

# Revenue Insights in Hospitality Domain

## Power BI dashboard design

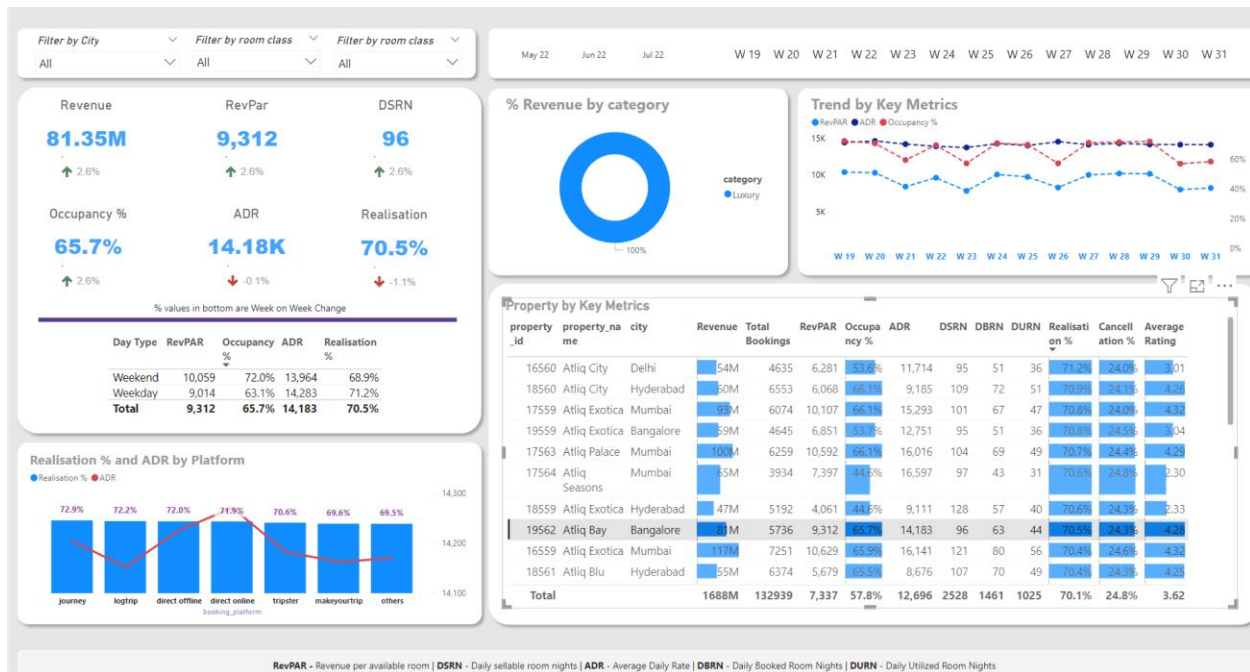


Figure 1: Hospitality Domain Dashboard

What this dashboard is capable of

### Revenue Analysis:

1. Monitor Total revenue realized over time
2. Analyze revenue trends week over week, month over month.
3. Compare revenue across different hotels
4. Compare revenue generated per available room using RevPAR, so that hotels can monitor revenue-generating performance to accurately price rooms and also measure themselves against other properties.

### Booking Analysis:

1. Track the total number of bookings over time

2. Analyze booking trends by booking platform or room class
3. Evaluate the cancellation rate and its impact on revenue

#### **Occupancy analysis:**

1. Monitor occupancy rates to ensure the optimal utilization of the room.
2. Analyze occupancy trends over time and identify peak periods.
3. Compare occupancy rates across different hotel or room classes.

#### **Rating Analysis:**

Track average ratings given by customers and identify areas for improvement by reviewing comments on the rate given online and figuring out what queries lead to lower ratings.

#### **Performance Metrics:**

**ADR (Average Daily Rate):** Measures the average revenue earned per room per day. Higher ADR indicates effective pricing strategies and revenue generation.

**RevPAR (Revenue Per Available Room):** Evaluates revenue efficiency by considering both occupancy and room rate. Increasing RevPAR signifies improved revenue performance.

**DBRN (Daily Booked Room Nights):** Indicates the average number of rooms booked per day, reflecting demand and revenue potential.

**DSRN (Daily Sellable Room Nights):** Represents the total number of rooms available for sale daily, highlighting inventory management efficiency. Comparing DBRN and DSRN helps assess the hotel's ability to sell available inventory and identify opportunities for increasing room sales.

**Financial Performance:** ADR and RevPAR directly impact the hotel's revenue and profitability. By monitoring these metrics, managers can assess revenue growth and profitability trends over time.

## Data Files

This project consists of 5 CSV files

### Dim\_Date:

1. Column Description for dim\_date:
2. date: This column represents the dates present in May, June and July.
3. mmm yy: This column represents the date in the format of mmm yy (monthname year).
4. week no: This column represents the unique week number for that particular date.
5. day\_type: This column represents whether the given day is Weekend or Weekeday.

### Dim\_hotels

Column Description for dim\_hotels:

1. property\_id: This column represents the Unique ID for each hotel.
2. property\_name: This column represents the name of each hotel.
3. category: This column determines which class[Luxury, Business] a particular hotel/property belongs to.
4. city: This column represents where the particular hotel/property resides.

### Dim\_rooms

1. Column Description for dim\_rooms:
1. room\_id: This column represents the type of room[RT1, RT2, RT3, RT4] in a hotel.
2. room\_class: This column represents to which class[Standard, Elite, Premium, Presidential] particular room type belongs.
- 3.

### Fact\_aggregated\_bookings

Column Description for fact\_aggregated\_bookings:

1. property\_id: This column represents the Unique ID for each hotel.
2. check\_in\_date: This column represents all the check\_in\_dates of the customers.
3. room\_category: This column represents the type of room [RT1, RT2, RT3, RT4] in a hotel.
4. successful\_bookings: This column represents all the successful room bookings that happen for a particular room type in that hotel on that particular date.

5. capacity: This column represents the maximum count of rooms available for a particular room type in that hotel on that particular date.

## Fact\_bookings

Column Description for fact\_bookings:

1. booking\_id: This column represents the Unique Booking ID for each customer when they booked their rooms.
2. property\_id: This column represents the Unique ID for each of the hotels
3. booking\_date: This column represents the date the customer booked their rooms.
4. check\_in\_date: This column represents the date on which the customer check-in(entered) at the hotel.
5. check\_out\_date: This column represents the date on which the customer check-out(left) of the hotel.
6. no\_guests: This column represents the number of guests who stayed in a particular room in that hotel.
7. room\_category: This column represents the type of room [RT1, RT2, RT3, RT4] in a hotel.
8. booking\_platform: This column represents in which way the customer booked his room.
9. ratings\_given: This column represents the ratings given by the customer for hotel services.
10. booking\_status: This column represents whether the customer cancelled his booking [Cancelled], successfully stayed in the hotel [Checked Out] or booked his room but not stayed in the hotel [No show].
11. revenue\_generated: This column represents the amount of money generated by the hotel from a particular customer.
12. revenue\_realized: This column represents the final amount of money that goes to the hotel based on booking status. If the booking status is cancelled, then 40% of the revenue generated is deducted and the remaining is refunded to the customer. If the booking status is Checked Out/No show, then full revenue generated will go to hotels.

## Methods

### Data filtration on dim\_date

Promoted the header to use the first row as a column

	AB_C date	AB_C mmm yy	AB_C week no	AB_C day_type
1	01-May-22	May 22	W 19	weekend
2	02-May-22	May 22	W 19	weekeday
3	03-May-22	May 22	W 19	weekeday
4	04-May-22	May 22	W 19	weekeday
5	05-May-22	May 22	W 19	weekeday

### Data filtration on dim\_hotels

Promoted the header to use the first row as the column name

	123 property_id	AB_C property_name	AB_C category	AB_C city
1	16558	Atliq Grands	Luxury	Delhi
2	16559	Atliq Exotica	Luxury	Mumbai
3	16560	Atliq City	Business	Delhi
4	16561	Atliq Blu	Luxury	Delhi

### Data Filtration on dim\_rooms

Promoted the header to use the first row as the column name

	AB_C room_id	AB_C room_class
1	RT1	Standard
2	RT2	Elite
3	RT3	Premium
4	RT4	Presidential

## Data Filtration on fact\_aggregated\_bookings

Promoted the first row as a column name and changed check\_in\_date to date format

	1 <sup>2</sup> 3 property_id	check_in_date	A <sup>B</sup> C room_category	1 <sup>2</sup> 3 successful_bookings	1 <sup>2</sup> 3 capacity
1	16559	5/1/2022	RT1	25	30
2	19562	5/1/2022	RT1	28	30
3	19563	5/1/2022	RT1	23	30
4	17558	5/1/2022	RT1	13	19
5	16558	5/1/2022	RT1	18	19
6	17560	5/1/2022	RT1	28	40
7	19558	5/1/2022	RT1	25	40
8	19560	5/1/2022	RT1	23	26

## Data Filtration on Fact\_bookings

Promoted the first row as column name

	A <sup>B</sup> C booking_id	1 <sup>2</sup> 3 property_id	booking_date	check_in_date	checkout_date	1 <sup>2</sup> 3 no_guests	A <sup>B</sup> C room_category
1	May012216558RT11	16558	4/27/2022	5/1/2022	5/2/2022	3	RT1
2	May012216558RT12	16558	4/30/2022	5/1/2022	5/2/2022	2	RT1
3	May012216558RT13	16558	4/28/2022	5/1/2022	5/4/2022	2	RT1
4	May012216558RT14	16558	4/28/2022	5/1/2022	5/2/2022	2	RT1
5	May012216558RT15	16558	4/27/2022	5/1/2022	5/2/2022	4	RT1
6	May012216558RT16	16558	5/1/2022	5/1/2022	5/3/2022	2	RT1
7	May012216558RT17	16558	4/28/2022	5/1/2022	5/6/2022	2	RT1
8	May012216558RT18	16558	4/26/2022	5/1/2022	5/3/2022	2	RT1
9	May012216558RT19	16558	4/30/2022	5/1/2022	5/2/2022	2	RT1
10	May012216558RT110	16558	4/28/2022	5/1/2022	5/2/2022	1	RT1

## Measures creation for data visualization

### Revenue

#### Reasons:

To get the total revenue realized

#### Measures Formula:

```
1 Revenue = SUM(fact_bookings[revenue_realized])
```

### Total Bookings

#### Reasons:

To get the total number of bookings happened

#### Measures Formula:

```
1 Total Bookings = COUNT(fact_bookings[booking_id])
```

### Total Capacity

#### Reasons:

To get the total capacity of rooms present in hotels

#### Measures Formula:

```
1 Total Capacity = SUM(fact_aggregated_bookings[capacity])
```

### Total Successful Bookings

#### Reasons:

To get the total successful bookings for all hotels

#### Measures Formula:

```
1 Total Successful Bookings = SUM(fact_aggregated_bookings[successful_bookings])
```

### Occupancy%

#### Reasons:

Occupancy means total successful bookings happened to the total rooms available(capacity)

Measures Formula:

```
1 Occupancy % = DIVIDE([Total Successful Bookings],[Total Capacity],0)
```

### Average Rating

Reasons: Get the average ratings given by the customers

Measures Formula:

```
1 Average Rating = AVERAGE(fact_bookings[ratings_given])
```

### No of days

Reasons:

To get the total number of days present in the data.

In our case, we have data from May to July. So 92 days.

Measures Formula:

```
1 No of days = DATEDIFF(MIN(dim_date[date]),MAX(dim_date[date]),DAY) +1
```

### Total cancelled bookings

Reasons:

To get the "Cancelled" bookings out of all Total bookings happened

Measures Formula:

```
1 Total cancelled bookings = CALCULATE([Total Bookings],fact_bookings[booking_status]="Cancelled")
```

### Cancellation %

Reasons:

Calculating the cancellation percentage.

Measures Formula:

```
1 Cancellation % = DIVIDE([Total cancelled bookings],[Total Bookings])
```



## Total Checked Out

Reasons:

To get the successful 'Checked out' bookings out of all Total bookings happened

Measures Formula:

---

```
1 Total Checked Out = CALCULATE([Total Bookings],fact_bookings[booking_status]="Checked Out")
```

---

## Total no-show bookings

Reasons:

To get the "No Show" bookings out of all Total bookings happened

("No show" means those customers who neither cancelled nor attended to their booked rooms)

Measures Formula:

---

```
1 Total no show bookings = CALCULATE([Total Bookings],fact_bookings[booking_status]="No Show")
```

---

## No Show rate %

Reasons:

Calculating the no-show percentage.

Measures Formula:

---

```
1 No Show rate % = DIVIDE([Total no show bookings],[Total Bookings])
```

---

## Booking % by platform

Reasons:

To show the percentage contribution of each booking platform for bookings in hotels.

We have booking platforms like Make Your Trip, log trip, trips etc)

Measures Formula:

```
1 Booking % by Platform = DIVIDE([Total Bookings],  
2 CALCULATE([Total Bookings],  
3 ALL(fact_bookings[booking_platform])  
4 ))*100
```

### Booking % by Room class

Reasons:

To show the percentage contribution of each room class over the total rooms booked.

We have room classes like Standard, Elite, Premium, and Presidential.

Measures Formula:

```
1 Booking % by Room class = DIVIDE([Total Bookings],  
2 CALCULATE([Total Bookings],  
3 ALL(dim_rooms[room_class])  
4 ))*100
```

### ADR (Average Daily rate)

Reasons:

Calculate the ADR(Average Daily rate)

It is the ratio of revenue to the total rooms booked/sold.

It is the measure of the average paid for rooms sold in a given time period

Measures Formula:

```
1 ADR = DIVIDE([Revenue], [Total Bookings],0)
```

### Realisation%

Reasons:

calculate the realization percentage.

It is nothing but the successful "checked out" percentage over all bookings that happened.

Measures Formula:

```
1 Realisation % = 1- ([Cancellation %]+[No Show rate %])
```

## RevPAR

Reasons:

Calculate the RevPAR(Revenue Per Available Room)

RevPAR represents the revenue generated per available room, whether or not they are occupied. RevPAR helps hotels measure their revenue-generating performance to accurately price rooms. RevPAR can help hotels measure themselves against other properties or brands.

Measures Formula:

```
1 RevPAR = DIVIDE([Revenue],[Total Capacity])
```

## DBRN

Reasons:

Calculate DBRN(Daily Booked Room Nights)

This metric tells on average how many rooms are booked for a day considering a period

Measures Formula:

```
1 DBRN = DIVIDE([Total Bookings], [No of days])
```

## DSRN

Reasons:

calculate DSRN(Daily Sellable Room Nights)

This metrics tells on average how many rooms are ready to sell for a day considering a time period

Measures Formula:

```
1 DSRN = DIVIDE([Total Capacity], [No of days])
```

## DURN

Reasons:

calculate DURN(Daily Utilized Room Nights)

This metric tells on average how many rooms are successfully utilized by customers for a day considering a period

Measures Formula:

```
1 DURN = DIVIDE([Total Checked Out],[No of days])
```

## Revenue WoW change %

Reasons:

To get the revenue change percentage week over week.

revcw for current week

revpw for previous week

Measures Formula:

```
1 Revenue WoW change % =  
2 Var selv = IF(HASONEFILTER(dim_date[wn]),SELECTEDVALUE(dim_date[wn]),MAX(dim_date[wn]))  
3 var revcw = CALCULATE([Revenue],dim_date[wn]= selv)  
4 var revpw = CALCULATE([Revenue],FILTER(ALL(dim_date),dim_date[wn]= selv-1))  
5  
6 return  
7  
8  
9 DIVIDE(revcw,revpw,0)-1
```

## Occupancy WOW change%

Reasons:

To get the occupancy change percentage week over week.

Here,

revcw for current week revpw for previous week

### Measures Formula:

```
1 Occupancy WoW change % =  
2 Var selv = IF(HASONEFILTER(dim_date[wn]),SELECTEDVALUE(dim_date[wn]),MAX(dim_date[wn]))  
3 var revcw = CALCULATE([Occupancy %],dim_date[wn]= selv)  
4 var revpw = CALCULATE([Occupancy %],FILTER(ALL(dim_date),dim_date[wn]= selv-1))  
5  
6 return  
7  
8  
9 DIVIDE(revcw,revpw,0)-1
```

### ADR WoW change%

#### Reasons:

To get the ADR(Average Daily rate) change percentage week over week.

Here,

revcw for current week

revpw for previous week

### Measures Formula:

```
1 ADR WoW change % =  
2 Var selv = IF(HASONEFILTER(dim_date[wn]),SELECTEDVALUE(dim_date[wn]),MAX(dim_date[wn]))  
3 var revcw = CALCULATE([ADR],dim_date[wn]= selv)  
4 var revpw = CALCULATE([ADR],FILTER(ALL(dim_date),dim_date[wn]= selv-1))  
5  
6 return  
7  
8  
9 DIVIDE(revcw,revpw,0)-1
```

### Revpar Wow change%

#### Reasons:

To get the RevPar(Revenue Per Available Room) change percentage week over week.

Here,

revcw for current week

revpw for previous week

### Measures Formula:

```
1 Revpar WoW change % =  
2 Var selv = IF(HASONEFILTER(dim_date[wn]),SELECTEDVALUE(dim_date[wn]),MAX(dim_date[wn]))  
3 var revcw = CALCULATE([RevPAR],dim_date[wn]= selv)  
4 var revpw = CALCULATE([RevPAR],FILTER(ALL(dim_date),dim_date[wn]= selv-1))  
5  
6 return  
7  
8  
9 DIVIDE(revcw,revpw,0)-1
```

### Realisation WoW change%

#### Reasons:

To get the Realisation change percentage week over week. Here,

revcw for current week

revpw for previous week

## Measures Formula:

```
1 Realisation Wow change % =  
2 Var selv = IF(HASONEFILTER(dim_date[wn]),SELECTEDVALUE(dim_date[wn]),MAX(dim_date[wn]))  
3 var revcw = CALCULATE([Realisation %],dim_date[wn]= selv)  
4 var revpw = CALCULATE([Realisation %],FILTER(ALL(dim_date),dim_date[wn]= selv-1))  
5  
6 return  
7  
8  
9 DIVIDE(revcw,revpw,0)-1
```

## DSRN WoW change%

### Reasons:

To get the DSRN(Daily Sellable Room Nights) change percentage week over week.

Here, revvcw for the current week

revpw for the previous week

## Measures Formula:

```
1 DSRN WoW change % =  
2 Var selv = IF(HASONEFILTER(dim_date[wn]),SELECTEDVALUE(dim_date[wn]),MAX(dim_date[wn]))  
3 var revcw = CALCULATE([DSRN],dim_date[wn]= selv)  
4 var revpw = CALCULATE([DSRN],FILTER(ALL(dim_date),dim_date[wn]= selv-1))  
5  
6 return  
7  
8  
9 DIVIDE(revcw,revpw,0)-1
```