Lean Thinking for the Extended Value Stream

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A Presentation by

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We're All Learning to See the Value Stream

All the steps needed to proceed from:

- Concept to launch (design)
- Order to delivery (build)
- Delivery to recycle (sustain)

As We Pursue the Perfect Value Stream

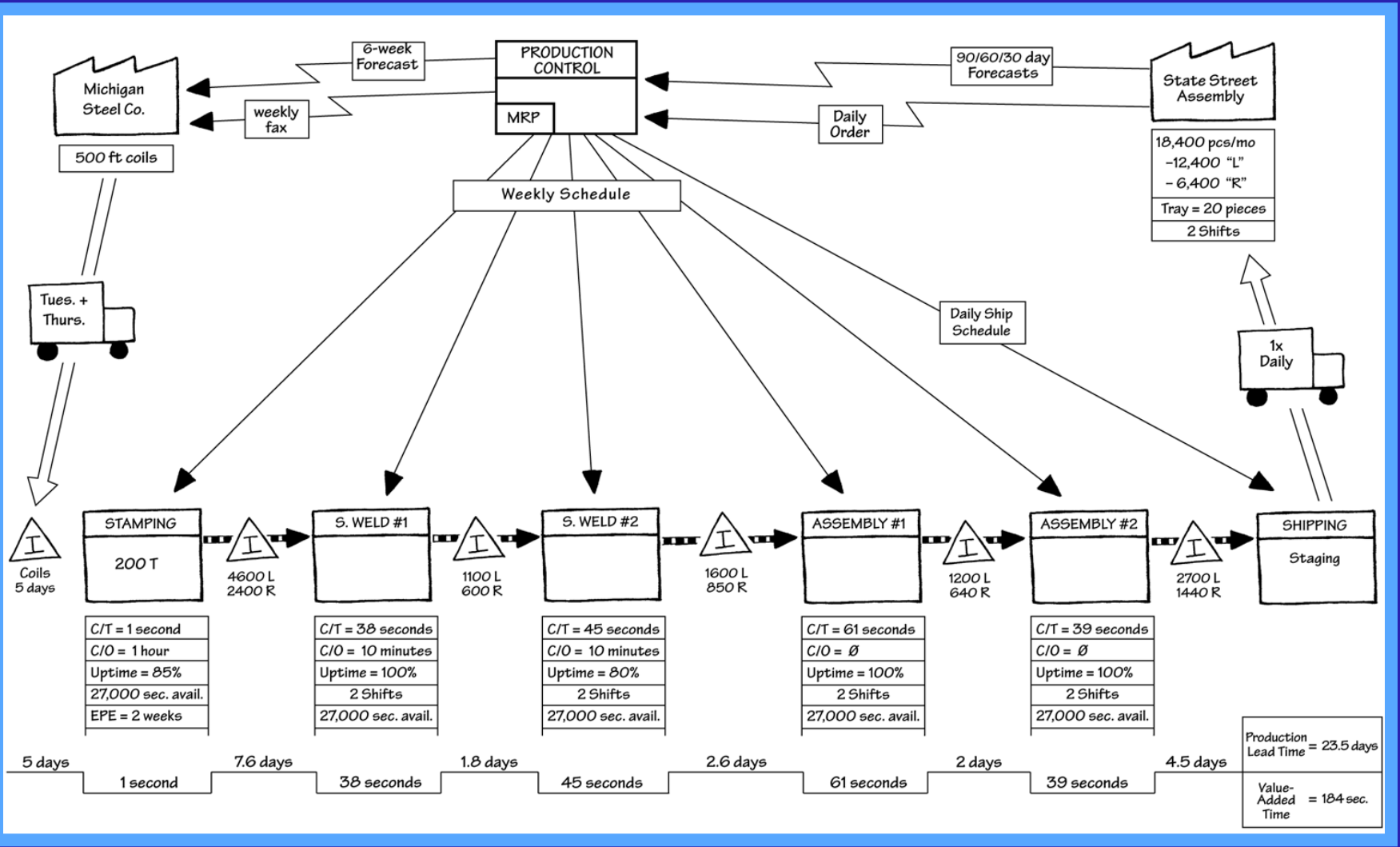
In which every step is:

- Capable – right every time (6 Sigma)
- Available – always able to run (TPM)
- Adequate – with just the right capacity
- Flexible – to respond to demand w/o inventories
- Flowing – from one step to the next
- Pulled – by the next downstream step
- Leveled – to avoid transmitting noise upstream

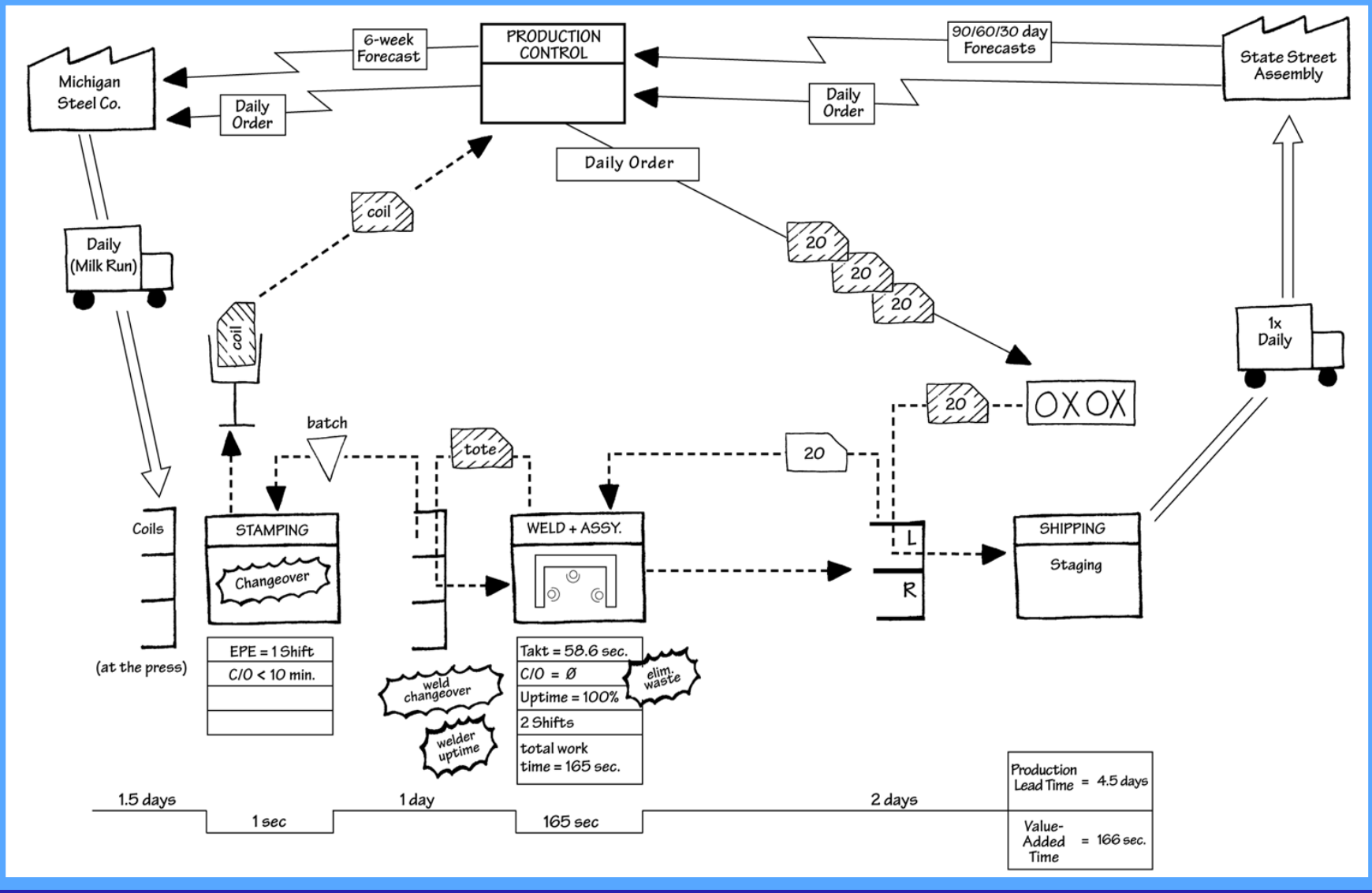
By Drawing Maps

- A simple visual tool
- Identifying the current state
- Envisioning future and ideal states
- Giving everyone touching the value stream a common language for discussing improvement

Current-State Value Stream



Future-State Value Stream



But….We've Hardly Started

- Almost all value streams today pass through many information processing points and facilities, owned by many firms.

- Creating future states within the walls and information systems of a single facility is difficult… but doable with a small team.

- Creating future states across many facilities and firms requires new methods going beyond traditional business practices.

Traditional Approaches to Perfecting Value Streams

- Create “perfect competition” at the next level of supply upstream, by attracting many bidders.
- Improve bargaining power through scale economies in raw materials buys as well.
- Turn up the competitive pressure with reverse auctions where possible.
- Demand continuing price reductions in multi-year contracts, whatever happens to volume.

Note the lack of process analysis of the value stream!

“Market will insure lowest costs & highest efficiency!”

But What If…

- The behavior of downstream customers is a major driver of upstream cost, quality, and reliability (e.g., erratic schedules, sclerotic engineering change procedures, slap-dash process qualification, large-batch logistics).

- Upstream suppliers simply lack the knowledge to take out waste while improving quality and delivery.

- No one – customer or supplier – has ever thought about optimizing the whole value stream rather than defending their margins in the one part they control.

Logical Consequence

- Margin squeezing rather than true cost reduction.
- Persistent shortfalls in quality and delivery reliability.
- Low-ball bidding and the engineering change game.
- Collapse of “partnership” and “trust” in economic downturns, replaced by “survival of the fittest”.

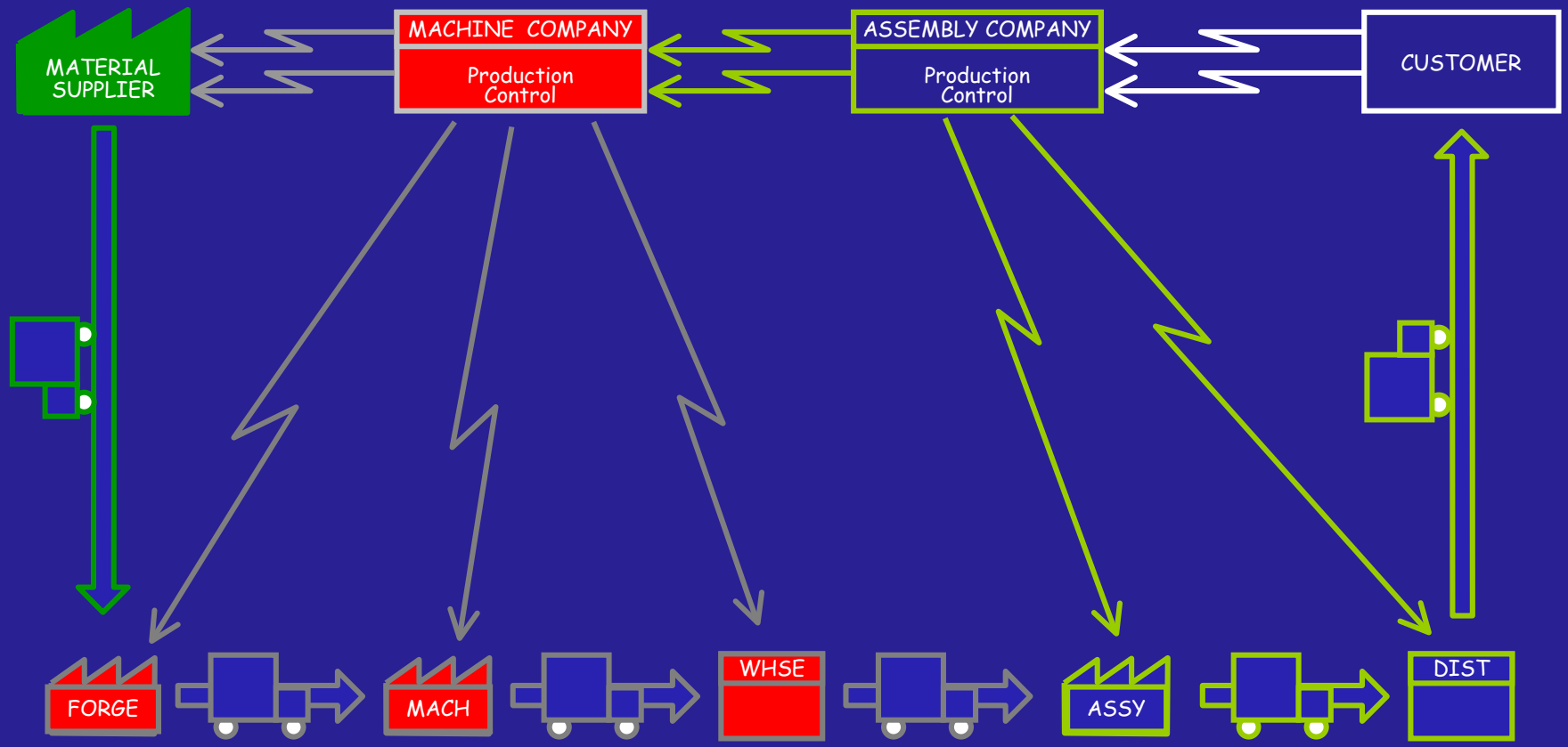
How Can We Do Better?

- Create a new language for a civilized discussion about optimizing entire value streams to create a "win-win-win".

- By jointly drawing extended value stream maps.

- To stop focusing on each other's margins – which are typically very small – and start focusing on each other's waste which is typically very large.

Extended Current-State Map



Features to Include

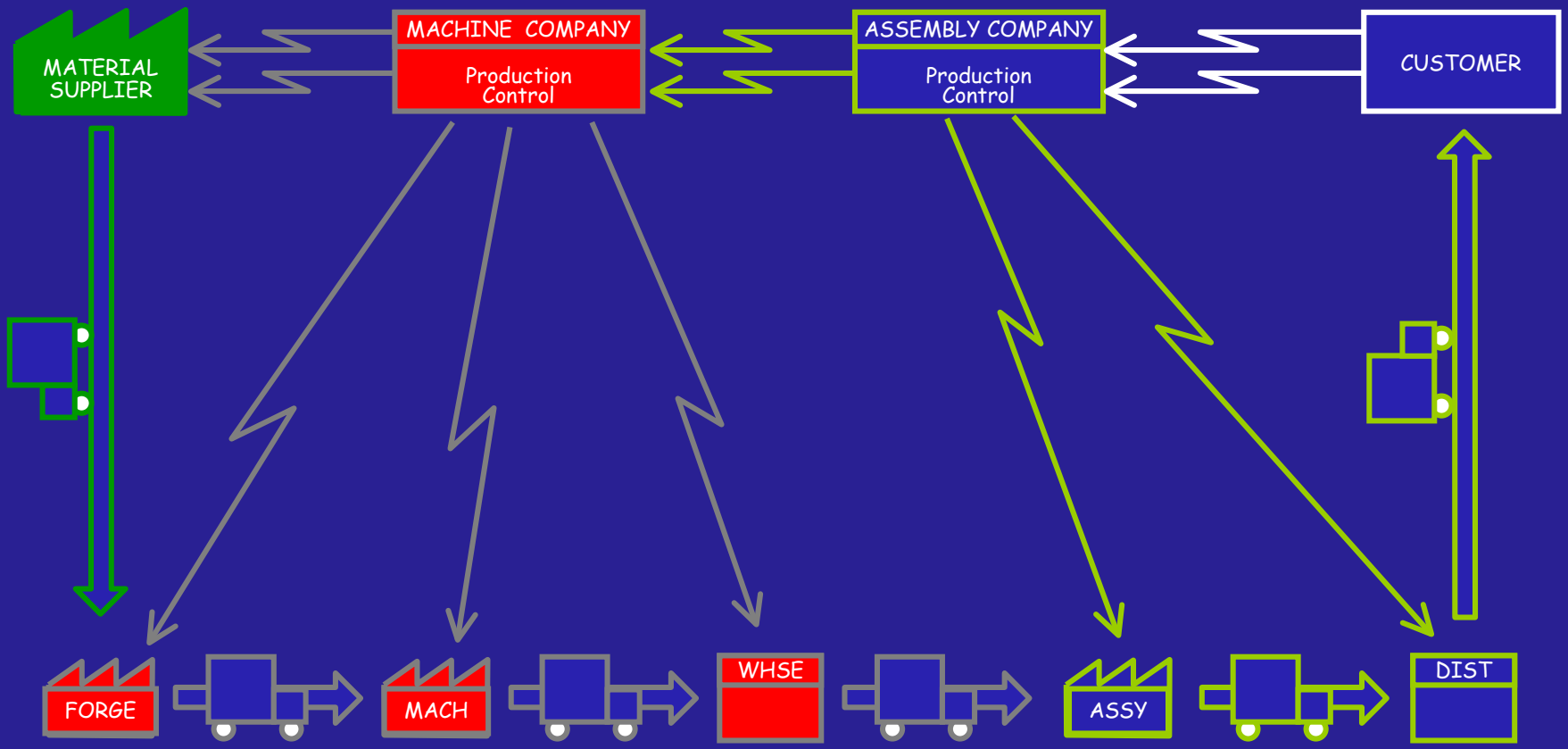
- Total steps versus value creating steps
- Total time versus value creating time
- Noise (demand amplification) in order flow
- Quality/capability (defect damping) of each facility
- Availability of each facility
- Hand-offs, work-arounds and total logistics costs

Note: This is not a product costing exercise! Follow one component path all the way back to raw material

What We Typically See

- 80 – 90% of total steps are waste from standpoint of end customer.
- 99.9% of throughput time is wasted time.
- Demand becomes more and more erratic as it moves upstream, imposing major inventory, capacity, and management costs at every level.
- Quality becomes worse and worse as we move upstream, imposing major costs downstream.
- Most managers and many production associates expend the majority of their efforts on hand-offs, work-arounds, and logistical complexity.

First Future State:
Create Flow & Pull in Plants



What Can Be Achieved?

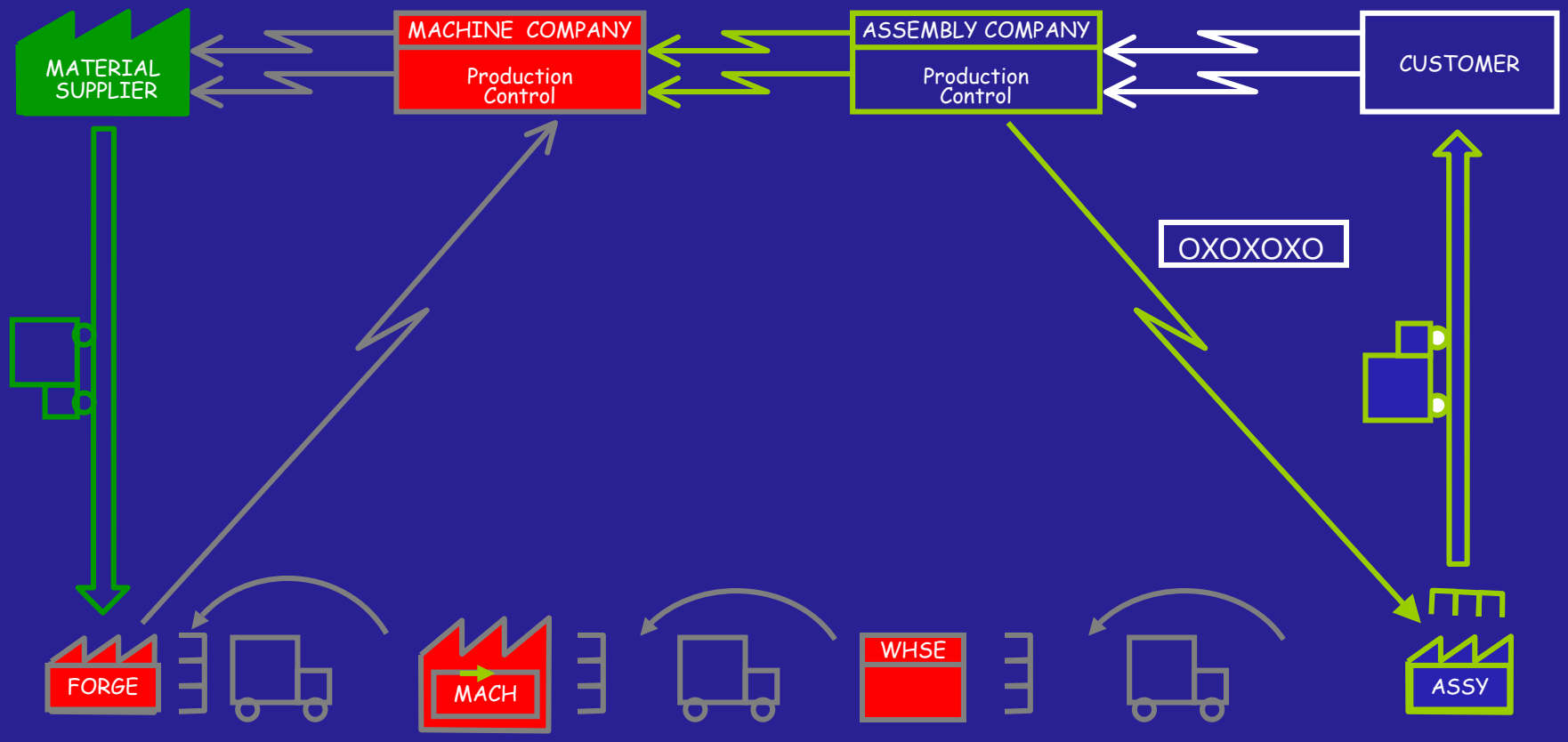
- Eliminates of a quarter of the wasted steps.
- Reduces total throughput time by 50%.

But…

- Only a small effect on demand amplification and workarounds.
- No effect on logistics and complexity costs.

A "price of admission" to the value stream team, requiring little time and practically no capital.

Second Future State: Leveled, Frequent Pull Between Facilities

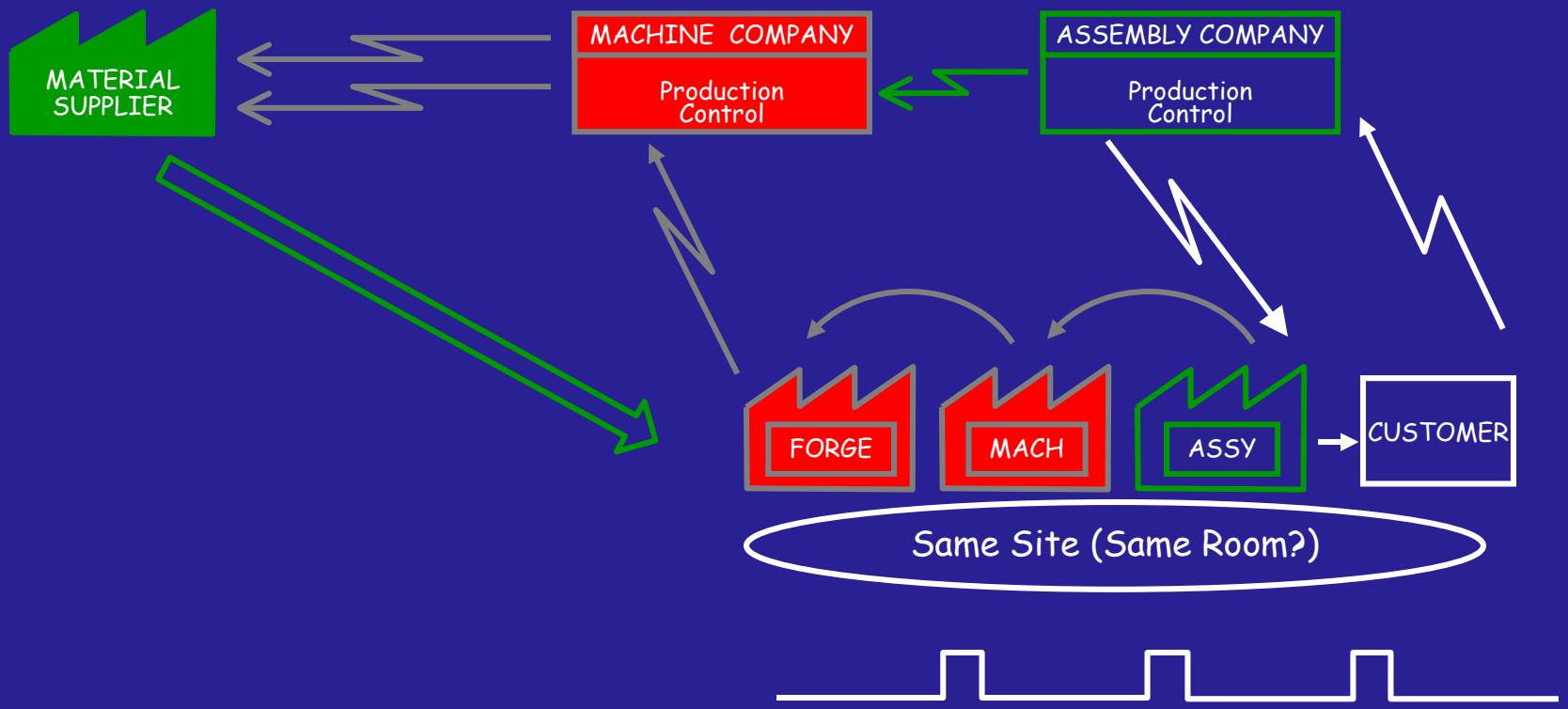


What Can Be Achieved?

- 50% of wasted steps are now eliminated.
- Total throughput time falls to 35% of current state.
- Demand amplification falls from +/- 30% to +/- 5%.
- Quality improves because of reduced time between creation of defects and discovery downstream.
- Logistics costs may increase slightly, but total value stream costs fall substantially.

A logical next step that requires a lot of knowledge but not much capital.

Ideal-State:
Value Stream Compression



The Biggest Challenge

Requires:

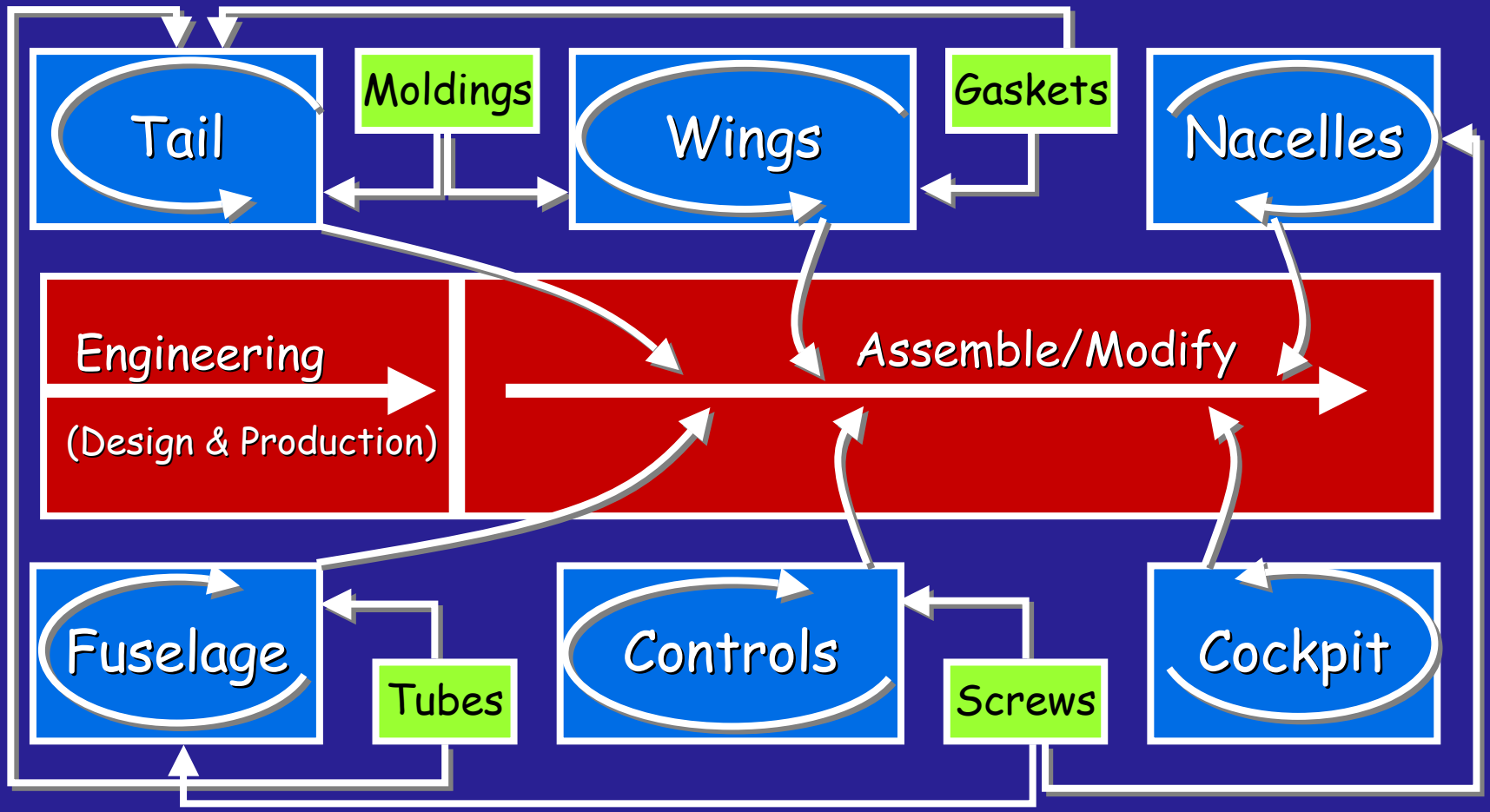
- Shared principles of collaboration
- Willingness to spend capital at one point to reduce reduce costs at another
- A way for winners to compensate losers

What Can Be Achieved?

- 75% of wasted steps are now eliminated.
- Throughput time shrinks to less than 10% of current-state time and within acceptable wait time of the customer: The entire value stream is now running make-to-order rather than make-to-forecast!
- Demand amplification is eliminated.
- Quality is higher and consistent from start to finish.
- Transport links, information needs, and “connectivity costs” shrink dramatically.

A giant leap but potentially a “game changer” for every participant in the extended value stream!

Compressed Aircraft Program



Skunk Works Redux! Throughput time & cost slashed!

Who Can Make It Happen?

- We've only recently introduced the idea of "value stream management" within facilities and companies.
- Few managers currently devote mind-share to (or has any authority for) extended value streams.
- Purchasing departments typically lack credibility, both internally and externally, for initiatives beyond traditional "bargaining".
- Lean improvement groups typically lack a mandate to go beyond isolated techniques for "supplier development".

Who Can Make It Happen?

- The lead can come from anywhere along the value stream.
- The initial need is a collective decision by senior management in every participating firm to give extended value stream mapping a try.
- The next need is for multi-firm, multi-function value stream teams to identify and remove obvious waste.
- The continuing need is for longer-term collective value stream analysis moving toward ideal states.

Why Is This a Great Time to Start?

- Manufacturing recession focuses everyone's mind.
- We have already done experiments with hyper margin squeezing in previous recessions; everyone knows it leads to lose-lose-lose outcomes.
- Consciousness is steadily rising about value stream thinking; many managers are now ready to tackle extended value streams.

What we need most is highly visible, break-through examples in a range of industries.

How about you?!

How about now?!