

## A Study on the New Weapon Requirements Analytics Using Simulations and Big Data

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**Abstract :** Since many weapon systems are getting more complex and diverse, various problems occur in terms of the acquisition cost, time, and performance limitation. As a matter of fact, the experiment execution in real world is costly, dangerous, and time-consuming to obtain Required Operational Characteristics (ROC) for a new weapon acquisition although enhancing the fidelity of experiment results. Also, until presently most of the research contained a large amount of assumptions so therefore a bias is present in the experiment results. At this moment, the new methodology is proposed to solve these problems without a variety of assumptions. ROC of the new weapon system is developed through the new methodology, which is a way to analyze big data generated by simulating various scenarios based on virtual and constructive models which are involving 6 Degrees of Freedom (6DoF). The new methodology enables us to identify unbiased ROC on new weapons by reducing assumptions and provide support in terms of the optimal weapon systems acquisition.

**Keywords :** big data, required operational characteristics (ROC), virtual and constructive models, weapon acquisition

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