

Efficiency Of Product Development Process As A Factor Determining Effectiveness Of Implementation Of Subsequent Project Phases Acc APQP

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Currently, with high market requirements for the final product, which is a car, most companies in the automotive industry are under great pressure related to minimizing the time for product development and high expectations regarding its reliability. In many cases, even a properly implemented APQP (Advanced Product Quality Planning) process must be supported by additional tools intended to increase the efficiency of implementing subsequent APQP phases; this is especially important for innovative products [1].

As part of the conducted research, a structured process of developing a new product or introducing changes to an already produced one was developed. The developed new tool is based on the assumptions of the P-D-C-A cycle (Plan-Do-Check-Act) and Design for Six Sigma. The main assumption when developing the new tool was to ensure the universality and simplicity of its use, regardless of the type of component being developed and the APQP phase in which the project is. The tool divides the product development process into 5 phases (Identity, Define, Design, Optimize, and Validate); the transition to the next phase requires the completion of certain activities in the previous phase [2].

Using the new tool is especially important when the client changes the design requirements, or the validation results are not acceptable; this requires introducing changes to the product without affecting project timing. The proposed solution aims to eliminate the possibility of omitting significant activities, which could negatively affect the further implementation of the project [3].

1. Tokmakova, T. V., et al. "Improving Product Quality by APQP and PPAP." Russian Engineering Research 42.3 (2022): 286-287.
2. Dzulinski, A. C., A. Braghini Junior, and D. M. G. Chioli. "Design for Six Sigma: A Review of the Definitions, Objectives, Activities, and Tools." Engineering Management Journal (2022): 1-20.
3. Rudolf, Ł., Roszak, M. T. "Tools of product quality planning in the production part approval process." Archives of Materials Science and Engineering 118.2 (2022): 67-74.