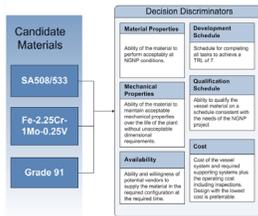
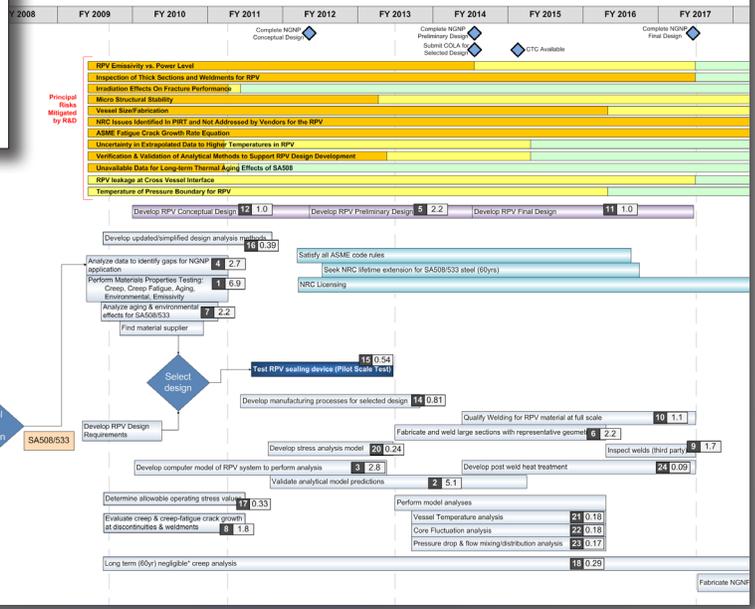


This advanced capability provides a means to measure the relative merit of technologies, accelerate application of new designs, minimize project costs and schedules, and provide a defensible argument for technology choices.



Technology Development Roadmap



# Technology Readiness Assessment and Roadmapping

Planning and decision-making are important challenges for any program or project. Whether they involve incremental changes or significant technological breakthroughs, technical uncertainties, and the inter-relationships between project elements typically complicate the environment of competing priorities and limited funding. Technology Readiness Assessment and Roadmapping addresses such issues by helping projects:

- Identify and understand the gaps between where they are and where they want to be
- Assess the maturity of available technologies to fill those gaps
- Focus key resources to establish a clear path forward for developing immature technologies
- Integrate resources and capabilities to accelerate the application of new technologies and expedite the deployment of new systems.

Assessing technical readiness for needed technologies complements research and development (R&D) and is an integral part of conventional risk management strategies.

Building on core roadmapping principles that guide Fortune 500 companies like Intel and Motorola, Systems Analyses and Engineering (SA&E) employs a specialized technology readiness assessment and roadmapping capability that provides the rigor and understanding

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The Energy of Innovation

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needed for decision-makers to focus on critical uncertainties, enable technology development, make informed decisions, and drive a project to successful completion. Further, this advanced capability provides a means to measure the relative merit of technologies, accelerate application of new designs, minimize project costs and schedules, and provide a defensible argument for technology choices.

#### **Technology Readiness Assessment**

The Technology Readiness Assessment process evaluates the maturity of a technology and its readiness to function in an integrated environment. Technology Readiness Level (TRL) scales provide a rule of thumb estimation of the overall maturity or uncertainty of a given technology. The scales also allow for clearer R&D and design goals to be developed to advance

technical maturity and reduce known risks. As a technology is studied, tested, designed, and matured, its technical maturity increases and its risk is reduced.

#### **Roadmapping**

Roadmapping provides the framework and structure required to systematically analyze decisions, mature technologies, and reduce risk in a cost-effective and timely manner. The resulting roadmaps document the tasks and tests required to support technology selection and serve to coordinate engineering, R&D, and deployment efforts.

A promising feature of the SA&E technology readiness assessment and roadmapping capability is the development and application of a systematic Project Readiness Assessment Tool (PRAT) that can assist projects in assessing, assigning, monitoring, and managing overall project readiness. PRAT also enables

the consistent application of risk management across project entities and provides a basis for identifying and managing appropriate project cost and schedule risks and contingencies in light of technology, design, and overall project readiness.

This capability is being developed using existing TRL, Design Readiness Level, (DRL), and Project Readiness Level (PRL) concepts, and by leveraging INL experience with TRA, project risk databases, computer-based visualization capabilities, and decision analysis and roadmapping processes.

In short, the technology readiness assessment and roadmapping capability allows for planning and assessment of project readiness and for acquisition teams to make cost-effective technology decisions in the face of project complexities.

#### **For more information**

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*“The INL’s roadmapping process gave us the ability to look forward in our technology development and selection processes in a very deliberate manner. It has provided insight into risk areas and has allowed us to explore requirement gaps that will help us prioritize the activities necessary to develop reasoned decisions with a technical basis that we could not previously articulate.”*

**Colonel Donald Kotchman**  
Deputy Program Executive Officer  
U.S. Army Ground Combat Systems