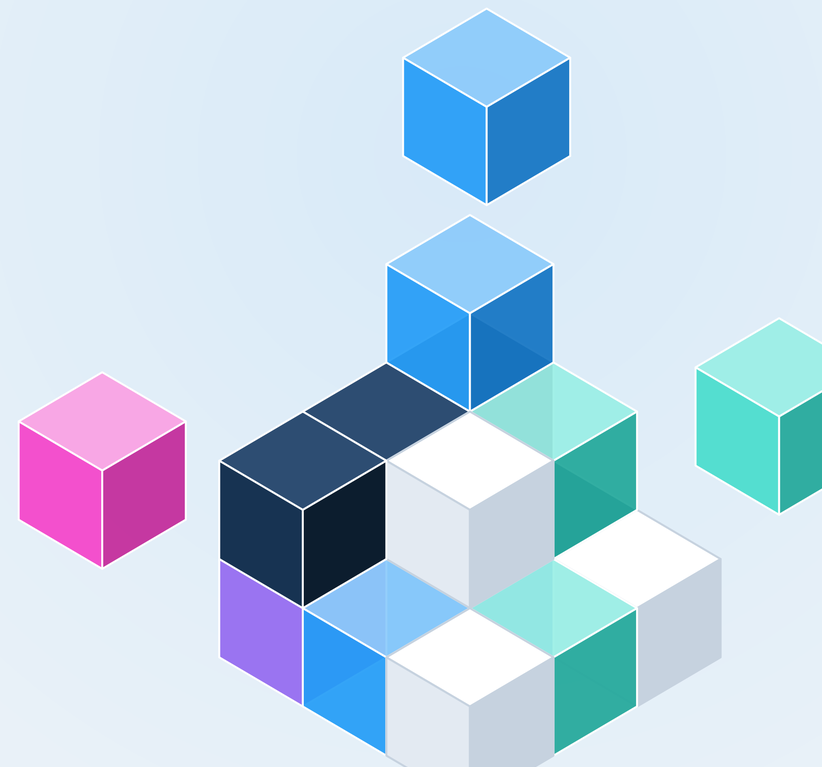
PROCESS IMPROVEMENT

Kanban System Design



A kanban system controls production and material flow with signals: a downstream process consumes, the empty bin or card travels back and authorizes exactly one replenishment.

01 THE CORE MODEL

PULL LOOP · CARDS CAP THE INVENTORY

UPSTREAM
Supplier process
Produces only to a kanban card

→

CAPPED BUFFER
Supermarket
At most 6 bins of part 4711

→

DOWNSTREAM
Customer process
Takes one bin at a time

EMPTY BIN AND CARD FLOW BACK: THE SIGNAL TO REPLENISH EXACTLY ONE BIN

Kanban card
A signal carrying part, quantity, supplier and destination.

WIP limit
The number of cards in the loop; it caps inventory by design.

Replenishment rule
Each returned card authorizes exactly one bin to be refilled.

02 SIZING THE LOOP

Too few cards starve the line; too many hide problems.

TOO FEW ——— TOO MANY

TOO FEW CARDS
- − The customer process waits for parts
- − Constant expediting
- \+ Problems surface immediately

TOO MANY CARDS
- \+ No stockouts
- − Inventory and space grow
- − Problems hidden behind stock

03 WORKED EXAMPLE

PART 4711 · SIZING THE LOOP · ILLUSTRATIVE FIGURES

DEMAND **40 / hour** × REPLENISHMENT TIME **1.5 h** incl. transport × SAFETY FACTOR **1.2** = CARDS NEEDED **6 bins** 72 parts ÷ 12 per bin

04 MANAGEMENT TAKEAWAYS

01
Calculate, then observe
Start from the formula, then adjust to what you see at the line.

02
Remove cards deliberately
Taking one card out reveals the next problem to solve.

03
Never produce without a card
One broken rule turns pull back into push.

05 COMMON MISTAKE

LIMITATION
Kanban without leveling
Large, irregular pulls need many cards and big supermarkets. Level demand first.