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VSIL

Virtual Systems Integration Laboratory

The **Virtual Systems Integration Lab** (VSIL) is an integrated simulation platform for the development, modification, and prototyping of vehicle systems and components. VSIL was developed by Cybernet and the U.S. Army Tank-Automotive Research Development and Engineering Center (TARDEC). VSIL leverages commercial virtual-design technology pioneered in the automotive industry to simulate Army vehicles and perform rapid trade-off analysis for soldier safety and operational effectiveness. VSIL tests subsystems in new designs and is easily maintained because it reuses existing components and subsystems. VSIL includes the **Virtual Systems Editor** (ViSE) tool for configuring, executing, controlling, and monitoring simulations.

Using VSIL, users can:

- Consolidate simulation tools currently in use
- Reduce the time, cost and resources needed for developing a new system
- Design and work with virtual models
- Enhance vehicle performance and soldier safety
- Reduce cost and improve efficiency in the hardware design process
- Enable tradeoff analysis for cost and performance evaluation early in the design process
- Reduce demand for costly prototypes, resulting in lower non-recoverable costs
- Collaborate under the design environment for multi-designer input and analysis

VSIL deployments support analysis, allocation and tradeoff evaluation for:

- Improved soldier survivability/protection
- Life cycle management
- Vetronics (Data Control and Data Distribution, Computing and Knowledge Resources, Controls and Displays, Power Management and Distribution)
- Intelligent Agents (human/machine)
- Workload Allocation (human/machine)
- Physical Allocation (power, weight, volume, thermal, and other environmental metrics)
- Planning and Preparation
- Logistic planning

vsil.cybernet.com

VSIL-DS12-120113 (PL/GB/KT)

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VSIL-DS13-130109 (PL/BAJ)

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VSIL leverages the latest modeling and simulation techniques from both the military and automotive industries to create a virtual simulation platform for military vehicle systems design.

Govt. Point of Contact:

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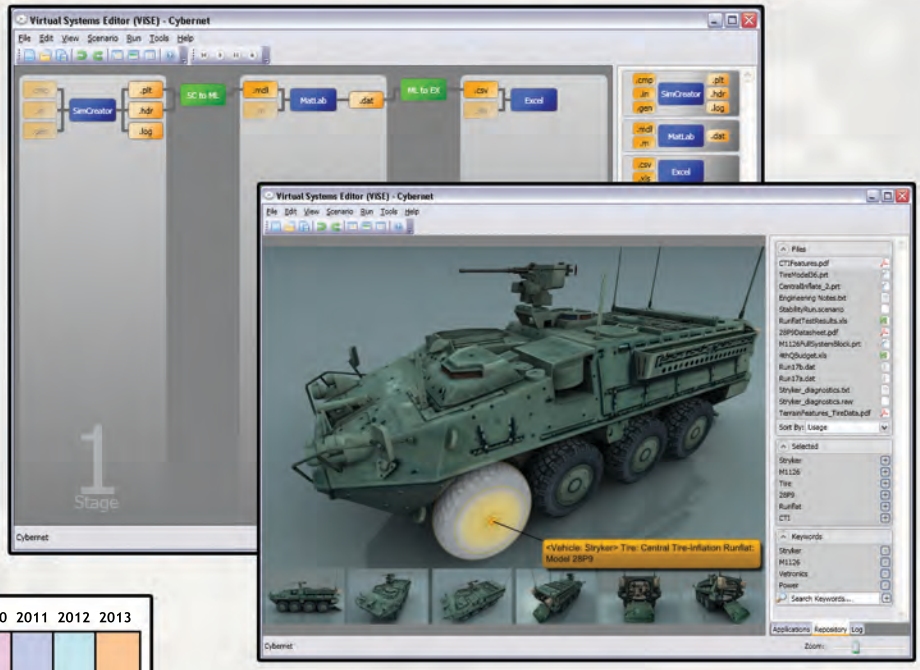
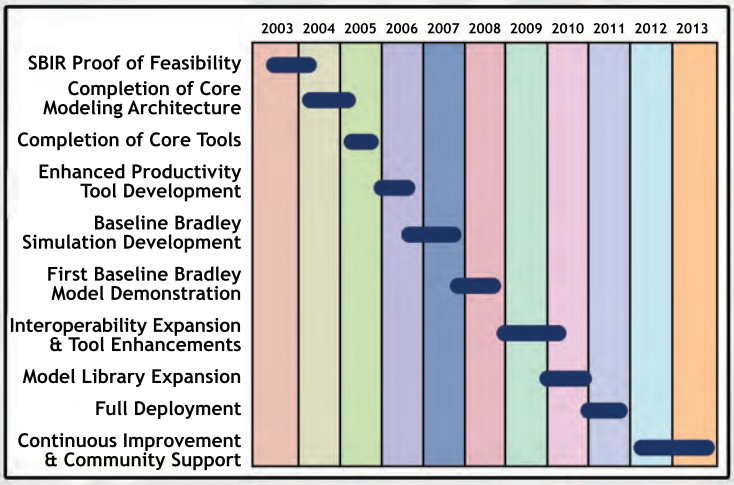


Development Timetable:



VSIL Significance:

- VSIL is required to improve soldier protection
  - Rapid changes in tactics by asymetric threats require rapid vehicle changes in order to keep pace
  - Current modification methods are too slow to meet this need
- VSIL is required to reduce vehicle development costs
  - VSIL enables rapid trade-off analysis of vehicle components
  - VSIL enables information reuse between vehicle programs
- VSIL is required to cost-effectively test vehicle changes before field deployment

Future Developments:

- Additional simulation data translation modules
- Expanded model library for baseline Stryker, Bradley, and MRAP vehicle simulations
- Automated data and trend analysis
- Deployment of VSIL in a new vehicle system development

Benefits:

- Improves warfighter safety and effectiveness by developing better, safer vehicles
- Promotes reliability of vehicle systems through enhanced virtual testing
- Ensures maintainability by reusing existing, tested subsystems in new designs

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