

AER1601 - Team 3

De Havilland Aircraft of Canada Ltd.

EXECUTIVE SUMMARY

De Havilland is a major aviation manufacturer with a legacy of more than 90 years in the aviation sector. The Canadian arm of the company recently broke off from its parent company, The Bombardier Aerospace and was bought by Longview Aviation Capital under a new name called De Havilland Aircraft of Canada Limited. The purpose of this project is to effectively improve the performance efficiency of work Centre 710 of the De Havilland Aircraft of Canada by critically focusing on the identified issues and analyze the data and trends associated with those issues. This report focuses on few key issues in which the first one being, the Non-Conformance Report (NCR) Management in order to tackle lack of visibility of incoming and outgoing NCRs, prioritize them and suggest ways to decrease the time it takes to finish the NCRs. Considering the issues and according to our findings, the current NCR process has a lot of redundant phases and there is inadequate updating of status of each NCR. Through the analysis of data obtained, we found that, on an average scale, an NCR spends about 75% of the time in both Quality Assurance and Production. Moreover, the total running NCRs increased from 2 in April to nearly 40 in October which depicts that non-conformance report management needs urgent attention. The team proposed a new layout for the NCR process by performing various case studies of existing NCR process employed by different companies. In addition to that, we created pareto charts based on repetition of NCRs and the time period for completing an NCR. Pareto charts will increase the visibility and help in identifying the barriers for reducing the time and repetitive NCR. Performance trend charts needs to be created for work center 710 based on production hours as well as efficiency.

Another key focus was to track and prioritize Travel work (TTR) from Bay 2 and 11 (incoming TTR) as well to Work Centre 715 (outgoing TTR from Work Centre 710). Travel work mainly consists of open workbooks, NCRs, BOI and snags. From the primary data collected, trends on percentage of travel work related to various types and various aircrafts were created. Upon categorizing the travel work, it was found that approximately 75% of the travel works from work center 710 are open workbooks. Moreover, 90% of the incoming travel work from Bay 2 and 11 to work center 710 was open workbooks. Open workbooks or incomplete workbooks occur when workers are unable to complete the workbook mainly due to Non-conformities, shortage of parts in which majority being the vendor parts or because when the target hours are not achieved due to less worker capacity. In order to track, categorize and prioritize travel work, the team devised a solution by creating a TTR control board mainly focusing on the incoming and outgoing travel work from work center 710, average percentage of travel work with various aircrafts etc.

As mentioned earlier, discrepancy in the target hours and load capacity plays major role in Employee performance management. Furthermore, we found that there is lack of visibility in each employee's performance, allocation of work and monitoring the individual performance.

The current performance management model practiced by the De Havilland involves Line Managers conducting group meetings with all workers and lead hands of their respective workstation to discuss performance related matters. This system had many downsides such as long meetings, individual worker's inefficacy to daily tasks etc. The team propounded a new performance model in which line managers only deal with lead hands and the lead hands monitor the performance of the workers. This model aims to make lead hands and workers more proactive by laying more responsibility to them. This model offers many advantages over the old model as it decreases the time that a worker spends in meetings and can utilize that time to complete the daily tasks. Moreover, from our analysis we found that on average each job required at least 3 hours to complete whereas most meetings took place in a span of nearly 2 hours. This led to inability of workers to complete the daily workbooks. Due to this reason, the four touch points in the old model was cut shortened to two touchpoints so that the daily tasks remain uninterrupted.

In addition to employee performance management, work center inefficiency was also one of major concern with work center 710. All the issues discussed earlier are interrelated and can have a significant impact on work center efficiency. Rising trend of NCRs leads to incomplete tasks which contributes to travel work and this reduces the efficiency of work center. The graphs drafted from the performance trends depicted that the efficiency level of work center 710 generally stayed in the range of 75-80% for every aircraft and the actual production hours always overshoot the total target hours. The prime reason for this is the insufficient worker capacity even though De Havilland followed a culture of over time. Further, the efficiency calculated is inaccurate as the efficiency recording system has many errors. For example, there were many tasks that had zero achieved hours but 100% efficiency. The team came up with the solution of hiring new employees instead of paying more for overtime. The graphs drafted shows that assuming a training cost of \$5000, hiring 3 or 4 new people can be considered as optimum for the workstation. The ability of new hires to payback the training costs in a reasonable time which is in between 3-6 weeks was also considered as another measure to ensure that hiring would be cost-effective. Furthermore, the team came up with job completion statistics, a new key performance indicator as a measure of work center efficiency. This was used to identify the jobs that exceeded the target hours and the extra time taken to complete the jobs. A total of 178 jobs were analyzed and found that around 42% of the jobs exceeded the target hours, 57 jobs had zero output work. The overall in-time job completion efficiency was found to be around 25.84% which means that for every 100 jobs being performed in work center 710, only 25 jobs will be completed in time.