

TRL: Technology Readiness Levels



The Technology Readiness Levels (TRL) are a standardized scale to assess the maturity of technology/innovation. It is widely adopted by industry and public institutions alike. TRL descriptions vary – this one fits the commercialization of academic research.



FIND YOUR LEVEL

TRL phase	TRL level	TRL description	Pharma: Corresponding drug discovery/clinical trial phase
Idea	0	You have an unproven and untested concept	Basic research
	1	You have observed the basic principles but you have no evidence	
Research	2	You have described the concept and you know how to validate it	Target identification Target validation
	3	First laboratory tests completed – you have experimental proof of concept	Lead compound discovery Lead compound optimization
Prototype	4	You have tested an early prototype in the laboratory with satisfactory results	Lead compound validation Preclinical studies
	5	Your prototype is more refined and functions in the intended environment	Investigational New Drug (IND) application // Phase 0
Validation	6	Your prototype works close to expected performance in the intended environment	Phase 1
	7	You can demonstrate a fully functional system in the operational environment	Phase 2
Production	8	All technical processes to support commercial activity are ready – you can manufacture the final solution	Phase 3
	9	Your technology is generally available for all customers	Regulatory approval // Product launch // Market monitoring