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The Valley of Death in Laser Manufacturing & Automation

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The Valley of Death in Laser Manufacturing & Automation

A strategic guide to navigate the tricky terrain of laser technology

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Mark Turner, CEO of Turner Laser Systems

What is the Valley of Death?

- We often see manufacturers spend in the wrong places, take unnecessary shortcuts and make critical assumptions that are invalid
- This leads to sliding down into the valley…
  - Manufacturing is severely impacted, product manufacturing delayed
  - For product companies, this can make or break the go-to-market strategy
- A significant number of laser automation projects fail

A Common Scenario

- A manufacturer of a novel product is looking for the optimal way to develop and manufacture their product
- Along the journey *laser manufacturing* is suggested as a solution
- The laser manufacturing solution/tool needs to provide:
  - A quality process in a reliable manner
  - Allowance for typical manufacturing or part tolerances
  - Provide an attractive ROI
  - Meet timelines of product development and manufacturing
  - Scale as manufacturing demand ramps up

Common **Questions** at This Point


Invest in the wrong pathway


invest in the wrong pathway
Machines are built, manufacturing lines are powered up

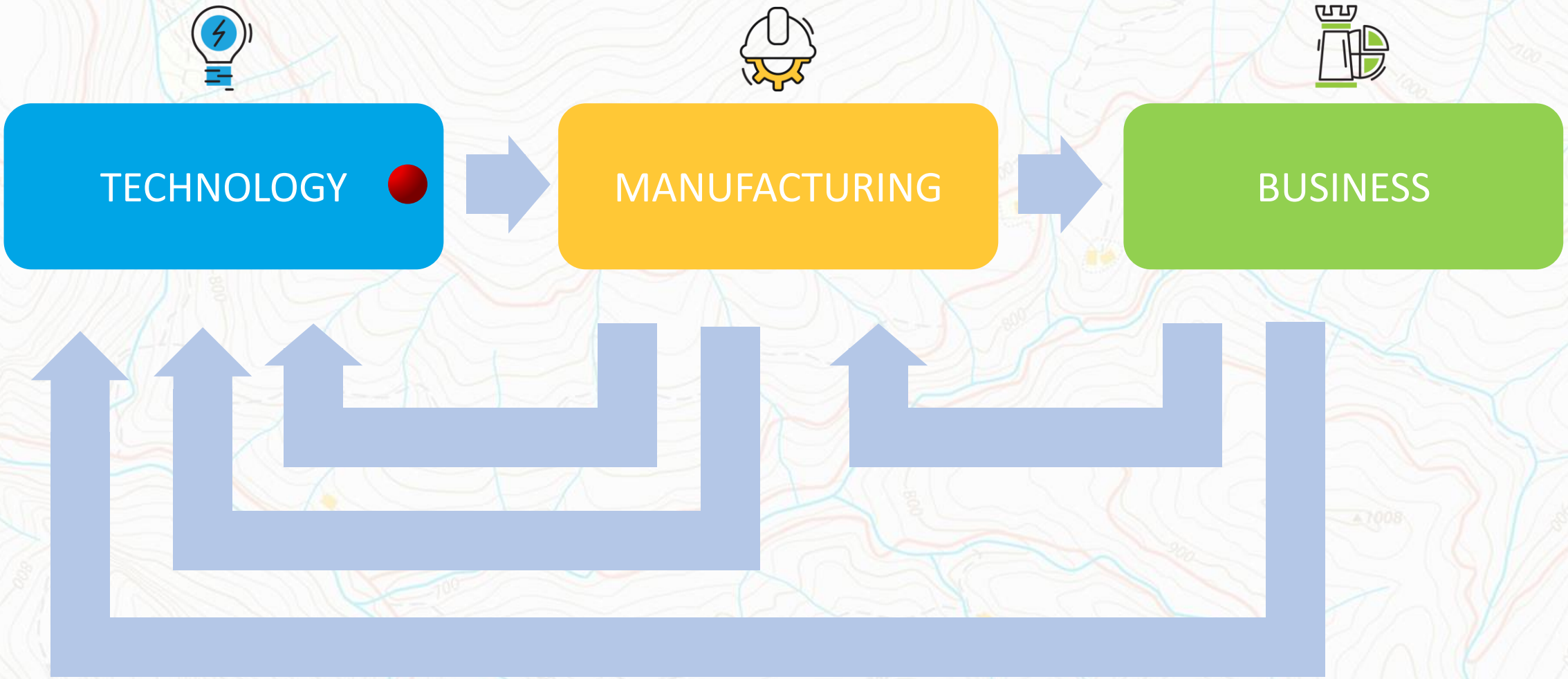

invest in the wrong pathway
Machines are built, manufacturing lines are powered up
many millions spent
And 3 years later...


how did we end up down here?

Some top bad assumptions

Common bad assumptions			
It should be easy for me to take this laser and build my own tool or pass it to any integrator	We can run this project just like other automation projects	Setup used in Laser Manufacturer lab is optimized (insert in tool RFQ…)	Our PLC team will do the software just like any automation project.

Flow chart: What usually happens



Flow chart: 360 Mastery Methodology

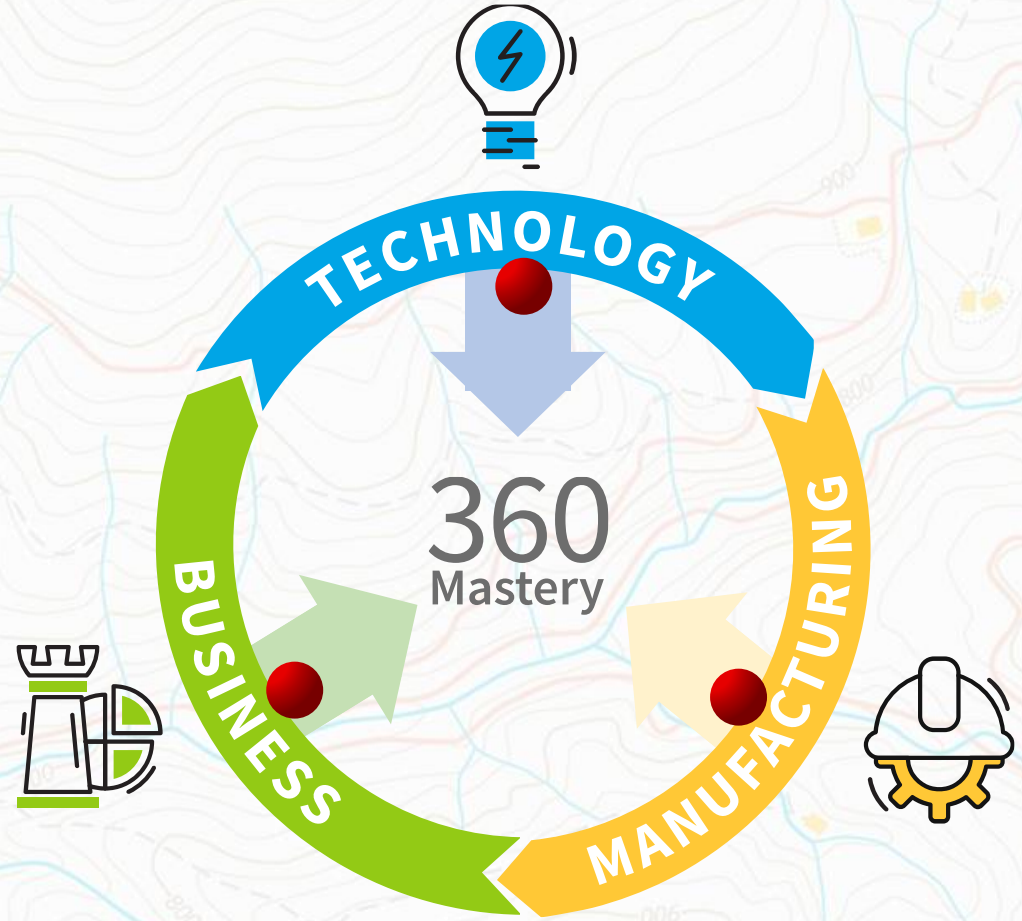
A process needs to be developed to create quality parts reliably to specifications

This needs to happen within a schedule, with minimal risk, provides an attractive return on investment and with budget assigned for capital equipment

The process developed must be integrated into a manufacturing tool that supports creating the end-product

The three are intrinsically linked and must be considered together throughout the process to minimize risk

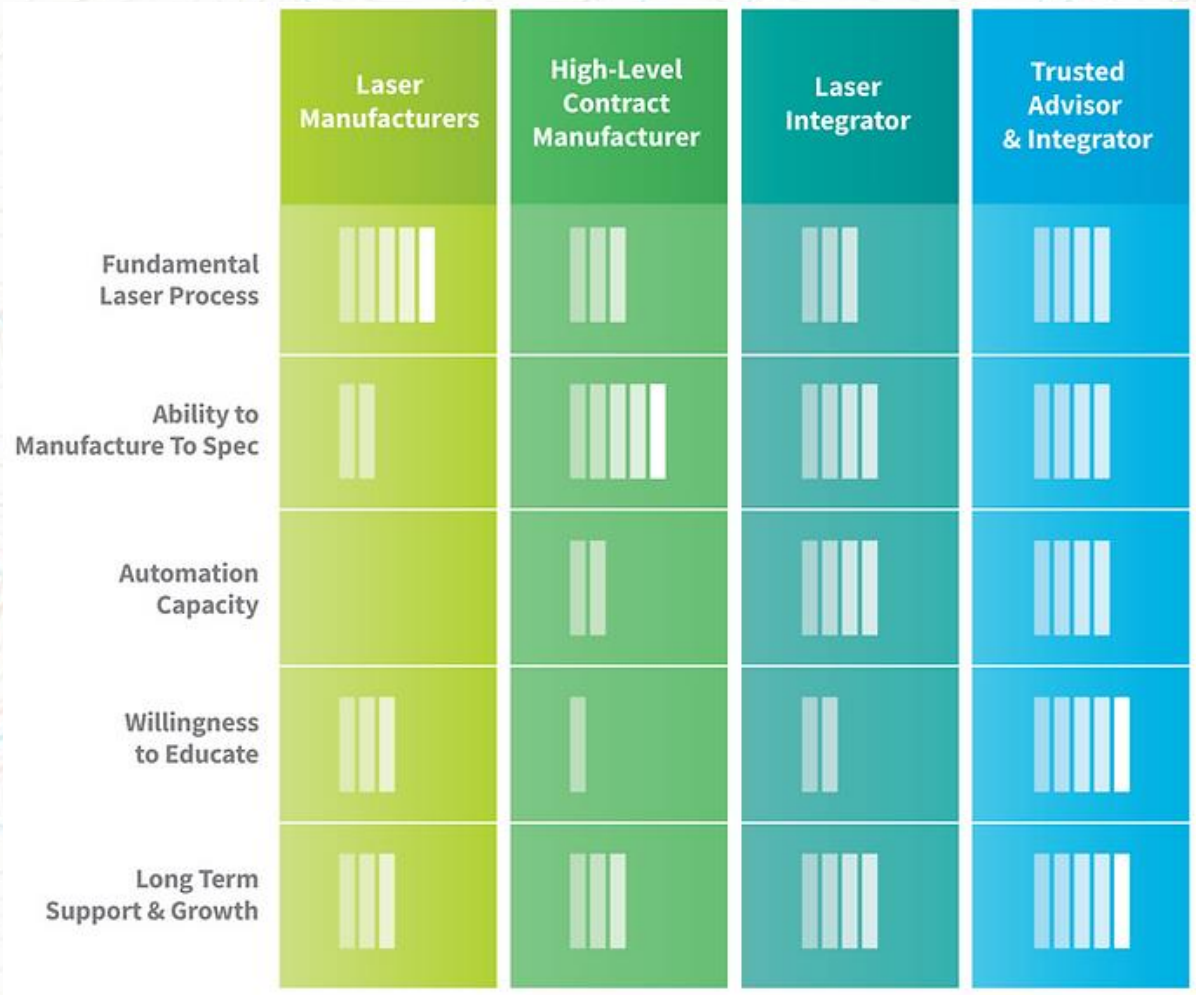
Flow chart: 360 Mastery Methodology



STEP 1: Defining the requirements

- Early engagement/preliminary evaluation
- Define long-term goals
- What are your financial constraints?
- Laser system/automation approach – integrally linked

STEP 2: Is laser in the realm of feasible?



STEP 3: Methodical process development

FIRST:

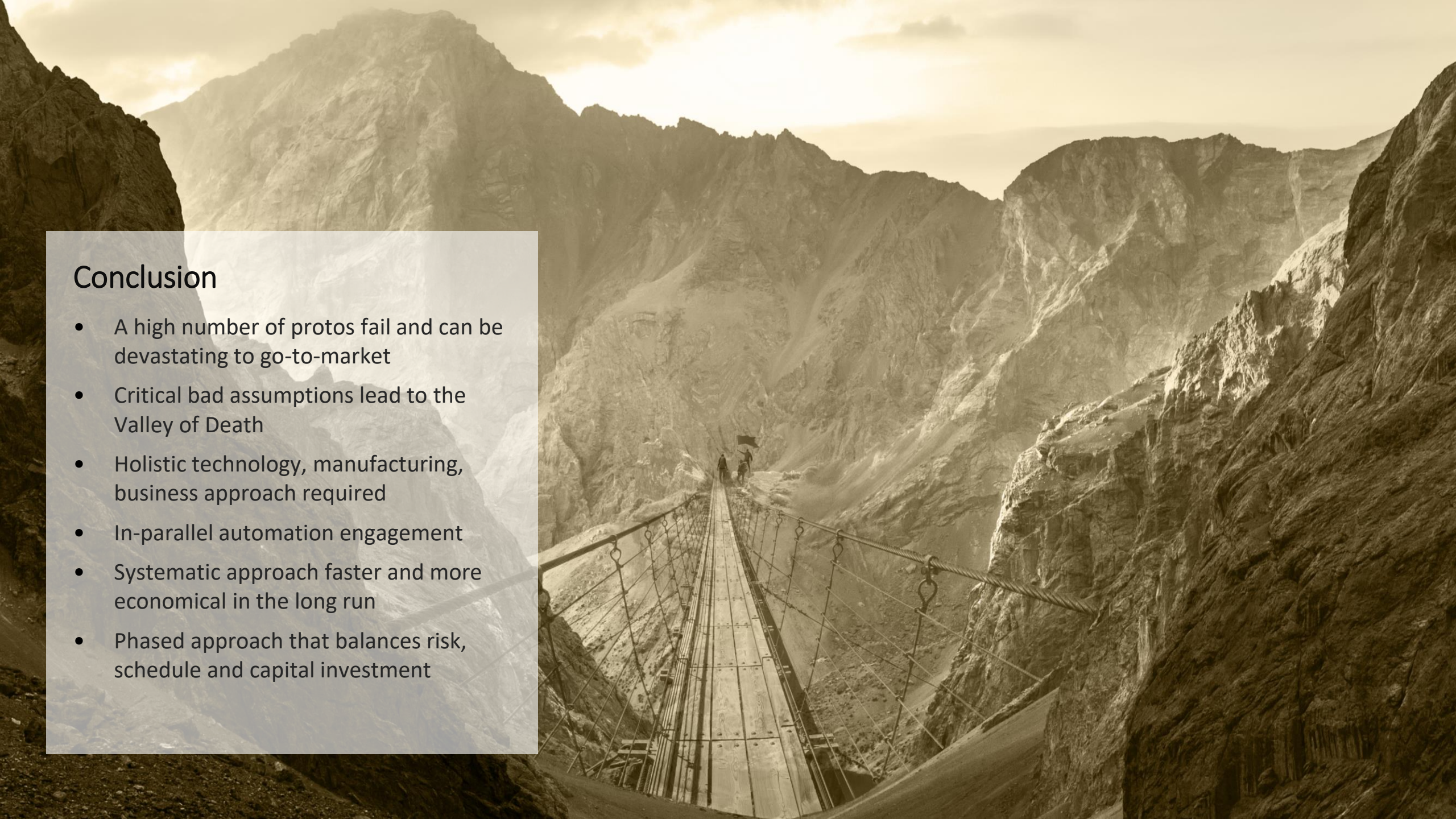
- Don’t build process in a bubble
- Keep automation team in the loop about possible approaches

THEN:

- Now jump into laser process workflow
- Define critical process specifications for next step

STEP 4: Automation development and build

1. Automation Concept
2. Detail Design
3. Machine build
4. Laser integration
5. Tool validation



Conclusion

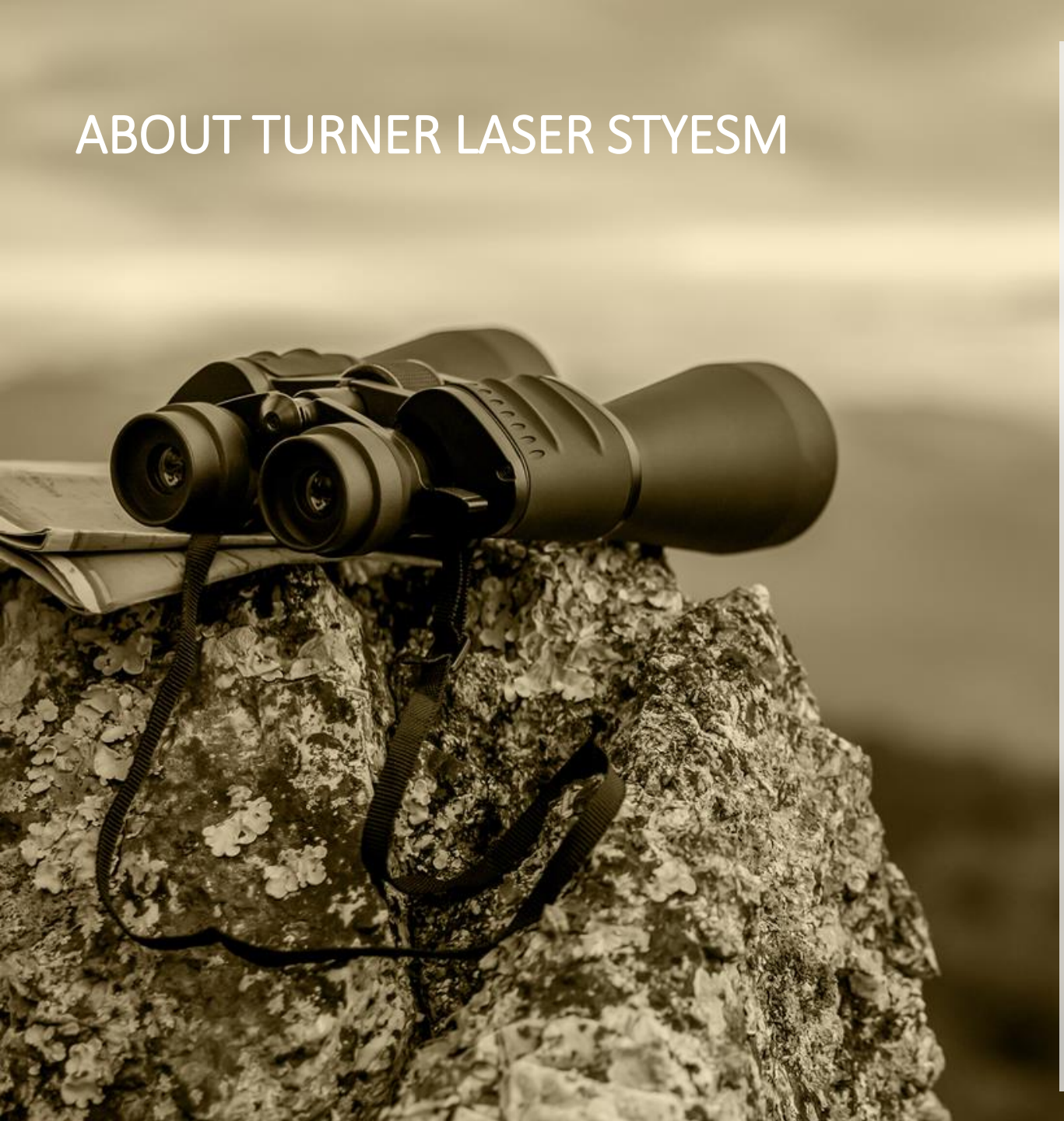
- A high number of protos fail and can be devastating to go-to-market
- Critical bad assumptions lead to the Valley of Death
- Holistic technology, manufacturing, business approach required
- In-parallel automation engagement
- Systematic approach faster and more economical in the long run
- Phased approach that balances risk, schedule and capital investment

ABOUT OWENS DESIGN

Owens Design
Your Design & Build Partner

- Founded in 1983
- 100+ employees
- Typical engineer has 25 years experience
- Mechanical, electrical & software expertise
- 75,000 ft^2 facility in Fremont, CA
- Trusted advisor in Silicon Valley
- Technical program management team
- Successfully delivered 100% of all new designs over almost 40 years!
- Over 90% of revenue from repeat customers
- EVERY project—EVERY client referenceable
- ISO 9001 & 13485 certification
- Approx. 2000 tools delivered worldwide

ABOUT TURNER LASER STYESM



TURNER LASER SYSTEMS

- Laser process development (360 Mastery Methodology)
- Lasers onsite: Femto, Pico, Nano, Fiber CW and CO2
- Products: Various laser platforms (Kanga, Wallaby, Emu, Joey…)
- Training, maintenance services
- Bridging the gap

QUESTIONS?

For more information:

- Email us for a copy of this deck and recording of the webinar
- Let us know about your laser automation needs
- Request specific case studies of the **360 Mastery Methodology**
- www.owensdesign.com
- www.turnerlasersystems.com