



## EX-SET#1- YIELD MANAGEMENT

### Exercise 1

The public administration decided to celebrate the renewal of the Giglio theatre with a gala party. The organization of the event is delegated to an important public relations Company named Futura. Futura is in charge of guaranteeing maximum profits by allocating the 500 available seats of the theatre in the best way, through yield management theory. The price agreed to sell the ticket is equal to 1000€/ticket (full price). However, because the probability to sell all tickets at this price is very low, Futura decided to introduce another price. Historical data showed that the probability to sell less than 350 tickets is equal to 90%. Demand for tickets (at 1000€) is distributed as a normal distribution, the average is equal to 200. The second price introduced is 320€/ticket (discounted price). Tickets related to this price must be sold in advance. The manager of Futura knows that if they decided to sell at 320€/tickets, they would sell all the tickets (500) without any problem. However, they decided to sell tickets at two different prices to obtain a higher margin.

To the customer interested in buying tickets at full price, several services are offered:

- Buffet provided by a catering Company, paid in advance (30 days before the event) by Futura. The cost is 15 €/ person.
- A flyer containing the Theatre History. The Flyer is offered by an external sponsor. The cost is 8 €/ flyer.
- Program of the evening printed on high-quality paper. The cost is 40€/program.

To the customer that purchases tickets at a discounted price fewer services are offered:

- A flyer containing the Theatre History. The Flyer is offered by the public administration. The cost is 8 €/ flyer.
- Program of the evening printed on low-quality paper, each costs 25€.

To print flyers and program, 7 days are needed. Tickets at a discounted price are sold up until 20 days before the event. After that date, it is only possible to purchase tickets at full price.

#### 1.

You are required to calculate the protection level for full-price tickets.

#### 2.

For every event, it happens that some people, those who have not purchased tickets before and are not minded paying full price, try to purchase the ticket directly at the entrance. 15 minutes before the beginning of the events, managers of Futura check how many tickets haven't been sold. So, they decide to sell the remaining tickets at the price of 150 €. Data show that usually, no-shows related to people that have purchased tickets at a discounted price are equal to 10% (The ticket is not refundable under any circumstances).

You are required to comment on the impact of the introduction of this new price on the protection level.

### Exercise 2

The organizers of the Operations management world conference are excited for the opportunity to organize the best event in the operations management field. So, they want to obtain the maximum profit from the event.

They have to pay the rental rate of the conference room, which can host 1000 participants, and it costs 80€/participant. They decide to propose two different prices: one discounted and one full.

With the discounted price (600 €/participant) they are sure to sell out all the tickets, but they want to earn more from the event. So, they decided to sell tickets at a discounted price in advance and to sell also tickets at full price (1200 €/participant). Historical data showed that with the price of 1200€/ participant it would be possible to sell less than 400 tickets with an 80% probability. Demand for tickets (at 1200€) is distributed as a normal distribution, average =250.

They decide to print the proceedings for all the participants (both full and discounted price). That cost 50 €/participant. They have to communicate the number of proceedings copies 20 days before the event.

The organizers also decided to offer a coffee break to all the participants (both full and discounted price), and they have to pay the catering Company 90 days before the event (10 €/participant).

Moreover, they decided to offer a gala dinner to the participants that purchase the ticket at full price. They agreed with the restaurant the price of 50 €/participant, and that cost is paid directly by the organizers to the restaurant after the dinner. Historical data showed that on average 70% of the participants (full price) will attend the dinner.

Sales are organized as follow:

- From 80 days before the event until 30 days before the event: tickets at a discounted price.
  - From 30 days before the event until 1 day before the event: tickets at full price.
1. You are required to calculate the protection level for full-price tickets.
  2. How the protection level will be modified if they decided to introduce a last-minute price of 300€/participant, to sell during the event day.
  3. Calculate the break-even point of the two different scenarios.

### Exercise 3

The Sales Manager of a Company decides to apply Yield Management for an important sports event. If the customers will book in advance (40 days before the event), they can buy tickets at a special price of 200 €. The manager, based on historical data, knows that if he decides to sell all the tickets at this special price, he will not have any problem selling all the 500 tickets. But he knows also that the yield management strategy can help to reach more profit from the event. So, he decides to introduce another price, 400 €, from 40 days before the event till the day before the event. The demand for tickets sold at 400 € is distributed as a normal distribution with an average of 300 and a probability of 80% to sell less or equal 400 tickets.

Both the typologies (discounted and full) are characterized by no-show phenomena. Data shows that usually, no-show related to people that have purchased tickets both at discounted and full price is equal to 10% (The ticket is not refundable under any circumstances).

The manager decides to print a flyer to promote the event. He will print the flyer 2 months and a half before the event. The cost for each flyer is 3 €.

Moreover, he has to hire a security service for the day of the event. He has to communicate to the security service Company (and pay) the right number of stewards that he needs, 35 days before the event. The cost for this service is calculated as 6 €/ticket. Also, there is a fixed cost of 3000€ for the stipulation of the contract.

He decides to offer a buffet after the event, just to the full-price customers. It will cost 12 €/ person, and it will be paid after the event. The historical data show that only 60 % of the full-price tickets sold will attend the buffet after the event.

- a) You are required to calculate the protection level for the full price.
- b) The manager promised to his Company to reach at least a net profit of 45000. The rent for the sporting arena is 50000 €. Do you think that the manager will reach this net profit with a probability of 95% ?
- c) He decides to introduce a last-minute price (175€) to sell just the day of the event. How does the protection level change? Comment on it.