Title: Data-Driven Test and Evaluation
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Abstract: The Office of the Secretary of Defense has proposed a Systems Engineering Modernization program to integrate the various SE-related disciplines of Mission Engineering, Digital Engineering, DEVSECOPS, MBSE, MOSA, and others. Buried in this work is Test and Evaluation (T&E), but is clearly a critical discipline that must be address in this project. To integrate these different aspects of engineering, and in particular systems engineering across the entire lifecycle, we need a common ontology to link the information developed in each area. Developing one from scratch has been tried many times before. In each case, the ontology found limited success. The main reason for this lack of universal acceptance, the author believes, comes from the complexity of the ontologies or languages proposed to meet this goal (DM2, SysML, IDEF, BPMN, etc.) and the fact that these languages do not provide a complete ontology for all of systems engineering. What is required is a language that is simple to understand, yet broad enough to meet this wide range of need. Fortunately such a language already exists. This paper will show how this language meets the needs of each of these disciplines or can be easily extended to meet those needs. This language is currently being used within DoD to develop everything from a new Portfolio Management Office to detailed message modeling and performances analysis for high technology test beds. This paper also defines the term Data-Driven Systems Engineering (DDSE). This definition demonstrates the value of DDSE to all the stakeholders. DDSE provides the integrating methodology for SE Modernization and how that supports Test and Evaluation.