MANUFACTURING · KAIZEN

Building capability by changing the work

At the UK production site of a global payment technology manufacturer, we led and facilitated a series of five-day Kaizen events. Each one brought operators, team leaders, engineers and support staff together, trained them in Lean principles and the eight wastes, then had them change their own workplace that same week. The results showed up in the KPIs: more output per person, shorter cycle times, stronger maintenance and fewer defects.

A KAIZEN WEEK

Learn it in the morning, change the workplace by the afternoon

1

DAY ONE

See the work

Lean and 8 wastes training
Map the process
Walk the shop floor

2

DAY TWO

Find the waste

Time observations
Waste and cause analysis
5 whys, cause and effect

3

DAY THREE

Choose the fixes

Takt time and line balance
Prioritise by impact and ease
Plan countermeasures

4

DAY FOUR

Change the workplace

Re-lay cells, fix jigs
Mistake-proofing and 5S
Train the operators

5

DAY FIVE

Prove and report

Re-time to verify
Update standard work
Report out to leadership

THE TEAM Five to nine people from operations, quality, engineering, maintenance, HSE, supply chain and finance, some on their first Kaizen

CLIENT

UK production site, global payment technology manufacturer

SECTOR

Manufacturing, electromechanical assembly

SERVICES

Kaizen facilitation, Lean training, TPM, structured problem-solving

ENGAGEMENT

Kaizen programme, 2019 to 2021, five events featured

AT A GLANCE

+44%
units per person per hour on a hopper line

176s → 130s
cycle time on a multi-variant line

22% → 97%
TPM score on a validator cell

100+
people trained across all our Kaizen events at the site

THE CHALLENGE

Rising demand, many variants and problems that kept coming back

The site builds coin-handling and payment equipment across many product lines, and one line alone had 308 variants. Demand was rising on some lines: one sub-assembly line had to go from 1,400 to 1,750 units a week to support a product ramp-up. Others had too many configurations to plan reliably, no formal maintenance routine, or recurring quality problems.

Each problem needed more than a quick fix. The people running the line had to understand why it was happening and own the new way of working, so the improvement would last after the week was over.

ALSO AT THIS SITE

Alongside the Kaizen programme, we led the transfer of a multimillion-pound production facility from Germany to the UK: travelling to the German site, replicating the product lines, training operatives and setting productivity baselines. The same Kaizen methods then took efficiency beyond the original operation.

OUR APPROACH

Train by doing

Every event ran over five days with a mixed team of five to nine people: operators, team leaders, quality, engineering, maintenance, HSE, supply chain and finance, some on their first Kaizen. Short training blocks each morning were put straight to work on the line.

OUR APPROACH

Proven methods in practice

Teams set the pace with takt time, balanced the work to it with load charts and standard work, and built playbooks for different crew sizes. Two-bin point-of-use systems, kitting and a dedicated material handler pulled parts to the line. Mistake-proofing, 5S and visual management (andon lights, shadow boards, floor markings and performance boards) made the new standard easy to follow and easy to check.

Value

Start from what the customer needs: the right product, right first time.

Value stream

Map every step of the process as it really runs, not as it is written.

Flow

Takt time, balanced work and a set amount of work in progress.

Pull

Two-bin point-of-use, kitting and a material handler bring parts to the line.

Perfection

Standard work, visual management and owned actions keep improvement going.

Seeing the eight wastes

Teams learned the eight wastes, then audited their own lines to find them. Seeing waste in their own work, rather than in a classroom example, is what made the changes stick.

THE EIGHT WASTES (TIMWOODS)

What the teams found when they looked

T Transport
Parts and packaging carried from lineside to the point of use by the operators

I Inventory
Work in progress building up between stages, with no two-bin system

M Motion
Leaving the seat to reach test rigs, and refilling their own parts

W Waiting
Lines stopping for missing material and test rig breakdowns

O Over-production
No standard work in progress, so stock built up on the line

O Over-processing
Double packing, and repeat tests from an unreliable fixture

D Defects
False test failures, and missing or loose screws

S Skills
Operators' knowledge going unused. Kaizen put it at the centre

IN THE WORKPLACE

Changing the workplace, that week

The rule was simple: if the team could change it during the week, they did. Ideas were tried on the line, re-timed to prove they worked, written into standard work and trained out to operators before the report-out.

CHANGES MADE DURING THE WEEKS

- Cells re-laid out so operators could reach every test rig without leaving their seat
- Jigs fixed to benches, and broken jigs replaced with new 3D-printed ones
- Two-bin point-of-use racks with return chutes and labelled locations, plus kitting trolleys for the next order
- Hand drivers replaced with torque-set electric drivers, and screw counters with go/no-go lights
- A single-coin jig to mistake-proof test insertion
- A digital maintenance hub with daily and weekly checks, red and green gauge zones, and critical spares at the cell

Each week ended with a report-out to leadership and a newspaper of open actions with owners and dates, so nothing was left hanging.

Safety first, every time

Every event started with safety. Equipment was locked out before anyone worked on it, and safety issues were fixed during the week rather than added to a list. Replacing hand drivers with torque-set electric drivers also reduced the risk of repetitive strain.

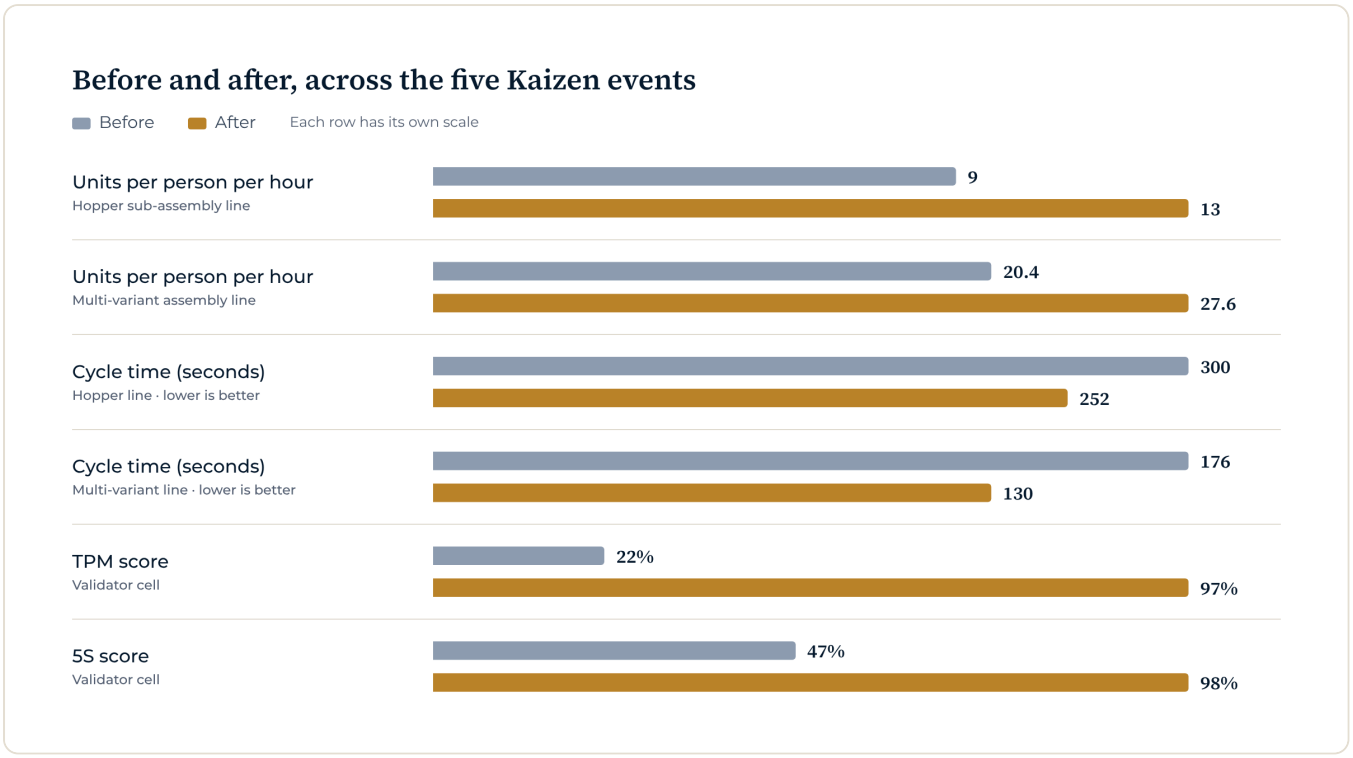
8 of 8
safety issues fixed during the week on the hopper line

8 of 8
safety red tags closed in the maintenance event

2 → 0
medium risks on the validator cell, all reduced to low

RESULTS

What changed, event by event



STANDARD WORK FOR FLOW

Hopper sub-assembly line

Output up from 1,400 to 1,750 a week on a single day shift. Units per person per hour up 44%, from 9 to 13, and cycle time down 16%, from 300 to 252 seconds. Eight safety issues fixed and the 5S audit score up from 15 to 24.

STANDARD WORK FOR FLOW

Multi-variant assembly line

Cycle time down from 176 to 130 seconds and units per person per hour up from 20.4 to 27.6. Kitting removed around three minutes of part-chasing per order, and 8 m² of floor space was freed across three cells.

TOTAL PRODUCTIVE MAINTENANCE

Validator cell

TPM score up from 22% to 97% and 5S from 47% to 98%. 64 issues red-tagged and 60 closed in the week, including every safety item, with daily, weekly, preventive and predictive checks now in place.

STRUCTURED PROBLEM-SOLVING

Validator test failures

Showed that 80% of test failures were genuine and 20% process-related, then mistake-proofed coin insertion. 10 of 11 actions were completed in the week, targeting first pass yield up from 89% to 94%.

STRUCTURED PROBLEM-SOLVING

Missing and loose screws

Screw counters with go/no-go lights, torque-set electric drivers in place of hand drivers (reducing strain risk) and 38% fewer driver types on the problem stages, targeting an 80% reduction in missing and loose screws.

LESSONS

What the teams would tell the next one

01

Challenge the current set-up

Don't accept that a layout can't change, even on a largely automated line.

02

Operators make the difference

Input from the people on the line had the biggest impact. Fresh eyes brought new ideas.

03

Go and see

Find the problem where it happens, and listen to the people who do the work.

04

Prepare to act

Validate targets and prove concepts before the week, so equipment can be ordered in time.

START A CONVERSATION

Want your teams improving their own work?

We run Kaizen events and Lean training that build lasting improvement capability on the shop floor. Let's talk about where your operation could start.

www.cropperadvisorygroup.com

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About Cropper Advisory Group

Cropper Advisory Group helps construction and manufacturing organisations improve efficiency and effectiveness through operational excellence. It is led by Caio Cropper, an operational excellence leader with more than 15 years' experience across construction, manufacturing and complex infrastructure programmes.

Client and product details have been anonymised. Results are drawn from the Kaizen events' own report-outs; targets are labelled as such.