

A case study on final inspection result in garment products

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Quality can be expressed as one of the key factors of business sustainability in the apparel industry. There are several quality controlling mechanisms to ensure product quality. Final inspections, which is the final step of the quality controlling process at supplier level, has to be carried out according to customer guidelines. Obtaining a final inspection pass rate of 100% is vital for suppliers. However, for the selected supplier of the study, it is currently maintained at 96%. The focus of the research is to ensure that the pass rate of inspections achieves its full rate. The main objective is to identify the critical factors related to their final inspection result. As the initial step, customer wise inspection systems and different quality processes in garment manufacturing were reviewed. Then a secondary database was created containing 1857 inspections recorded over six months. The collected data includes internal data from an online database and manual records. Initially, there were thirteen different variables, among which, some values were defect ratios measured from different quality control points such as In line, End line, etc. Other important nominal categorical variables such as Customer, Production plant, etc., were also included. Based on descriptive analysis, chi square and simple logistic regression test results, eight independent variables were selected for the final model. Since the dependent variable is binary with rare events, the model was built in logistic regression using a complementary log link function. As per the model outcome, five variables (Customer, Region, Inspection type, End line defect rate, In line defect rate) were identified as significant. The confusion matrix, deviance statistics and residual plots validate model accuracy and adequacy. Considering factor coefficients, the supplier can create customized quality control limits at production. The significant factors should be maintained properly to ensure that the final inspection pass rate is at its maximum level.

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