

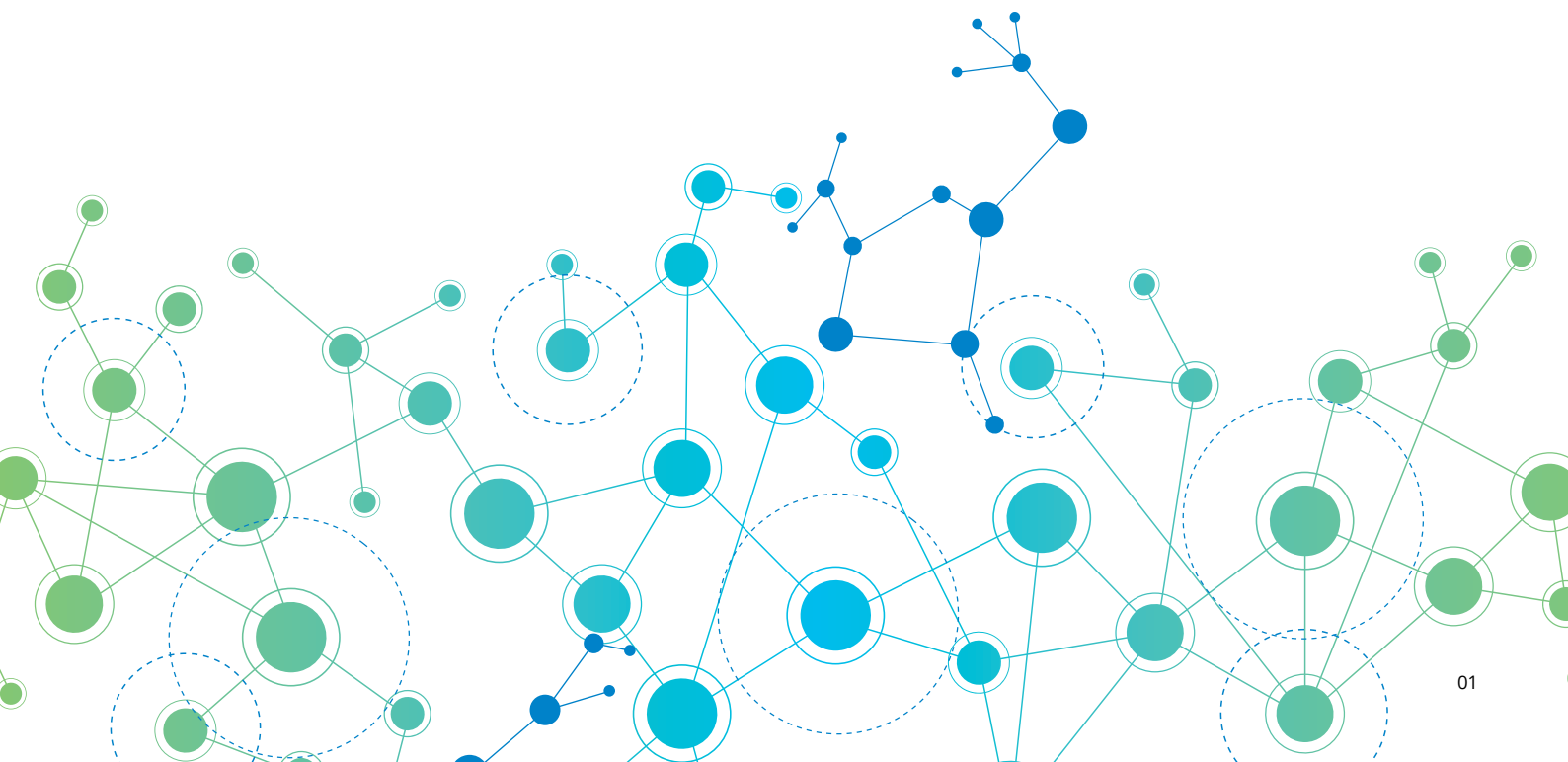


**The rise of analytics in the
jewellery industry**

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Foreword

In the last few years, the jewellery industry has witnessed a lot of disruptive innovation with advancements in technology. Earlier, the jewellery business was restricted to family owned or proprietor-run entities. However, nowadays, the jewellery industry is transforming by leaps and bounds and aligning itself with the advancing corporate culture. There used to be lesser number of stores, but with rapid growth and consumerism, there is a proliferation in the retail outlets and franchisee stores along with an increase in the presence of online players through e-Commerce websites and applications. Besides, the decision-making by businesses in this sector was purely based on instincts and unverified presumptions. With the availability of data, businesses can now take decisions based on actionable insights and calculated inferences.

With the shift in operational structure, humongous amounts of data are being generated which include sales data, customer data, expense data, warehouse data, etc. Analytics tools and methods used earlier such as the MIS are becoming less utile to handle such enormous amount of data, and are failing to analyse it for generation of insights. In order to overcome this technological barrier, advanced analytics tools are being used to provide actionable insights to enable more informed decision-making.

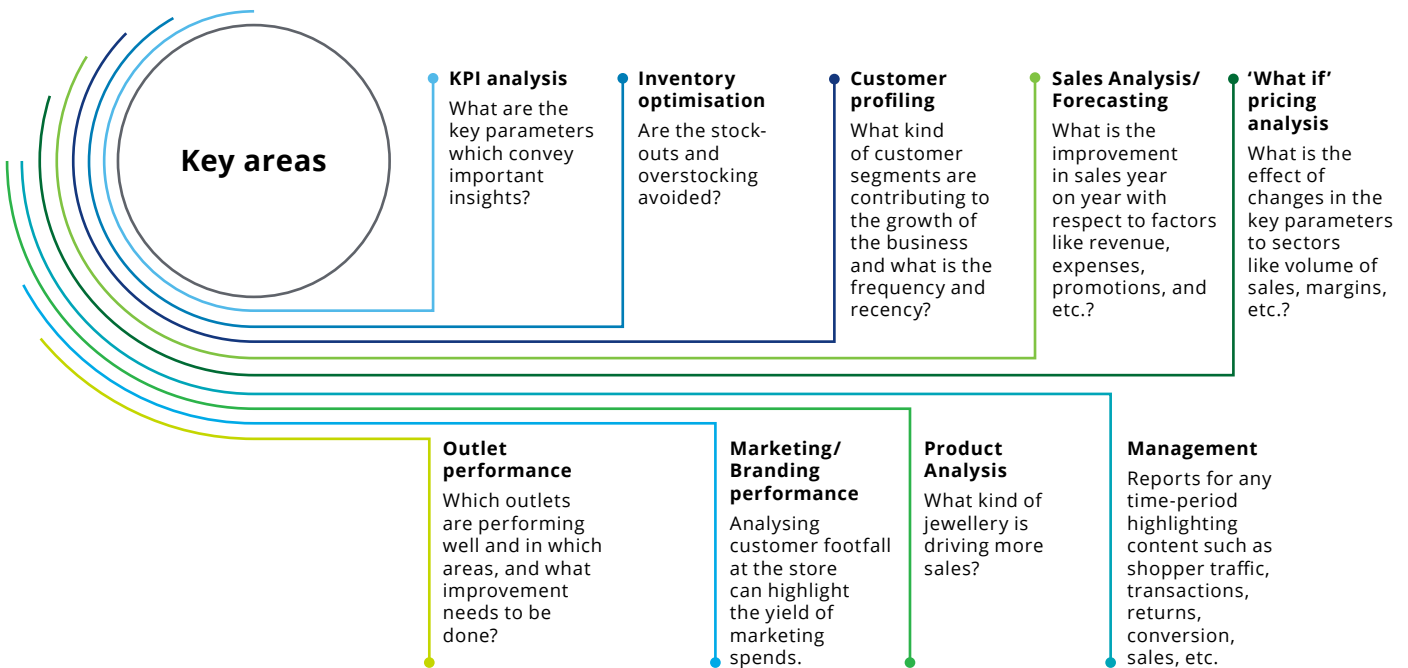
The jewellery industry has a lot to benefit from the potential of data driven insights and advanced analytics, something that other players in the retail sector are already leveraging. With an increase in sales and customer base on an ongoing basis, the amount of data being generated is also enormous. It is important for businesses to make sense of this data and generate information that can empower strategy and operations. Data, when processed and analysed effectively, can act as the fuel that drives the engine of transformation for businesses.

We are also seeing a sharp rise in predictive analytics techniques that help in anticipating what the customer base is more likely to get attracted to in times to come. **This paper focuses on the important aspects of various analytics and predictive techniques that can be leveraged by the jewellery industry to scale the business to greater heights and prevent various risks involved in the business.**

Areas of growth

The jewellery industry is well-poised for a glittering future. Sales are projected to grow by a huge proportion in the coming years. However, the fast growing industry is at its dynamic best, and, as such, the jewellery business cannot simply continue with the status quo and expect more profits. The market has observed major changes in customer behaviour and purchasing patterns which dictates that businesses have to be proactive and responsive to the changing trends and developments in the industry. This in turn has given impetus to the adoption and implementation of advanced analytics and highlighted the need for data driven insights in the sector.

Some of the key areas that the jewellery businesses would need to focus on include:



Analytics is relevant throughout the entire breadth of the jewellery industry at different levels of involvement, and for a multitude of businesses. All kinds of analysis right from descriptive to predictive and prescriptive have critical applications in the jewellery industry.

1. KPI analysis

Key performance indicators are important for any business because these help it focus on common goals, and ensure those goals stay aligned within the organisation’s efforts and expertise. This focus will help a business stay on task, and work on meaningful projects that will assist in reaching the objectives faster.

At the heart of any analytics project lie certain key performance indicators pertaining to that particular data. KPIs define the key parameters in the data that have a significant impact on the analytics. Therefore, KPI analysis plays a vital role in analytics.

2. Inventory optimization

Jewellers maintain high-value inventory of jewelleries and accessories. Neither out-of-stock nor overstock is good for the business. Reordering and other item requirements can be complex to manage. Any delay or negligence in restocking may result in loss of business. By integrating analytics in the in-store point-of-sales system, we can

present real-time inventory status and the in-store sales-related information. Retailers can transfer slow-moving items at one store to another that may have a greater demand. Stock levels at showrooms can be optimised in accordance with the historical trends and real-time demands.

3. Customer Profiling

Analysing customer transactions, visits and interactions will enable businesses to understand customer behaviour, engagement rate with the brand, frequency, recency, product returns, loyalty towards the brand, and repeat visitor ratio.

4. Sales Analysis

A complete sales analytics and expense report derived based on two critical parameters (stores and products) can help analyse sales and expenses according to seasonality, location, product type, etc.

Sales discovery dashboard allows one to measure and monitor sales performance by product categories, product groups, showrooms, regions, and sales personnel over selected period. Business managers can use filtering and drill-down functions to isolate sales laggards, and identify probable root causes so that resolution plans can be put forward to move sales laggards up the charts.

	<p>Qualifier Algorithm & Forecasting</p>	<ul style="list-style-type: none"> Analyzes history Selects algorithm Displays which algorithm was selected High moving Slow moving Random demand
	<p>Optimization & Rationalization</p>	<ul style="list-style-type: none"> System rationalize inventory mix Sets optimal stocking quantity Lead time Order frequency Service levels
	<p>Inventory Analysis</p>	<ul style="list-style-type: none"> System checks inventory position v/s SQ Determines items needing replenishment Analyzes excess and inactive stock Active Excess Obsolete Shortage
	<p>Replenishment</p>	<ul style="list-style-type: none"> Creates shortage and excess plans/ reports buys Returns POs,Transfers,Work orders to Host ERP New Buy Transfers Production Repairs



5. 'What if' pricing analysis

'What If' analysis includes the domains which use predictive analysis using innovative technologies such as machine learning in coherence with advanced analytics techniques to depict probable future scenarios based on yesteryear data and insights.

"What If" analysis enables businesses to understand the various scenarios and their probable outcomes, which also makes them anticipate the future trends and their business needs as a whole, and take necessary prescriptive steps to get the desired results.

6. Outlet performance

Businesses having multiple outlets can use the power of analytics and advanced analytics to analyse data of various outlets to derive useful insights pertaining to performance of various outlets, areas that need improvement, etc. Machine learning algorithms can be implemented on the outlet data using advanced analytics, and multiple models can be built to predict how a particular outlet is going to perform in future. The results can be selected from the model with the best accuracy.

7. Marketing/Branding performance

Data having information about the funds spent on various marketing and branding campaigns, and the

corresponding sales, can be used to build dashboards with the help of any data visualisation tool. This will help identify the most effective marketing techniques, and gain insights for future planning of the marketing and branding strategy.

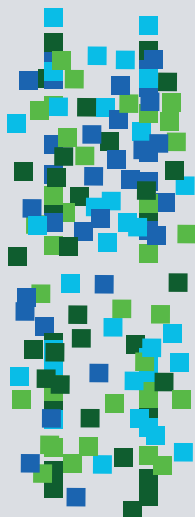
8. Product analysis

Product analysis is essentially concerned with the insights from the product data that tell the user about what kind of jewellery products are being preferred by customers, and thereby contributing to the sales more than other products. Supervised and unsupervised learning can be used to identify hidden trends and patterns in the product sales. Different types of classification, clustering and association algorithms can be implemented on the product/sales data and better insights can be derived from these models.

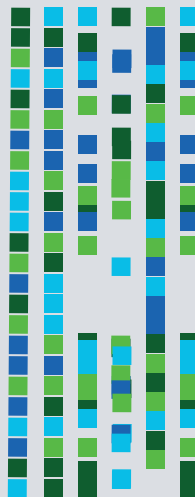
9. Management

Reports can be generated from the data visualisation dashboards and new approaches can be taken by the management based on these insights. Time series predictions can be made for shopper traffic, revenue distribution, etc. using machine learning and deep learning. Hence, analytics can help glean crucial information that can help formulate the right strategies that align with organisational goals.

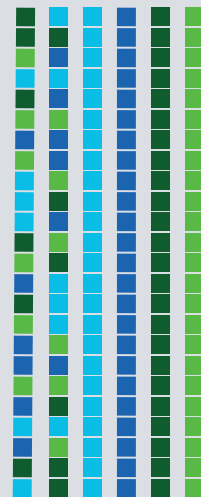
BIG DATA



ANALYTICS



DECISIONS



Various metrics are used to measure the marketing/branding performance. Some of the metrics are shown in the infographic below.



KPI Dashboard | Sales Analysis | Expenses

2015-16 | 2016-17 | 2017-18 | Q1 | Q2 | Q3 | Q4 | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar

Search

Sales Overview | **"What-If" Pricing Analysis** | Sales Details

What if Price: %
 -15 -10 -5 0 5 10 15

Reset

What if Price: %
 -15 -10 -5 0 5 10 15

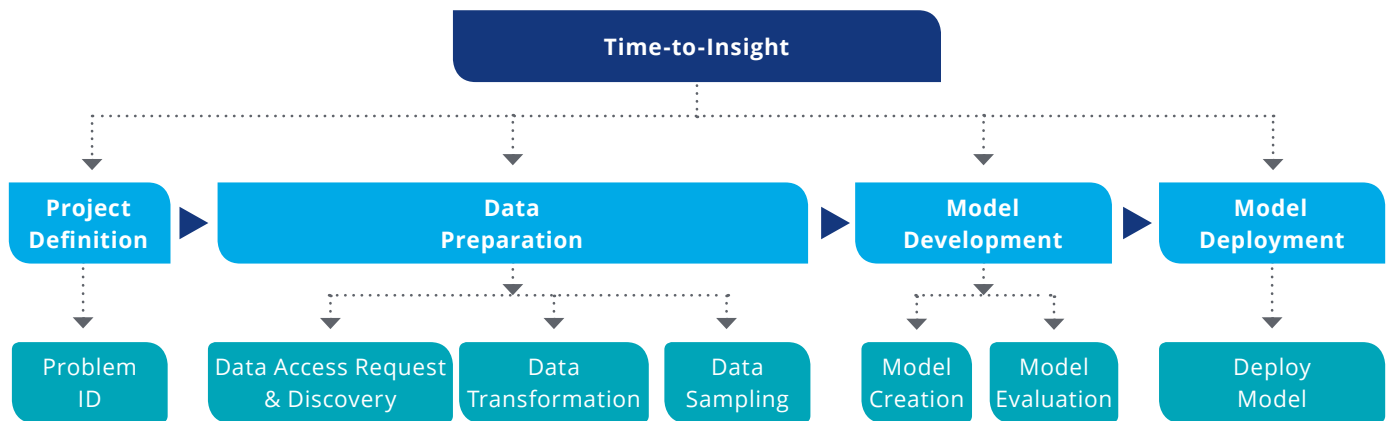
Margin change 5.0% What if Revenue \$67.790 What if Margin +\$30.249

Product	Price	What-If Price	Volume	What-If Volume	Revenue	What-If Revenue	Margin	What-If Margin
Gold	₹ 3,636.48	₹ 3,672.84	18,70,519.90	18,70,519.90	₹ 7,82,24,24,420.12	₹ 7,82,24,24,420.12	₹ 1,02,03,16,228.71	₹ 95,22,95,146.80
Diamond	₹ 2,88,173.25	₹ 2,91,054.98	12,100.95	12,100.95	₹ 4,01,02,46,157.80	₹ 4,01,02,46,157.80	₹ 52,30,75,585.80	₹ 48,82,03,880.08
Bullion	₹ 3,636.48	₹ 3,672.84	1,34,454.60	1,34,454.60	₹ 56,22,82,683.38	₹ 56,22,82,683.38	₹ 7,33,41,219.57	₹ 6,84,51,804.93
Coin	₹ 3,636.48	₹ 3,672.84	1,84,692.94	1,84,692.94	₹ 77,23,77,018.18	₹ 77,23,77,018.18	₹ 10,07,44,828.46	₹ 9,40,28,506.56
Platinum	₹ 2,923.00	₹ 2,952.23	5,618.76	5,618.76	₹ 1,88,87,167.36	₹ 1,88,87,167.36	₹ 24,63,543.57	₹ 2,99,307.33
Silver	₹ 41.69	₹ 42.11	5,61,565.18	5,61,565.18	₹ 2,69,25,337.56	₹ 2,69,25,337.56	₹ 35,12,000.55	₹ 2,77,867.18

Use of advanced analytics

Advanced analytics refers to state-of-the-art techniques and modern tools used in the field of data science. Predictive analytics, data mining, big data analytics, machine learning and deep learning are some of the categories of analytics that fall under the vast field of advanced analytics. These technologies are widely used in industries such as marketing, healthcare, risk management and economics.

Advanced Analytics Process



Advanced analytics is changing the way many organisations approach their customer interactions and the very process of doing business. The ability for organisations to use their data to predict consumer buying behaviours and anticipate the activity and requirements of their own assets, thus enabling them to make fact-based decisions, has become incredibly powerful.

Advanced data analytics is being used across industries to predict future events. Marketing teams use it to predict the likelihood that certain web users will click on a link, healthcare providers use prescriptive analytics to identify

patients who might benefit from a specific treatment, and cellular network providers use diagnostic analytics to predict potential network failures, enabling them to do preventative maintenance. Similarly, the power of advanced analytics can also be leveraged by the jewellery industry in numerous ways.

The advanced analytics process involves mathematical approaches to interpreting data. Classical as well as modern statistical methods, and machine-driven techniques such as deep learning are being used to identify patterns, correlations and groupings

in data sets. Based on these, users can anticipate and forecast future trends; for example, identifying which group of web users is most likely to engage with an online ad or determining the profit growth over the next quarter.

Advanced analytics has become more common in this era of big data. Predictive analytics models –and, in particular, machine learning models– require extensive trainings to identify patterns and correlations before they can make a prediction. The growing amount of data managed by enterprises today opens the door to these advanced analytics techniques.

What needs to be measured?

Sample insights:

The client is a jewellery retail chain in India and was seeking deeper insights into customer purchasing behaviour, and the effect of campaigns on various products.

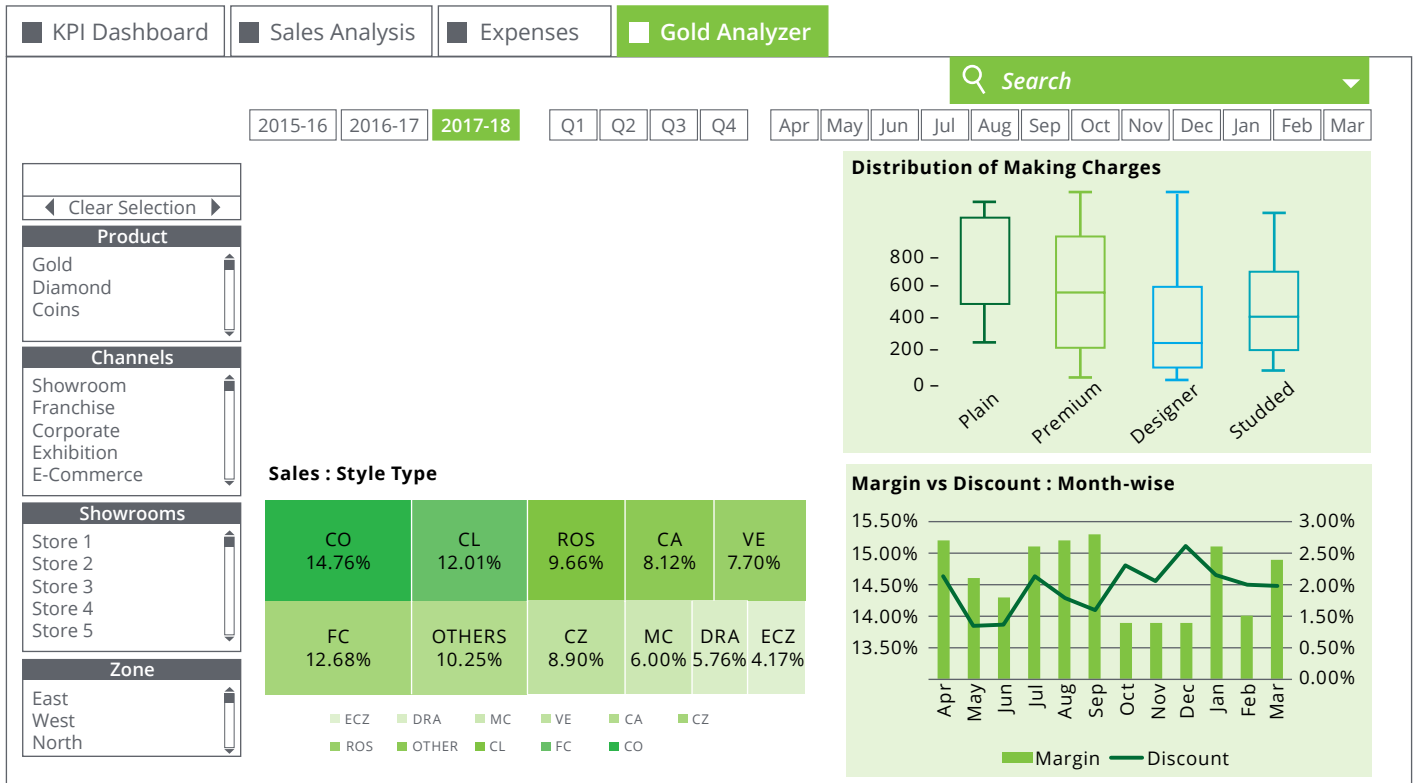
It was looking for details around:

- Seasonality effects on each department/product category;
- Effects of discounts and offers on sales.

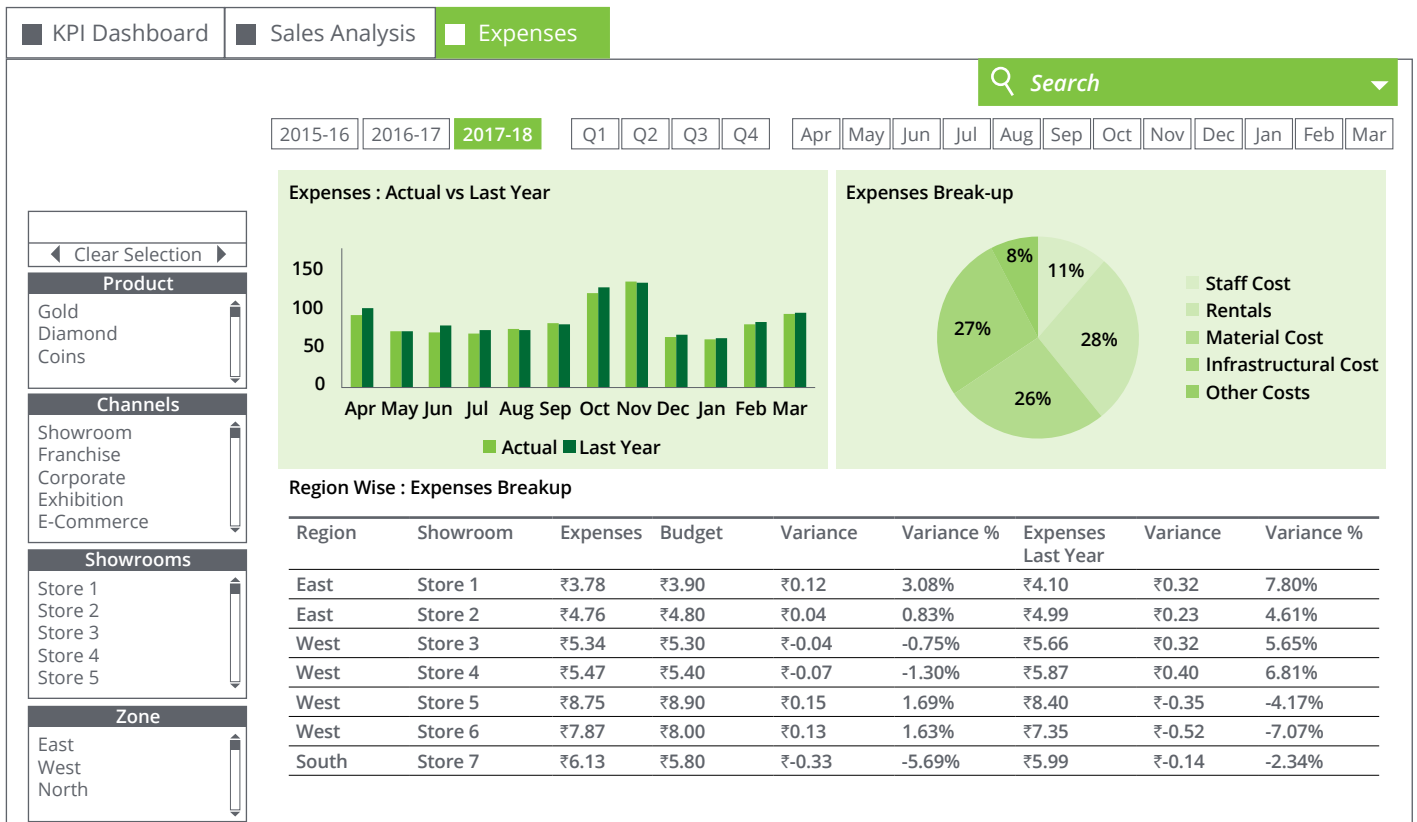


Examples:

- Seasonality is not always a singular effect. Retailers experience both annual and weekly seasonal cycles.
- November brings in the highest revenue as compared to the other months.
- Discount offered during November, December and January, is greater as compared to the other months.
- A leading jewellery retailer in India wanted Deloitte to apply analytics for its expense data and provide an interactive dashboard with drilldowns.
- Deloitte reported key insights to the retailer’s management pertaining to:
 1. Region wise expenses break-up;
 2. Month-wise analysis of actual expenses vs. last year’s expenses; and
 3. Total break-up of expenses.
- It was observed that a major part of expenses was directed towards infrastructural costs and rentals.



Analytics reporting allows organisations to take control of their operations.

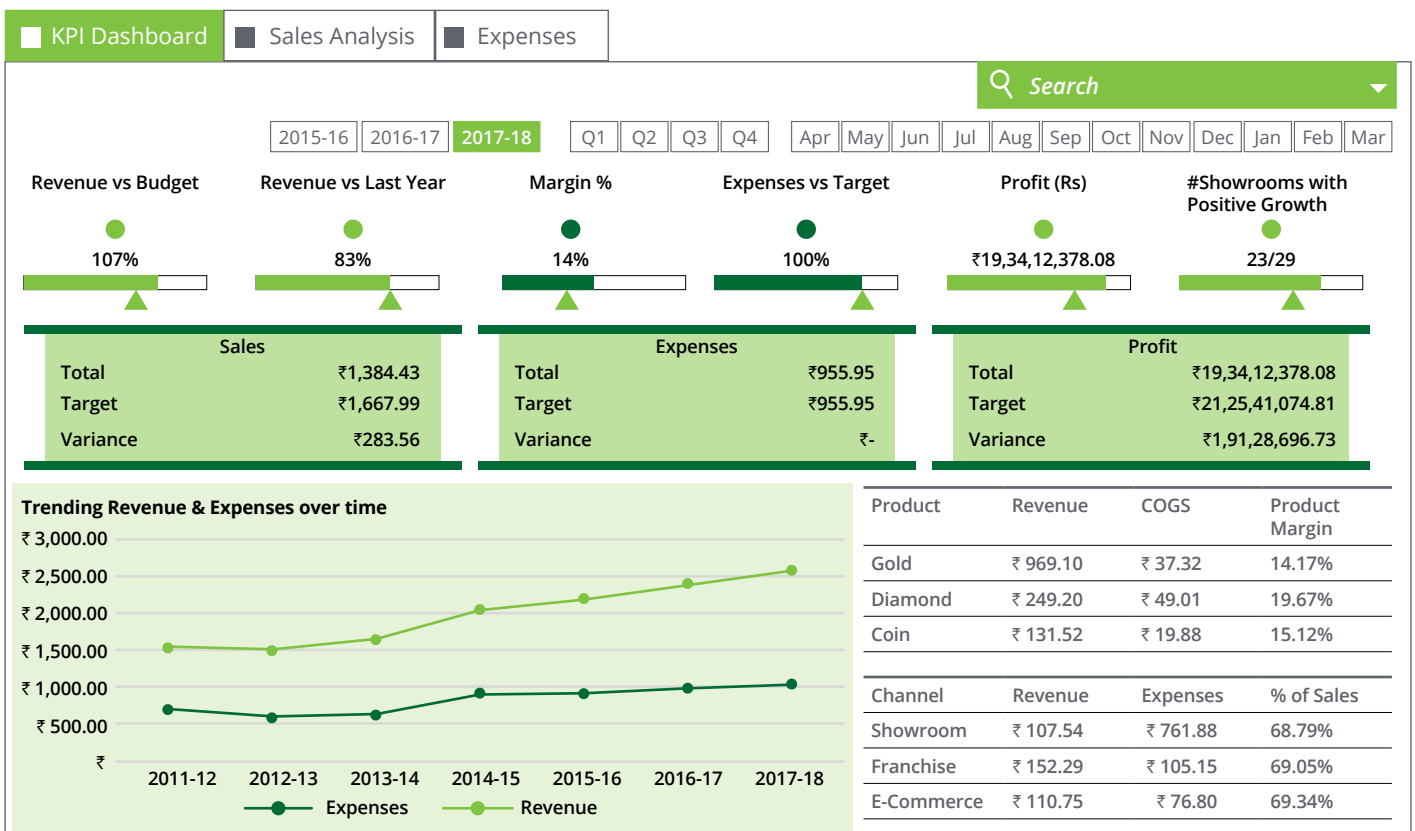


How analytics help decode insights from data

The amalgamation of advanced analytics techniques coupled with machine learning and creative visualisation has transformed the jewellery industry and paved the way for unprecedented growth for businesses in this sector.

Deloitte has always been at the helm of innovation and delivered world class service to its clientele. Analytics as a standalone domain has always been thriving at Deloitte India with successful implementation of creative solutions for complex problems. Deloitte has extensively used analytics to create an impact in the jewellery sector as well. Given below are certain excerpts from the solution that we have devised.

KPIs recognised and compared with industry standard based on extensive analytics and insights derived from client data.



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