

TECHNOLOGY READINESS LEVELS

LEVEL	LIFE SCIENCES	PHYSICAL SCIENCES AND SOFTWARE
1	Basic observations and new hypothesis reported	Basic observations and new hypothesis reported
2	Novel paradigm/composition of matter/method formulated; corroborating preliminary results obtained	Technology concept and/or application formulated; no experimental proof or detailed analysis yet supports the conjecture
3	Analytical or experimental proof-of-concept (POC) established; <i>in vitro</i> demonstration of consistent results to validate hypothesis	R&D is initiated: analytical studies set the technology into an appropriate context and "proof-of-concept" laboratory-based studies physically validate that the analytical predictions are correct
4	Proof-of-concept established in complex <i>in vitro</i> settings along with demonstrated competitive added value	Basic technological elements integrated to establish that the "pieces" will work together to achieve concept-enabling levels of performance for a component and/or breadboard
5	Invention validated in a relevant environment; <i>in vivo</i> POC established in small animals.	Component and/or breadboard validated in a relevant environment
6	Invention validated in a relevant environment; <i>in vivo</i> POC established in other species (canine, feline, etc.)	System/subsystem model or prototype near the desired configuration in terms of performance, weight, and volume tested in a relevant environment
7	Invention demonstrated in an operational environment; <i>in vivo</i> POC established in non-human primates	System prototype demonstrated in an operational environment
8	Invention completed and qualified through test and demonstration; POC established in humans / Phase I clinical trials	Actual system completed and qualified through test and demonstration
9	Invention proven successful in Phase II and III clinical trials and in commercial settings	Actual system proven through successful mission operations