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Concurrent Design Strategy in Product Design and Development

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Abstract:

The increasing rate of technological advancement and dynamism in the local and global markets highlights the need to deliver developed products in record lead times. Considering design issues in parallel with production and maintainability considerations is one of the most promising ways to improve product quality. Where relevant knowledge and information are integrated to effectively influence product development. Moreover, the development cycle is reduced by eliminating the cost of multiple iterations compared to a sequential design in which each stage is considered separately. The main objective of the research is to emphasize the effective role of simultaneous engineering and simultaneous design in improving the efficiency of the development process, reducing costs, and improving the quality of the final product, which contributes to raising the competitiveness of metal products factories. While the problem is summed up in reaching the extent of application of these strategies, and the level of availability of requirements for their application in mineral products factories in various fields in Egypt. Is there a positive relationship between the application of these strategies and the reduction of production costs and the schedule of the design and development cycle? This was done by conducting a questionnaire for a sample of Egyptian factories specialized in the field, and the most prominent results were that most of these institutions followed simultaneous engineering strategies in design and production by 55.6%, and their contribution to reducing production costs, enhancing quality, and improving the competitiveness of the institution. Some organizations still need a common design platform to store and synchronize design variables in an orderly and efficient manner. Accordingly, the research recommends supporting institutions that are still in the process of transformation and change from the traditional design and development process to synchronization in the performance of activities and processes related to product development, and the need to activate permanent channels of communication between the institution's management and the multidisciplinary team and support it by providing the capabilities and powers to accomplish the work efficiently.

Keywords:

Experimentation; Experimental; Advertising Message; Social Media; Mind Map

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