A NEW PRODUCT IMPLEMENTATION MODEL FOR THE PNEUMATIC TYRE MANUFACTURING PROCESS

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DECLARATION

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Abstract

Pneumatic tyre manufactures face the problems related to the life cycle of products at product launching stage. In an effort to improve timeliness and effectiveness, pneumatic tyre industry is experimenting with different best practices in their new product implementation processes.

This research aims to develop a model for new product implementation for pneumatic tyre industry using a framework based on quality function deployment (QFD). It supports the development of customer focused, agile products and to meet customer expectations in terms of innovation and customisation, quality and competitive price.

During this research, new product implementation models were studied. Some issues of existing new product introduction processes were discussed and new product implementation model was proposed based on the literature, and case studies were used to support the development of the model. A QFD structure was introduced to identify relationships between product design factors and issues of each sub process. These relations were described as weak, moderate and strong. Then the proposed model was validated using case studies.

When the proposed model is applied to the new tyre development, communication path of all relevant parties strengthened by four times, new product implementation time reduced by 20 percent and cost of implementation reduced by 30 percent. In this new model issues can be identified at the product design stage.

This model can be modified to use for new product implementations of any other product. This system can also be modified using computerized system with artificial intelligence to make it more attractive to the users.

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LIST OF ABBREVIATIONS

CE - Concurrent Engineering

FMEA - Failure Mode Effect Analysis

FFE - Fuzzy Front End

QFD - Quality Function Deployment

HOQ - House of Quality

SPC - Statistical Process Control

VA/VE -Value Analysis or Value Engineering

JIT -Just-In-Time

LLT -Less Liner Thickness

QC - Quality Checkers

SM SW - Short Mould on Sidewall

OD – Outer Diameter