**WHEN**

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Risk Level</th>
<th>Measure of Success</th>
<th>Ending TRL</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test completeness at method level</td>
<td>Low</td>
<td>SCIAT demonstrated in relevant environment</td>
<td>6</td>
<td>February 2017</td>
</tr>
<tr>
<td>Test completeness at class level</td>
<td>Low</td>
<td>Prime demonstrates SCIAT within operational environment</td>
<td>7</td>
<td>September 2017</td>
</tr>
<tr>
<td>Test completeness at subsystem level</td>
<td>Low</td>
<td>Prime qualifies SCIAT through test and demonstration</td>
<td>8</td>
<td>March 2018</td>
</tr>
<tr>
<td>Assimilation into AN/SPY-6 testing process</td>
<td>Low</td>
<td>Prime using SCIAT on AN/SPY-6 program</td>
<td>9</td>
<td>August 2018</td>
</tr>
</tbody>
</table>

**WHAT**

**Operational Need and Improvement:**
Provide a means to shorten development times and reduce costs of maintaining software systems without sacrificing quality or reliability by automating the change impact analysis to identify and prioritize test coverage that allows for the identification and fixing of problems earlier in the process.

**Specifications Required:**
- Achieve 20-30% reduction in T&E cost and schedule.
- Achieve >95% coverage of impacted code at all levels of regression testing.
- Increase system reliability with 3x increase in bug detection.

**Technology Developed:**
Software Change Impact Analysis Tool (SCIAT) is a software application that optimizes regression testing by performing analyses to determine the impact of software changes on tests to focus testing on each new build. SCIAT’s static analysis parses two builds of software source code to determine the changes and possible impacts. SCIAT’s dynamic analysis develops the traceability between the parsed source code and tests to recommend the tests to execute on the new build based on the code changes. SCIAT’s test completeness analysis identifies the impacted code not tested and recommends changes to the tests to insure test coverage of impacted code.

**Warfighter Value:**
The benefit of this solution is a reduction in regression testing, a significant increase in accuracy and efficiency of regression testing while reducing time and cost of software upgrades with improved quality and reliability.

**HOW**

**Projected Business Model:**
Trident Systems is productizing this software package to license commercially for both government and industry use.

**Company Objectives:**
Trident Systems is looking for partners, both industry and government, to evaluate SCIAT within their software development and quality assurance/testing processes and, if reduced costs with improved quality is achieved, commit to a full implementation.

**Potential Commercial Applications:**
This software tool could be used by any software development company, commercial or government, health care or defense, embedded software, Internet of Things or autonomous driving vehicles.

**Copyright 2017 Trident Systems Inc.**

**Contact:**
Mr Timothy Spafford, Project Manager

tms@tridsys.com (703) 267-6742