Simulation Analysis to Compare and Improve Throughput for Automobile Insurance Claim Process

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Abstract

Effectively managing insurance claims is a complex business, especially with a rather complex approval system which involves multiple decision points. The focus of this abstract is the "automobile insurance claim process". The objective is to better understand the effects any organizational changes would have on customer service. Moreover, explore how an introduction of an alternate online registration system, in addition to the traditional system will impact the entire process. The most effective way to test potential changes and understand their impact across variables would be to use a discrete event simulation model. Arena simulation tools are used for this purpose. The entire workflow will be first modeled using Arena and the results will be compared across the various simulation models that are developed. The simulation results are used to identify areas of improvement. The analytical framework combining simulation and design of experiment (DOE) is used. The objective is to identify bottlenecks and improve the key performance indicators. The study will focus on increasing the number of claims processed for a given period of time(throughput). Subsequently, the aim is to increase the number of claims accepted for processing (number in), reduce cycle time and remove bottlenecks. The simulations are executed for 40 hours, with five replications and metrics are for a 95% confidence interval. The simulation results are used to identify areas of improvement. Once the areas of improvement are identified, the next step is used to develop models to make the corresponding corrections. Five scenarios are used to understand and document the limitations and cost requirements of the various models. Simulations are run across the modified models to confirm cycle time and throughput improvements.

Keywords

Bottleneck identification, resource reallocation, online adoption, simulation and design of experiment

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Biography

Devi Suruliraj is a graduate student pursuing her graduate degree in Engineering Technology from Lawrence Technological University, Michigan, USA. Devi has a bachelor degree in Electrical and Electronics Engineering from Mepco Schlenk Engineering College, India. Devi has more than 5 years of experience working as a lecturer at Odaiyappa College of Engineering and Technology.