

Why Robustness Matters

Variation Is Inevitable. Robustness Is Engineered.

Every product, process, and supply chain operates in a world of uncertainty.

- Materials vary.
- Manufacturing processes vary.
- Suppliers vary.
- Operating conditions vary.
- Customer usage varies.

Variation is inevitable—but poor performance doesn't have to be.

Traditional Lean Thinking improves process flow by eliminating waste and continuously improving operations.

Leading with Robustness™ extends Lean Thinking by asking an earlier question:

How can we reduce the sensitivity of products and processes to variation before production begins?

Through **Robustness Thinking**, organizations build quality, reliability, and manufacturability into products during technology development, product design, and process development—creating a stronger foundation for Lean Manufacturing.

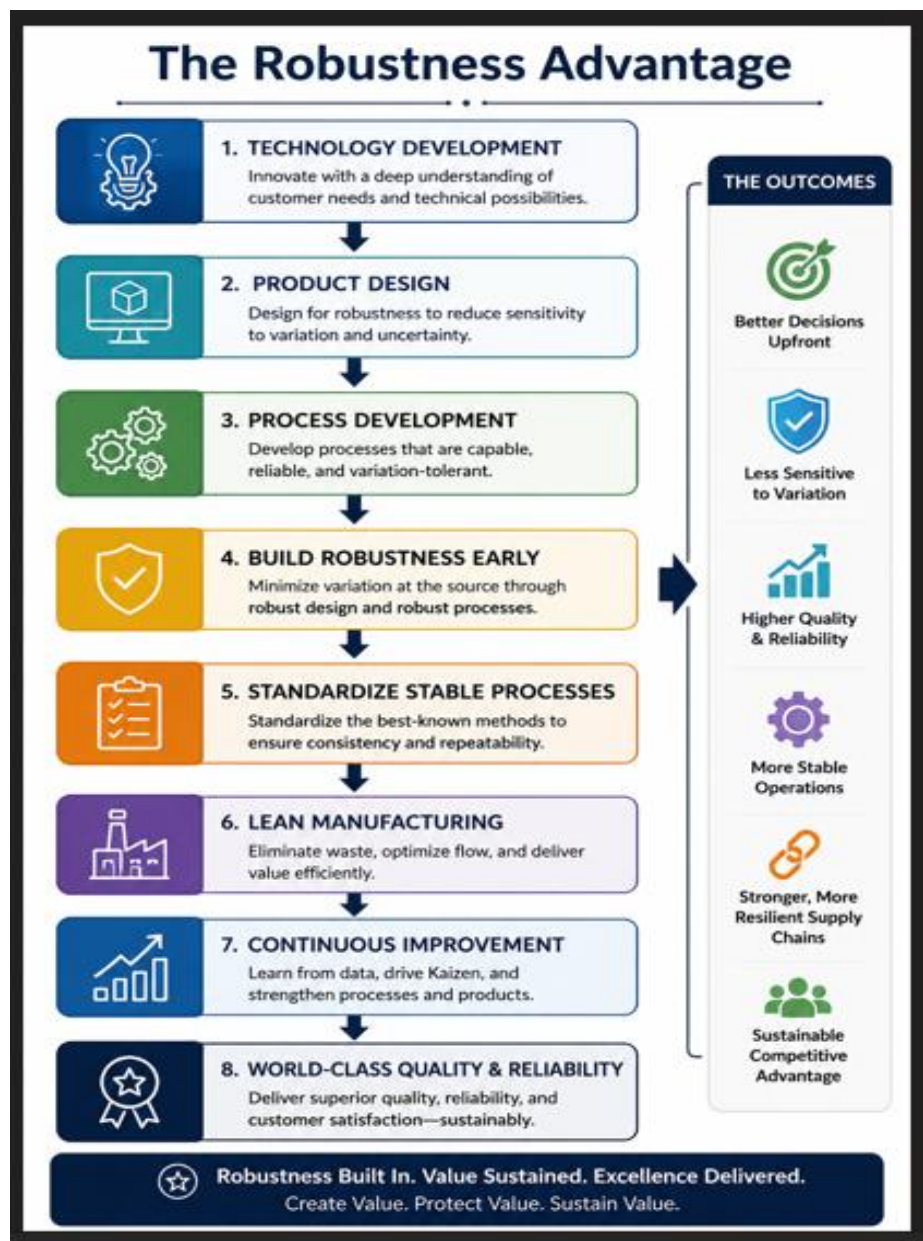
Rather than reacting to problems on the production floor, **Leading with Robustness™** helps prevent them by improving engineering decisions upstream.

The result is:

- **More robust products**
 - **More stable processes**
 - **Higher quality and reliability**
 - **More resilient supply chains**
 - **Greater operational excellence**
 - **Sustainable customer value**
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Robustness Thinking Enhances Lean Thinking

Lean Thinking	Leading with Robustness™
Improves process flow	Improves engineering decisions
Eliminates waste	Reduces sensitivity to variation
Standardizes work	Builds robustness before standardization
Continuously improves operations	Continuously improves products and processes
Optimizes manufacturing	Optimizes the entire product lifecycle



Our Belief

The best organizations don't simply improve operations. They improve the engineering decisions that make operational excellence possible.

Leading with Robustness™

Enhancing Lean Thinking with Robustness Thinking.



Variation is inevitable. Robustness is engineered. Operational excellence begins with better engineering decisions.