

## Performance Step-Change – Reducing Process Scrap

**The Client:** A £600million annual turnover medical device manufacturer, supplying global markets

The majority of in-process scrap was rejected for to visual defects, for which there were no defined standards. The business had done a fantastic job of putting quality first in everyone's thinking, but missed out that quality is fit for purpose, not perfect. Many of the scrapped products had tiny defects, which were barely noticeable to a customer and unrelated to the product's effectiveness.

### The Problem

- 12% average in-process scrap (only 5% of which was being recorded)
- The recorded scrap percentage was used to manage material stock, leading to inaccurate stock availability. Production orders were frequently cancelled due to materials being unavailable, which was impacting both production and warehouse productivity.
- When a quality problem occurred, there could be significant line down time while people discussed how to resolve it, and whether the affected product had to be scrapped
- Annual cost of scrap was over £1million, with additional admin and landfill costs for disposal

**The Brief:** Reduce in-process scrap to the budgeted 5%

### The Steps

We began by agreeing the project scope and business case with the senior team, then mapped the current production and materials recording process

Introduced an accurate method of recording process scrap, and reporting by defect type. This enabled us to baseline current performance and determine our improvement priorities

Agreed a 'just acceptable' level for each defect type, by collecting and assessing samples ranging from perfect to terrible

Created sample libraries for each line showing the just-OK, and just-Fail limits, and giving troubleshooting instructions for each defect type

Once training was rolled out, a Gauge R&R study confirmed consistent application of the standards between individuals and over time

On-going reporting and problem-solving training equipped the operational teams to continually improve their processes after project closure

### The Results

**Within 3 months, average process scrap was reduced to 4.6%, with an annual materials saving of £550K** and no increase in customer complaints. Production downtimes also reduced by 10%

## Performance Step-Change – Reducing Defects

**The Client:** A 250 employee site, manufacturing over 4million km per year of glass fibre for global telecommunications networks.

This was my first ever Lean-Sigma project, and it's still the most data intensive and technically complex improvement that I've led. Seed defects are small, visible voids or bubbles in the glass canes - the glass which eventually becomes the signal-carrying centre of the fibre.

For over 15 years, factory-based and dedicated research teams had worked on seed reduction. Their cause had never been fully understood, and only small improvements had been achieved.

### The Problem

- Seeds caused a range of material losses, costing over £2.5million a year
- Scrapping fibre from within a 250km blank reduces the average sales length, increasing customer storage costs, and reducing their process efficiency
- Seeds also upset the fibre formation process, reducing process efficiency so much that we were becoming unable to meet customer demand, in a highly competitive market.

**The Brief:** Reduce seeds defects by 50% within 6 months

### The Steps

Studied previous research and trials in seeds reduction. Mapped the 3 processes preceding their detection, and brainstormed potential causes

Carried out a range of experiments to prove or disprove hypotheses. Changes to five separate processes were tested for statistical significance before being fully implemented.

Detailed analysis of 6 months' production data looking for patterns, and testing out the theories we'd generated about possible causes. One process condition which hadn't featured in any brainstorming was found to have a significant effect. Acting purely on this data, the team changed a single process setting, which reduced defects by more than half, overnight.

Further process changes were made to prevent future occurrences of the brainstormed potential causes. Procedure documents were updated, and thorough operator training delivered.

### The Result

**In five months, the team reduced seeds by 60%, with associated annual savings of over £1.8million**

## Performance Step-Change – Reducing Surface Defects

**The Client:** A 250 employee site, manufacturing over 4million km per year of glass fibre for global telecommunications networks.

Coating defects were detected by manual inspection. As it was not known whether defects affected the fibre's long-term performance, visible affected fibre was wound off the spool and scrapped.

### The Problem

The associated yield losses had reached 10% (£500K per month)

Winding off scrap was significantly reducing testing machine capacity. This impacted our ability to meet customer demand, and risked damage to our position in a highly competitive market.

**The Brief:** Reduce defect occurrence and associated costs by 50%.

### The Steps

Mapped the production processes and brainstormed potential defect causes. Developed plans for testing each of the theories.

Working closely with the supplier, we greatly increased our technical knowledge of the fibre coating chemistry and function, from which we developed a bite-sized in-house training module

Data analysis ruled out coating batch variation as the main defect source (as had been originally believed). Visual analysis of defects ruled out further coating materials related theories.

Frequent discussions with production teams identified several key observations, which eventually enabled the defects to be replicated off-line, confirming the actual causes.

A series of process changes were then implemented to reduce or remove the confirmed causes

Developed reporting which automatically tracked defect occurrence by production and testing equipment number. Identifying upsets on specific manufacturing lines allowed them to be immediately corrected.

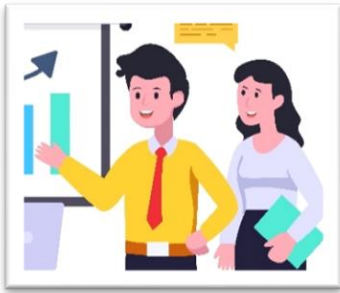
### The Result

**Within 5 months, defects were almost completely eliminated, with an associated annual saving of over £5million**

## Introducing the 3P Academy - Getting Busy People Fixing Tough Problems

Delivering exceptional performance isn't easy, especially when everyone's busy. Even the most compelling vision and solid business case aren't always enough to deliver sustainable change, and the performance you know is possible.

The 3P Academy is dedicated to helping businesses like yours to develop a culture of world class continuous improvement, and the breakthrough KPI performance which it enables. Our support follows two parallel paths...



### Performance through People

Your people are amazing – one of your biggest business assets. Some of the time...

Because no matter how talented, dedicated or experienced they are, every one of your people deals with stress and uncertainty every day: Competing priorities, difficult customers, tight deadlines...

They'll take most of those challenges in their stride. But the more they build up, the more they impact performance, which can easily snowball. So we embed the resilience, communication and influence skills to keep your people performing at their collective best, even under pressure.

### Performance through Process

Process isn't usually a word to quicken the pulse with excitement. Yet there's a process for everything your business does, from welcoming new customers to creating your annual reports.

When they're working they get little attention, but when processes aren't at their best, the mistakes and work-arounds become a silent capacity thief – leaving less time for what everyone's really meant to be doing. And your KPIs get harder to maintain, let alone improve.

We're experts at getting operational teams delivering breakthrough process improvements, to enhance productivity, capacity and on-time delivery, reduce quality issues and complaints, and improve customer experience - leading to less stress, and a healthier bottom line.



## Some of Our Key Numbers



**People We've Trained**

Over 1,000



**Processes they've Improved**

More than 5,000



**Resulting annual value**

Around £75million, and counting...

## Examples of the Organisations we've Supported

LLOYDS  
BANKING  
GROUP



UK SPACE  
AGENCY

M&S

COSATTO®  
clever stuff for happy babies

St John  
Ambulance



PHOENIX  
Medical Supplies Limited

Progress  
HOUSING GROUP

HSBC

dudley  
building society

## What You Can Expect from Us

Driven by you,  
delivered from  
within

Our role's not to have the answers (because no one likes being told what to do anyway). It's to equip and empower your people to break new ground in KPI performance. Because solutions which are owned by the people who created them, give lasting results.

Keeping it simple  
(because  
everyone's busy)

No matter how strong the desire to improve, day-to-day reality can get in the way. So we're flexible and adaptable to your needs and constraints, delivering bite-sized, to give your people more time to do what they're best at.

Real-world ways  
of working

A solid business case and robust plan often get you only part way - because people don't always do what makes sense. So by blending behavioural science with continuous improvement, we enable your people to challenge assumptions, and change attitudes, mindsets and behaviours - clearing the way to performance breakthroughs



Sue's one of the most knowledgeable and professional mentors I've had the pleasure of learning from, and I can definitely recommend. Sue also supported developing a group of green belt change champions

*Adam Cardinal. Global Director, Malvern Panalytical*



Sue is a rare individual... an engineer with superb people skills. I've seen multiple examples of where Sue's interventions either completely prevented a problem, or stopped it spiralling out of control.

*Steven Houghton-Burnett. IT Director, Freeman Clarke*