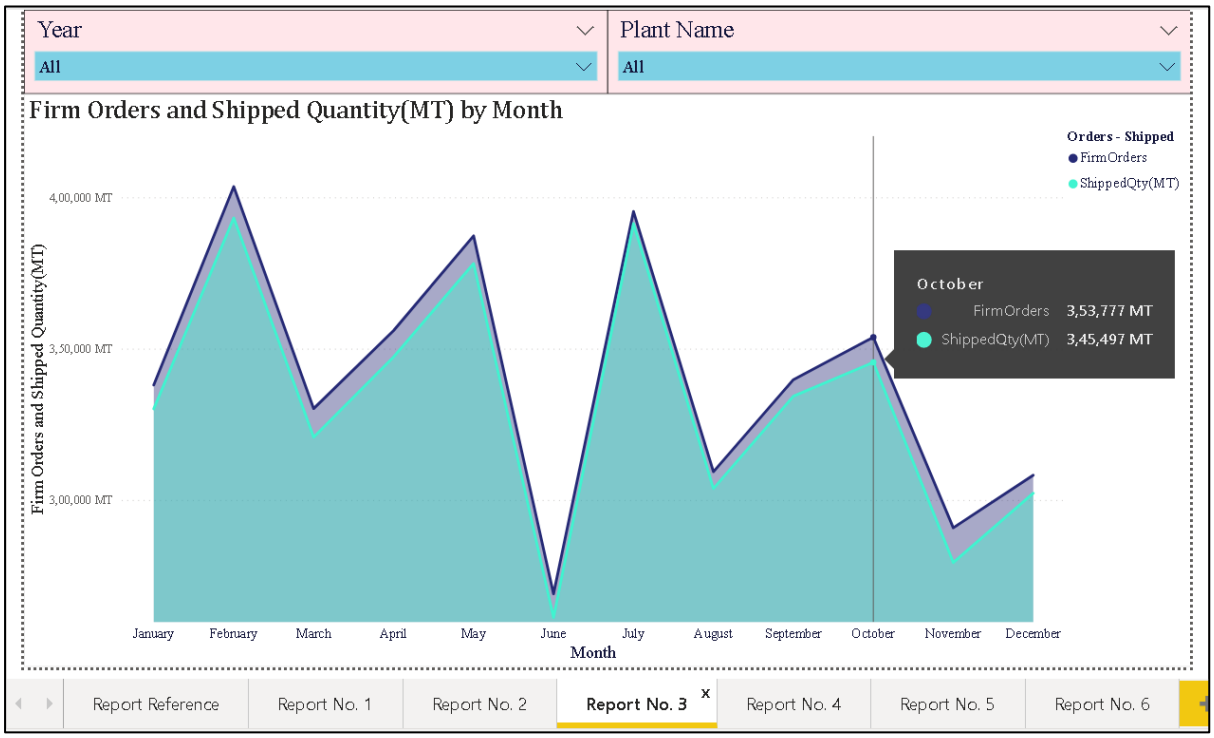
For the Plant: Rich Boss A&C India Pvt. Ltd. -Surat

Target (MT) = 11,40,655 MT

%GT Production Diff. = 15.31%

Report No. 3

Quantity of Orders and quantity delivered(shipped) plant wise and month wise.



Description:

This visualization shows the variation in Quantity of orders and quantity shipped/delivered month wise and plant wise. Quantity of cement is shown in MT.

Here, we have used area chart for better visualization and understanding.

We have added Sliders of Year and Plant Name. Sliders help to filter our visualization in a case when we want to focus on details of a specific period or specific plant.

Two different colours have been used of showing two different plots.

Here, we can visualize how orders varies from month to month and Plant to plant. We can compare whether we were able to deliver all of our orders or not.

Tooltip provides us with insight as and when we move the mouse pointer over any point inside the chart. The tooltip here shows Month, total quantity of orders and total quantity produced.

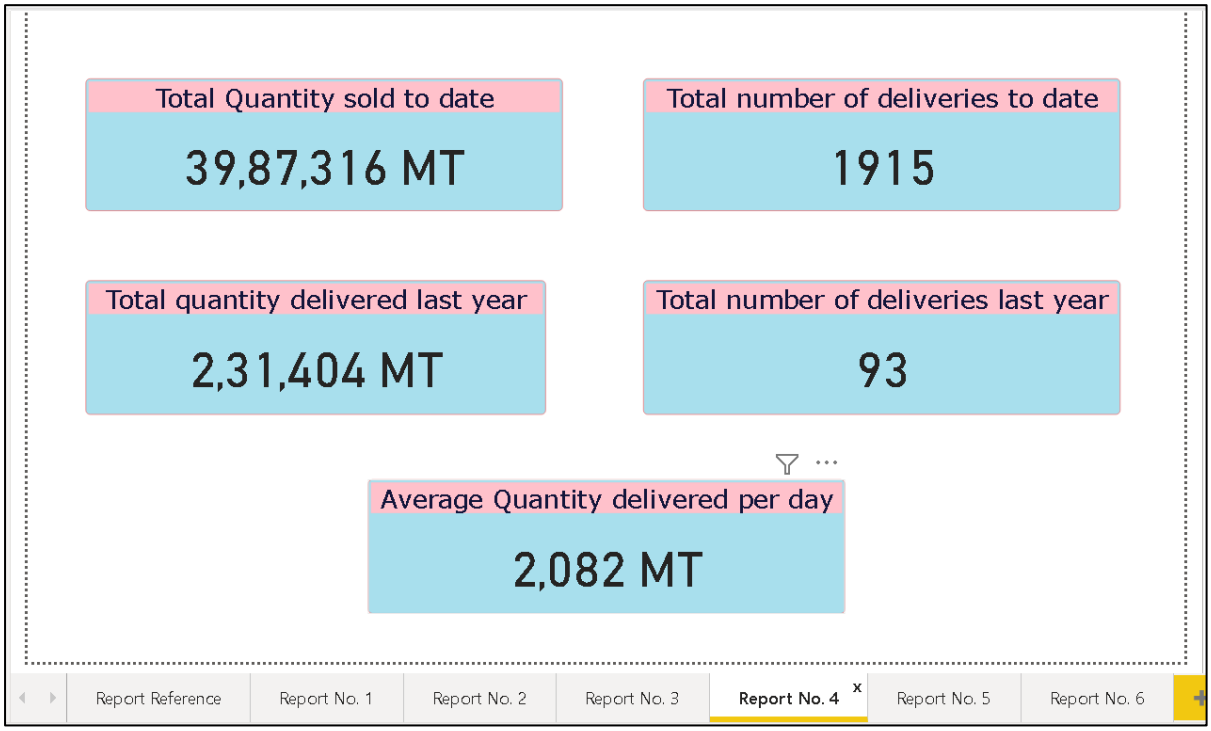
For the Month- October

Total Firm Orders for all year = 3,53,777 MT

Total quantity of orders produced/delivered for all year = 3,45,497 MT

Report No. 4

Total quantity of cement sold to date, total delivery last year, average delivery per day.



Description:

These are called as “Cards” in Power BI.

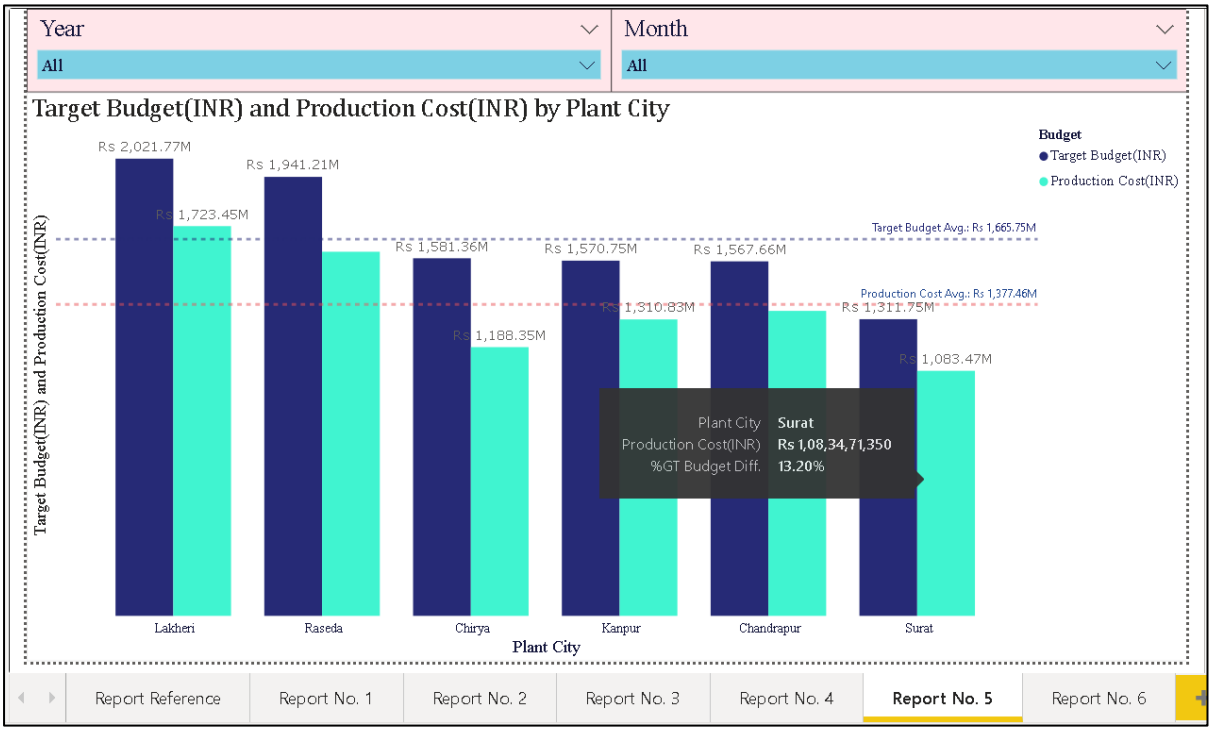
Sometimes a single number is the most important thing you want to track in your Power BI dashboard or report.

These cards can be used to show the output of any query, say total sales, total production etc.

Here, we have used the cards to show Total quantity of cement sold to date, total delivery last year, average delivery per day.

Report No. 5

Total budget and production cost region wise.



Description:

This visualization shows the variation in total budget and total production cost.

Here, we have used clustered bar chart for better visualization and understanding.

We can see the total budget of any specific pant as well as we can see the total production cost for that plant.

Two different colours have been used for two different categories of data shown in the visualization, namely, Target Budget and Production cost.

We have added average lines for budget and production cost.

From this we can estimate the average budget of any specific plant as well as the average production cost at any specific plant.

Average Target Budget = Rs 1665.75 M

Average Production Cost = Rs 1377.46 M

Tooltip provides us with insight as and when we move the mouse pointer over any point inside the chart. The tooltip here shows Plant cist, %Grand total of Budget Diff. (showing the difference between target budget and production cost).

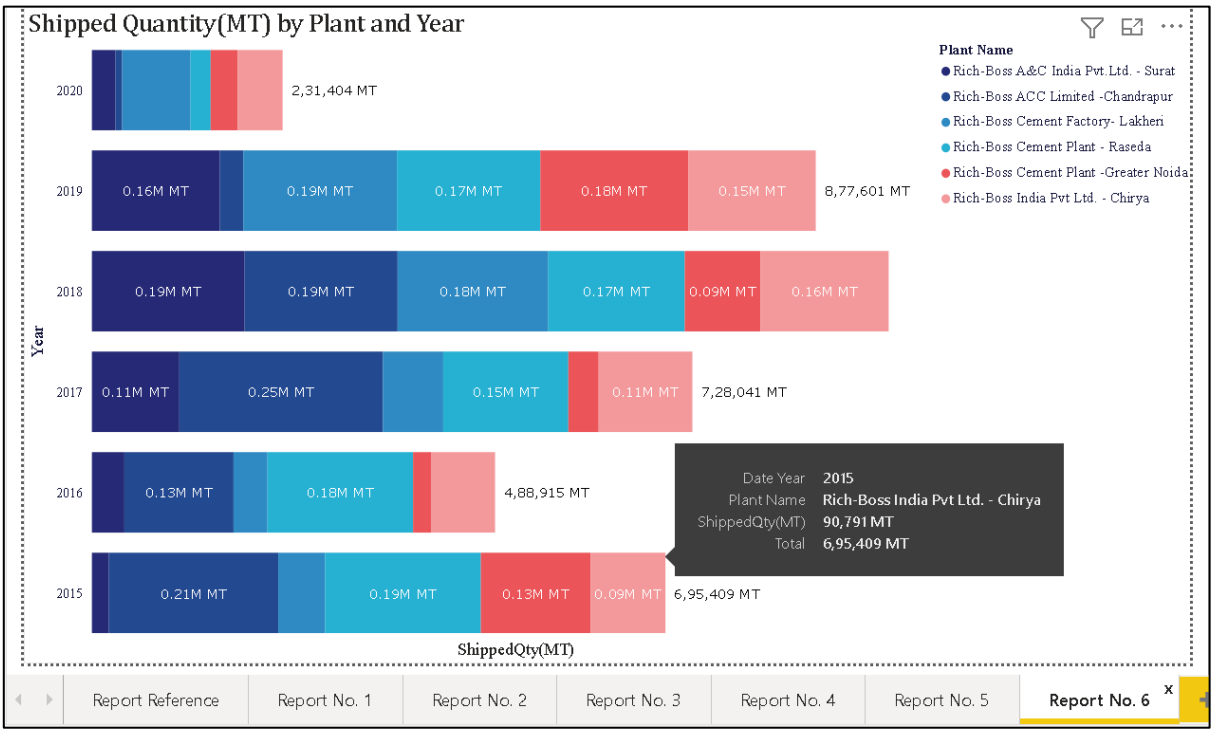
For the Plant city: Surat

Production Cost (INR) = Rs 1,08,34,71,350

%GT Budget Diff. = 13.2 %

Report No. 6

Quantity delivered(shipped) on yearly basis and plant wise.



This visualization shows the variation in Quantity delivered(shipped) on yearly basis and plant wise. Quantity of cement is shown in MT.

We can see the total quantity of cement shipped each Year summing up all quantities produced by each plant.

Here, we have used stacked bar chart for better visualization and understanding.

Different colours have been used of different Plant and Plant name can be identified using the legends present on the top right corner.

Here, we can visualize how order shipping varies from year to year and Plant to plant. We can compare whether we were able to deliver all of our customer's requirement or not.

Tooltip provides us with insight as and when we move the mouse pointer over any point inside the chart. The tooltip here shows Year, total quantity shipped

Date Year 2015

Total Firm Orders for all year = 3,53,777 MT

Total quantity of orders produced/delivered for all year = 3,45,497 MT

Plant: Rich Boss India Pvt. Ltd. -Chirya,

CONCLUSION

Visualisation can provide a quick, high level summary of the main information contained in the data.

Quite often the initial data investigations can lead to more questions and further exploration.

Sometimes the data shows some unexpected patterns and outliers – data points which are well outside the normal data range. Exploring these data points can lead to new discoveries.

Graphical representations of data are more effective as a means of communication than long textual files. A story can be told more efficiently, and the time to understand a picture is a fraction of the time that it takes to understand the textual data.

Visualisation can provide quick answers and can improve situational awareness. This in turn can lead to faster and timely decisions.

Using innovative data visualisations can make your audience more enthusiastic about what you are trying to communicate to them. This in turn can inspire your audience to take action based on your more persuasive visualisation.

Thus, using the Cement Company Dataset, we have created visual reports about the company's production plants situated at different locations over different plants from 2015 to 2020.

We can effectively look into past actions and their consequences and can take measured decisions in future.