



Strategex

OUR GUIDANCE. YOUR GROWTH.

HOW TO PUT LEAN ON STEROIDS

80/20 and Lean for Operational Excellence

PRESENTED BY:

Manufacturers
ALLIANCE



Strategex

OUR GUIDANCE. YOUR GROWTH.

History: Lean and 80/20

"*The Japanese term for continuous improvement is kaizen* and is the process of making incremental improvements, no matter how small, and achieving the lean goal of eliminating all waste that adds cost without adding to value."

-Jeffrey K. Liker, *Professor, University of Michigan*



KIICHIRO TOYODA



VILFREDO PARETO

80/20 Impact on Lean: Simplify First

First Pass Yield = How many times you do something without errors, all the way through, the first time

OVERALL YIELD VS. SIGMA

SIGMA LEVEL	$\pm 3\sigma$	$\pm 4\sigma$	$\pm 5\sigma$	$\pm 6\sigma$
DEFECTS PER MILLION	67,000	6,000	200	3.4
# OF STEPS	PERCENT YIELD			
1	93%	99%	99.9%	100%
10	50	94	99.8	99.9
40	6.3	78	99	99.9
100	0.1	54	98	99.9
500	0	4	89	99.9
3,000	0	0	50	98.9

FIRST, NORTH WITH 80/20



THEN, EAST WITH LEAN



Taken from Champion Standard Work – Participant Workbook – Rev. 2/00

Quartile Analysis: Products

	# OF PRODUCTS	% OF REVENUE	% OF OH/EFFORT	% PROFIT
QUARTILE	1 - 50	89%	25%	150%
	51 - 100	7%	25%	BREAKEVEN
	101 - 150	3%	25%	(\$\$)
	151 - 200	1%	25%	(\$\$\$\$\$)

Quadrant: Customers and Products

A : 80's (Customers and Products that yield 80% of revenue)
 B : 20's (Customers and Products that yield 20% of revenue)



S₁ I₁ M₃ P₃ L₁ E₁

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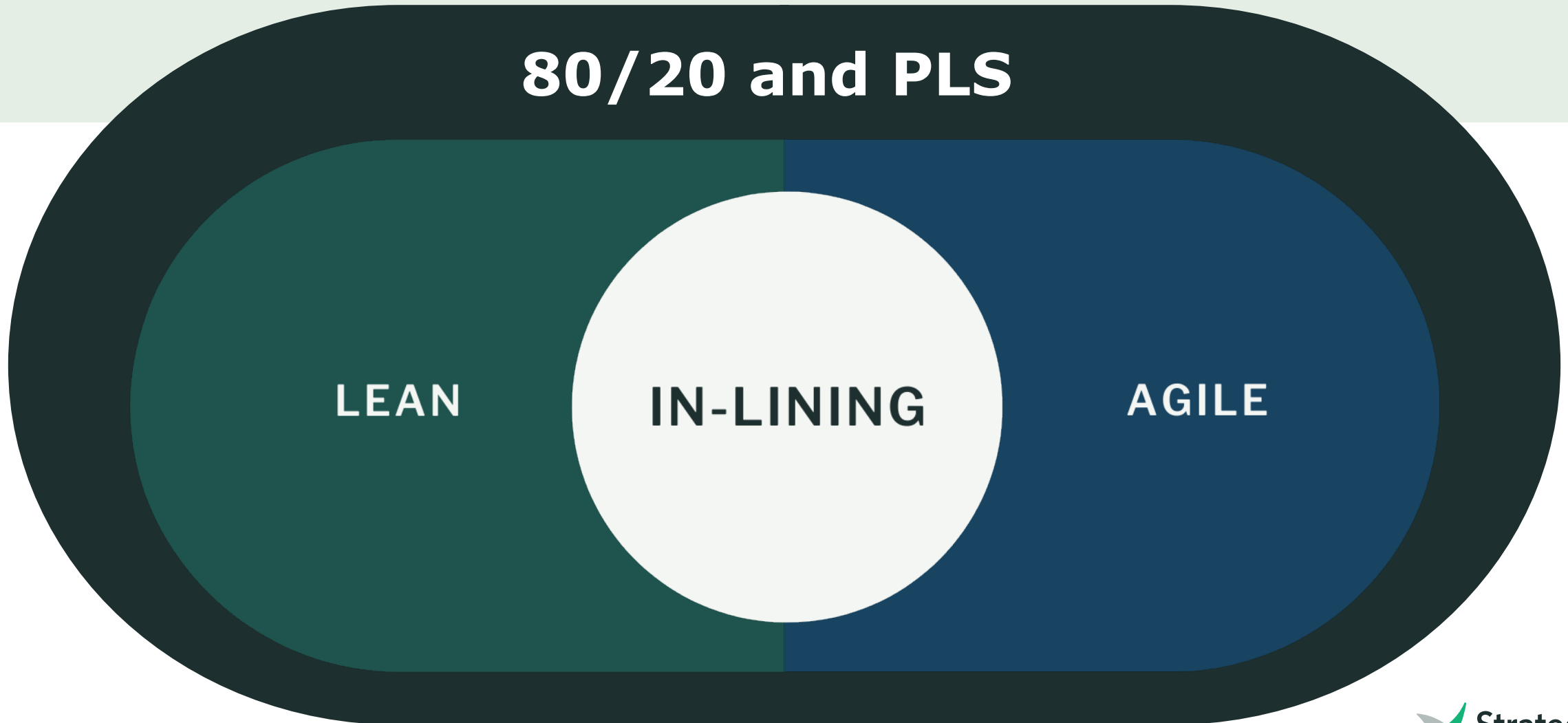


Village Build

Village Build



I Want It All!



From Village Build to In-Lining

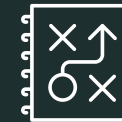
ENGINEERING WONDER	Standardized and Modularize both machine and BOM
EX MACHINA	Eliminated machine shop – not core competency
IT MUSTN'T TAKE A VILLAGE	Eliminated Village Build – setup assembly with work cells
THE SUM OF MANY PARTS	Work Cells – have all parts needed for any combination of machine
KAN BAN? KAN DO.	Kan-Ban in cells – Assembly people “order” next quantity
CELLULAR LEVEL	Instructions/Tools/Fixtures all in Cell – Poke-Oke testing
SUCCESS SCHEDULED	Schedule Boards at Cell
EASE ON DOWN THE LINE	Machine moves down line
TESTED & 80/20 APPROVED	Testing – same every time. Simple, fast powerup and test

In-Line Manufacturing Benefits to Company

- Sales easier to communicate
- Engineering – focused new product development
- Parts on hand
- Purchasing – NOT order-based
- Material Costs down 10-34%
- Inventory Turns 4 ½ times faster
- Manufacturing uses far fewer people DL down 53%
- Processes are the same
- Testing before final product assembly
- Powerup and testing very easy
- Start to finish as quick as 10-12 weeks



FOCUSED



EFFICIENT



FAST

In-Line Manufacturing Benefits to Customer

- Easy to understand product features and options
- More frequent product updates and improvements
- Faster turns from customer to market on changes
- Customer can add or delete features virtually anytime
- Better quality machines
- Parts always available
- Installation fast and easy
- Improved service
- Leadtime



COMMUNICATION



SPEED

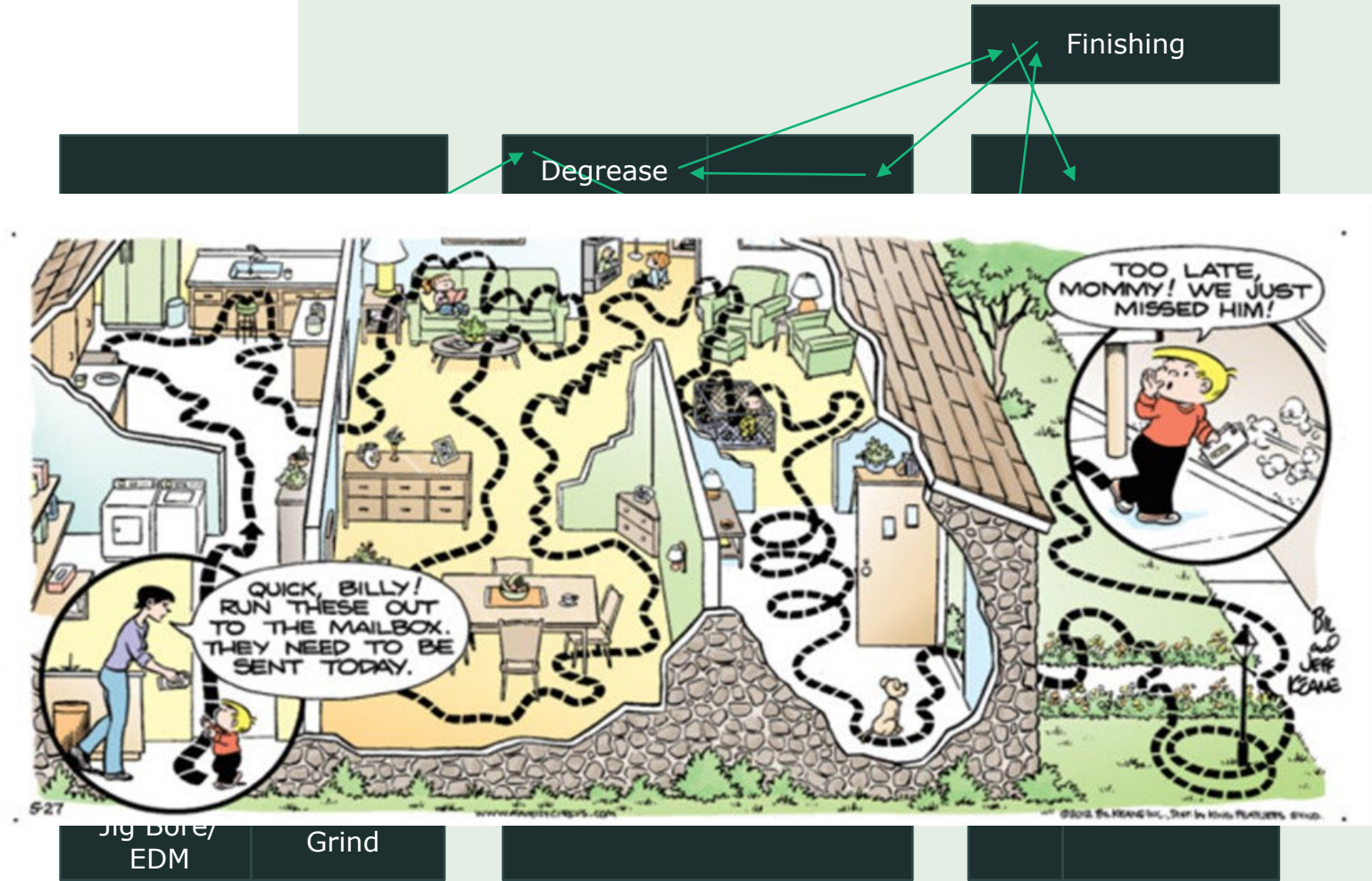


FLEXIBILITY

Manufacturing Batch Processing

BATCH PROCESSING RESULTS IN:

- High RAW, WIP and FG inventory
- Long throughput times
- Labor inefficiencies
- High indirect labor
- Safety issues



Traditional Plant Layout

A Tale of Two Factories

- High inventory
- High conversion cost (DL and Mfg OH)
- Low profit
- Long lead times
- Poor on time delivery
- Quality issues
- Combined workforce: 125 Direct and 75 Indirect (Ratio = 2.33)
- Fabrication, Assembly Test and Ship (FATS)



80/20 + Lean

- Simplified the product line
- Converted to an Assembly, Test and Ship (ATS)
- Outsourced non-core processes (the 'ings')
- Cross-trained workers
- In-Lined the production



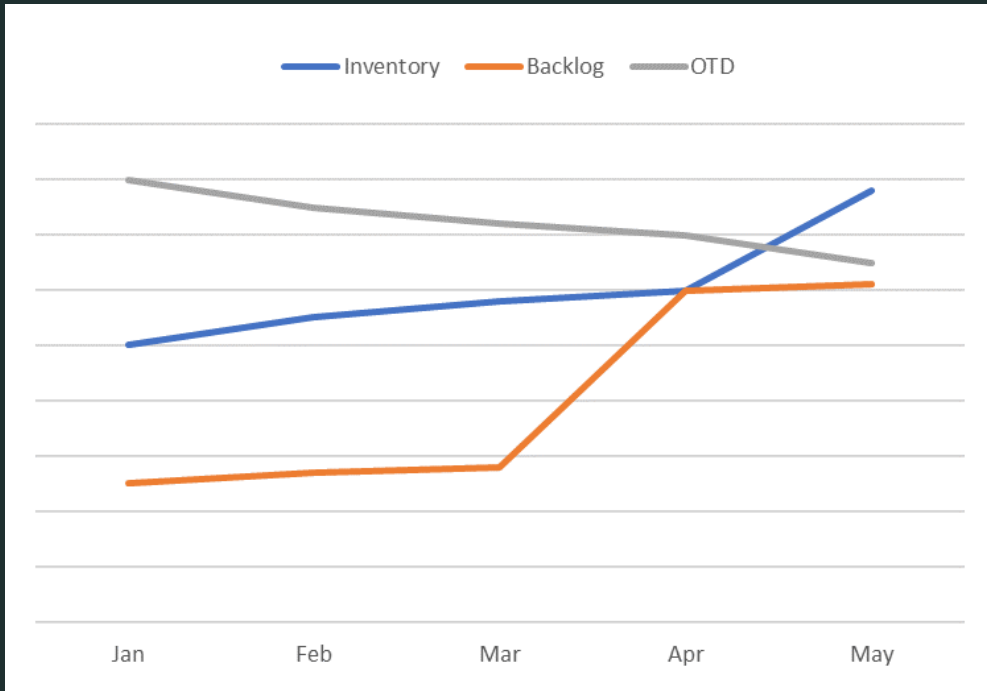
Doing Less, Making More

- Closed the smaller facility, moved all operations to larger facility
- Reduced manpower to 100 direct and 25 indirect (ratio = 4.0)
- Significantly reduced lead time and improved OTD
- Decreased inventory by over 40%
- Profit increased from less than 10% to 20% in just under 3 years
- ROIC improved from 8% to over 22%



80/20 Inventory

PRE-80/20 INVENTORY APPROACH:



RESULTS:

- **INVENTORY DOWN \$20M**
- **OTD INCREASING (95% TO A CUSTOMERS)**
- **BACKLOG RETURNING TO "NORMAL" LEVELS FOR A CUSTOMERS**

“A corporation is a living organism; it has to continue to shed its skin. Methods have to change. Focus has to change. Values have to change. The sum total of those changes is transformation.”

ANDREW GROVE, FORMER CEO OF INTEL

Questions?





Thank you



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