

## Chapter 3 – DESCRIPTION OF THE FEDEP

IEEE 1516.3, Recommended Practice for High Level Architecture (HLA) Federation Development and Execution Process (FEDEP), describes an approach for developing M&S federations based on sound systems engineering principles and serves as the foundation for the VV&A Overlay. Figure 3-1 provides a high level view of the major activities associated with the FEDEP. A description of these steps follows Figure 3-1.

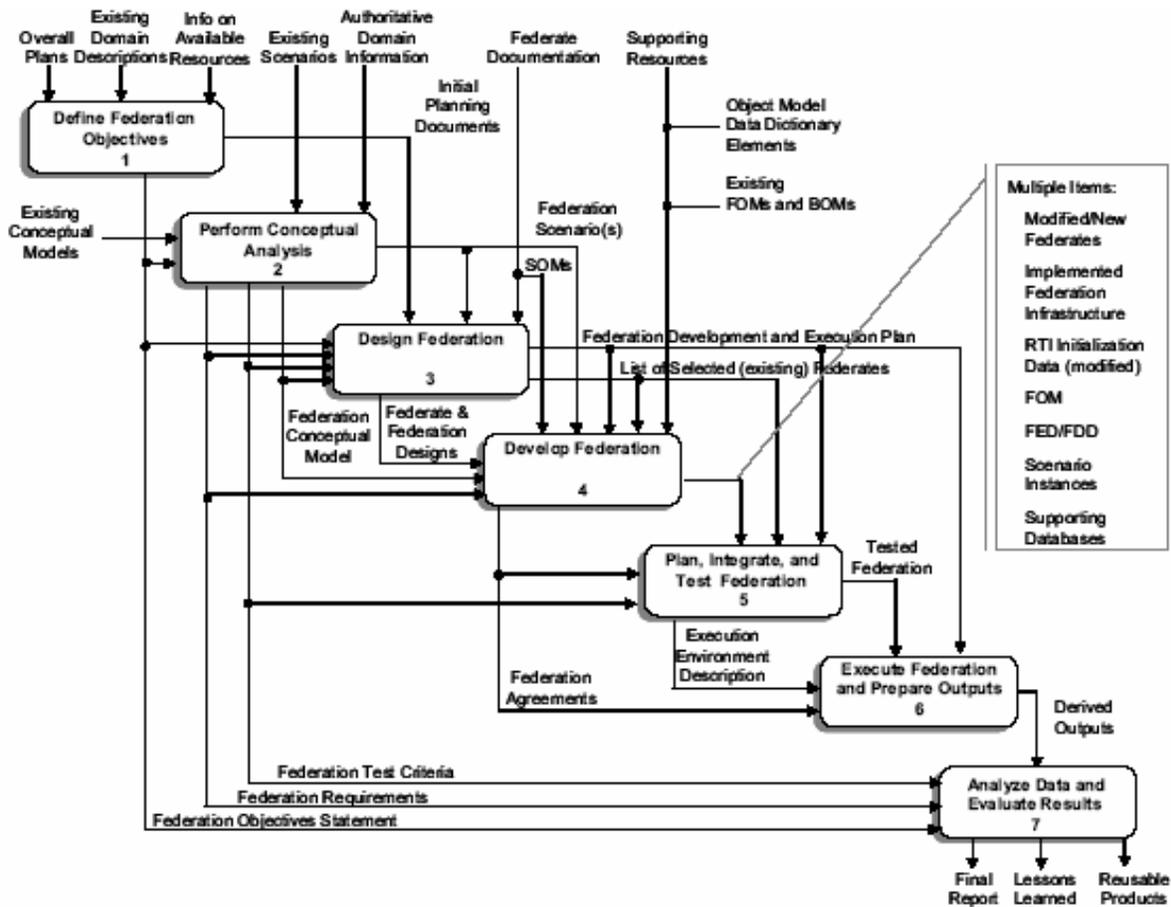


Figure 3-1: Top-Level View of the FEDEP.

**Step 1 – Define Federations Objectives.** The purpose of step 1 of the FEDEP is to define and document a set of needs that are to be addressed through the development and execution of an HLA federation and to transform these needs into a more detailed list of federation objectives.

**Step 2 – Perform Conceptual Analysis.** The purpose of this step of the FEDEP is to develop an appropriate representation of the real world domain that applies to the federation problem space and to develop the federation scenario. It is also in this step that federation objectives are transformed into a set of highly specific federation requirements that will be used in federation design, development, testing, execution, and evaluation.

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**Step 3 – Design Federation.** The purpose of this step of the FEDEP is to produce the design of the federation that will be implemented in step 4. This involves identifying existing federates that are suitable for reuse, creating new federates and federate components (if required) allocating the required functionality to federates, and developing a detailed plan for federation development and implementation.

**Step 4 – Develop Federation.** The purpose of this step of the FEDEP is to develop the Federation Object Model (FOM), modify federates if necessary, and prepare the federation for integration and test.

**Step 5 – Plan, Integrate, and Test Federation.** The purpose of this step of the FEDEP is to plan the federation execution, establish all required interconnectivity between federates, and test the federation prior to execution.

**Step 6 – Execute Federation and Prepare Outputs.** The purpose of this step of the FEDEP is to execute the federation and to pre-process the output data from the federation execution.

**Step 7 – Analyze Data and Evaluate Results.** The purpose of this step of the FEDEP is to analyze and evaluate the data acquired during the federation execution, and to support the results back to the user/sponsor. This evaluation is necessary to assess that the federation fully satisfies the requirements of the user/sponsor. The results are fed back to the user/sponsor so that they can decide if the federation objectives have been met, or if further work is required.