

Impactful R&D for Technology Adoption



SETO CSP Virtual Workshop on Next Generation Receivers

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How to travel the path to commercial success?

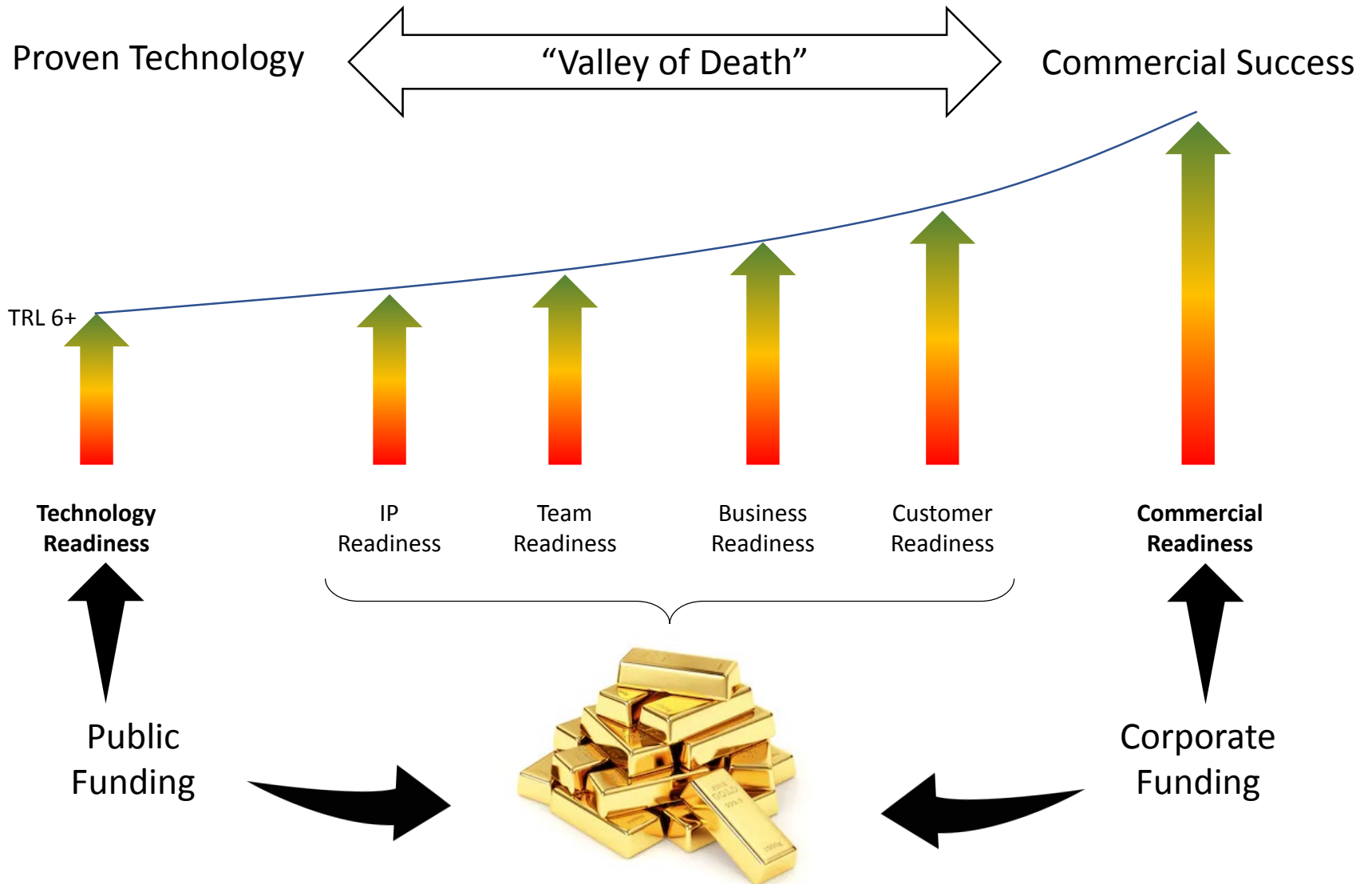


Technology
Readiness

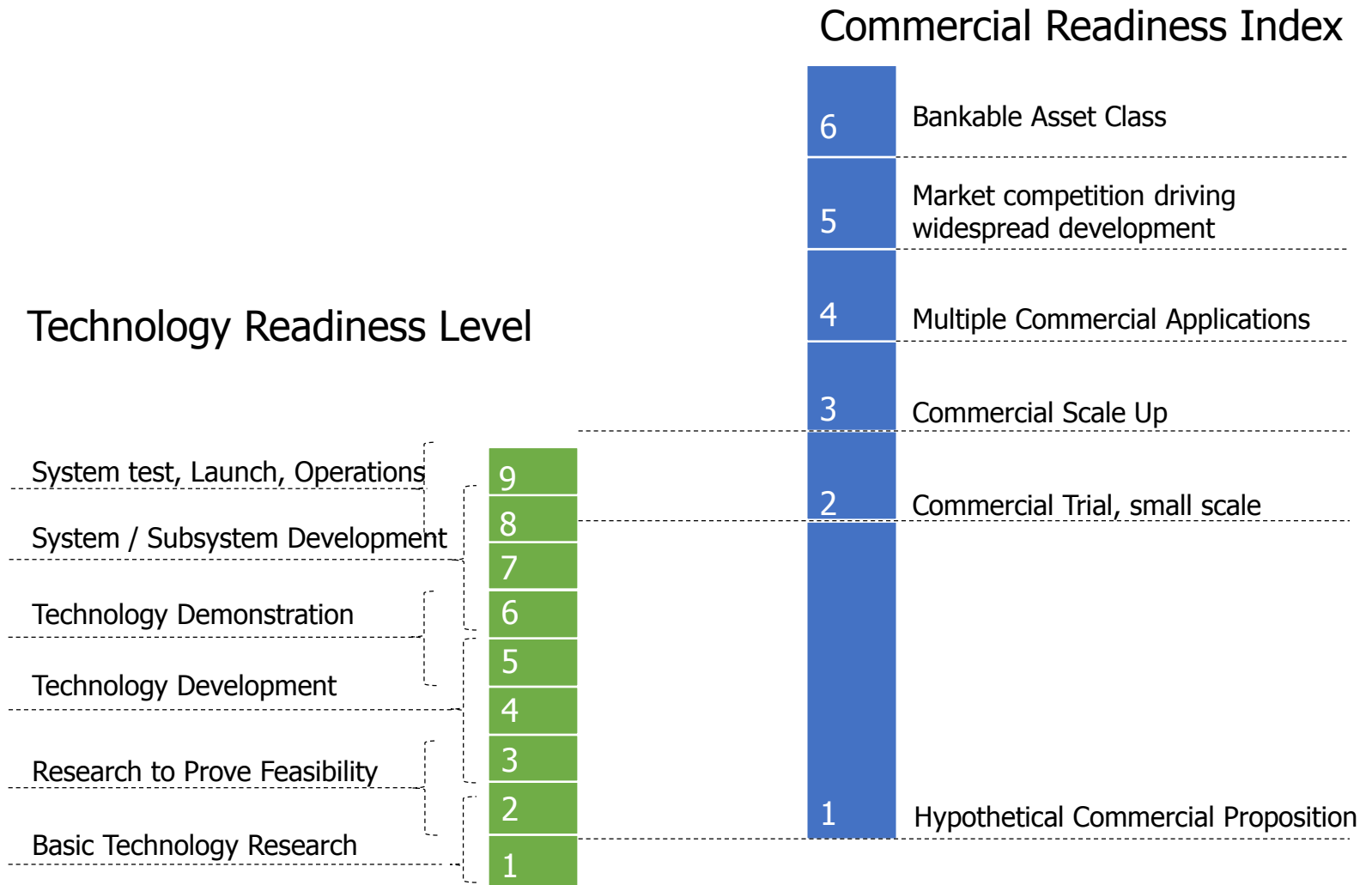
Commercial
Success

You
are
here

Does Proven technology = commercial success?

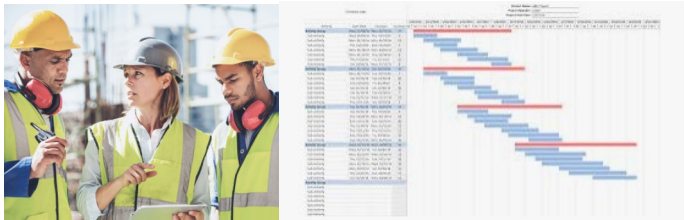


How do you measure readiness?



<https://arena.gov.au/assets/2014/02/Commercial-Readiness-Index.pdf>

How to traverse the “valley of death”?



Think like a supplier:

- Guaranteed performance level
- Warranty and reliability
- Competitive awareness

Think like a contractor:

- Lowest cost option
- Construction schedule
- Integration

Think like an owner:

- Performance
- Operations & Maintenance costs
- Availability

Think like an investor/lender:

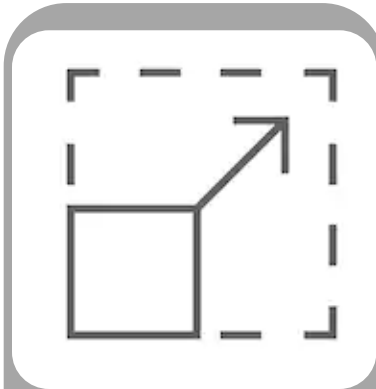
- High rate of return
- Low risk of failure

What to consider early in development?



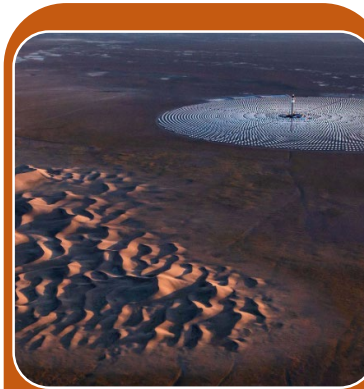
Operability

- Means to monitor operating limits in real-time
- Effects of system interactions
- Automatic “operator-proof” control
- Equipment sizing for startup /shutdown



Scalability

- Material availability
- Production-scale quality management
- Construction methods
- Heat loss
- Margin for guaranteed performance



Market Adoption

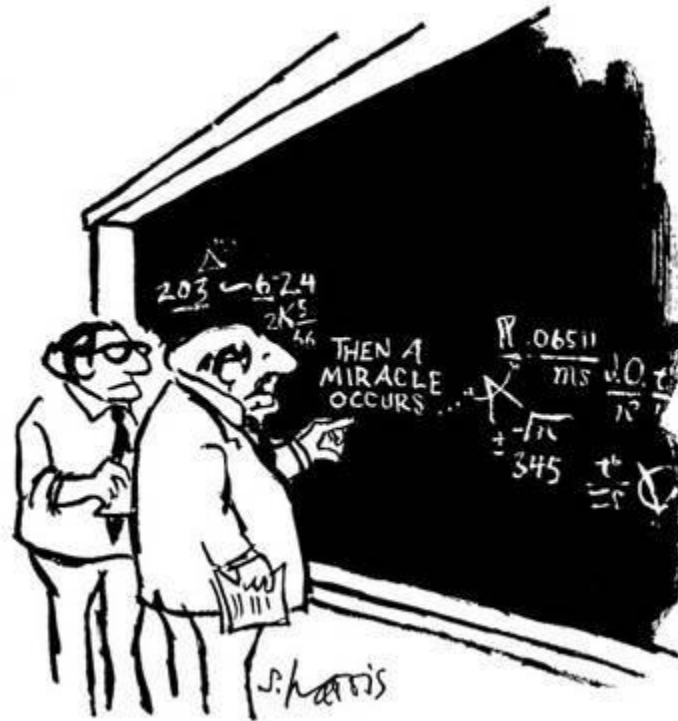
- Competition
- Standards for design and acceptance testing
- Initial investment
- Health, safety, & environmental risks
- Failure modes
- “Lessons learned”



Cost

- Quality of potential supplier’s quotes
- Completeness of requirements
- System-level thermo-economic optimization
- Performance margin
- Realistic pro forma financial assumptions

And what to avoid...



Thank You!