

## SUMMARY

From April until December 2005 a research assignment was performed at Stork Fokker AESP. The assignment was to consider how the cost of defects within the production department of Operations Sheet Metal could be reduced. The goal was to thrive for a reduction percentage of 90%. A percentage of less than 50% was to be explained. The plan of action consisted of two phases. During the first phase it was determined where problems would mainly occur. The second phase had a problem solving nature.

The first phase started by gaining insight in all processes inside the production department. The processes were approached in different strata through the method of systems approach. This showed a multitude of production steps and extremely complicated processes, as well in actual execution as in planning.

During research on the actual cost of defects, the ERP-system BAAN turned out to be a suitable possibility to determine the actual cost of defects and where those defects were noticed. The quality information system KIS turned out to be of lesser value due to lack of complete and accurate data. Through several queries a method was designed to extract the relevant data from BAAN. This led to an estimate for the cost of defects for 2005 between 1.8 and 1.9 million euro, considerably higher than the principal's initial estimate of 0.2 million euro. The percentage of cost of defects in relation to total cost showed a steadily rising value up to 12.5% by the middle of 2005.

Furthermore, with the queries, a financial ranking of failing processes was generated. In this, the production step where the defects were first noticed, was leading. The ranking has been one of the guidelines for further research.

The focus of phase two was the removal of causes of failure for (sub)processes, the assurance of noticing failure of (sub)processes and the assurance of removal of causes of failure for (sub) processes. During the research, most causes of failure were already removed. The technical know-how to solve problems was apparent within Stork Fokker AESP. Assurance of swift noticing and solving of problems appeared to be lacking.

For further research, the production process was generalised and the transformation function, the comparison function and adjustment function and the evaluating and initiating function were again regarded through the method of systems approach. Later on, these schemes were combined to an overall scheme. The release of production orders turned out to be prone for manipulation, the initial handling of non-conformities was incorrect and, in general, there was hardly any insight in and sound approach for defects.

To end this undesired situation, the concerning processes were redesigned and improved as follows.

- All orders are to pass quality control at selected moments.
- The team leaders are to act upon defects according to standards and determine if further action is necessary.
- The standard for further action is to be clear. To simplify use of this standard, a change must be made from actual cost to estimated cost. This estimated cost is to be clear from the production order itself.
- The ERP-system BAAN and the quality information system KIS are to be cross-referenced. This will keep the data in KIS current and valid.
- The management information is to be clear. Queries from BAAN can give an insight in, for example, the percentage of cost of defects in relation to total cost. According to desire, these data can be extracted per department, unit or even a single machine.
- An adjustment function is to be created. This function should analyse and evaluate data from KIS and act upon it. This function ought to be placed within the quality department.

The total cost of these improvements is estimated at € 200.000 and the improvements are expected to reduce the cost of defects to 50%. Due to the roughness of these estimates, it is advised to monitor as well cost as benefits strictly.

Finally it is advised to let speed of implementation prevail over the wish for further and deeper research.