

Clouver Newsletter

Pilot Project

From Empirical Values to Reliable Figures – a Sewing Line in the Clouver Pilot Project

We show you how Clouver was used in a pilot project in sewing production to record the production volume, downtimes, quality and energy consumption of a line – and how the customer was thereby able to identify bottlenecks, error hotspots and unused capacity instead of estimating them.

How productive is a line really?

This was the question facing a pilot customer from sewing production. On a sewing line with ten machines, a product is manufactured in several variants.

There was no shortage of empirical values from production. However, reliable figures on how much time is actually spent productively, where the bottleneck lies and which errors account for the largest share were lacking.

> ⚠ Without this data, improvements are difficult to prioritise. It remains unclear which measure has the greatest effect and whether a change has actually worked.

In the pilot project, ten machines were connected to Clouver and four data sources were consolidated over twelve weeks: machine states, piece counts, energy consumption and final inspection. 38,033 inspected parts were included in the analysis.

The pilot was divided into three phases: commissioning in weeks 1 to 3, operator familiarisation in weeks 4 to 6, and stable operation from week 7. The commissioning weeks were deliberately not included in the comparisons, because no operators were logged on to the machines during this time.



Figure 1: The three phases of the pilot project

What Changed During the Pilot Phase

From the first full production week (Week 4) to the final pilot week (Week 12), four key figures for the line improved measurably:

+9.3 %

Output per productive machine hour (from 12.04 to 13.16 parts) – meaning the number of units per hour during which the machine was actually sewing

–5.5 percentage points

Unproductive machine time (from 36.5 % to 31.0 % of machine time)

–31.5 %

Defects per hundred units (DHU) (from 3.02 to 2.07)

–20 %

Stoppages per week (from 8,335 to 6,660, across all ten machines combined)

Looking at the data on stoppages shows that the typical stoppage duration remained unchanged at around 15 seconds. Stoppages were therefore not resolved more quickly – they were avoided in the first place.

> "Clouver does not change the line on its own. It shows precisely where action is worthwhile – the improvements come from the team responding to the visible data."
>
> – Andre K., Product Owner IIoT, ProCom Automation

What Only Became Visible Through Measurement

Several effects were unknown before the pilot project because they cannot be captured without continuous measurement.

First: the structure of stoppages

70 % of all machine stops last less than 30 seconds. The few long stops over ten minutes, by contrast, account for just 2.6 % of all stops – yet cause 46.7 % of the total lost time. An escalation rule for long stops therefore targets a very small but highly effective lever.



Figure 2: Lost minutes by stop duration

Second: the bottleneck

The slowest station requires 39.5 seconds per part and thus sets the pace for the entire line. All faster stations wait – in total, this amounts to 123 seconds of unused capacity per part. Line balance, i.e. the degree to which the stations are evenly utilised, improved during the pilot from 69.5 % to 74.0 %. The bottleneck shifted between two stations – a fact that only becomes visible through continuous measurement.

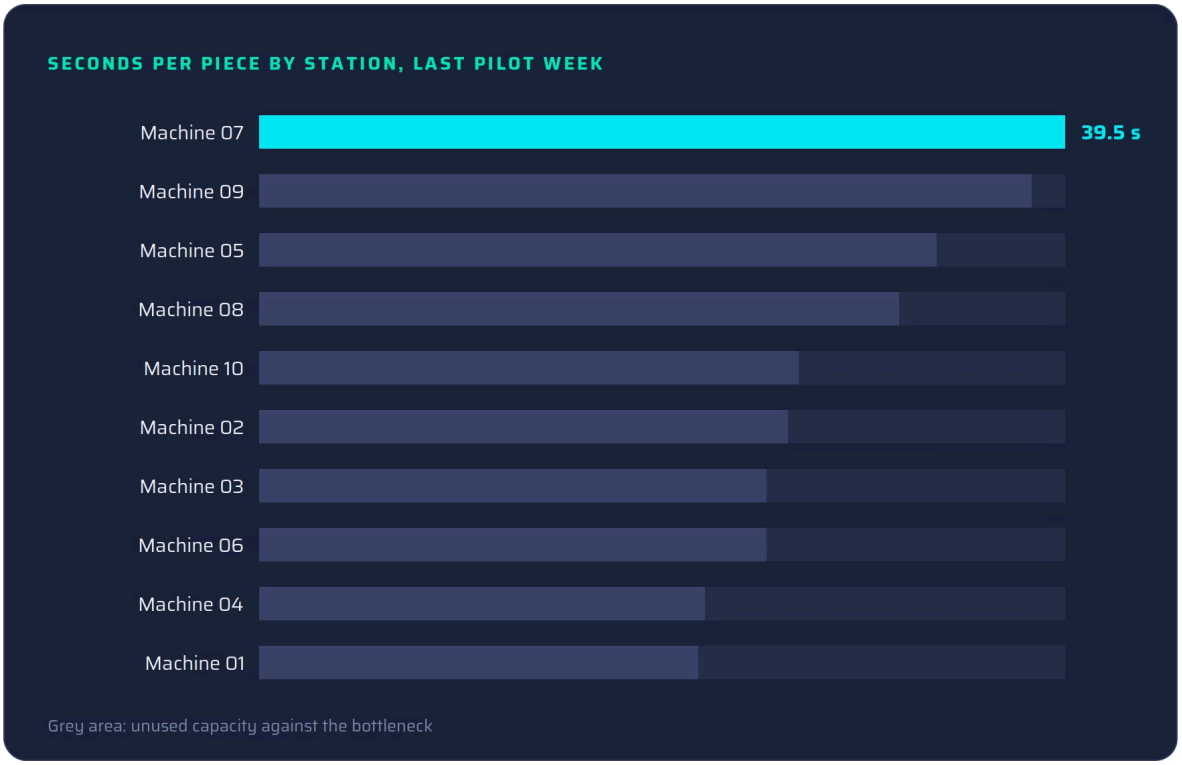


Figure 3: Seconds per part per station – grey shows the unused capacity

Thirdly: energy consumption

19.4 % of the energy is drawn while idle, 176 of a total of 908 kWh. Consumption can be traced per machine and per week. Reducing it requires no investment, only clear switch-off routines.



Figure 4: Consumption per 1,000 sewing cycles differs markedly between the stations.

Fourthly: the actual shift requirement

13% of all sewing cycles fall outside the regular shift. On 33 of 63 production days, production went beyond the regular shift.

Quality: three error types, three quarters of the errors

In final inspection, every error is recorded with its error type. The picture is clear: around 73% of all errors can be traced back to just three error types. And the most error-prone station causes roughly twenty times as many errors as the one with the fewest.

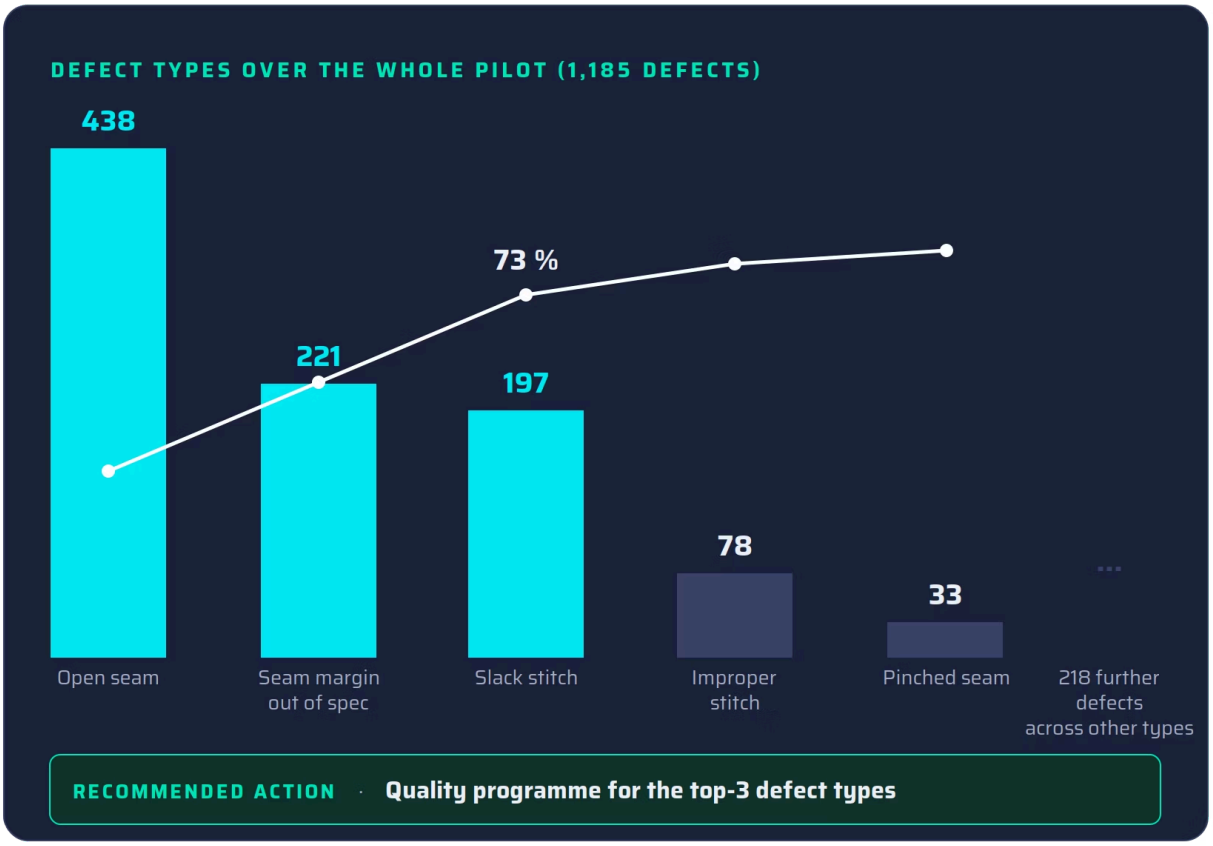


Figure 5: Distribution of error types across the entire pilot

That makes clear where a quality programme must start: three defect types and one station, rather than broad measures across the entire production line.

Equally revealing is what happens to the defects: almost all could be reworked, and practically no scrap was produced. The defect rate is therefore primarily a cost driver for rework and not a loss of material. The right-first-time rate – the share of parts that pass final inspection without rework – was 97.9 % most recently.

Four levers without investment

The data point to four concrete measures that can be implemented without additional machines:

Rebalance the line around the current bottleneck (123 seconds of unused capacity per part)

Set up a quality programme for the three most common defect types (73 % of all defects)

Investigate the station with the most defects in a targeted way (twenty times the number of defects compared with the station with the fewest)

Introduce an escalation rule for stoppages longer than ten minutes (46.7 % of all lost minutes)

One metric has hardly moved by comparison: relative to the powered machine time, the needle still stands at roughly one third of the hours at a standstill. This is where the line's greatest untapped potential lies.

Typical Pitfall and How to Avoid It

Improvements are often targeted where a problem is most visible – not where the greatest leverage lies. In the pilot, this became evident in maintenance: the machine that called the technician most often (26 times) was not the one that cost the most time. The most time-consuming one caused 196 minutes of downtime through maintenance interventions – called less frequently, but with a long duration per stop. This only becomes visible if every stop is measured and recorded with a reason.

For the data to reveal such differences, no IT projects are needed, just four simple working habits:

1

Record stop reasons

Code stops above a minimum duration with a reason

2

Log in at the machine

Links performance to shifts and induction

3

Maintain targets and master data

Give each metric its point of reference

4

Align inspectors once

Keeps the quality figures from final inspection comparable

Quick Win of the Month

Sort your maintenance stops once by frequency and once by lost time – and place both rankings side by side.

⚠ The machines that rank high on both lists are your real time-wasters. Those that appear on only one list reveal whether you are dealing with many small problems or a few long ones.

How a Clouver Pilot Project Works

A pilot is a controlled start – not an IT project. It runs in three steps:



Setup and Training

The machines are connected without intervening in their control logic. Once data is flowing, the team is trained in how to use it.



Pilot Phase

The line runs with live data over a jointly agreed period. The key figures stabilise, and the specific levers become visible.



Impact Review

You receive a report with your own key figures and concrete recommendations – the basis for jointly deciding on the next step.

We agree on scope, timeline and prerequisites in advance. If you would like to know which levers will become visible in your production: contact us, and we will discuss the appropriate scope.

Get a no-obligation consultation now!

Would you like to know how you can integrate and use Clouver in your production?

Then book a personal consultation with us – **free of charge and without obligation**. Or write us an email with your questions. We look forward to your message.

contact@procom-automation.de

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