

# TECHNOLOGY READINESS LEVELS

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| <b>Level 1</b> | <b>Basic principles of concept are observed and reported.</b> At this level scientific research begins to translated into applied research and development. Activities might include paper studies of a technology's basic properties.  |
| <b>Level 2</b> | <b>Technology concept and/or application formulated.</b> At this level invention begins. Once the basic principles are observed, practical applications can be invented. Activities are limited to analytical studies.  |
| <b>Level 3</b> | <b>Analytical and experimental critical function and/or proof of concept.</b> At this level active research and development is initiated. Activities might include components that are not yet integrated or representative.  |
| <b>Level 4</b> | <b>Component and/or validation in a laboratory environment.</b> At this level basic technological components are integrated to establish that they will work together. Activities include integration of "ad hoc" hardware in the laboratory.   |
| <b>Level 5</b> | <b>Component and/or validation in a simulated environment.</b> At this level the basic technological components are integrated for testing in a simulated environment. Activities include laboratory integration of components.   |
| <b>Level 6</b> | <b>System/subsystem model or prototype demonstration in a simulated environment.</b> At this level a model or prototype is developed that represents a near desired configuration. Activities include testing in a simulated operational environment or laboratory.   |
| <b>Level 7</b> | <b>Prototype ready for demonstration in an appropriate operational environment.</b> At this level the prototype should be at planned operational level and is ready for demonstration of an actual prototype in an operational environment. Activities include prototype field testing.   |
| <b>Level 8</b> | <b>Actual technology completed and qualified through tests and demonstrations.</b> At this level the technology has been proven to work in its final form and under expected conditions. Activities include developmental testing and evaluation of whether it will meet operational requirements.  |
| <b>Level 9</b> | <b>Actual technology proven through successful deployment in an operational setting.</b> At this level there is actual application of the technology in its final form and under real-life conditions, such as those encountered in operational test and evaluations. Activities include using the innovation under operational conditions. |