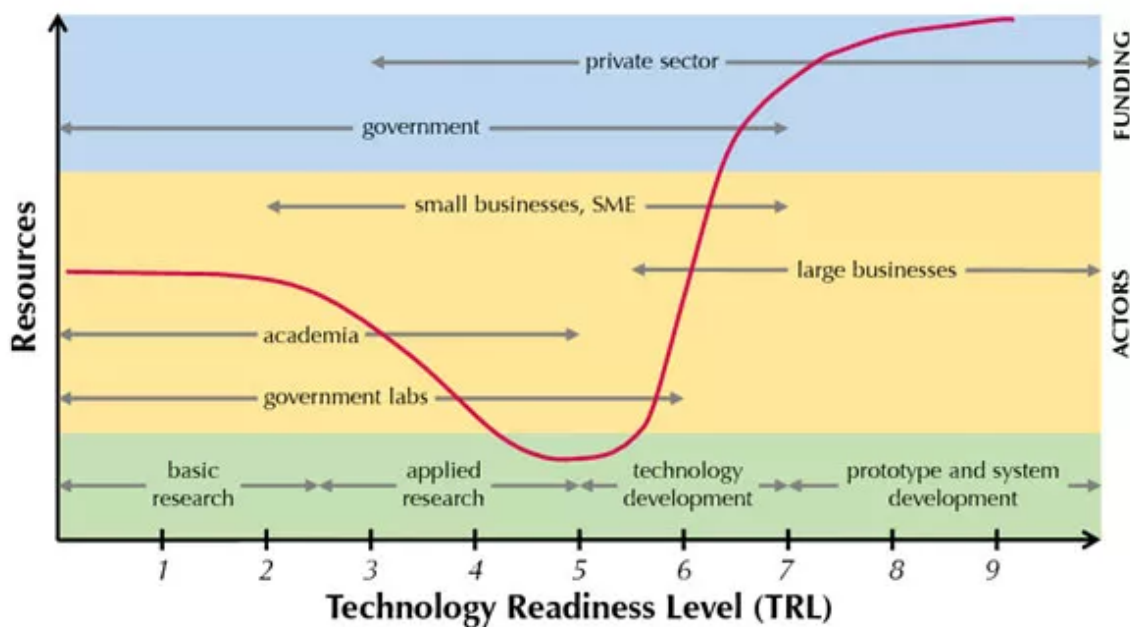


EURAXESS

ABOUT TECHNOLOGY READINESS LEVELS



Source: Hensen, Jan & Loonen, Roel & Archontiki, Maria & Kanellis, Michalis. (2015). Using building simulation for moving innovations across the "Valley of Death". REHVA Journal. 52. 58-62.

Why using TRLs?

Technology readiness level (TRL) scale was originally defined by NASA (https://www.nasa.gov/directorates/heo/scan/engineering/technology/txt_accordion1.html) as "a type of **measurement system used to assess the maturity level of a particular technology**. TRL scale uses the parameter that evaluates the maturity of a technology according to a series of indicators that go from 1 (the basic principles are documented) to 9 (the technology is released, and industrial production is started)".

The TRL scale was introduced in EU funded projects in 2012 and is currently the point of reference for **determining the development or maturity of a research and its readiness for the market uptake** and potential investments.

TRL is useful to indicate the research project result's TRL level and define what steps should be taken in order to bring the research result to the market.

HOW TO DEFINE YOUR TRL

Example from pharmaceutical industries

It is important to emphasize that the **TRL scale is self-declared** and it may differ from sector to sector. Find the pharma sectorial application of TRL scale applied to drug discovery process.

It spans the whole innovation process, from basic research activities and preclinical studies (TRL1-4), over investigational new drug application (TRL5), to clinical trials (TRL6-8) and product launch (TRL9).

Read more about drug discovery TRLs (https://www.excellenting.com/drug_discovery_trl/)

- + TRL 1 Findings reviewed
- + TRL 2 Research idea
- + TRL 3 Design proof of concept
- + TRL 4 Demonstrate proof of concept
- + TRL 5 Pilot drug produced
- + TRL 6 Phase 1 clinical trials
- + TRL 7 Phase 2 clinical trials
- + TRL 8 New drug registration
- + TRL 9 Drug distributed and marketed

Example from hardware and system technologies

In hardware and system technologies, research activities (TRL1-4) aim to deliver basic technological components that work together in a low fidelity environment. Development activities/prototyping (TRL5-7) facilitate transition towards expected behavior of the future product in realistic environment. Finally, innovation activities (TRL8-9) combine production configurations with desired fully-functional product.

Read more (<https://www.excellenting.com/technology-readiness-level-trl/>)

- + TRL1 Define basic properties
- + TRL2 Analytical study
- + TRL3 Proof of concept
- + TRL4 Pre-prototype
- + TRL5 Pre-prototype tested in lab
- + TRL6 Prototype tested in relevant environment
- TRL7 Approved prototype
 - Testing is moved to operational environments such as a vehicle or machines. This is the first fully approved prototype
- + TRL8 Pre-serial manufacturing
- + TRL9 Product on market