PREDICTIVE MODEL FOR XYZ APPAREL MANUFACTURER TO FORESEE ON-TIME DELIVERY DEVIATIONS DUE TO ISSUES IN PRODUCTION PROCESS

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Abstract

The key objective of this research study is to identify the possibility of committed delivery deviations due to process failures within the apparel manufacturing process. Primarily author is focusing on a XYZ company domain which is established in Sri Lankan apparel manufacturing and exporting industry. Being able pre-judge on delivery deviations generates a competitive advantage considering the aggressive nature of the current business environment. Such advantage will allow to utilize business resources of XYZ in the optimum manner and maintain a positive customer relationship as well.

As per the investigation done within this research study, author was able to identify key factors which has a direct impact on the planned production end date deviation. Predominantly author's key focus was to filter out factors which is within the initial phase of the process when the production is initiated and also factors which can be optimized as per the requirement of the manufacturing process. In deriving most influential factors, a comprehensive literature review is done via referring multiple studies from diversified domains. Based on such basis and a study on the apparel manufacturing process, most influential features are identified to evaluate whether delivery commitments can be achieved. Across the study, the hypotheses were developed in relation to these identified variables. Furthermore, a conceptual framework is designed for the identified variables to reflect the relationships and dependencies of each variables and the outcome of it.

To progress on the study on XYZ company, PO wise order details are extracted on the variables and the outcomes based on past order placements and trained models using related theories. For the construction of models, a statistical approach was followed which covers the areas of predictive modelling, classification techniques, supervised unsupervised learning etc. Upon which, with the usage of software tools and techniques of R language based R Studio platform, model deployment was completed.

Within the study, all identified parameters signifies how an order has processed through the activity sequence of the business to ensure the order is delivered as per the