

The impact of delay structure on system performance.

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In a complex system, the impact of delays is not simple. A complex system involves a number of delays interrelated in a certain structure to determine the system performance. Accordingly, the impact of a single delay on the system performance is not straightforward. It depends on its relations to other delays included in the system.

This paper discusses the impacts of delay structure on the system performance to base investment policy towards better system performance. Three basic types of delay structure, namely parallel, serial, and mix structures, and their impacts on system performance are examined. System dynamics models are developed to facilitate the examination. The results are expected to provide a comprehensive consideration to base more effective and efficient resource allocation, preventing organizations from unnecessary investment in reducing delays which are actually insignificant to the improvement of system performance.

Keywords: Delay structure (parallel, serial and mix structures), resource allocation, system performance.