Paper title: **Study of Production Scenarios with the Use of Simulation Models**

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1 Summary

1.1 Motivation/purpose/aims/hypothesis

The motivation behind the study of production scenarios with the use of simulation models is to explore the potential benefits of computer simulation in production engineering. The purpose is to analyze different production scenarios and their impact on efficiency, flow, and overall performance of the production system. The aim is to provide insights into the effects of varying batch sizes on production efficiency and to determine optimal production scenarios.

1.2 Contribution

The study contributes to the understanding of how computer simulation models can be utilized to analyze and optimize production scenarios. It provides valuable insights into the impact of batch size variations on production efficiency and offers a framework for decision-making in production planning and system optimization.

1.3 Methodology

The methodology employed in the study involves the creation of a simulation model based on a real production department using Tecnomatix Plant Simulation software. The input data is derived from known technological information and material flow during production. The simulation experiments are conducted to analyze the influence of batch size variations on the efficiency of the production system.

1.4 Conclusion

The study concludes that the highest efficiency was achieved when the system processed elements in 15-item batches. It emphasizes the importance of considering batch size variations in production planning and highlights the potential of computer simulation models in optimizing production scenarios.

2 Limitations

2.1 First Limitation/Critique

One limitation of the study is that it focused on a specific set of production scenarios and may not capture the full range of potential scenarios and their effects on production efficiency. The research could benefit from a broader scope to encompass a wider variety of production scenarios and their implications.

2.2 Second Limitation/Critique

Another limitation is the assumption of constant machine availability for all scenarios, which may not accurately reflect real-world production environments. Variations in machine availability could significantly impact the results and should be considered in future studies.

3 Synthesis

The ideas presented in the paper demonstrate the potential applications of computer simulation models in optimizing production scenarios. The study's findings can be applied to real-world production environments to improve decision-making in production planning and system optimization. Future scopes include expanding the research to encompass a wider range of production scenarios and considering additional factors such as machine availability to provide a more comprehensive understanding of production system dynamics.