

Evaluating and Reducing Aircraft Technical Delays and Cancellations Impact on Reliability Operational: Case Study of Airline Operator

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Abstract : Although special care is given to maintenance, aircraft systems fail, and these failures cause delays and cancellations. The occurrence of Delays and Cancellations affects operators and manufacturers negatively. To reduce technical delays and cancellations, one should be able to determine the important systems causing them. The goal of this research is to find a method to define the most expensive delays and cancellations systems for Airline operators. A predictive model was introduced to forecast the failure and their impact after carrying out research that identifies relevant information to tackle the problems faced while answering the questions of this paper. Data were obtained from the manufacturers' services reliability team database. Subsequently, delays and cancellations evaluation methods were identified. No cost estimation methods were used due to their complexity. The model was developed, and it takes into account the frequency of delays and cancellations and uses weighting factors to give an indication of the severity of their duration. The weighting factors are based on customer experience. The data Analysis approach has shown that delays and cancellations events are not seasonal and do not follow any specific trends. The use of weighting factor does have an influence on the shortlist over short periods (Monthly) but not the analyzed period of three years. Landing gear and the navigation system are among the top 3 factors causing delays and cancellations for all three aircraft types. The results did confirm that the cooperation between certain operators and manufacture reduce the impact of delays and cancellations.

Keywords : reliability, availability, delays & cancellations, aircraft maintenance

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