

Tower Hotel has 300 guest rooms with an average room rate of \$ 35. It is currently operating at 70% average occupancy. The hotel has 200 standard double bedrooms, and 100 double deluxe rooms. At rack rate, the standard rooms sell at \$ 40.00 at single occupancy and \$ 50.00 at double occupancy, whilst the deluxe rooms sell at \$ 50.00 at single occupancy and \$ 60.00 at double occupancy.

Formula 1: Potential Average Single Rate

The hotel has varied its single rate by room type, so we need to calculate the potential average single rate:

Room type	Number of rooms	Single Rack rate	Revenue at 100% occupancy
Standard	200	\$ 40	\$ 8,000
Deluxe	100	\$ 50	\$ 5,000
	300		\$ 13,000

$$\text{Potential Average Single Rate} = \frac{\text{Single Room Revenues at Rack Rate}}{\text{Number of Rooms Sold as Singles}}$$

$$= \frac{\$ 13,000}{300}$$

$$= \$ 43.33$$

Formula 2: Potential Average Double Rate

Since we also have varied rates by room type the potential average double rate must be calculated:

Room type	Number of rooms	Double Rack rate	Revenue at 100% occupancy
Standard	200	\$ 50	\$10,000
Deluxe	100	\$ 60	\$ 6,000
	<u>300</u>		<u>\$ 16,000</u>

$$\text{Potential Average Double Rate} = \frac{\text{Double Revenues at Rack Rate}}{\text{Number of Rooms Sold as Doubles}}$$

$$= \frac{\$ 16,000}{300}$$

$$= \$ 53.33$$

Formula 3: Multiple Occupancy Percentage

This is the proportion of a hotel's rooms that are occupied by more than one person. This percentage indicates sales mix and helps balance room rates. If 168 rooms from the total of 210 rooms sold (70% of 300 rooms) are sold at double occupancy then the computation is as follows:

$$\text{Multiple Occupancy Percentage} = \frac{168}{210}$$

$$= 80\%$$

Formula 4: Rate Spread

The determination of a room rate spread among various room types can be essential to the use of yield decisions in targeting a hotel's specific market. The mathematical difference between the hotel's average single rate (Formula 1) and potential average double rate (Formula 2) is known as the rate spread.

$$\text{Rate Spread} = \text{Potential Average Double Rate} - \text{Potential Average Single Rate}$$

$$= \$ 53.33 - \$ 43.33$$

$$= \$ 10$$

Formula 5: Potential Average Rate

This is a collective statistic that effectively combines the potential average rates, multiple occupancy percentage, and rate spread.

$$\begin{aligned} \text{Potential Average Rate} &= \left(\text{Multiple Occupancy Percentage} \times \text{Rate Spread} \right) + \text{Potential Average Single Rate} \\ &= (0.8 \times \$10) + \$ 43.33 \\ &= \$ 51.33 \end{aligned}$$

Formula 6: Room Rate Achievement Factor

The percentage of the rack rate a hotel actually receives is contained in the hotel's achievement factor, also referred to as the rate potential percentage. This factor is best computed using yield management software which will use the weighted average of the rack rates of the rooms actually sold. For our purposes the non-weighted computation will suffice:

$$\begin{aligned} \text{Achievement factor} &= \frac{\text{Actual Average Rate}}{\text{Potential Average Rate}} \\ &= \frac{\$ 35}{\$ 51.33} \\ &= 68\% \end{aligned}$$

Formula 7: Yield Statistic

This is perhaps the most important element in yield management. We have already seen how to express and calculate this statistic. Here we will use the following computation:

$$\begin{aligned} \text{Yield Statistic} &= \text{Occupancy percentage} \times \text{Achievement factor} \\ &= 0.7 \times 0.68 \\ &= 0.476 \\ &= 48\% \end{aligned}$$

Formula 8: Identical Yields

This is the point where we can ask “What if ...?” questions to determine how discounting will affect our revenue. If we were to decrease or increase our rate, what occupancy percentage would we need to achieve to produce the same yield? Let’s suppose that our hotel wants to decrease its rate by \$ 2.00 to \$ 33.00.

$$\begin{aligned}\text{Identical Yield Percentage} &= \text{Current Occupancy Percentage} \times \frac{\text{Current rate}}{\text{Proposed rate}} \\ &= 70\% \times (\$ 35 \div \$ 33) \\ &= 0.742 \text{ or } 74\%\end{aligned}$$

To achieve the same yield the hotel must have an occupancy of 74%.

Formula 9: Equivalent Occupancy

There is however one major flaw with Formula 8. It does not consider operating costs. When a hotel sells a room, it will incur variable costs to service that room (eg. Housekeeping supplies). This is called the marginal cost or the cost per occupied room. The contribution margin is that portion of the room rate that is left over after the marginal cost of providing that room has been subtracted. Let us assume that our marginal cost is \$ 4.00. To find the equivalent occupancy we have the following formula:

$$\begin{aligned}\text{Equivalent Occupancy} &= \text{Current Occupancy Percentage} \times \frac{\text{Current contribution margin}}{\text{New contribution margin}} \\ &= 70\% \times \frac{\$ 35.00 - \$ 4.00}{\$ 33.00 - \$ 4.00} \\ &= 0.748 \text{ or } 75\%\end{aligned}$$

A discount grid (refer to Discount_Grid.xls) can help management evaluate room rate discounting strategies.

Discount Grid	
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Rack rate	\$ 51.33
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Marginal cost \$ 4

Current Occupancy	Equivalent Occupancy Percent required to maintain profitability if rates are discounted.
80%	80%
75%	75%
70%	70%
65%	65%
60%	60%
55%	55%
50%	50%
45%	45%
40%	40%
35%	35%
30%	30%
25%	25%
20%	20%
15%	15%
10%	10%
5%	5%
0%	0%

	5%	10%	15%	20%	25%	30%	35%
100%	105.7%	112.2%	119.4%	127.7%	137.2%	148.2%	161.2%
95%	100.4%	106.6%	113.5%	121.3%	130.3%	140.8%	153.1%
90%	95.2%	100.9%	107.5%	114.9%	123.5%	133.4%	145.1%
85%	89.9%	95.3%	101.5%	108.5%	116.6%	126.0%	137.0%
80%	84.6%	89.7%	95.5%	102.2%	109.8%	118.6%	128.9%
75%	79.3%	84.1%	89.6%	95.8%	102.9%	111.2%	120.9%
70%	74.0%	78.5%	83.6%	89.4%	96.0%	103.8%	112.8%
65%	68.7%	72.9%	77.6%	83.0%	89.2%	96.3%	104.8%
60%	63.4%	67.3%	71.7%	76.6%	82.3%	88.9%	96.7%
55%	58.2%	61.7%	65.7%	70.2%	75.5%	81.5%	88.6%
50%	52.9%	56.1%	59.7%	63.8%	68.6%	74.1%	80.6%
45%	47.6%	50.5%	53.7%	57.5%	61.7%	66.7%	72.5%
40%	42.3%	44.9%	47.8%	51.1%	54.9%	59.3%	64.5%
35%	37.0%	39.3%	41.8%	44.7%	48.0%	51.9%	56.4%
30%	31.7%	33.6%	35.8%	38.3%	41.2%	44.5%	48.4%
25%	26.4%	28.0%	29.9%	31.9%	34.3%	37.1%	40.3%
20%	21.1%	22.4%	23.9%	25.5%	27.4%	29.6%	32.2%
15%	15.9%	16.8%	17.9%	19.2%	20.6%	22.2%	24.2%