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TRL Transfer Worksheet

Build a shared language for “ready” between research and product development



How to use this worksheet

Get your development team together, before your next phase-gate or handoff meeting. The point making a chart, it's about having better conversations!

1 Tag every gate

Write a TRL number next to each phase-gate you already run.

2 Set the bar out loud

Agree the TRL a design must hit before it leaves research. TRL 6 is a defensible default.

3 Demand evidence

Name the artifact that proves each TRL claim; bench data, a verification report, human-factors findings.

4 Fix the anchors

Design validation needs production-equivalent units, place that fixed point, then map everything else around it.

Who's involved: the research and product development leads who own the handoff, plus whoever signs off on gate reviews. Four to six people.

Spirit of it: this is a working session, not an audit. If the two teams land on different numbers for the same gate, that gap is the finding, write it down.

NASA TRL	Basic principles observed	Concept formulated	Proof of concept	Validation in lab	Validation in relevant env.	Prototype in relevant env.	Prototype in operational env.	System complete & qualified	Proven in operational use
	TRL 1	TRL 2	TRL 3	TRL 4	TRL 5	TRL 6	TRL 7	TRL 8	TRL 9
Medical Design Process	Needs framing	Concept Development	Proof of concept	Lab verification	Integrated prototype	Clinical Evaluation	Clinical readiness	Submission ready	Commercial release

Agreeing on maturity at hand-off means less rework, less cost, and less schedule slip.




Regulatory anchor — can't move earlier

Worksheet — TRL 1–3

Fill in your own phase-gates, evidence, and owning team.

TRL	NASA definition	Your phase-gate	What “done” looks like	Evidence required	Team
1	Basic principles observed and reported		A scientific or engineering principle is documented, no device yet, just the underlying phenomenon		
2	Technology concept formulated		A specific application of the principle is described; feasibility is argued, not shown		
3	Analytical and experimental proof of concept		Bench data or modeling shows the critical function works in isolation		

Worksheet — TRL 4–6

TRANSFER ZONE

Fill in your own phase-gates, evidence, and owning team.

TRL	NASA definition	Your phase-gate	What “done” looks like	Evidence required	Team
4	Component/breadboard validation in lab environment		A rough build of the key components works together on the bench, in a simplified setup		
5	Component/breadboard validation in relevant environment		The same build works under conditions that resemble real use (relevant loads, materials, environment)		
6	System/subsystem prototype demonstrated in relevant environment		A full system prototype not just a component, runs in a relevant environment and produces data a reviewer would accept		



TRANSFER BAR

Worksheet — TRL 7–9

REGULATORY ANCHOR

Fill in your own phase-gates, evidence, and owning team.

TRL	NASA definition	Your phase-gate	What “done” looks like	Evidence required	Team
7	System prototype demonstrated in operational environment		The prototype runs in the actual (or a fully representative) operational setting, not just a simulated one		
8  REG. ANCHOR	Actual system completed and qualified through test and demonstration		Production-equivalent units exist and pass the full verification and validation test suite; design is frozen		
9	Actual system proven through successful mission operations		The system is in its final form, deployed and performing in real use		

Action items

Leave this meeting with clear owners and dates.

Action	Owner	Due
● Finalize the TRL transfer bar for our program		
● Fill in evidence requirements for gates 1–9		
● Confirm the two regulatory anchor points on our schedule		
● Schedule the next joint research/product development review		

Open questions from today's session



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