

# Lean Practices for the Construction Industry

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**Phillip Blackerby** helps organizations transform into high-performance enterprises. He coaches executives to set “big picture” goals and take action to achieve them. He helps CEOs see a more successful future and develop strategies to accomplish it. He helps the organization plan its transformation, and then organizes resources to make it happen.

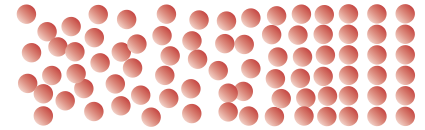
Mr. Blackerby was lead project manager in Arizona, and managed the *Lean Enterprise* and *Professional Business Advisor* product lines at the Manufacturing Extension Partnership, National Institute of Standards and Technology. His team won the coveted Uriano Award for writing manufacturing enterprise transformation standards. He developed the *FastTrac Manufacturing* business planning training program, published four volumes of manufacturing transformation and improvement case studies and evaluated enterprise assessment systems and advanced technology grant applications.



Mr. Blackerby co-owned a management consultancy specializing in assessment and strategic planning. He trained hundreds of managers in strategic planning and related topics, facilitated dozens of strategic planning processes and published several articles. His wide-ranging experiences include negotiating banking relationships, managing an e-business, legislative lobbying, analyzing financial markets, improving cost-accounting and managing a \$96 million budget.

Mr. Blackerby was Associate Deputy Treasurer of Texas, budget director for the Texas Comptroller and management auditor for the U.S. General Accounting Office. He is a certified executive coach and trainer (CCUI) and *FastTrac* business plan instructor. Mr. Blackerby earned a master’s degree from The University of Texas at Austin, and a bachelor’s degree (honors) from Brown University, Providence. He has three daughters and dotes on his two grandchildren.

# What is Lean?

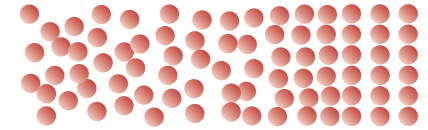


- A systematic approach to *identifying and eliminating waste* (non-value-added activities) through *continuous improvement* by *flowing the product at the pull* of the customer in pursuit of *perfection*. (NIST Lean Network)
- The *relentless* pursuit of the elimination of waste! (Alabama Technology Network)
- Lean means adding value by eliminating waste, being responsive to change, focusing on quality, and enhancing the effectiveness of the workforce. (Lean Aerospace Initiative)

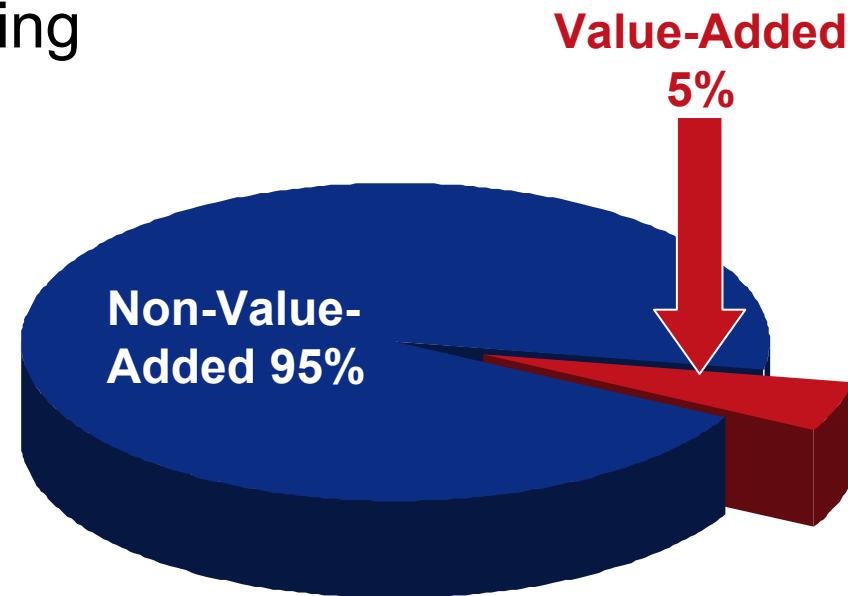
*"It's simple: I take the block of marble and remove everything that's not the statue."* (Michelangelo)



# Lean = Eliminating Waste

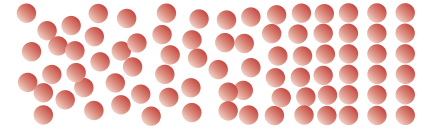


- Overproduction of work in process
- Waiting
- Transportation of parts/materials/tooling
- Non-Value-Added processing
- Excess finished inventory
- Defects
- Excess people motion
- Underused people



**Typically, 95% of all lead time is non-value added**

# Lead Time

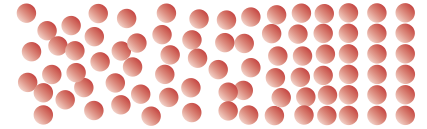


*“One of the most noteworthy accomplishments in keeping the price of Ford products low is the gradual **shortening** of the **production cycle**. The **longer** an article is in the **process of manufacture** and the **more** it is **moved about**, the **greater** is its ultimate **cost**.”*

– Henry Ford, 1926



# Typical Lean Effects



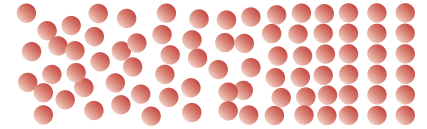
- 30% productivity increase
- 90% WIP reduction
- 40% space reduction
- 80% quality improvement
- 90% lead time reduction



⇒ *30% gross margin increase*

⇒ *30% capacity increase*

# Inventory



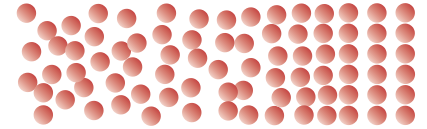
## *Examples of inventory:*

- Land
- Spec houses
- Building materials
- Payroll employees
- Long lists of vendors

## *One Good Thing about inventory:*

- Customers have a wider choice
  - Applies only to a cash-and-carry product

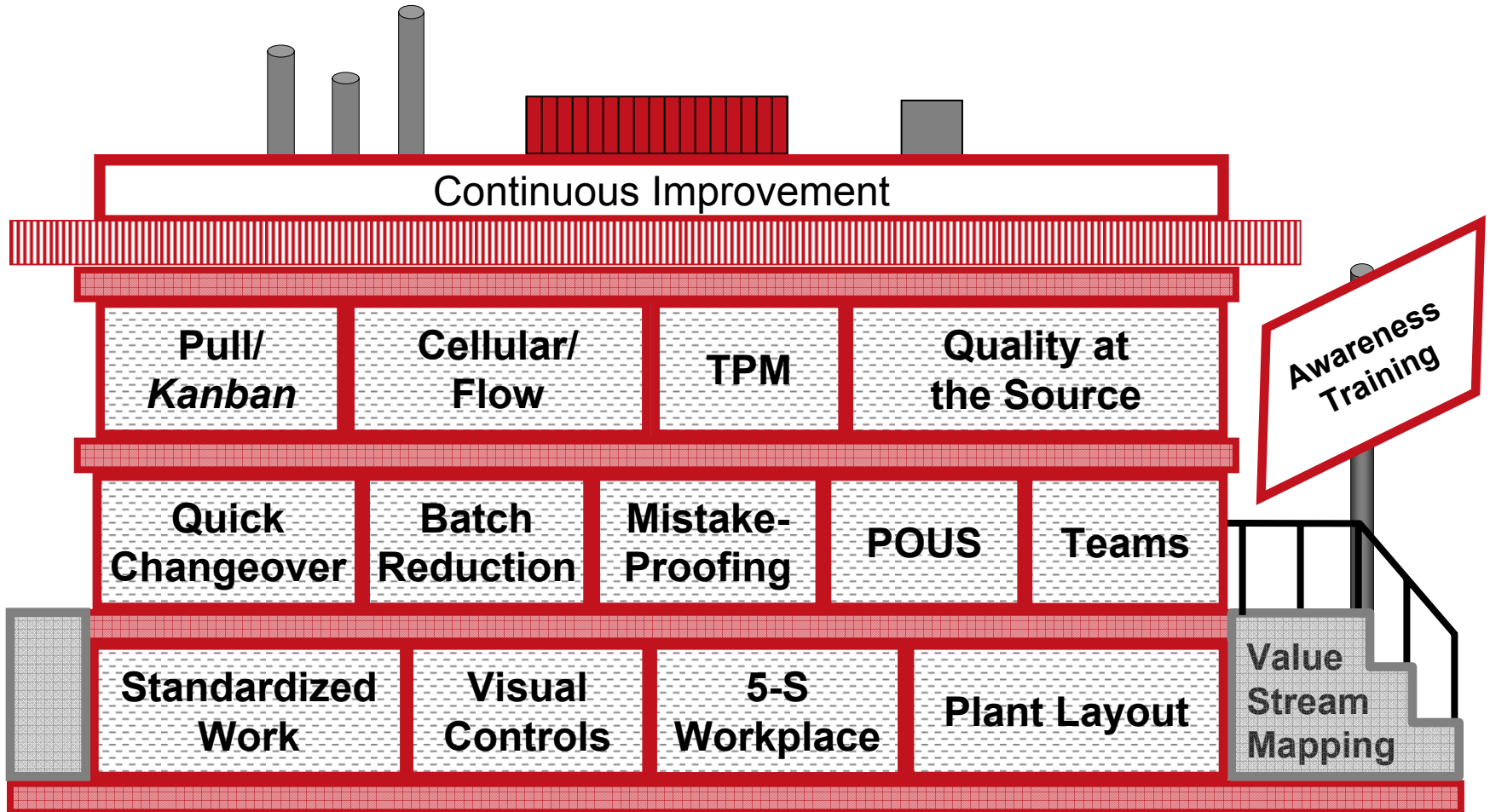
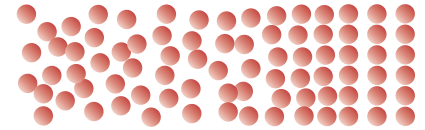
# Inventory is Evil



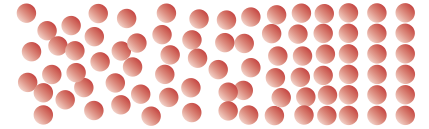
## *Inventory Adds Cost, Not Value*

- **Money:** 10-14% interest on working capital
  - **Space:** \$8-12/sq.ft./yr.
  - **Safety:** Obstacles, tripping, injuries, lost time
  - **Quality:** Dings & scratches; spoilage; “shrinkage;” scrap & rework
  - **Materials changes:** Curing, rusting, tempering, warping, aging
  - **Transactions:** Rummaging for parts, materials; transactions in/out
  - **Obsolescence risk:** Technology advances; taste, changes; design changes; wasted value added
- ⇒ *Carrying cost ≈ 20~25% of inventory*

# Lean Practices

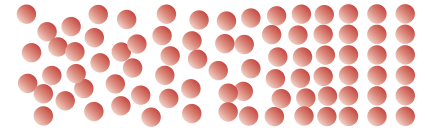


# The Lean Enterprise



- *Profitable:* Gross margin > 40%  
Net margin > 10%
- *Growing:* Consistent positive growth
- *Productive:* VA/FTE > \$90,000
- *Improving:* Productivity grows 2% / month

# Key Messages



- Lean practices can affect your bottom line
- Lean practices create capacity; plan to sop up excess as you start lean journey
- Lean practices are no spot-fix; they affect every aspect of your culture
- Your competitors are doing it; if you're standing still, you're falling behind.