“Dynamic” Pricing Problem

In the past *Air Innovation* used a standard EMSR-a booking policy to control their ticket sale. But like its name says, they want to be pioneer on innovative market and sales strategies. In the name of fighting their competitors *Air Innovation* thinks about possibilities to better exploit customers’ willingness-to-pay and in this way to secure their market position. Therefore, they started an in-house competition where all employees are allowed to submit a proposal. After the management of *Air Innovation* carefully considered the wide range of proposals they ended with three exciting ideas:

- **Mark Mustermann** (data analyst): Increasing the number of price points will reduce the revenue lost through consumers’ surplus. Hence the revenue is directly increased.
- **Gabi Glamour** (sales expert): I really do not get all this calculation stuff. And I really do not understand why we have to control our sales by contingents instead of prices. It seems to me more intuitively to determine everything just by the sales price. Lola Neumann from the Capacity Management team just explained to me a few days ago that the first step of this whole calculation is to determine the expected seat value for each seat and then continue this EMSR-a control by comparing something. So why do not just take this expected seat value and interpret it as minimal accepted fare and then skip the rest of this really complicated calculation?
- Lazy **Mike** (he is so lazy that nobody knows his position at the company): I think we should combine the ideas of Data-Mark (he is talking to himself on the toilet) and Glamor Gabi (she is talking very loud during the lunch so during this time I cannot sleep well) …

The CEO of *Air Innovation* promised a juicy bonus for the employee with the best idea. Your task as consulting agency is to test all three proposals on a small sample market and determine which one is the best. Therefore, *Air Innovation* provides all the needed data to you.

The market includes three flight routes between the Islas Canarias (see figure below). For simplification you should consider each route just in one direction and assume that the way back performed the same.

1. Implement the standard EMSR-a method as reference value for later comparisons. Plot the expected revenue per seat.
2. Adjust the standard EMSR-a method such that the requirements of Marks idea is fulfilled. Therefore take the artificial point of minimal price and maximal number of customers as reference to build a new set of prices. Assume that the number of excepted customers developed inversely proportional to the price, e.g. if the price is doubled than the number of expected customers is halved (variances can be assumed as stable). To get a better feeling of the impact of the number of price points on the realized revenue increase this number stepwise. Plot the expected revenue per seat for meaningful numbers of price points.
3. Discuss the advantages and disadvantages of Gabi's idea.
4. Implement the idea of Lazy Mike and illustrate it graphically.
5. Determine the expected revenue for each idea for different customer sets.
6. Who should get the juicy bonus in your opinion?
7. Use a presentation (or a poster) to illustrate your results, focus on the interesting parts.