Adventium Labs
Analysis Tool Capabilities

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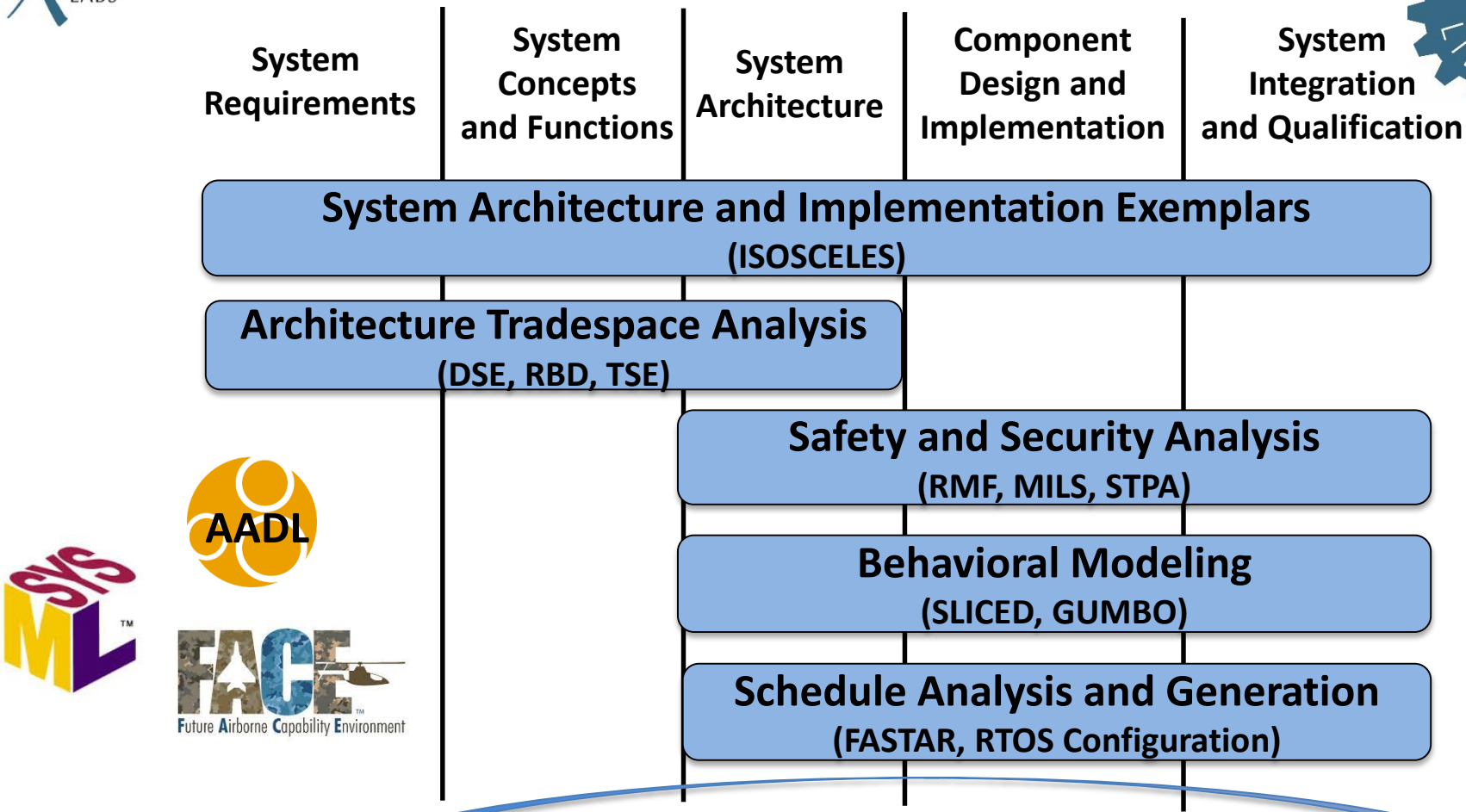
Relevant Contract: W911W6-17-D-0003

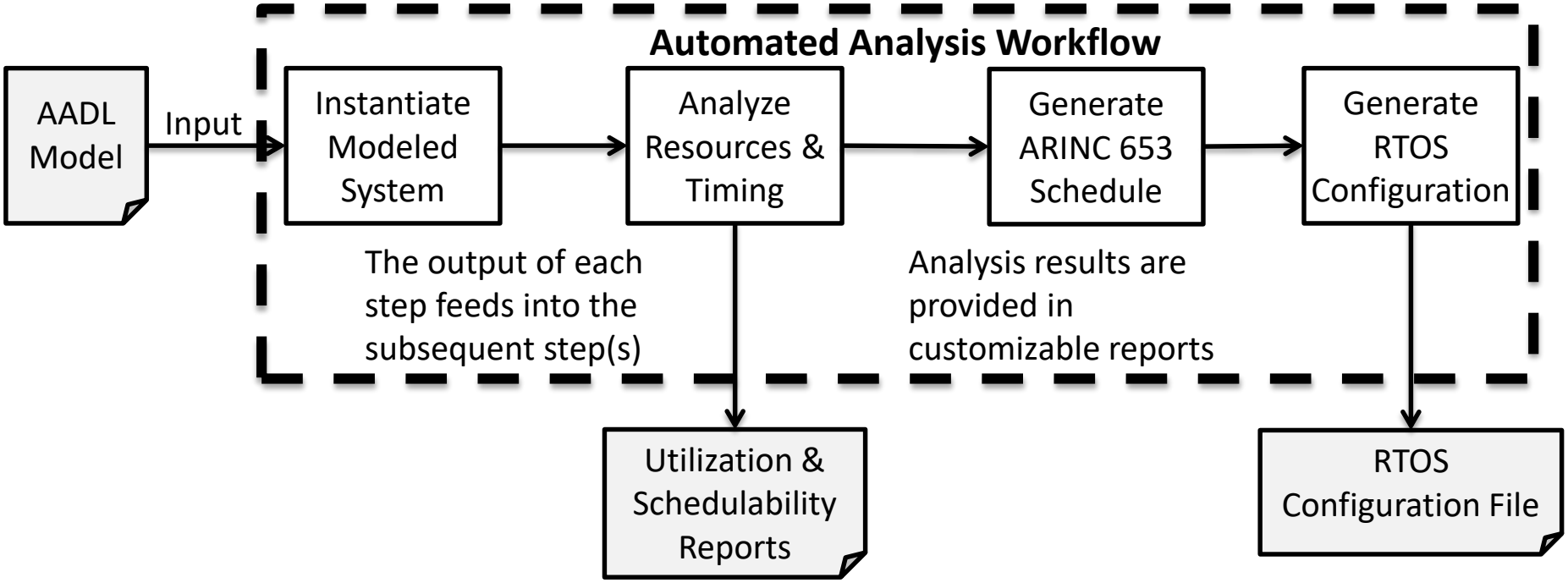
Embedded Software System Development



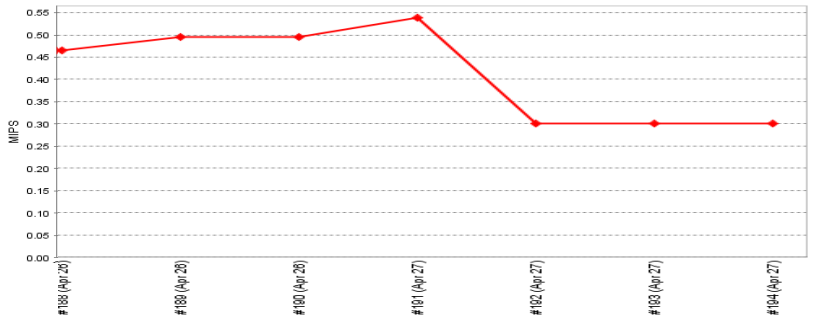
Model-Based Digital Engineering Infrastructure

- Integration of multiple analyses into a shared workflow.
- Continuous virtual integration with mixed developer models.
- Tools are OSATE plugins and support “headless” operation, executing directly from the command line. Select tools standalone Java binaries.
- Automated model verification, report generation, and code generation.

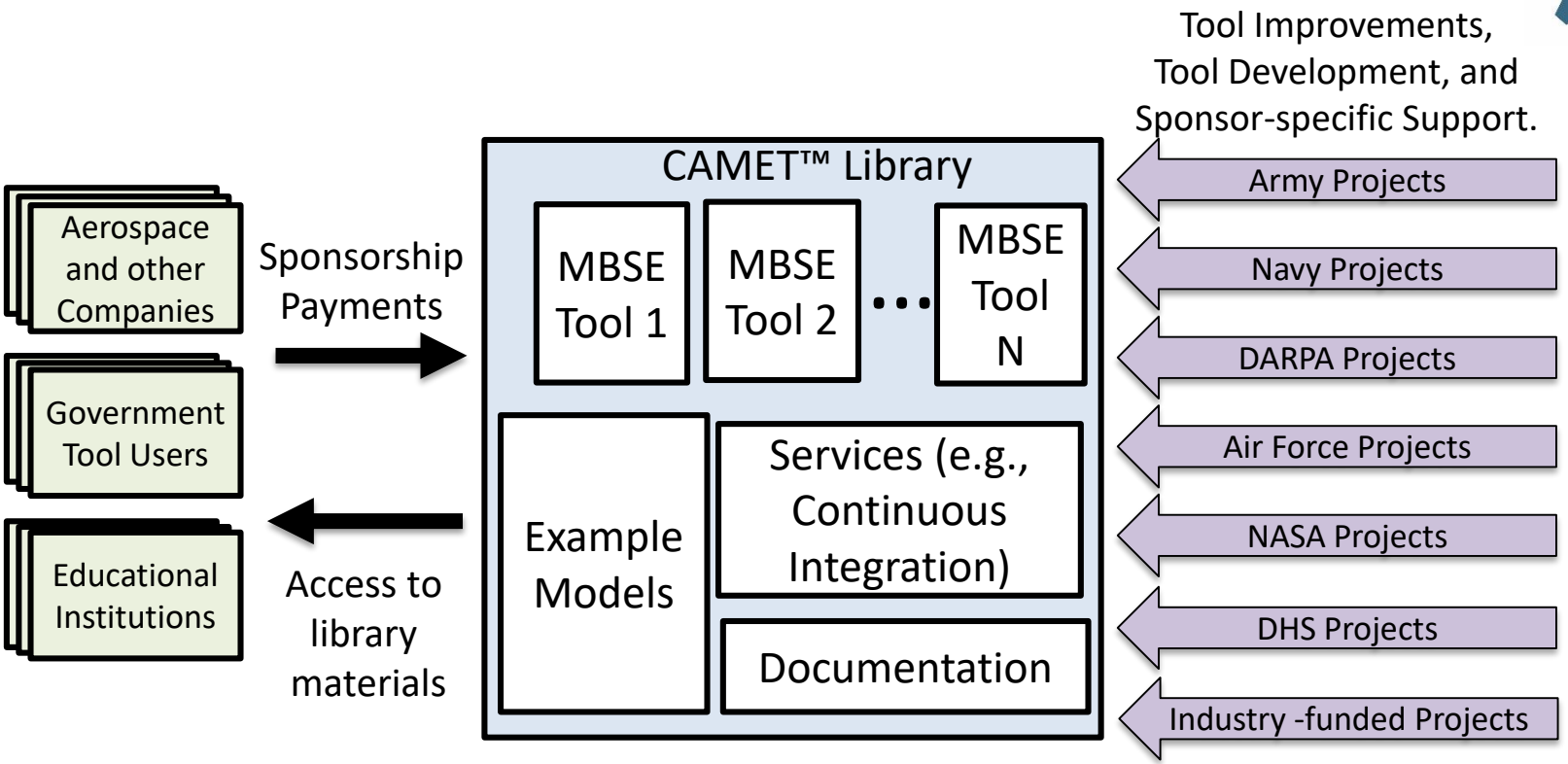
CAMET Supports Development Workflows



Continuous Virtual Integration and Testing (CVIT) server dashboard shows analysis result trends as models are elaborated with increasing detail.



Curated Access to Model-based Engineering Tools (CAMET) Library



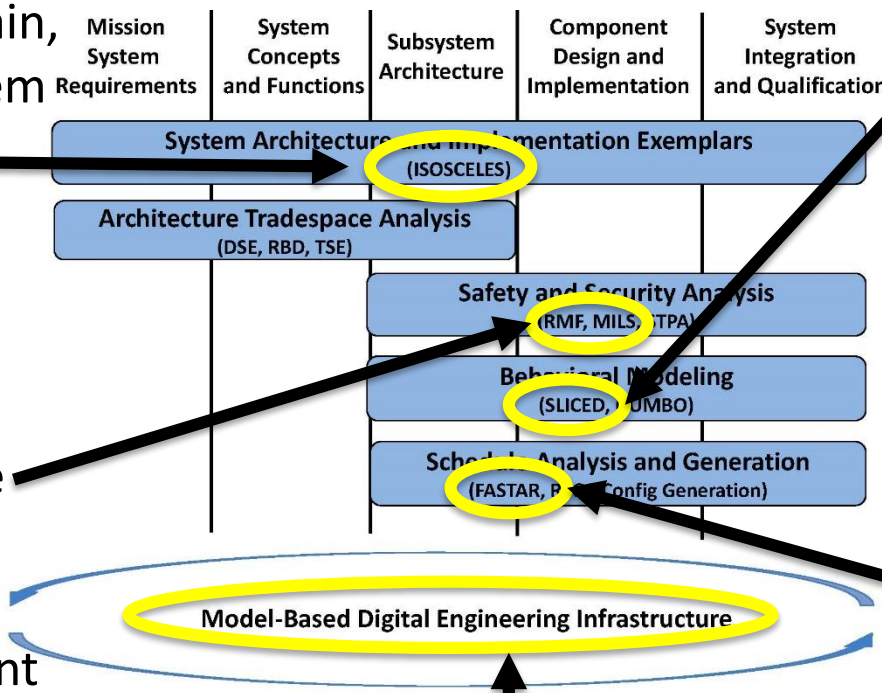
- ✓ Consortium-like business model, all sponsors benefit as tools are updated.
- ✓ Sponsorships start at $2,500/year for up to five users. Educational users may qualify for free access.
- ✓ Third party tools can be included within CAMET Library, e.g., Open Source tools.
- ✓ Balance the predominantly open source AADL tool community with the need to fund ongoing development.

Adventium's ACVIP Capabilities beyond Analysis Tools and Infrastructure

- AADL Template:
  - Traces to the Joint Common Architecture Functional Reference Architecture (JCA FRA).
  - Shows how Key Performance Parameter (KPP) requirements are captured in a hardware/software architecture model.
- ACVIP AADL Modeling and Analysis (M&A) Handbook.
  - Supports creating the model management plan, a required deliverable on the JMR MSAD Capstone Demonstration.
- Mentoring and Education
  - Tutorials on the integrated use of AADL and the FACE Technical Standard.
  - Draft Annex on use of FACE and AADL together.
  - Example-driven, leveraging open source tools and example models to introduce and explore concepts in cyber physical systems.
- System Engineering Support
  - Direct assistance in applying model-based system engineering to developments, incorporating and extending CAMET Library tools.
  - Shadow modeling efforts to document potential savings of using a MBSE approach like ACVIP.

Afternoon Demos

ISOSCELES: Safe and secure device reference architecture, tool chain, and embedded system code generation.



SLICED: Behavioral analysis to detect errors in messaging patterns/paradigms, sampling rates, and latency requirements.

MILS Tool: Analyze system models for compliance with Multiple Independent Levels of Security (MILS) properties.

FASTAR: Schedulability analysis using multiple different timing and resource analysis tools and schedule generation.

CVIT: Continuous integration and testing applied to model-based engineering and analysis.