



U.S. Department of Homeland Security: Commercialization Office

Product Realization Chart

DHS S&T Portfolio	N/A			Basic Research			Innovation and Transition				
Technology Phase	Needs Assessment			Science			Technology Development		Product Development		
Technology Readiness Level (TRL)	N/A			TRL 1 – TRL 3			TRL 4 – TRL 6		TRL 7 – TRL 9		
Key Objectives	<ul style="list-style-type: none"> Identify S&T capability gaps (mission needs) requiring material solutions. Preliminary operational requirements are developed. Market survey. Technology scan. Assess technology-based solutions to address gaps. Develop rough order-of-magnitude (ROM) estimates of project cost and schedule. Investigate the value proposition of a product idea. Establish technical objectives and milestones. Conduct preliminary IP review. Ensure the qualification of tools, materials, processes, and suppliers as required. Provide a preliminary production plan. Develop preliminary marketing objectives and milestones. Initiation of Congressional Appropriations Memo, Technology Transition Agreements (TTA), Program Descriptions (Research and Innovation), and Feasibility Studies lead to Program and Budget Execution. List other objectives when defined. 	<ul style="list-style-type: none"> A program sponsor and end-users / requirements have been identified. Mission Needs Statement has been developed. Communication with end-users and customers has been initiated. Preliminary operational requirements have been defined. Program Management Vision has been developed. A Feasibility Study White Paper has been developed and accepted. (TRL 1 and 2) A threat, vulnerability, or gap has been identified. Initial risks have been identified. Develop and update the preliminary product plan. List other objectives when defined. 	<ul style="list-style-type: none"> End-user is involved in concept and requirements development. An empirical or theoretical design solution has been identified. Analytical studies to confirm the basic principles of the technology have been developed. Operational requirements analysis has been conducted; Operational requirements are applied to Functional Requirements. (TRL 2 and 3) System concept(s) / architecture have been assessed. Program Risk Assessment has been conducted; Risk Management Plan has been developed. (TRL 2 and 3) Program Cost Analysis has been completed and updated. (TRL 2 and 3) Preliminary Security Assessment has been conducted. Develop a Technology Roadmap. Refine the market assessment and technology scan. List other objectives when defined. 	<ul style="list-style-type: none"> Supplemental and alternate technologies throughout DHS S&T have been surveyed. Technology's physical validity has been proven in laboratory experiments. Program Management Plan (PMP) has been developed. Proof of Concept Plan has been developed. Manufacturing / production strategy has been developed. Develop Quality Control Plan to include standards conformance, reliability testing, etc. Develop Marketing Plan to include market size and research. List other objectives when defined. 	<ul style="list-style-type: none"> All required technology components are integrated for Proof of Concept. Proof of Concept is conducted. IPIT has been briefed on progress of the technology's development. The customer has been briefed on the Proof of Concept results. Functional Requirements Document has been finalized. SEMP has been finalized and updated. (TRL 4, 5, & 6) TEMP has been completed and updated. (TRL 4, 5, & 6) Configuration Management Plan exists. Risk Management Plan is updated. (TRL 4, 5, and 6) Program Cost Analysis is updated. (TRL 4, 5, and 6) Quality Assurance Plan exists. Program Transition Manager is engaged in transition planning. List other objectives when defined. 	<ul style="list-style-type: none"> ORD and CONOPS are developed. Security Assessment is updated. OMB 300 and Acquisition Plan have been completed (if required). IPIT has certified readiness for the transition of the Technology. Program Transition Manager has assisted in transition documentation development. Technology scan and market survey. (ongoing) Analysis of Alternatives is developed and updated. (TRL 5 & 6) Entry Criteria Checklist is completed and delivered to the TM. POD has been created, approved, and signed. (TRL 5 & 6) Director has approved the transition. List other objectives when defined. 	<ul style="list-style-type: none"> Germane to both Acquisition and Commercialization Execute a preliminary Technology Transition Agreement (TTA), or Technology Commercialization Agreement (TCA) as applicable Program Manager has been identified Successful T&E in a simulated operational environment has been conducted. End user / customer has been briefed on the results of T&E. Initial Security Guidelines have been developed. Draft Program Assessment Rating Tool (PART) plan exists, if required. National Environmental Policy Act (NEPA) plan / assessment, if required. Interoperability Assessment. List other objectives when defined. 	<ul style="list-style-type: none"> Germane to both Acquisition and Commercialization S&T and the end-user / customer have begun to develop transition planning document; Transition Plan has been developed. (TRL 7 and 8) Technology has been successfully demonstrated in an operational environment. (TRL 7 and 8) Updates (if required) have been made to the Operational and / or Functional Requirements Document. Risk Management Plan, Program Cost Analysis and PMP have been updated (as needed). Strategic Program Planning (e.g., Balance Scorecard) has been conducted. Operations and Maintenance Manual has been completed / updated. Security Manual has been developed. Interoperability has been demonstrated. Management Directives (MD) have been reviewed to assure compliance. List other objectives when defined. 	<ul style="list-style-type: none"> Germane to both Acquisition and Commercialization Technology components are form, fit, and function compatible with an operational system. Technology production has been addressed and planned by DHS and the end-user / customer. Training Plan has been developed and implemented. (TRL 8 and 9) Operational Test Report has been completed. Limited User Test (LUT) Plan has been developed. List other objectives when defined. 	<ul style="list-style-type: none"> Germane to both Acquisition and Commercialization All critical program documentation has been completed. Planning is underway for the integration of the next generation technology into the existing program components. End-user fully demonstrates the technology in CONOPS. Lessons Learned completed. After Action Review completed. Sustainment Plan is completed. List other objectives when defined. 	
Key Deliverables	<ul style="list-style-type: none"> Preliminary market assessment and technology scan. Congressional Appropriations Memo, Technology Transition Agreements, Program Descriptions (Research and Innovation), and Feasibility Studies lead to Program and Budget Execution. Preliminary product plan that assesses features, benefits, and risk. Initial plan for marketing, production, and sales control. List other deliverables when defined. 	<ul style="list-style-type: none"> Mission Needs Statement. Feasibility Study. Congressional Management Vision, or Description of Leap-ahead Capability. Written report of findings and recommendations (preliminary product plan). Feasibility Review meeting. List other deliverables when defined. 	<ul style="list-style-type: none"> Preliminary Operational Requirements Document (end-user / customer validation). Program Cost Analysis (updated). (TRL 2 and 3) Program Risk Assessment (technology, schedule, etc.); Risk Management Plan (TRL 2 and 3) Preliminary Security Assessment. Functional Requirements (draft). (TRL 3) Preliminary product plans (approved and ongoing). New Technology roadmaps (approved for further development and implementation). Updated market assessment and technology scan. List other deliverables when defined. 	<ul style="list-style-type: none"> Systems Engineering Management Plan (SEMP) draft. Proof of Concept Plan. Program Management Plan (PMP) draft. End-user / Customer Status Review. Detailed product and marketing plan. Quality control plan. Optimization Review meeting. List other deliverables when defined. 	<ul style="list-style-type: none"> Proof of Concept Report. Functional Requirements Document. SEMP (TRL 4, 5, and 6) TEMP (TRL 4, 5, and 6) Quality Assurance Plan. Configuration Plan Management. PMP (updated). (TRL 4, 5, & 6) Risk Management Plan (updated). (TRL 4, 5, and 6) Program Cost Analysis (updated). (TRL 4, 5, and 6) End-user / Customer Status Review. List other deliverables when defined. 	<ul style="list-style-type: none"> ORD and CONOPS. Security Assessment (updated). Program Definition Document (PDD). OMB 300 Capital Asset Plan. Acquisition Plan. Entry Criteria Checklist. Analysis of Alternatives. (TRL 5 & 6) List other deliverables when defined. 	<ul style="list-style-type: none"> Germane to both Acquisition and Commercialization Technology Transition Agreement (TTA), or Technology Commercialization Agreement (TCA) as applicable Initial Security Guidelines. Draft Program Assessment Rating Tool (PART) plan, if required. National Environmental Policy Act (NEPA) initial assessment, if required. Interoperability Assessment. List other deliverables when defined. 	<ul style="list-style-type: none"> Germane to both Acquisition and Commercialization Transition Plan (draft) Operational and Functional Requirements Documentation (updated). Risk Management Plan (updated). Program Cost Analysis (updated). PMP (updated). Strategic Program Planning (NEPA) (if conducted). Operations and Maintenance Manual. Security Manual. Finalized Interoperability Assurance Report. (TRL 7 and 8) Applicable Management Directives (MD), if required. (TRL 7) List other deliverables when defined. 	<ul style="list-style-type: none"> Germane to both Acquisition and Commercialization Limited User Test (LUT) Plan. Deployment or Transition Plan. Training Plan. Operational Test Report. Customer Acceptance Document. Initial Systems-level Metrics Assessment. List other deliverables when defined. 	<ul style="list-style-type: none"> Germane to both Acquisition and Commercialization Customer Feedback. Lessons-learned. After-action Review. Sustainment Plan is completed (a. Spiral Development Assessment, b. Predefined Product Improvement, c. Emerging Threats) Assessment, d. Technology Refresh / Insertion, e. Quality Assurance / Metrics Report, f. Risk Management Reassessment). List other deliverables when defined. 	
Management Review	<ul style="list-style-type: none"> Corporate review meeting of value proposition and product overview. Results and follow up actions. 	<ul style="list-style-type: none"> Corporate review meeting of the preliminary product plan. Feasibility Review meeting. Results and follow up actions. 	<ul style="list-style-type: none"> Corporate review meeting to approve preliminary product plan and technology roadmap. Results and follow up actions 	<ul style="list-style-type: none"> Optimization Review meeting. Results and follow up actions. 	<ul style="list-style-type: none"> Analysis of the engineering and manufacturing plan. Results and follow up actions. 	<ul style="list-style-type: none"> Analysis of the engineering and manufacturing plan. Results and follow up actions. 	<ul style="list-style-type: none"> Development Phase Review meeting. Comprehensive analysis of the engineering and manufacturing plan. Results and follow up actions. 	<ul style="list-style-type: none"> Corporate review of the manufacturing release package. Pilot Phase Review meeting. Results and follow up actions. 	<ul style="list-style-type: none"> Analysis and review of the manufacturing plan. Results and follow up actions. 	<ul style="list-style-type: none"> Corporate review of the finalized product plan and sales release package. Sales Release Phase Review meeting. 	

SECURE PROGRAM

DT&E Designation (SAFETY Act)

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Certification (SAFETY Act)