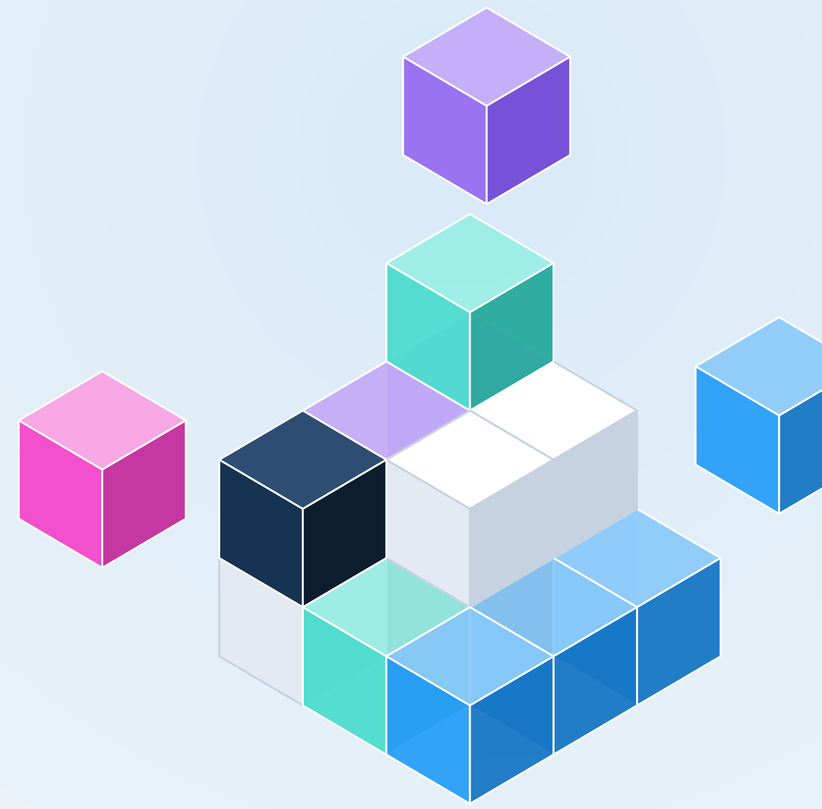
PROCESS IMPROVEMENT

Process Cycle Efficiency



Process cycle efficiency (PCE) is the share of total lead time spent on value-added work. In most processes it is low, because units spend most of their time waiting.

01 THE CORE MODEL

STACKED TIMELINE · VALUE-ADDED SHARE

PROCESS CYCLE EFFICIENCY

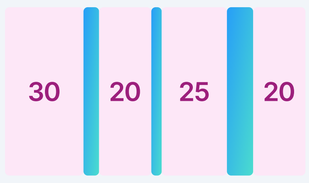
PCE = Value-added time ÷ Lead time

Today
Large queues



3.4 %
20 of 590 min

After WIP cap
Small queues



17.4 %
20 of 115 min

Value-added time

Time spent transforming the product in a way the customer pays for.

Lead time

Total elapsed time from start to finish, waiting included.

PCE

Value-added time ÷ lead time, in percent. Low values are common.

02 RAISING PCE

Cutting queues raises PCE far faster than speeding up the work.

SPEED UP WORK — CUT WAITING

FASTER PROCESSING

- \+ Lower cost per unit
- − Barely moves lead time
- − Often needs investment

LESS WAITING

- \+ Lead time drops sharply
- \+ WIP and floor space freed
- \+ Mostly organizational changes

03 WORKED EXAMPLE

BRACKET ORDER FROM THE TIMELINE · ILLUSTRATIVE FIGURES

VALUE-ADDED TIME
20 min
cut, bend, weld

÷

LEAD TIME
590 min
mostly queues

=

PCE TODAY
3.4 %
20 ÷ 590

queues cut →

PCE AFTER
17.4 %
20 ÷ 115

04 MANAGEMENT TAKEAWAYS

01
Measure lead time per unit
Follow a real unit with timestamps from start to finish.

02
Attack the longest queue
Batching and release rules usually create it.

03
Track PCE over time
The trend shows whether flow is really improving.

05 COMMON MISTAKE

LIMITATION

Counting all processing as value

Rework, inspection and transport are processing, but not value-added. Counting them inflates PCE.