

Hotel Booking & Revenue Dashboard (2018–2020)

Project Report

Submitted by:

Shivam Maheshwari

Submitted in partial fulfillment of the internship at
Tech Solvo (Data Analyst)



Tech Solvo

204, Atulya IT Park, Indrapuri colony

Indore Madhya Pradesh, 452014

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Project Title: Hotel Performance Dashboard (2018 – 2020)

Submitted by: Shivam Maheshwari

Data Analyst Intern

7225054078

shivam.maheshwari.nitc@gmail.com

Guided by: Dev Kanungo

Data Analyst (Tech Solvo)

dev.kanungo@techsolvo.com

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Tools Used : Power Bi

OVERVIEW:

This Power BI dashboard project analyzes **hotel booking data** from the years **2018, 2019, and 2020** to uncover trends in guest behavior, revenue generation, and operational performance. The data includes detailed information on booking sources, customer types, cancellations, and meal plans.

Separate dashboards were built for each year to provide year-specific insights while allowing comparisons over time. The dashboards include **monthly guest trends**, **booking channel performance**, **cancellation analysis**, and **meal revenue calculations**, supported by custom DAX measures and slicers for interactive filtering.

By integrating external meal cost data and applying advanced DAX logic, the report highlights key revenue contributors and guest segments. The insights help identify the most profitable booking channels, peak guest months, popular customer types, and areas for operational improvement.

DATASET DESCRIPTION:

Original Columns (from 2018, 2019, 2020 Sheets)

| Column Name | Description |
|---------------------------|---|
| arrival_date_year | Year of arrival |
| arrival_date_month | Month of arrival |
| arrival_date_day_of_month | Day of the month guest arrived |
| lead_time | Days between booking and arrival |
| stays_in_weekend_nights | Nights stayed over weekends |
| stays_in_week_nights | Nights stayed over weekdays |
| adults | Number of adult guests |
| children | Number of children |
| babies | Number of babies |
| meal | Type of meal booked (e.g., BB, HB, FB) |
| market_segment | Market segment classification |
| distribution_channel | Booking channel (e.g., TA/TO, Direct) |
| booking_changes | Number of changes made to the booking |
| customer_type | Type of customer (e.g., Transient, Group) |
| adr | Average Daily Rate (room revenue per day) |
| reservation_status_date | Date reservation was updated |
| is_canceled | 1 = canceled, 0 = not canceled |

New Columns and Measures Created

These custom fields were added to enrich the original dataset and provide better insights in Power BI dashboard.

| Column Name | Description |
|---------------------|---|
| Revenue | Calculated from $\text{adr} \times \text{total nights stayed}$ (or similar logic), representing total booking revenue |
| Total Night | $\text{stays_in_week_nights} + \text{stays_in_weekend_nights} \rightarrow$ total number of nights stayed |
| MonthNum | Numeric value assigned to <code>arrival_date_month</code> for correct sorting (e.g., January = 1, February = 2) |
| Cancellation Status | Converts <code>is_canceled</code> to readable values \rightarrow "Yes" if 1, "No" if 0 |
| MealCost | Added using <code>LOOKUPVALUE()</code> to fetch cost of meal from reference table |
| Person | $\text{adults} + \text{children} + \text{babies} \rightarrow$ total number of guests per booking |

DASHBOARD DESCRIPTION:

1. Dashboard Title (Text Box)

- **Tool Used:** Text Box
 - **Purpose:** Indicates the report year and subject focus — analysis of hotel performance for 2018, 2019, and 2020.
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2. Cards

- **Tool Used:** Card Visuals
 - **Cards Displayed:**
 - **Total Guest Count:** Shows the total number of people who stayed (sum of adults, children, and babies).
 - **Hotel Type Filter:** Displays current hotel type selection (e.g., City Hotel, Resort Hotel).
 - **Month Filter:** Displays selected month and filters visuals accordingly.
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3. Donut Charts

- **Tool Used:** Donut Chart
 - **Charts Displayed:**
 - **Cancellation Status:** Represents the proportion of canceled vs. not canceled bookings.
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4. Column & Bar Charts

- **Tool Used:** Clustered Column Chart / Bar Chart
 - **Charts Displayed:**
 - **Monthly Customer Count:** Displays the number of customers per month using arrival_date_month.
 - **Booking Channel Performance:** Shows booking volume per distribution channel (e.g., TA/TO, Direct, Corporate).
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5. Line Chart

- **Tool Used:** Line Chart
- **Chart Displayed:**

- **Average Lead Time by Month:** Visualizes how far in advance bookings were made across months.
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6. Pie Chart

- **Tool Used:** Pie Chart
 - **Chart Displayed:**
 - **Monthly Revenue:** Illustrates each month's contribution to the total revenue.
 - **Customer Type Distribution:** Shows share of different customer categories (Transient, Contract, Group, etc.).
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7. Slicers

- **Tool Used:** Slicer (Tile and Dropdown Layout)
- **Slicers Displayed:**
 - **Hotel Type**
 - **Arrival Month**
 - **Market Segment**
- **Purpose:** Enables users to interactively filter the dashboard visuals based on selected attributes.

8. Visual Design & Layout

- Consistent layout across all three dashboards (2018, 2019, 2020) for comparative analysis.
- Slicers and filters placed strategically on the top for intuitive use.
- Color-coded visuals to easily distinguish between categories like cancellation status, revenue distribution, and customer types.

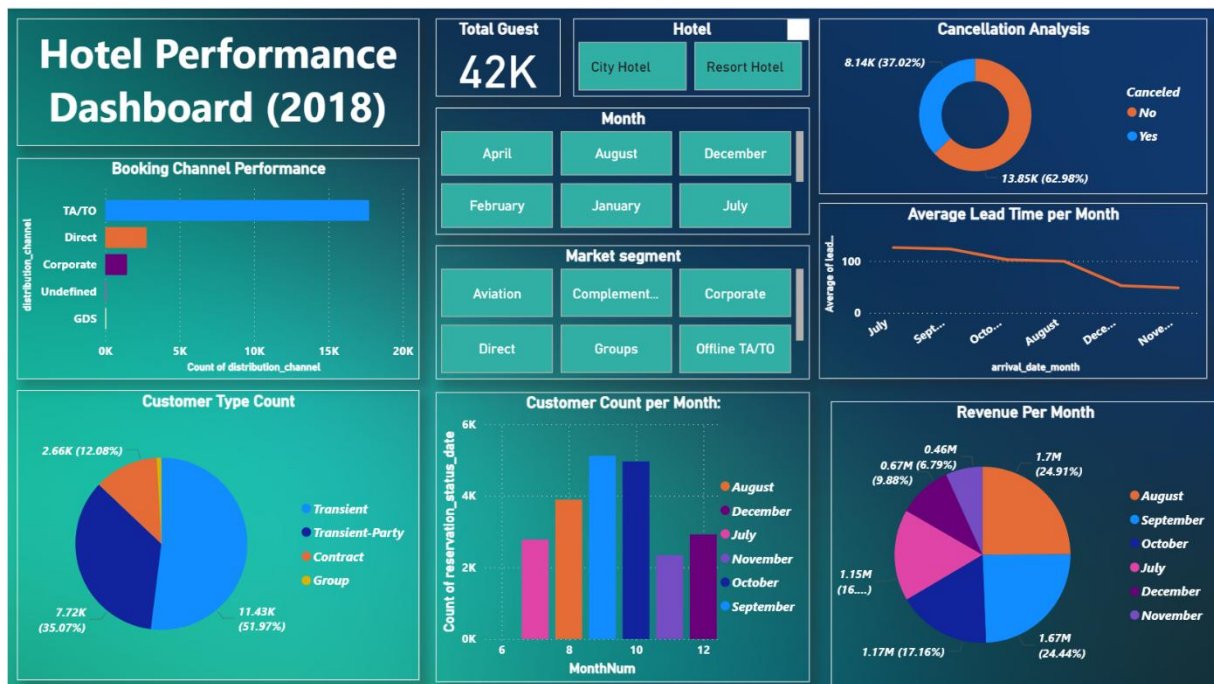


Fig 1 : Hotel Performance Dashboard (2018)



Fig 2 : Hotel Performance Dashboard (2019)

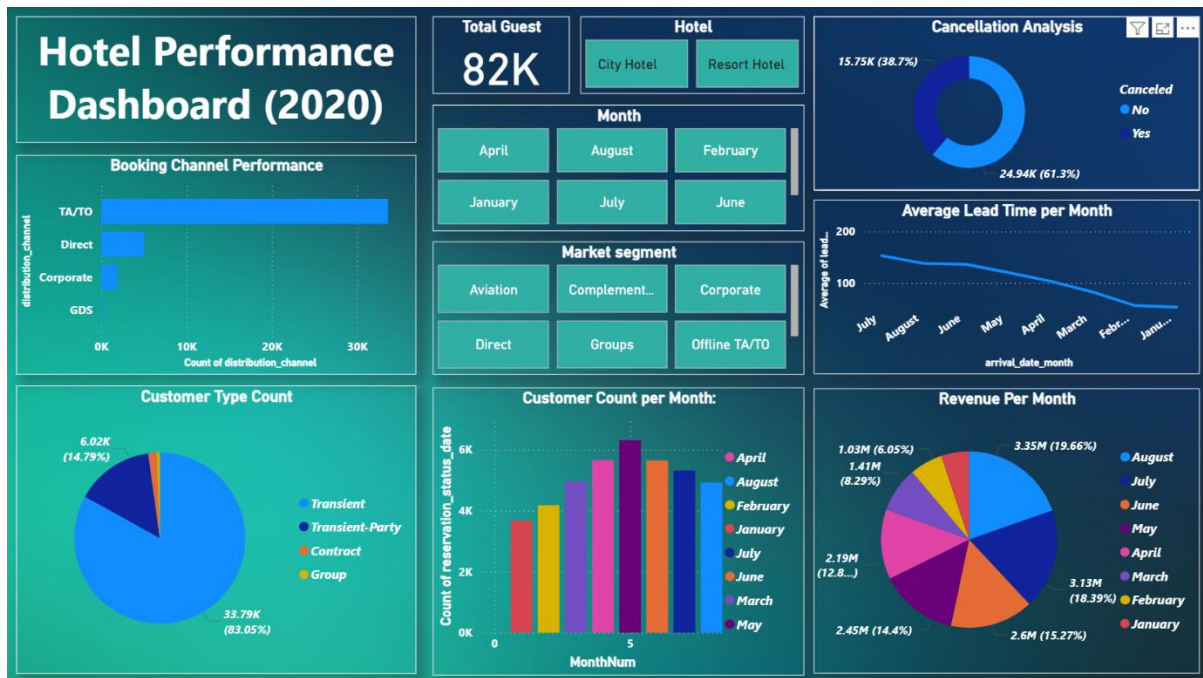


Fig 3 : Hotel Performance Dashboard (2020)

Conclusion:

The Hotel Performance Dashboards for 2018, 2019, and 2020 offer a comprehensive view of key operational metrics, enabling data-driven analysis and decision-making. Through visual exploration of customer volumes, booking behavior, revenue trends, and cancellations, the dashboards help identify patterns in hotel performance across different time periods.

The analysis reveals that customer demand and revenue generation are strongly influenced by seasonality, booking channels, and customer types. The distribution channel analysis shows which sources are most effective in driving bookings, while the cancellation data highlights potential issues in booking reliability. The breakdown of customer segments offers insight into the target audience, supporting more focused marketing and service strategies.

These dashboards not only provide year-over-year comparisons but also allow dynamic filtering for deeper, customized insights. They serve as a valuable tool for hotel managers, revenue analysts, and decision-makers to monitor performance, understand trends, and improve operational and marketing strategies.

REFERENCE:

SOURCE: Kaggle

Uploaded by: ASHUJOSH

Jaipur, Rajasthan, India

<https://www.kaggle.com/datasets/ashujosh/hotel-data-analysis>