

IMPORTANT NOTE: PDF LIMITATIONS

Due to the non-interactive nature of PDF documents, certain content may not be visible, as PDFs do not support scrollbars like the interactive PBIX file.

INTRODUCTION

This comprehensive analysis report leverages the Hotel Revenue Management dataset to provide actionable insights tailored to client needs, utilizing Power BI. Key performance indicators (KPIs) are prominently displayed, focusing on critical metrics. The analysis includes detailed time-based insights, such as yearly, quarterly, and monthly trends, as well as weekday vs. weekend patterns, along with an evaluation of agent performance. Additional insights into customer segments, including families, singles, and couples, are also provided to enhance decision-making.

The analysis uses over 100,000 records from the provided Hotel Revenue Management dataset (2018–2020), supported by a data dictionary and calendar file, to deliver comprehensive insights.

The **main aim** of this work is to prepare a deep-dive analysis report in Power BI about the Hotel Revenue Management Dataset

DATA PREPARATION & METHODOLOGY

To prepare the data for analysis, I first merged the `arrival_year`, `arrival_month`, and `arrival_day` columns to create a unified `arrival_date` for all three tables (2018–2020). These tables were then appended into a single dataset, referred to as **Append 1**. Following this, I merged this dataset with the `market_segment` and `meal_cost` tables to form the final `hotel_data` table.

During the cleaning process, I standardized column names across the years for consistency, such as renaming `adr` to `avg_daily_rate`. I replaced null values with zero where appropriate, ensured that all column values were in the correct format (e.g., percentage for discounts, text for IDs), and made other necessary adjustments to maintain uniformity and accuracy in the dataset.

I created a new Date table with three columns to address the exclusion of weekend dates from the original calendar table. Additionally, I utilized DAX to generate new columns, such as `TotalRevenue` and `TotalNightsBooked`, as well as new measures, including `TotalGuestsBooked`, `AvgLengthOfStay`, `RevPAR`, and `OccupancyRate`. These additions provided the essential key metrics and KPIs needed for the analysis. To enhance analysis, I also created a segmentation called '**Customer_Category**' with six segments, such as couple, single, and family with children, and established six lead time buckets for more effective insights. All data cleaning was performed using Power Query in Power BI, while all visualizations were created with Power BI tools.



YUSEN LOGISTICS HOTEL REVENUE ANALYSIS

2018 - 2020

1/1/2018 12/31/2020

\$65.21M

Sum of TotalRevenue

\$47.30M

Sum of WeekDayRevenue

\$17.90M

Sum of WeekEndRevenue

485K

Sum of TotalNightsBooked

304K

Sum of TotalNightsStayed

181K

Sum of TotalNightsCancelled

277K

Sum of TotalGuestsBooked

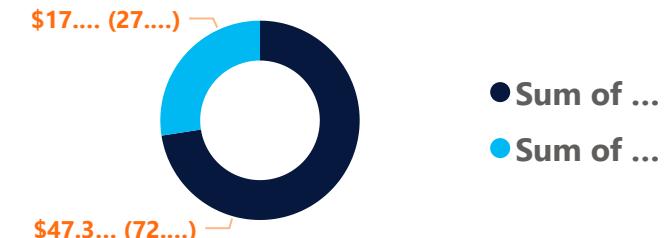
172K

Sum of TotalGuestsNotCancelled

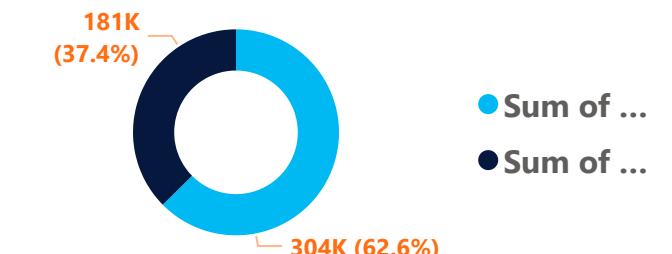
105K

Sum of TotalGuestsCancelled

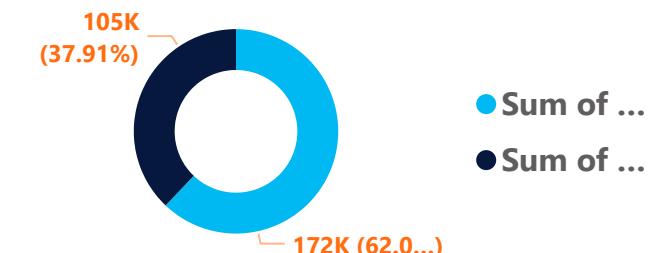
Revenue Distribution: WeekDay vs. WeekEnd



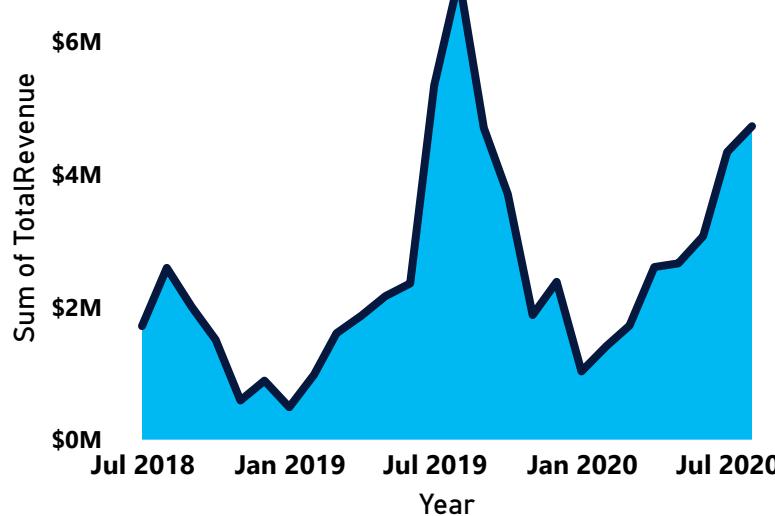
Comparison of Stayed vs. Cancelled Nights



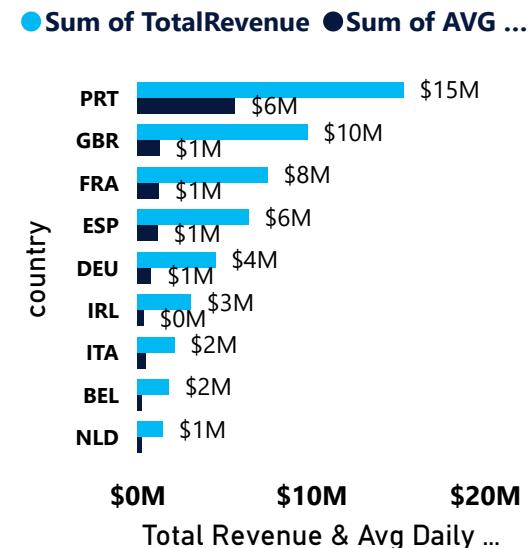
Comparison of Guests: Cancelled Vs NonCancelled



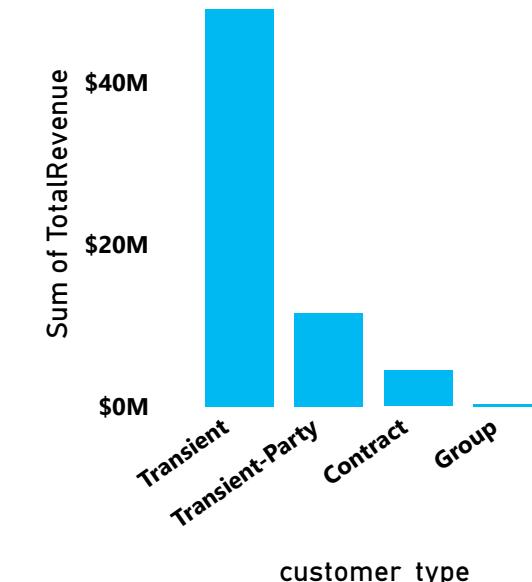
Revenue Breakdown: Annual, Quarterly, and Monthly Insights



Total Revenue and Average Daily Rate by Country



Customer Type and Total Revenue

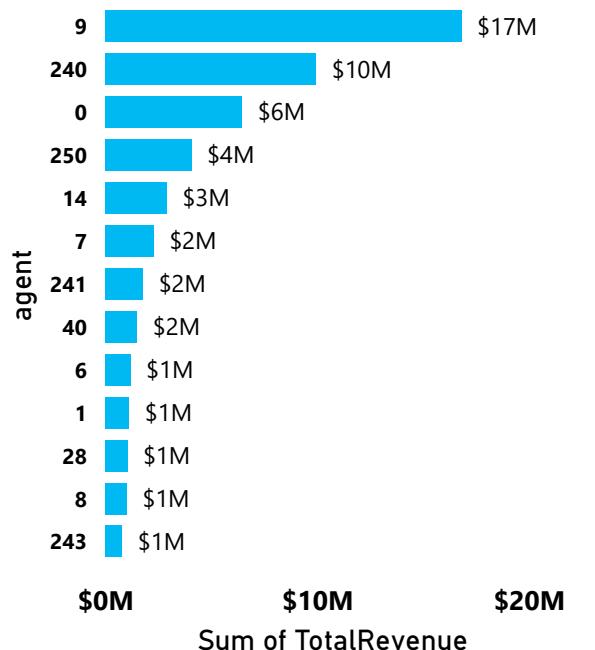


Year, Quarter, Month, Day

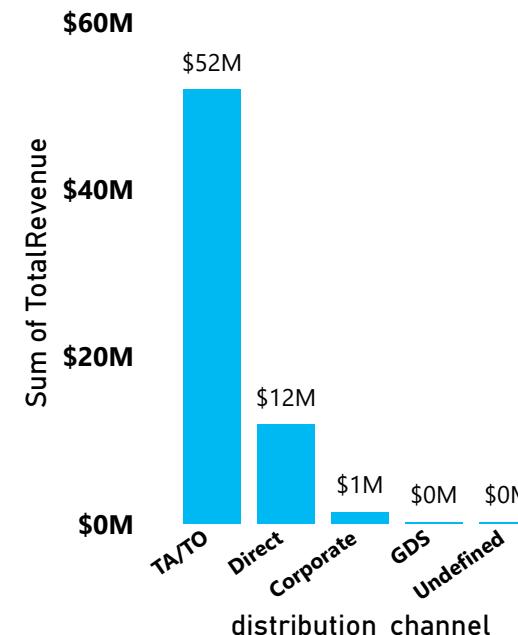
▼ 2018
▼ 2019
▼ 2020

\$134.40
RevPAR

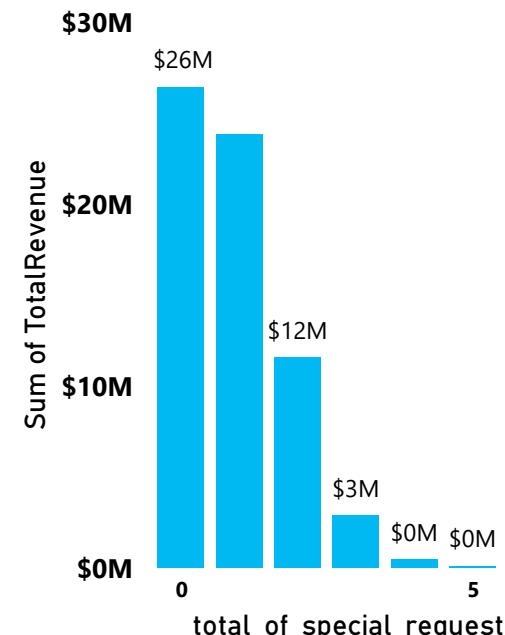
Revenue Contribution by Agent



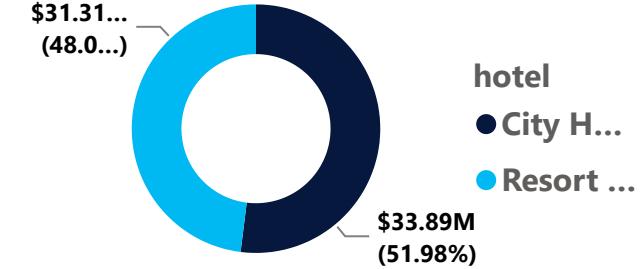
Distribution Channel Revenue Comparison



Total Revenue Analysis by Special Requests



Hotel-Wise Total Revenue



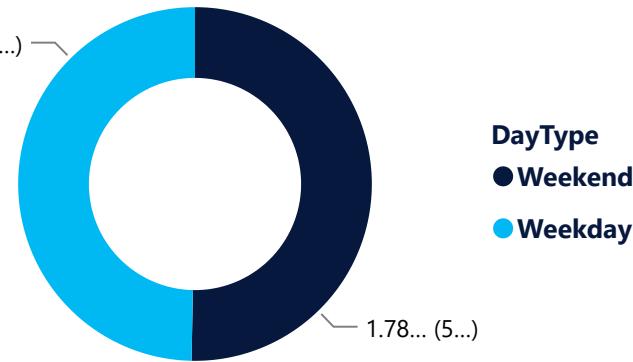
Year, Quarter, Month, Day

- ✓ 2018
- ✓ 2019
- ✗ 2020

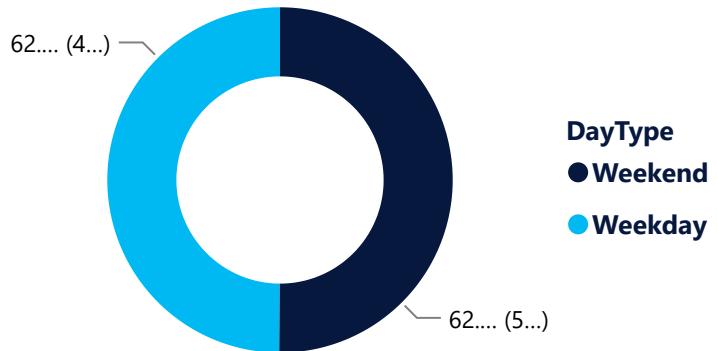
1.76

AVGLengthOfStay

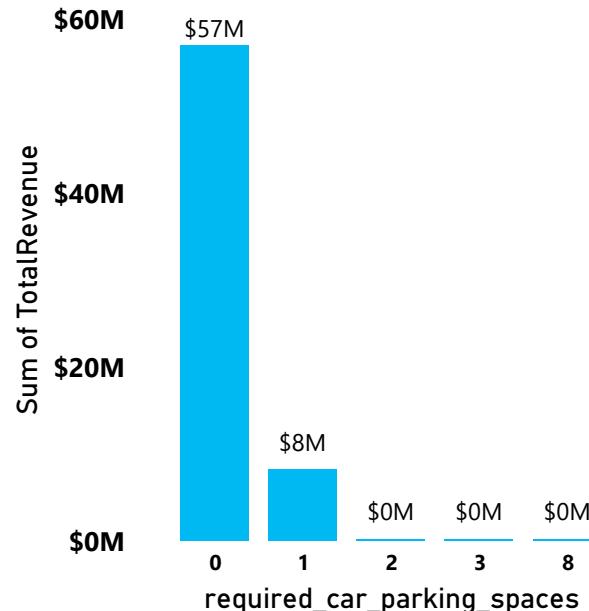
Length of Stay: Weekdays vs. Weekends



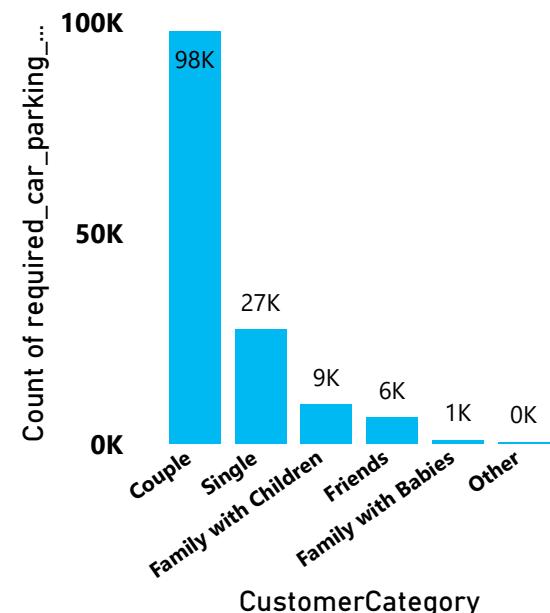
Occupancy Rates by Weekday and Weekend



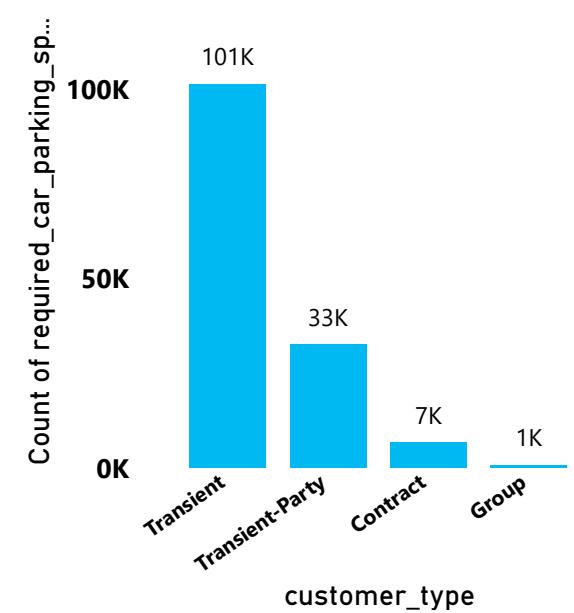
Revenue Breakdown by Parking Spaces



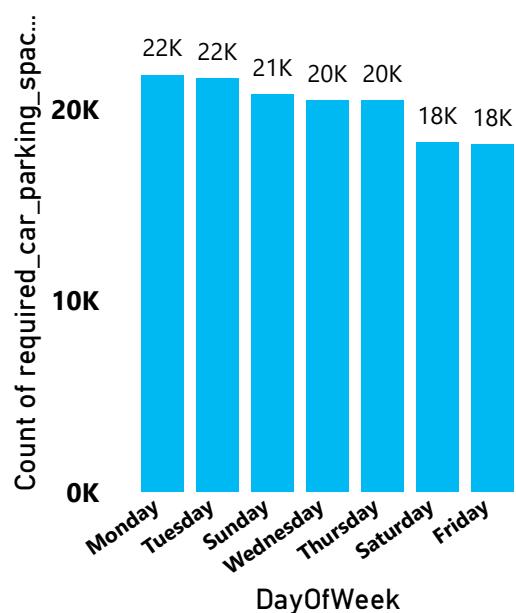
Car Parking Space Requirements by Customer Category



Car Parking Space Requirements by Customer Type



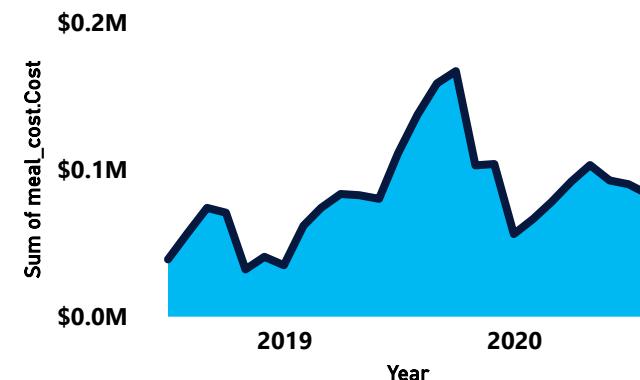
Car Parking Space Demand by Day of the Week



\$2.17M

TotalMealCost

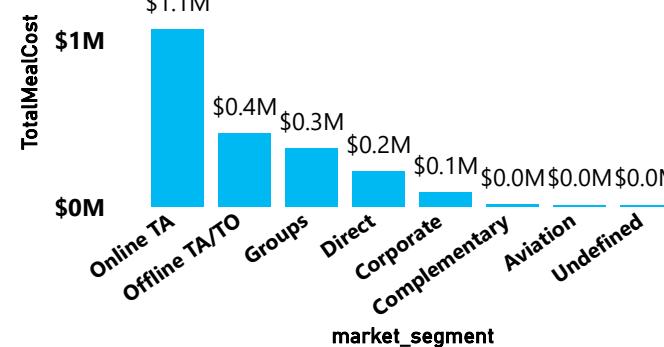
Meal Cost: Annual, Quarterly, and Monthly Insights



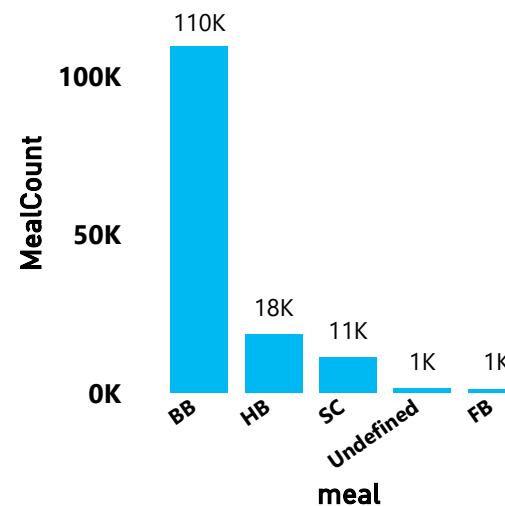
\$15.31

AverageMealCost

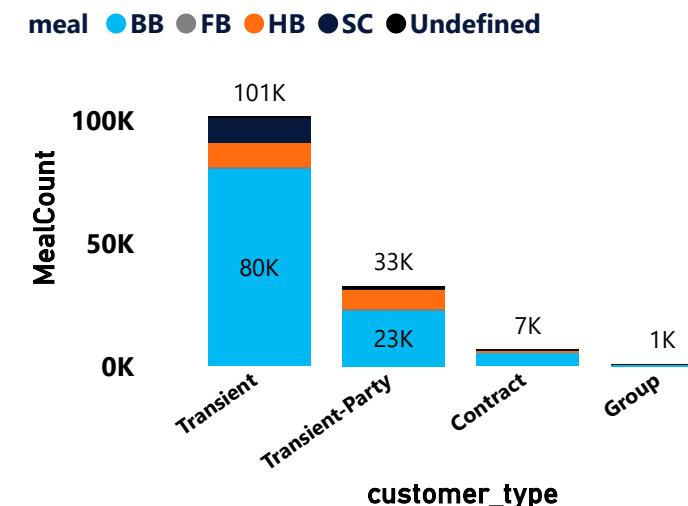
Meal Cost By Market Segment



Meals In Order Of Preference

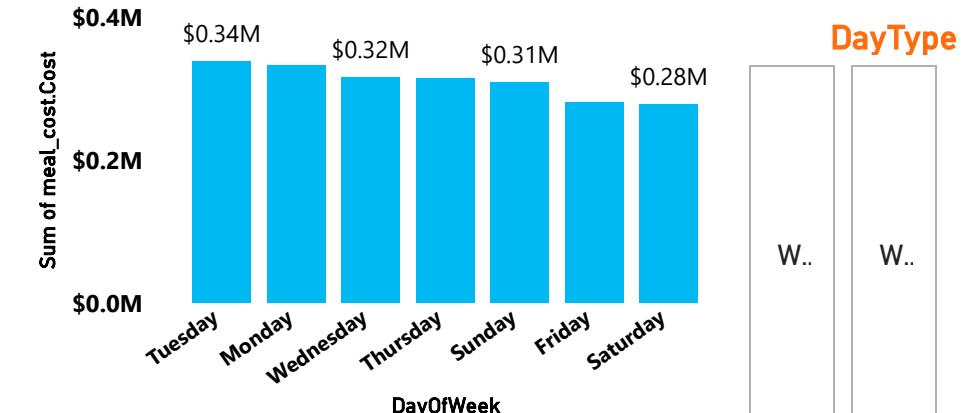


Meal Consumption By Customer Type

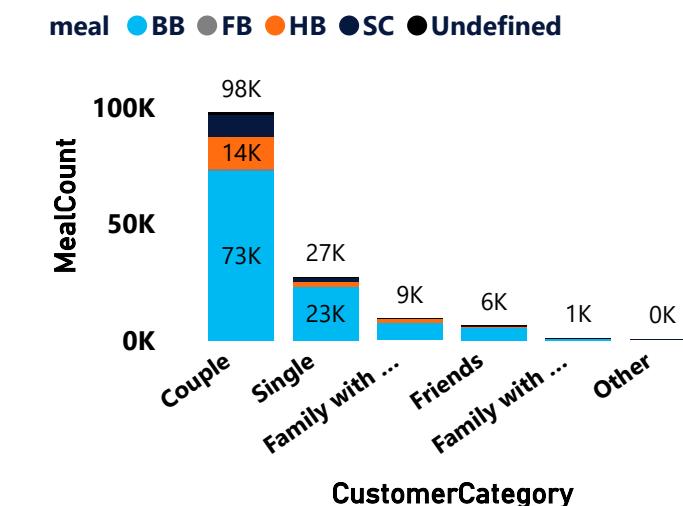


meal	AverageMealCost	TotalMealCost	Year, Quart...
BB	\$12.99	\$1,422,612.84	2018
FB	\$21.99	\$27,003.72	2019
HB	\$17.99	\$331,051.98	2020
SC	\$35.00	\$387,345.00	
Undefined	\$0.00	\$0.00	
Total	\$15.31	\$2,168,013.54	

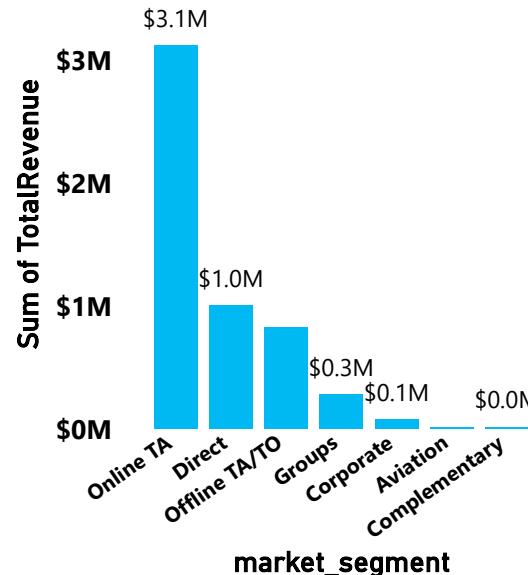
Meal Cost by Day Of Week



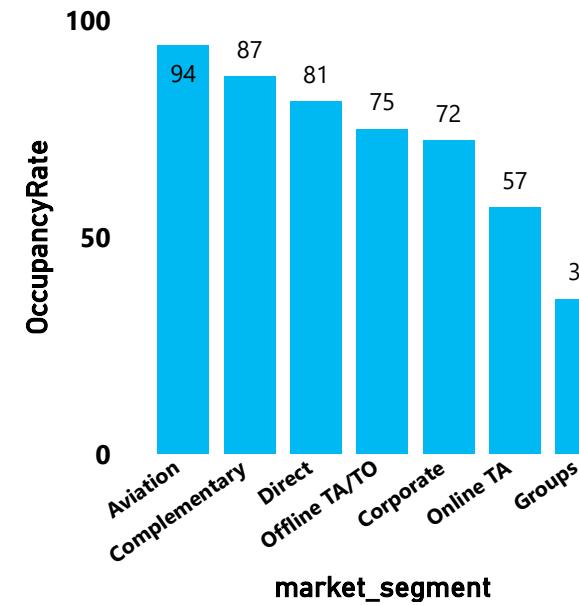
Meal Consumption By Customer Category



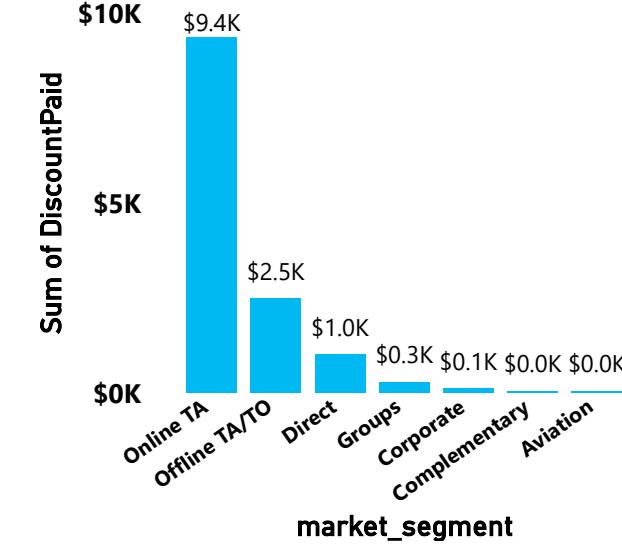
Market Segment Performance: Total Revenue



Segment-Wise Occupancy Rate



Discount Allocation by Market Segment



Year, Quarter, Month, ...

2018

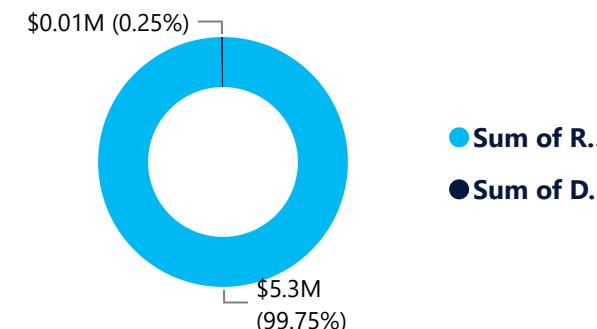
2019

2020

DayType



Total Revenue Breakdown: Revenue After Discounts & Discounts Paid



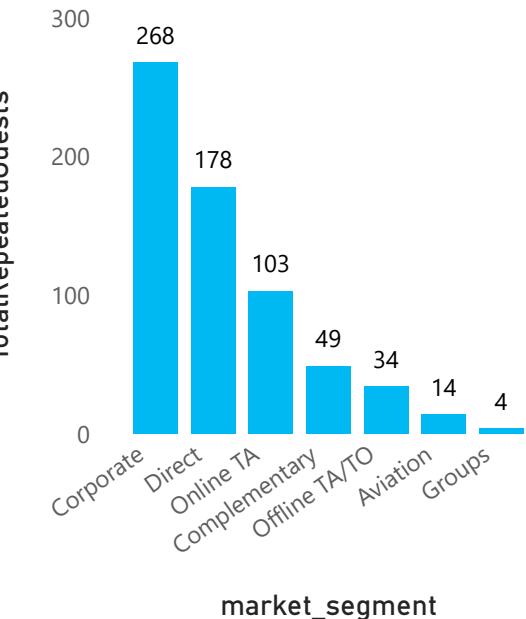
\$13.27K

Sum of DiscountPaid

650

TotalRepeatedGuests

Loyalty By Market Segment: Repeat Guest Count



Year, Quarter, Month, Day

2018

2019

2020

\$21.53M

Revenue_From_NoDeposit

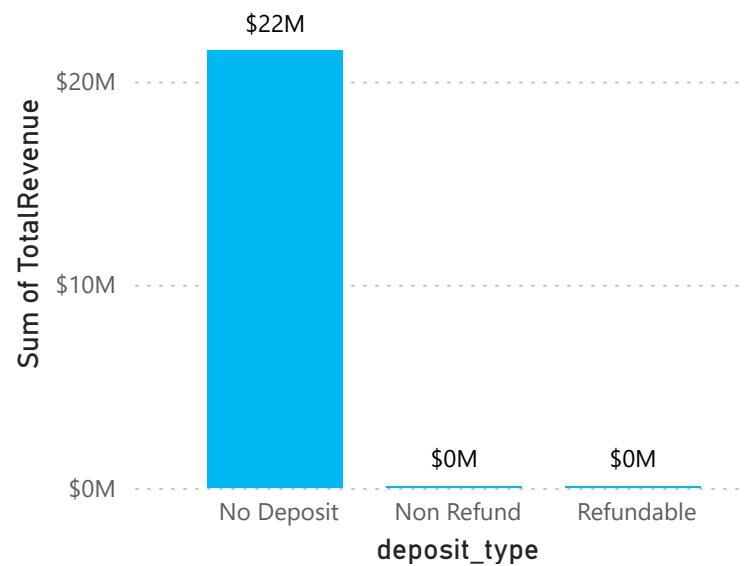
\$154

Revenue_From_Refundable

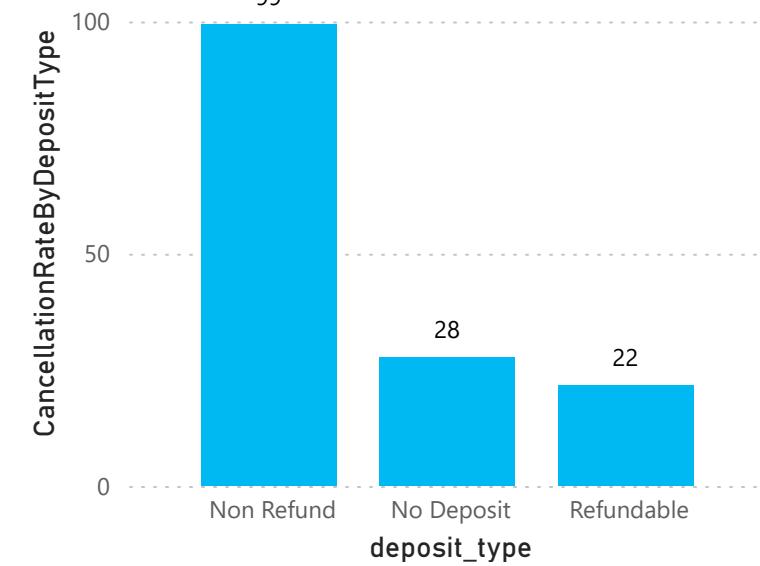
\$1.13K

Revenue_From_NonRefund

Deposit Type Revenue Comparison

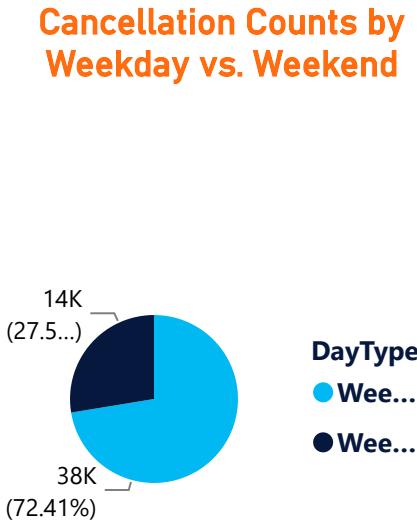
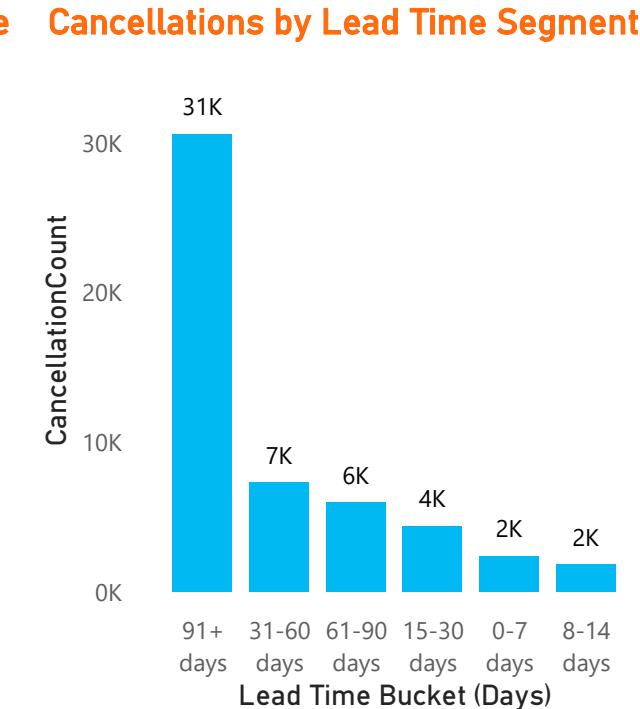
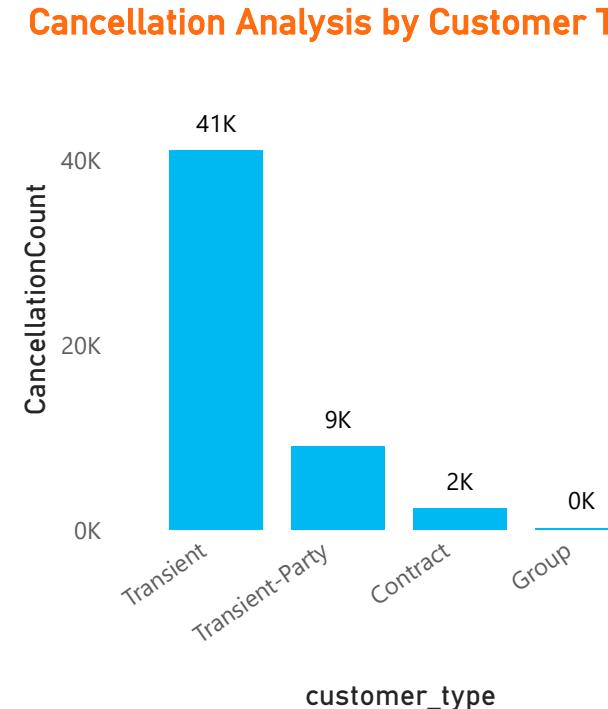
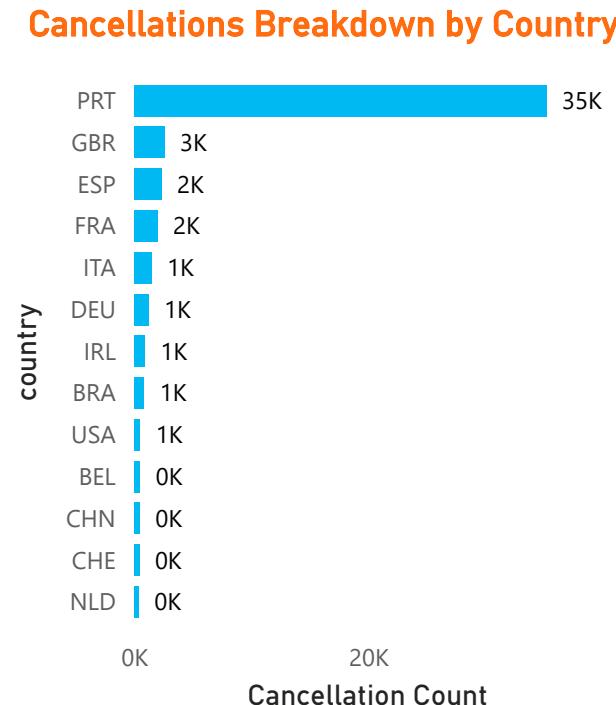
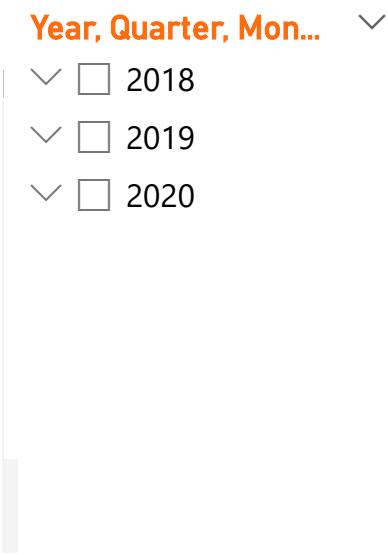
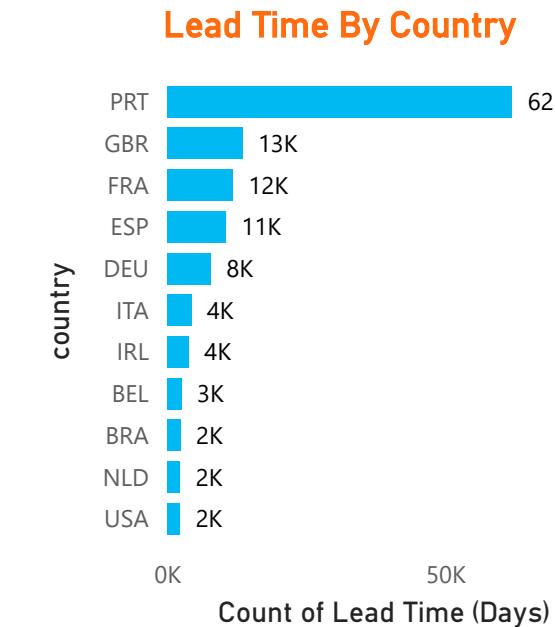
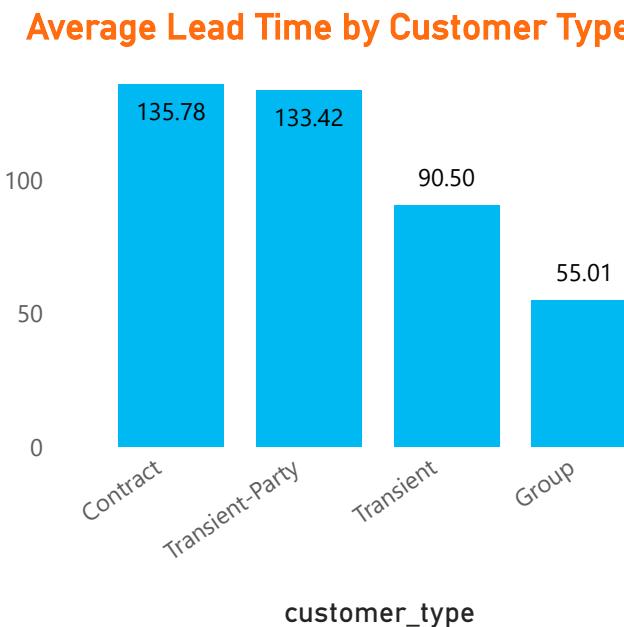
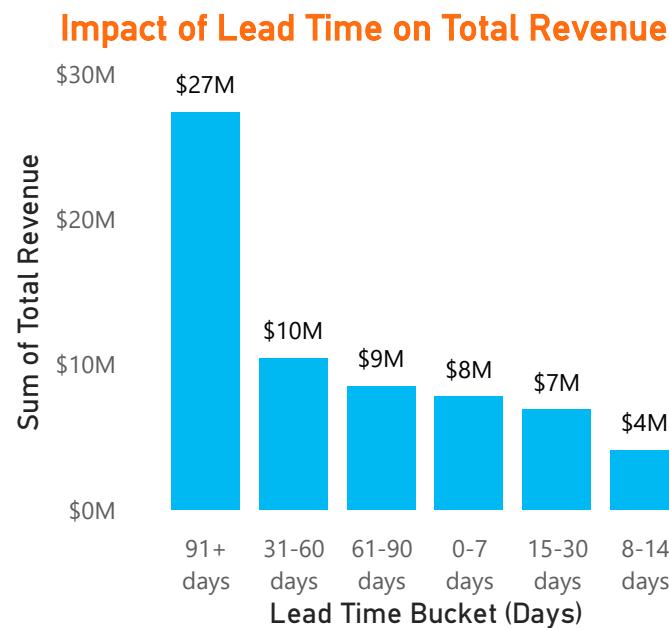


Cancellation Rate by Deposit Type (%)

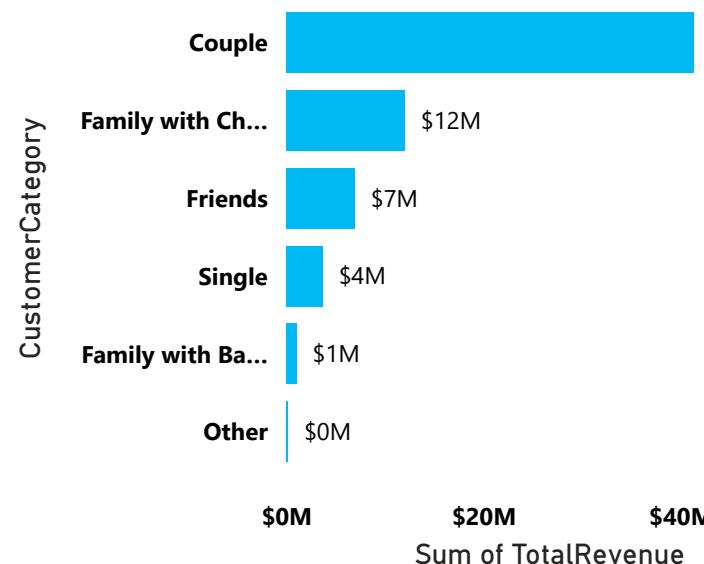


DayType

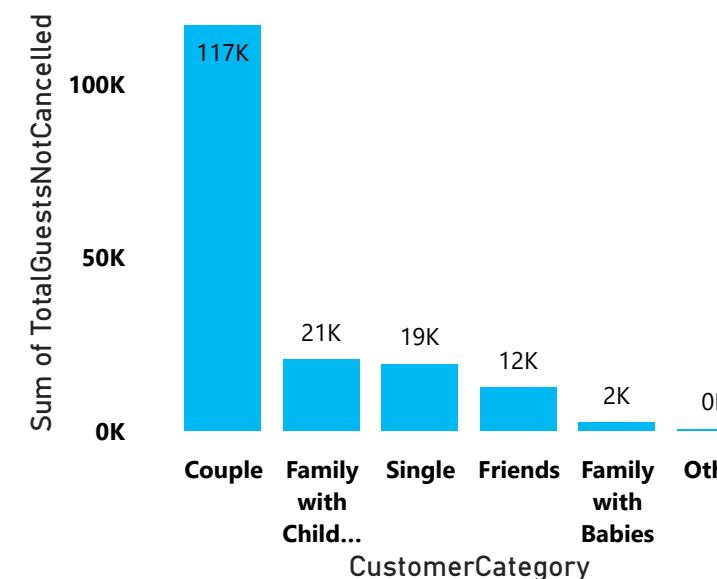




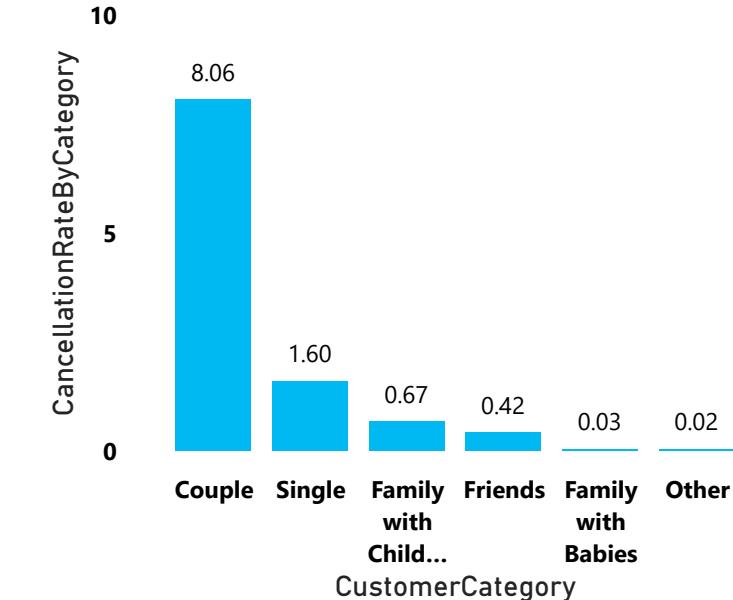
Total Revenue by Customer Category



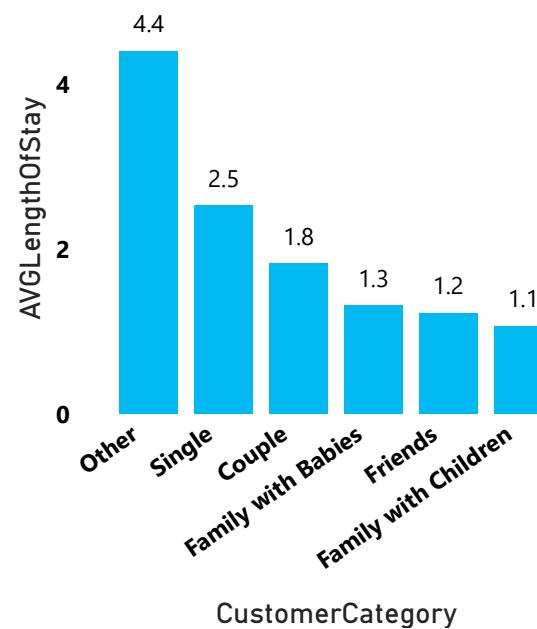
Customer Category Distribution



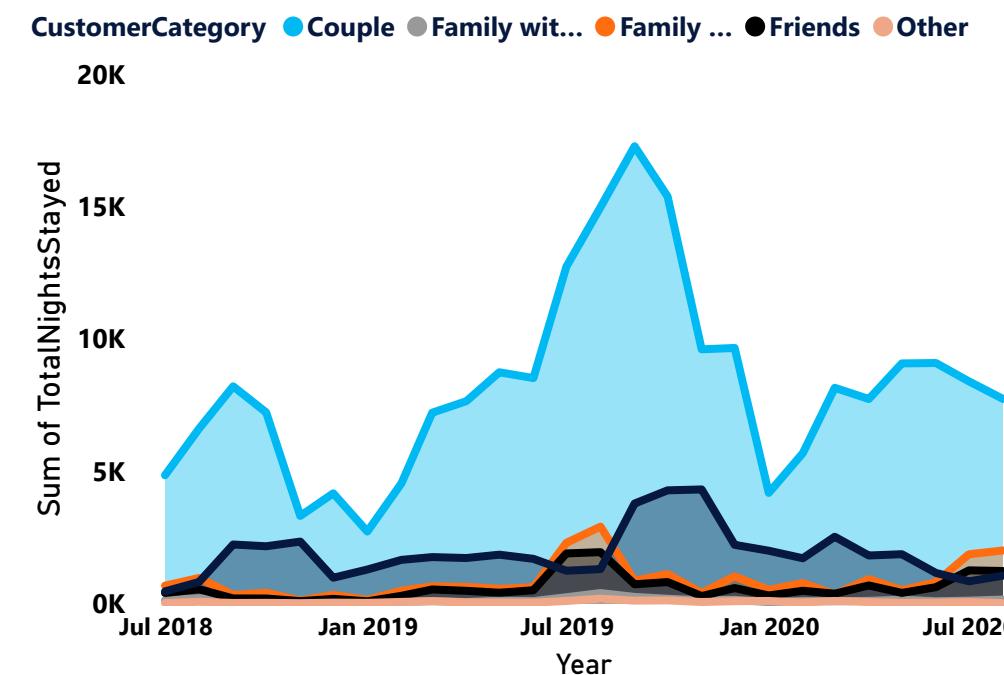
Customer Category and Cancellations



Average Length of Stay by Customer Category



Booking Trends by Customer Category



Year, Quarter, Month, Day

- 2018
- 2019
- 2020

ANALYSIS

Revenues, Nights & Guests Overview

The Revenues, Nights & Guests Overview page provides a snapshot of key performance metrics. The total revenue achieved is **\$65.21 million**, with weekday revenue significantly surpassing weekend revenue at **\$47.3 million** versus **\$17.9 million**. The total number of nights booked stands at **485,000**, with **304,000** nights actually stayed and **181,000** nights cancelled. In terms of guest metrics, there were **277,000** guests booked, with **172,000** not cancelled and **105,000** cancelled. This data highlights the strong revenue generation on weekdays compared to weekends and provides a clear picture of booking, staying, and cancellation trends.

Revenue Analyses

This page presents an in-depth examination of revenue trends across various dimensions, with eight distinct visuals offering insights into the financial performance of the hotel from July 2018 to August 2020.

1. Revenue Breakdown: Annual, Quarterly, and Monthly Insights

Key Findings: August 2019 recorded the highest total revenue at \$6,950,802, while January 2019 saw the lowest revenue at \$488,866. These figures highlight significant seasonal variations within the same year.

2. Total Revenue and Average Daily Rate by Country

Top Performers: The highest-earning countries are Portugal (PRT) with \$15 million in total revenue and \$6 million in ADR, the United Kingdom (GBR) with \$10 million in total revenue and \$1 million in ADR, and France (FRA) with \$8 million in total revenue and \$1 million in ADR.

Lowest Performers: Madagascar (MDG) emerged as the lowest earner overall, with a total revenue of \$88 and an ADR of \$44. Other low performers include Macau (MAC) with \$120 and Seychelles (SYC) with \$89 in total revenue.

Revenues, Nights & Guests Overview (Continued)

3. Customer Type and Total Revenue

Customer Insights: The Transient customer type is the highest contributor to total revenue, generating \$48,986,276, while the Group customer type is the lowest, contributing \$314,774. Other customer types include Transient_Party and Contract.

4. Revenue Per Available Room (RevPAR)

A card visual displays the RevPAR as \$134.4, providing a crucial KPI for assessing the hotel's revenue efficiency relative to available rooms.

5. Revenue Contribution by Agent

Agent Performance: Agents with IDs 9, 240, and 0 are the top revenue generators, contributing \$17 million, \$10 million, and \$6 million respectively. On the other hand, Agents with IDs 64 and 358 contributed just \$50 and \$33 respectively, with Agent 302 contributing \$0 to total revenue.

6. Distribution Channel Revenue Comparison

Channel Insights: The TA/TO (Travel Agent/Tour Operator) channel is the highest contributor, generating \$51,885,557 in total revenue. In contrast, the Undefined channel contributed only \$3,390, indicating a significant disparity in channel performance.

7. Total Revenue Analysis by Special Requests

Special Request Impact: Total revenue declines progressively as the number of special requests increases. For instance, with no special requests, total revenue is \$26,428,439, whereas with 5 requests, it is significantly lower at \$60,257.

8. Hotel-Wise Total Revenue

Hotel Contribution: City hotels contributed 52% of the total revenue, amounting to \$33.89 million, while resort hotels contributed 48% of the total revenue, with \$31.31 million. A doughnut chart highlights the distribution of revenue between the two

Revenues, Nights & Guests Overview (End)

Summary:

This comprehensive analysis provides key insights into the revenue performance across different time periods, geographical locations, customer segments, agents, distribution channels, and special requests. The findings emphasize the importance of seasonality, customer type preferences, and the impact of special requests on revenue generation, offering valuable guidance for optimizing revenue strategies.

(Analysis continues on subsequent pages)

ALOS, Occupancy Rate & Parking Space Analysis

This page includes eight visuals. The Average Length of Stay (**ALOS**) is **1.76 days**, with a doughnut chart showing nearly equal percentages of stays on weekdays (49.69%) and weekends (50.31%). The **occupancy rate is 62.60%**, with similar distributions for weekdays (49.92%) and weekends (50.08%).

Four column charts analyze parking space utilization. "Revenue Breakdown by Parking Spaces" shows that customers without parking needs generated the highest revenue (~\$7 million), while those requiring the most parking spaces contributed the least (~\$1,000), indicating no direct correlation between parking needs and revenue.

Another chart shows customer category parking space distribution. Couples have the highest parking space requirements, exceeding 98,000, while singles need over 27,000, the 'other' category has the least of 448. The 'transient' customer type also leads in demand with over 101,000 spaces, while 'group' type require the least (772 spaces). Parking demand is consistent throughout the week, with Tuesday being the highest (21,806) and Friday the lowest (18,175).

Meal Cost

The total meal cost is **\$2.17 million**, with an average meal cost of **\$15.31**. A trendline indicates that the highest meal cost peaked at over \$166,000 in October 2019, while the lowest was just over \$32,000 in November 2018. By market segment, the highest meal cost is attributed to online travel agents (Online TA) at over \$1 million, whereas the undefined market segment has a total meal cost of approximately \$52. By day of the week, Tuesday has the highest meal cost, exceeding \$338,000, while Saturday records the lowest at over \$278,000. The Bed & Breakfast meal type (BB) is, by far, the most popular.

Market Segment Analysis

In the market segment analysis, the online travel agent (TA) segment generated the highest revenue, exceeding \$34 million, while the complimentary segment brought in the least revenue, just over \$9,000. Despite having the lowest revenue, the complimentary segment has the highest occupancy rate. This is expected, as complimentary rooms are typically provided to guests who aren't directly or fully paying for their stay, such as VIPs, or as part of marketing strategies to attract potential future customers.

Additionally, these two segments—online TA and complimentary—received the highest and lowest discounts, respectively. The total discounts granted amounted to **\$162,980**, which represents only 0.25% of the total revenue. The total number of repeat guests was **5,759**, with the corporate segment leading in loyalty, accounting for 1,775 repeat guests. In contrast, the aviation segment had the fewest repeat guests, with only 65.

(Analysis continues on subsequent pages)

Deposit Type

The deposit type analysis reveals that the **No Deposit** type generated over 99% of the total revenue, amounting to \$65.12 million. The **Refundable** Deposit type contributed \$56,660, while the **Non-Refundable** Deposit type brought in \$34,140. Surprisingly, the Non-Refundable Deposit type had the highest cancellation rate at 99.45%. This high rate suggests that guests may still cancel despite the financial penalty, as the convenience of securing a reservation quickly—even with a non-refundable deposit—can outweigh the cost of cancellation. In contrast, the No Deposit and Refundable Deposit types had cancellation rates of 27.78% and 21.69%, respectively.

Lead Time & Cancellations

In lead time analysis, the 91+ days bucket generated the highest **revenue**, contributing 42% at over \$27 million, while the 8-14 days bucket contributed the least, with 6% at over \$4 million. Portugal (PRT) had the highest **lead time** count with over 62,000 days, followed by Great Britain (GBR) with over 13,000 days. Portugal also led in **cancellations by country** with over 35,000, while Great Britain and Spain (ESP) had over 2,000 each.

For **customer types**, transient parties had the highest cancellation count at over 41,000, and groups had the lowest at 93. Cancellations were highest in the 91+ days bucket (over 30,000) and lowest in the 8-14 days bucket (1,843). Weekdays saw 72.41% of cancellations, totaling nearly 38,000, while weekends had 27.59% with over 14,000.

(Analysis continues on subsequent pages)

Customer Category

A calculated column was created to segment customers into six categories. The "Couple" category generated the highest revenue, accounting for over 63% of the total at over \$41 million. The "Family with Children" category followed, contributing over \$12 million, and "Friends" generated over \$7 million. The "Other" category brought in the least revenue, totaling just over \$75,000. This aligns with the distribution, where the "Couple" category has the highest number of customers at over 117,000, while the "Other" category has the fewest at 306 customers. This trend is also evident in cancellation rates.

Regarding the average length of stay, the "Other" category leads with an average of 4.4 nights, whereas the "Family with Children" category has the lowest average length of stay with 1-1 nights.

In terms of booking trends, the "Couple" category had the highest number of bookings, with 17,270 in September 2019, while the "Other" category had the fewest, with only 4 bookings in August 2020.

(Analysis continues on subsequent pages)

INSIGHTS

1. Revenue Performance: The total revenue of \$65.21 million is predominantly driven by weekdays, generating \$47.3 million compared to \$17.9 million from weekends. This highlights the stronger revenue performance during weekdays relative to weekends.
2. Booking and Cancellation Trends: Out of 485,000 nights booked, 181,000 were canceled, indicating a substantial rate of cancellations. This trend, combined with the weekday revenue dominance, suggests that booking patterns and cancellation behaviors are critical factors in revenue management.
3. Revenue by Time Period: August 2019 was the peak month for revenue, while January 2019 saw the lowest, reflecting significant seasonal revenue fluctuations. This emphasizes the need for seasonal strategy adjustments.
4. Country Performance: Portugal leads in revenue with \$15 million and a high ADR of \$6 million. In contrast, Madagascar's performance is minimal, showing the impact of geographical location on revenue generation.
5. Customer Types: The Transient customer type is the largest revenue contributor, while the Group type generates the least. This highlights the value of transient bookings and suggests focusing on strategies to attract and retain this segment.
6. Deposit Types and Cancellations: The No Deposit type accounts for over 99% of total revenue, with the highest cancellation rate observed in the Non-Refundable Deposit type. This indicates that even with financial penalties, some guests prefer the flexibility of non-refundable bookings.

INSIGHTS (Continued)

7. Lead Time Analysis: The 91+ days lead time bucket yields the highest revenue, despite having the highest cancellation count. This suggests that early bookings, while more likely to be canceled, still contribute significantly to overall revenue.
8. Customer Categories: The "Couple" category is the most revenue-generating segment, with a high booking count but also the highest cancellation rate. The "Other" category, while generating the least revenue, has the highest average length of stay, indicating different value propositions across customer segments.
9. Parking Space Utilization: Customers without parking needs generate the highest revenue, while those needing more parking contribute less. This points to a potential disconnect between parking requirements and revenue, suggesting that parking availability might not significantly influence revenue.
10. Meal Costs: Meal costs peak on Tuesdays and are highest for the online travel agent segment. The popularity of the Bed & Breakfast meal type suggests it is a preferred option among guests.

These insights provide a comprehensive view of the hotels' performance, highlighting areas of strength and potential opportunities for optimization.

RECOMMENDATIONS

1. Enhance Weekday Revenue Strategies:

Promotions and Packages: Develop special promotions or packages that encourage more bookings during weekends. Consider offering discounts, value-added services, or events that make weekend stays more appealing.

Targeted Marketing: Increase marketing efforts targeting weekday guests, including business travelers and local visitors, to sustain weekday revenue growth.

2. Address High Cancellation Rates

Flexible Booking Options: Offer more flexible booking options with attractive terms to reduce cancellation rates, such as partial refunds or date changes.

Cancellation Policies: Review and adjust cancellation policies to balance between flexibility and minimizing revenue loss. Implement tiered cancellation fees based on booking lead time.

3. Seasonal Revenue Strategies:

Seasonal Campaigns: Develop targeted marketing campaigns and promotions to capitalize on peak months and address lower revenue periods. For instance, create special offers or events for August to maximize revenue during peak times.

Demand Forecasting: Use historical data to better forecast demand and adjust staffing, pricing, and inventory accordingly for different seasons.

4. Focus on High-Performing Countries:

Local Partnerships: Strengthen partnerships and marketing efforts in high-revenue countries like Portugal, the UK, and France to drive more bookings from these regions.

Market Expansion: Investigate opportunities to improve performance in lower-performing regions like Madagascar by exploring new marketing strategies or adjusting pricing.

5 Capitalize on Transient Customer Segment:

RECOMMENDATIONS (Continued)

5. Capitalize on Transient Customer Segment:

Loyalty Programs: Enhance loyalty programs and incentives for transient customers to encourage repeat bookings and increase customer retention.

Tailored Offers: Develop tailored offers and personalized experiences for transient guests to boost satisfaction and revenue.

6. Optimize Deposit Types:

Deposit Options: Offer a range of deposit options that cater to different customer preferences. For example, introduce a mix of refundable and non-refundable options with varying benefits.

Cancellation Penalties: Reevaluate the penalties for non-refundable deposits and consider implementing a sliding scale that better aligns with customer expectations and minimizes cancellations.

7. Leverage Early Bookings

Early Bird Discounts: Provide incentives for guests who book 91+ days in advance to capitalize on the high revenue potential of early bookings.

Revenue Management: Use advanced revenue management techniques to optimize pricing and availability for long-term bookings, despite their higher cancellation rates.

8. Differentiate Customer Experiences

Tailored Packages: Create customized packages for different customer categories, such as couples and families, to enhance their stay experience and increase revenue.

Stay Length Incentives: Offer incentives for longer stays, particularly for categories with high average lengths of stay, to boost overall revenue.

RECOMMENDATIONS (End)

9. Reassess Parking Space Strategy

Evaluate Parking Demand: Assess whether parking space requirements are influencing booking decisions and adjust parking policies or pricing as needed.

Alternative Solutions: Explore alternative parking solutions or partnerships that could offer additional value to guests who need parking.

10. Optimize Meal Cost Management

Meal Promotions: Offer special promotions or discounts on meal services, particularly on days with lower meal costs, to increase dining revenue.

Preferred Meal Types: Focus on promoting the Bed & Breakfast meal type, which is popular among guests, to boost meal revenue and enhance guest satisfaction.

Implementing these recommendations can help the hotels optimize their revenue, improve customer satisfaction, and better manage booking and cancellation trends.

Thank You!