TRL Technology Readiness Level Scale : Overview table

Cluster	TRL	H2020 terminology	EARTO reading	EARTO definition and description
Invention	TRL1	Basic principles observed	Basic principles observed	Basic scientific research is translated into potential new basic principles that can be used in new technologies
	TRL2	Technology concept formulated	Technology concept formulated	Potential application of the basic (technological) principles are identified, including their technological concept. Also the first manufacturing principles are explored, as well as possible markets identified. A small research team is established to facilitate assessment of technological feasibility.
Concept validation	TRL3	Experimental proof of concept.	First assessment of feasibility of the concept and technologies	Based on preliminary study, now actual research is conducted to assess technical and market feasibility of the concept. This includes active R&D on a laboratory scale and first discussions with potential clients. The research team is further expanded and early market feasibility assessed.
	TRL4	Technological validity in a lab	Validation of integrated prototype in a laboratory	Basic technological components are integrated to assess early feasibility by testing in a laboratory environment. Manufacturing is actively researched, identifying the main production principles. Lead markets are engaged to ensure connection with demand. Organisation is prepared to enter into scale up, possible services prepared and a full market analysis conducted.
Prototyping and incubation	TRL5	Technology validated in relevant environment (industrially relevant environment in the case of KETs)	Testing of the prototype in a user environment	The system is tested in a user environment, connected to the broader technological infrastructure. Actual use is tested and validated. Manufacturing is prepared and tested in a laboratory environment and lead markets can test pre-production products. Fist activities within the organisation are established to further scale up to pilot production and marketing
Pilot production and demonstration	TRL6	Technology demonstrated in relevant environment (industrially relevant environment in the case of KETs)	Pre-production of the product, including testing in a user environment	Product and manufacturing technologies are now fully integrated in a pilot line or pilot plant (low rate manufacturing). The interaction between the product and manufacturing technologies are assessed and fine-tuned, including additional R&D. Lead markets test the early products and manufacturing process and the organisation of production is made operational (including marketing, logistics, production and others).
	TRL7	System prototype demonstration in an operational environment.	Low scale pilot production demonstrated	Manufacturing of the product is now fully operational at low rate, producing actual commercial products. Lead markets test these final products and organisational implementation is finalized (full marketing established, as well as all other production activities fully organized). The product is formally launched into first early adopter markets.
Initial market introduction	TRL8	System completed and qualified	Manufacturing fully tested, validated and qualified	Manufacturing of the product, as well as the product final version is now fully established, as well as the organisation of production and marketing. Full launch of the product is now established in national and general early majority markets.
Market expansion	TRL9	Actual system proven in operational environment (competitive manufacturing in the case of KETs; or in space)	Production and product fully operational and competitive	Full production is sustained, product expanded to larger markets and incremental changes in the product create new versions. Manufacturing and overall production is optimized by continuous incremental innovations to the process. Early majority markets are fully addressed.

The TRL scale for Life sciences