

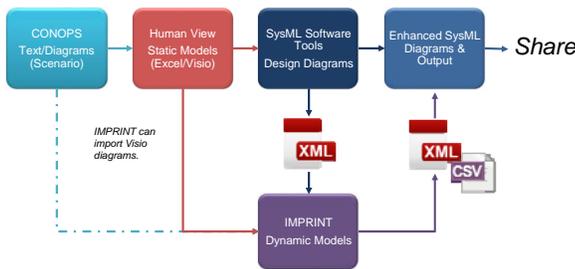


S&T Campaign: Human Sciences
Integration of Humans and Systems

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Research Objective

- Integrate a task network modeling tool with SysML diagrams and Human View products to produce a comprehensive systems engineering modeling approach to support the performance of early-acquisition system analyses by simulating human performance and predicting operator workload



Components of an integrated SE/HSI modeling process

Challenges

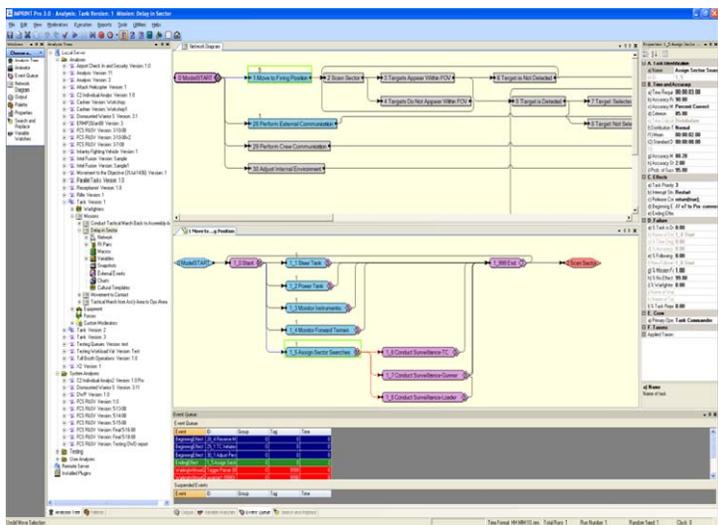
- Overcome the divergent vocabulary, modeling approaches, and goals between human performance simulation and SE analysis tools
- Identify the data and information contained in SysML and Human View that can be shared with IMPRINT

ARL Facilities and Capabilities Available to Support Collaborative Research

- Software Assessment and Usability Laboratory (SAUL)
 - Reconfigurable laboratory space suitable for empirical data collection and software assessment and usability tests
 - Located with the Methods, Tools, and Analysis Branch
- Improved Performance Research Integration Tool
 - Predict human performance using discrete event simulation
 - Optimize human and system performance using integrated products from Model Based SE (MBSE) and Model Based HIS
 - Set realistic human and system requirements for conceptual system designs
 - Assess effects of alternate system-crew function allocations on operator and crew workload
 - Assess required maintenance man-hours Systems Modeling Language (SysML)
 - General purpose visual modeling language for systems engineering applications
- Human View
 - Data-based approach to capturing the interaction of the human with the system aligned with DoDAF Version 2.0
- Produced a prototype version of IMPRINT with a feature to import activity diagrams from a SysML document into a task network
- Activity diagram import demonstrates feasibility of further integration

Complementary Expertise/ Facilities/ Capabilities Sought in Collaboration

- Human factors experts interested in tool development, human performance modeling, and Systems Engineering methods including SysML tools
- Expertise in cultural factors and how they contribute to effective performance in cross-cultural settings with a goal of lessening the impact cultural performance demands have on Soldiers operating under conditions of cultural differences



A task network analysis developed in IMPRINT