

A Life Cycle for Modeling and Simulation

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Presentation Summary

Conducting a successful Modeling and Simulation (M&S) project poses significant challenges for engineers, analysts, managers, stakeholders, and sponsors. The use of an effective life cycle is critically important to meet the challenges. This keynote speech presents a comprehensive M&S life cycle created by the speaker. The M&S life cycle describes the blueprint (detailed plan or program of action) of an M&S application during its lifetime (from birth to retirement), and provides structured guidance to an M&S developer (engineer), analyst, manager, organization, and community of interest. The M&S life cycle specifies the work products to be created under the designated processes together with the integrated verification and validation and quality assurance activities. The M&S life cycle is critically needed to modularize and structure the M&S development and provide valuable guidance for project management. The M&S life cycle also identifies areas of expertise in which to employ qualified people. This keynote speech identifies which process to execute first to start an M&S project, which processes to execute one after the other, and which work products to produce one after the other throughout the entire life cycle until the project is successfully completed. The knowledge of such a comprehensive M&S life cycle is crucially needed to be able to conduct a *successful* M&S project.

Brief Biography

Osman BALCI is a Professor of Computer Science at Virginia Polytechnic Institute and State University (Virginia Tech), USA. He received B.S. and M.S. degrees from Bogaziçi University (Istanbul) in 1975 and 1977, and M.S. and Ph.D. degrees from Syracuse University (New York) in 1978 and 1981. Dr. Balci serves as ACM SIGSIM Chairman (2008-2011) and Editor-in-Chief of ACM SIGSIM M&S Knowledge Repository. He served as the Editor-in-Chief of two international journals: Annals of Software Engineering (1993-2002) and World Wide Web (1996-2000). He currently serves as an Area Editor of ACM Transactions on Modeling and Computer Simulation and Modeling and Simulation (M&S) Category Editor of ACM Computing Reviews. He served as an elected Director at Large of the Society for M&S International (2002-2006). Most of Dr. Balci's work has been funded by the U.S. Navy since 1983. From 1998 to 2004, he provided technical services for the U.S. National Missile Defense and Missile Defense Agency programs in the areas of M&S verification, validation and accreditation (VV&A) and complex system independent verification and validation (IV&V). His current areas of expertise center on network-centric software engineering; architecting network-centric software-based systems; software IV&V; M&S methodology; M&S VV&A, testing, certification, credibility assessment, and quality assessment.