

# [A case analysis on north south airlines essay sample](https://assignbuster.com/a-case-analysis-on-north-south-airlines-essay-sample/)

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I. CASE BACKGROUND   
Northern Airlines merged with Southeast Airlines to create the fourth largest U. S. carrier in which it inherited both an aging fleet of Boeing 727-300 aircraft and Stephen Ruth. As the new president of the airline, Stephen’s first concern is to create a financially solid company since it is a common presumption for airline industries that maintenance costs rise with the age of aircrafts. He noticed that there have been significant differences in the reported B727-300 maintenance costs (from ATA Form 41s) both in the airframe and engine areas between Northern and Southeast Airlines, with Southeast having the newer fleet. He asked Peg Jones, Vice President for Operations and Finance to investigate on this issue and to know whether there was a direct relationship between average fleet age and direct engine maintenance costs. II. STATEMENT OF THE PROBLEM

Peg Jones must be able to determine if there was a correlation between the average fleet and the maintenance cost. She must also find out if the average fleet age is related to the direct engine machine costs. Jones must be able to provide his findings to Stephen Ruth, who is the new president and chairman of the board of the two airlines, for them to be able to properly investigate and address the issue. III. CASE FACTS, LIMITATIONS AND CONSTRAINTS

For this case analysis, the following are the available data to be used to help Ms. Jones in the determination if there was a correlation between average fleet age and the direct maintenance costs (Please see Annex 1). And the following steps were performed by Ms. Jones and her staff: 1. The staff constructed the average age of both fleets, by quarter. 2. The average age of each fleet was calculated by first multiplying the total number of calendar days each aircraft has been in service at that time. 3. The average utilization was found by taking the actual total fleet hours flown on September 30, 2007, from Northern to Southeast data, and dividing by the total days in service for all aircraft at that time. 4. The average utilization for Southeast and Northern was 8. 3 and 8. 7 hours per day, respectively.

5. The available data were calculated for each yearly period ending at the end of the first quarter. Thus, average fleet age was calculated at the same points in time. The paper is limited within the case facts as these are the available data considering also the other factors that might be helpful for us to solve the problem. The group members are not experts about the airline industry and we based our conclusion and recommendations based on practical applications. Correlation does not necessarily mean causation. The two variables may be highly correlated, but one is not causing the other to change in which other factors must be considered. The linear relationship may exist within the range of values and what happens beyond this range is unknown wherein the linear relationship may become nonlinear at some point. IV. ALTERNATIVE COURSES OF ACTION

Taking the point of view of Ms. Jones, the alternative courses of action that the company may opt to choose are the following: 1. Hire a contractor to standardize the maintenance of aircrafts all throughout North-South Airlines. 2. Apply the maintenance procedures used by North Airline aircrafts to the Southeast Airline aircrafts. 3. Develop an entirely new procedure for aircraft maintenance that is applicable for both airline fleets. V. QUANTITATIVE METHODS AND THE SOLUTION TO THE PROBLEM

a. We determine the regression equation and correlation between North’s airframe cost and the average age of fleet. Please refer to Annex 2 for the QM results. Regression line:   
Airframe Cost = 36. 14 +. 0026\* Average Age (hour)   
Coefficient of correlation = . 88   
Coefficient of determination = . 77   
This means that 88% of the variability in the airframe cost is based on the average age of fleet per hours that can be determined in the regression line. Since, the coefficient correlation is positive, we can conclude that as average in hours increase, the airframe cost can increase as well. Through the regression equation, we can say that per average age hour (thousands), there will be 2. 6 increases in the airframe cost. b. Then, we also determine the regression equation and correlation between North’s engine cost and the average age of fleet. Please refer to Annex 3 for the QM results. Regression line:

Engine Cost = 20. 57 +. 0026\* Average Age (hour)   
Coefficient of correlation = . 78   
Coefficient of determination = . 61   
For the engine cost, there is also a positive correlation thus; increase in this cost may also vary in the increase in average age of fleet per hour. However, on this cost, only 61% is determined in the regression equation. Like in the airframe cost, there will be additional 2. 6 in cost for every hour of average age in thousands. c. We determine the regression equation and correlation between South’s engine cost and the average age of fleet. Please refer to Annex 4 for the QM results. Regression line:

Airframe Cost = 4. 60 +. 0032\* Average Age (hour)   
Coefficient of correlation = . 62   
Coefficient of determination = . 39For South Airlines’ aircraft cost, there is also a positive correlation which means that as average age increases, airframe cost may also increase. But in terms of coefficient of determination, we can notice that only 39% of the airframe cost can be determined in the regression line based on the average age per hour. Through the regression equation, we can say that for every increase in average age hour (thousands) there will be additional increase in cost of airframe at 3. 2. d. We determine the regression equation and correlation between North’s engine cost and the average age of fleet. Please refer to Annex 5 for the QM results. Regression line:

Engine Cost = -. 67085 +. 0041\* Average Age (hour)   
Coefficient of correlation = . 67   
Coefficient of determination = . 46   
On the engine cost of South Airlines, only 46% of the engine cost can be determined in the regression equation based on the average age per hour and there is still a positive correlation that exists. On the regression equation, we can say that there is an increase of 4. 1, for every hour of average age (thousands), to the constant cost of -. 67. V. ETHICAL CONSIDERATIONS

Whether or not the age of the aircraft is correlated with the airframe cost and engine cost, companies that provide transportation especially aircrafts should maintain extra precaution when it comes to maintaining their main service provider, which are their aircrafts. The fact that the company is being concerned with their maintenance costs, they should not put the company’s budget in maintaining their aircrafts on the borderline and limit it on a certain amount just to earn more profit for the company. This may jeopardize the safety of the passengers due to possible aircraft failure if needed maintenance is not properly attended to because of the tight budget that they may implement. The company also should not depend on the maintenance of aircrafts. They also should consider purchasing new aircrafts, which can add on the safety guarantee to passengers. Ageing aircrafts, even if they are regularly maintained, may have hidden defects that cannot be detected and may cause failures as well. VII. OVERALL CONCLUSION

The results of our regression and graphs show that even if North and Southeast aircrafts are ageing at the same rate the maintenance of North Airline aircrafts are parallel but Southeast Airline’s aircraft maintenance are increasing in a much greater rate. This shows that the maintenance of North Airline aircrafts is correlated while Southeast’s are not mostly showing the same results. There might be other variables that would affect the rise of maintenance cost of Southeast Airline aircrafts other than age. On the other hand, with the results shown from the regression of North Airline aircrafts, there might also be other variables but age seems to be a contributing factor to affect the maintenance costs. Even if the Southeast Airline aircrafts have a newer fleet, their maintenance costs are rising much faster than the maintenance costs of North Airline’s aircrafts.

The group may not be experts on aircrafts but we think that newer aircrafts shouldn’t have higher maintenance costs than older fleets. We suggest that the maintenance of aircrafts from North Airlines should be studied and applied to Southeast aircrafts to prevent the rapid increase in aircraft maintenance. Other external factors that must be considered are the number of travels made, the travel distance and the length of travel since the farther the travel of the aircrafts, there is more tendency that maintenance costs to be incurred will also increase. We can also consider the engine type of each fleet because we thought that there are engines that need constant monitoring and thorough inspection so that it will not be a cause for having aviation accidents and incidents. In line with this, an aviation inspector’s services are also include in the maintenance cost as he or she will ensure that the airline is airworthy and compliant with the standards of safety flying. Moreover, the labor and material cost, which are the direct costs, should also be considered in the assessment of the maintenance cost. VIII.

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