Hotel Booking & Revenue Dashboard (2018–2020)

Project Report

Created by:

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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)

ColumnName	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 Nights
stays_in_weekend_nights	stayed over weekends Nights stayed over
stays_in_week_nights	weekdays Number of adult guests Number
adults	of children Number of babies Type of meal
children	booked (e.g., BB, HB, FB) Market segment
babies	classification Booking channel (e.g., TA/TO,
meal	Direct) Number of changes made to the
market_segment	booking Type of customer (e.g., Transient,
distribution_channel	Group) Average Daily Rate (room revenue
booking_changes	per day) Date reservation was updated 1 =
customer_type	canceled, 0 = not canceled
adr	
reservation_status_date	
is_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 adr × total nights stayed (or similar logic), representing total booking revenue
Total Night	stays_in_week_nights + stays_in_weekend_nights → total number of nights stayed
MonthNum	Numeric value assigned to arrival_date_month for correct sorting (e.g., January = 1, February = 2)
Cancellation Status	Converts is_canceled to readable values → "Yes" if 1, "No" if 0
MealCost	Added using LOOKUPVALUE() to fetch cost of meal from reference table
Person	adults + children + babies → 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.

2. Cards

- **Tool Used**: Card Visuals
- **Cards Displayed**:

  o **Total Guest Count**: Shows the total number of people who stayed (sum of adults, children, and babies).

  o **Hotel Type Filter**: Displays current hotel type selection (e.g., City Hotel, Resort Hotel).

  o **Month Filter**: Displays selected month and filters visuals accordingly.

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3. Donut Charts

- **Tool Used**: Donut Chart
- **Charts Displayed**:

  o **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**:

  o **Monthly Customer Count**: Displays the number of customers per month using arrival_date_month.

  o **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**:

- o **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
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- **Chart Displayed**:

  - o **Monthly Revenue**: Illustrates each month's contribution to the total revenue.

  - o **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**:

  - o **Hotel Type**

  - o **Arrival Month**

  - o **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.
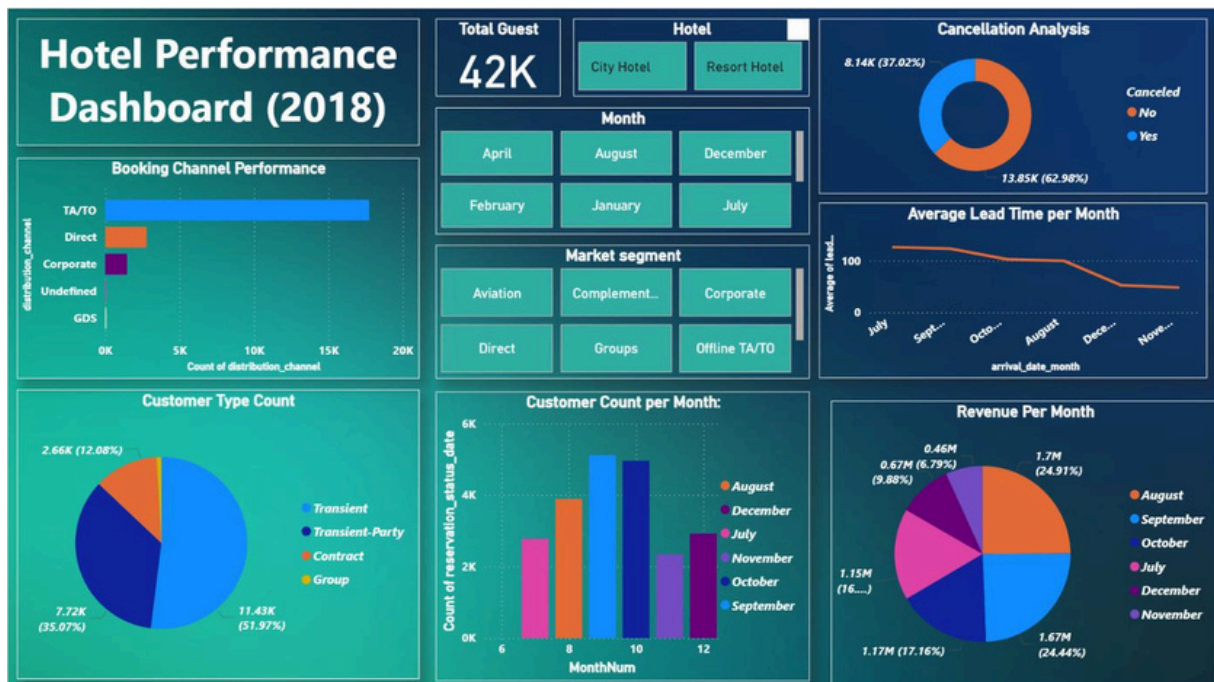
Fig 1 : Hotel Performance Dashboard (2018)

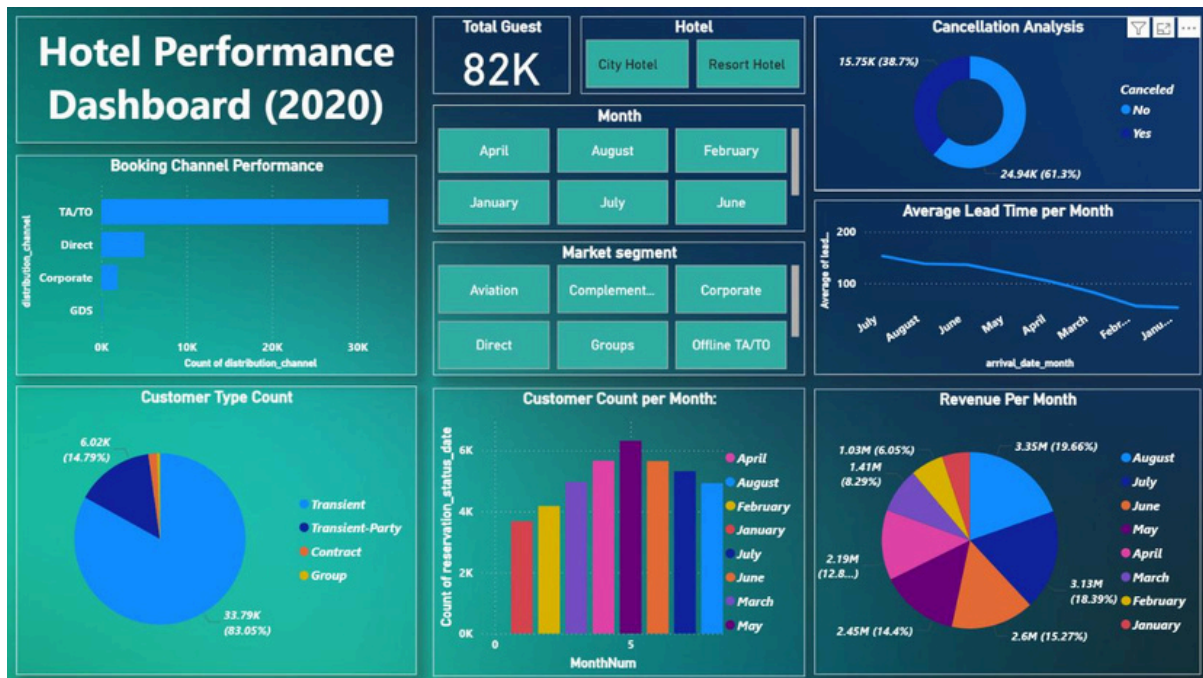**Fig 2 :** Hotel Performance Dashboard (2019)

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.