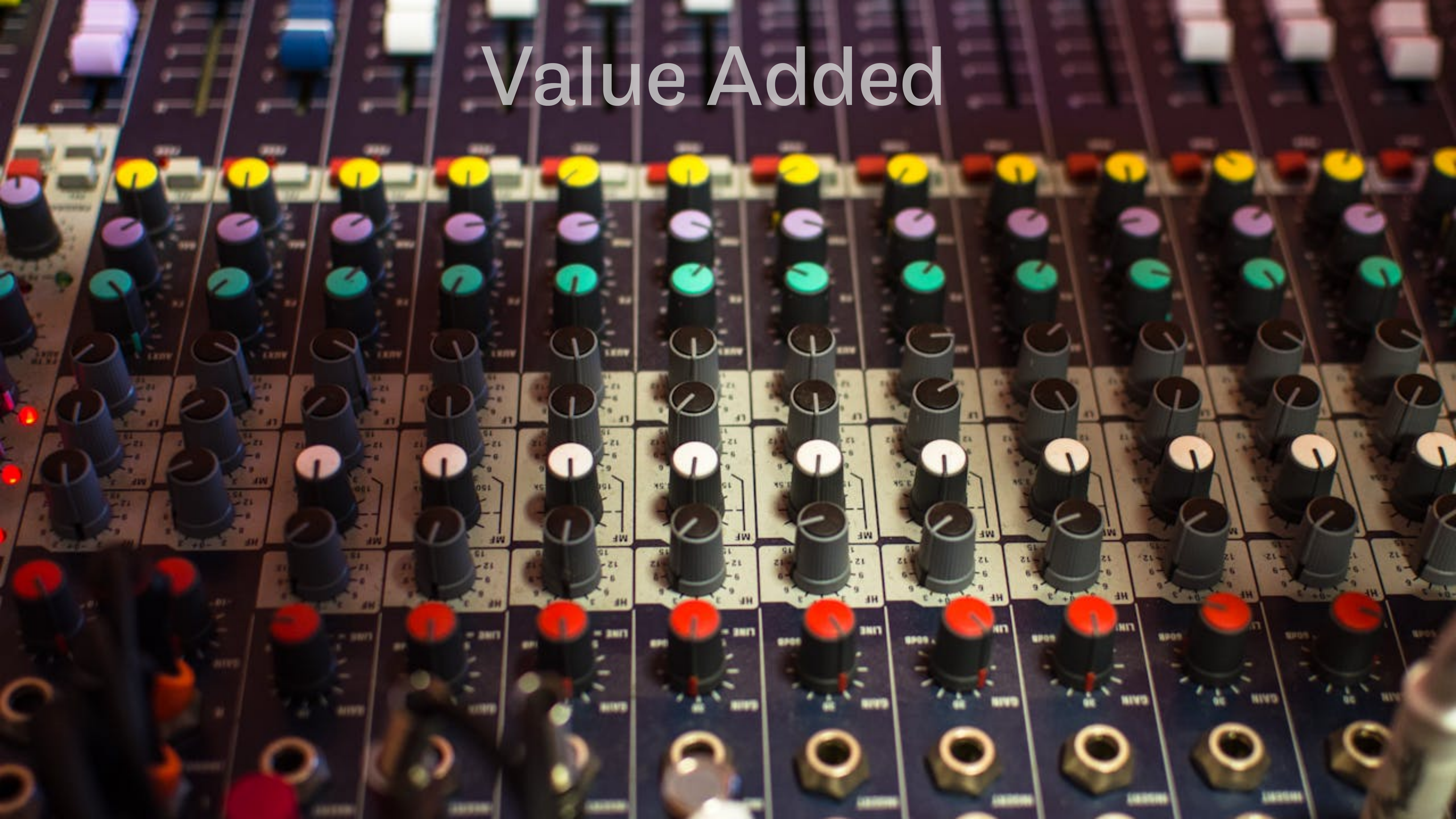




Fred Schenkelberg

Fundamentals of Control Charts

Value Added



For Show





Check the Box

What is your
SPC Story?

What is SPC?



Control charts

What is SPC?

Control charts, yes, and more

A process to monitor process stability

A process for process improvement

A proven, stable process is a prerequisite for process capability.



Monitor and Improve

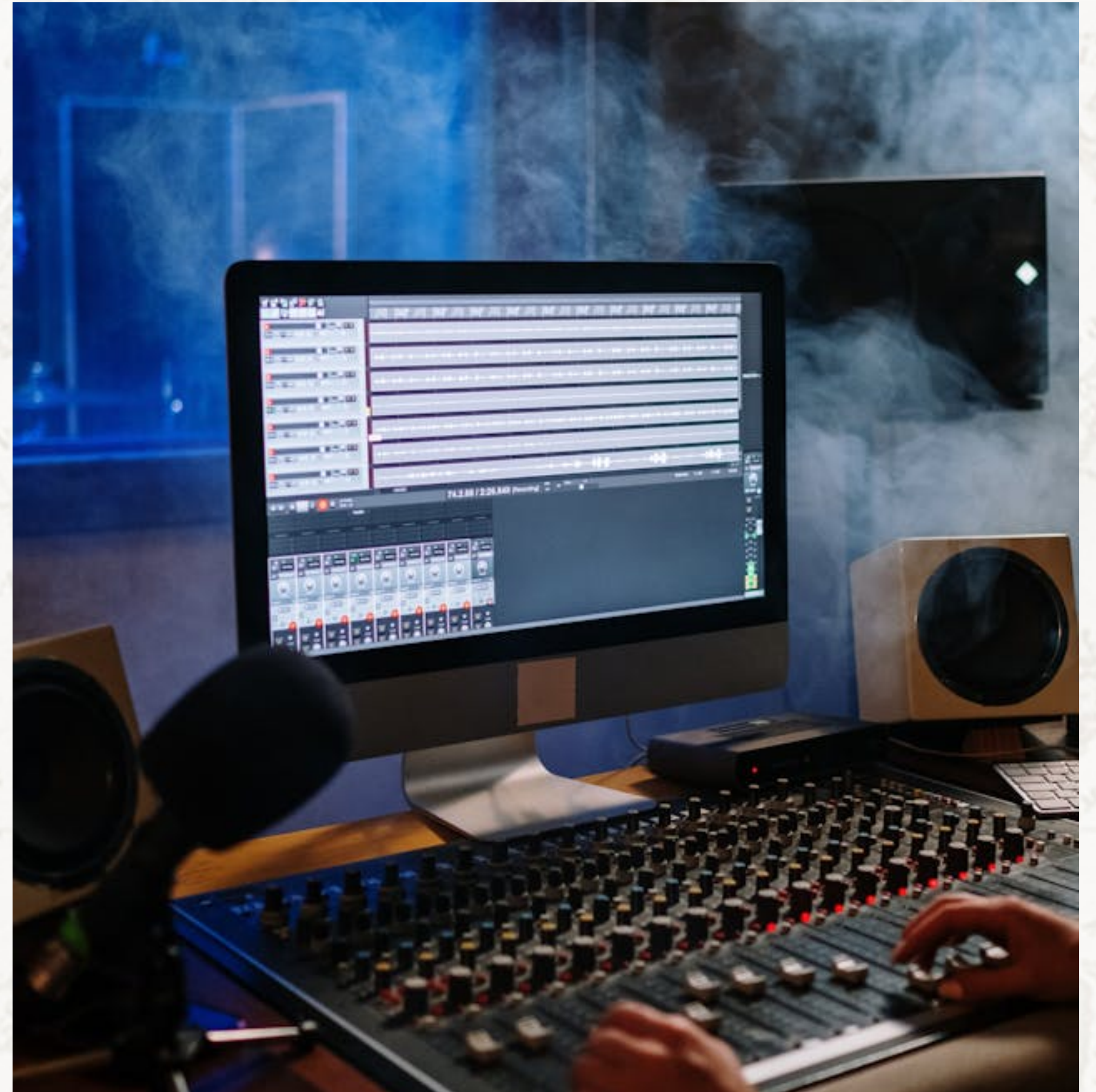
What is SPC?

Identify elements of process to
'control'

Establish sampling plan and begin
measurements

Take necessary actions to bring
process into control

Monitor a stable process for out-of-
control signals – take action



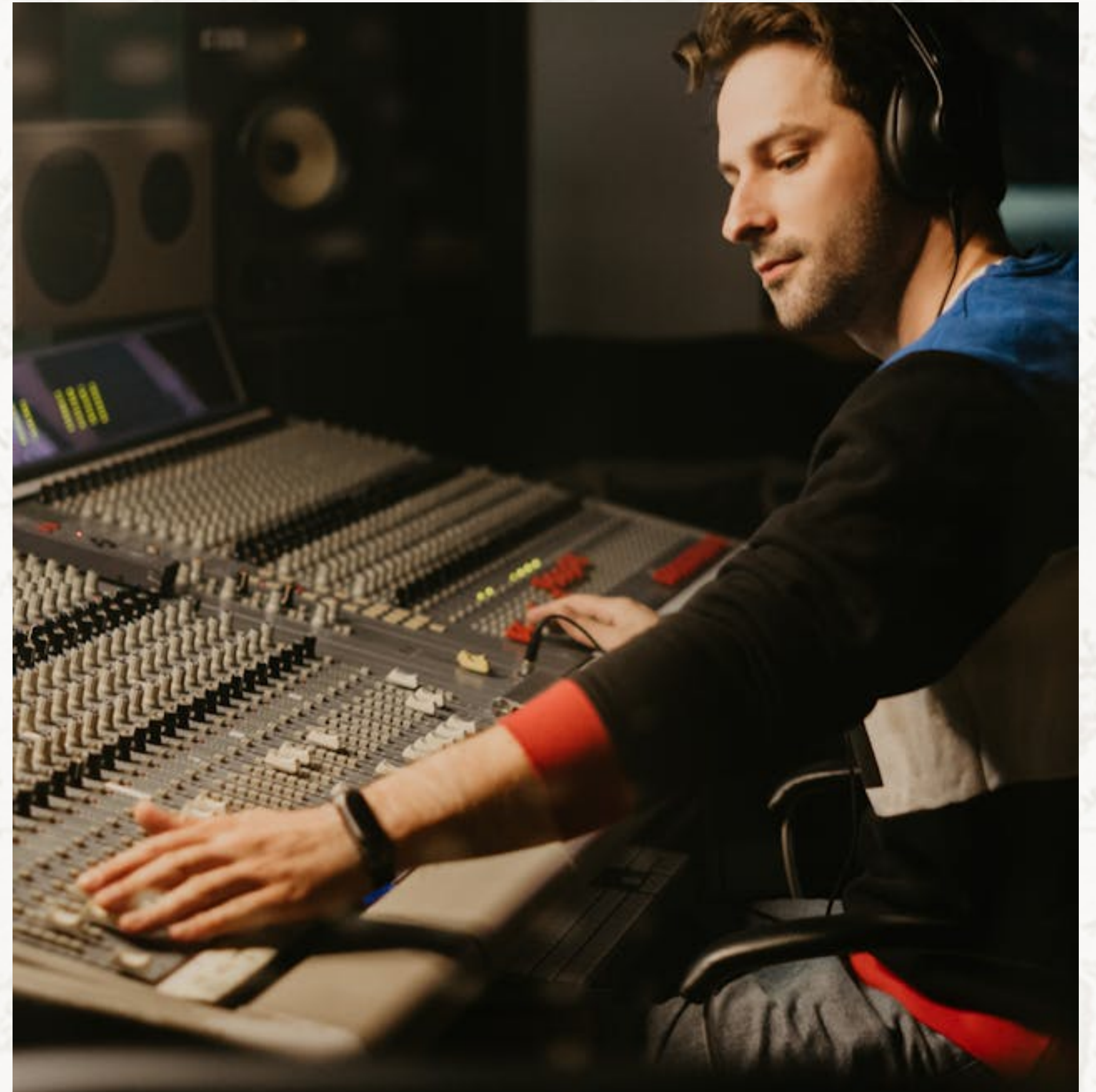
Rarely Done Well

What is SPC?

The math for sorting out an average and control limits is not difficult (no computer is necessary – it actually undermines what makes this process useful)

The necessary measurements may be easy or very difficult, they must be capable and stable

Setting up SPC is not a one time activity



How long should

we monitor a process?

Applying SPC



What to measure?

Applying SPC

What part of your process is leading to failures, rework, etc?

Early in the process is better than at the end.

What has the least margin (least process capability)?

Where can you detect unnecessary variability?



Sample & Measurements

What is SPC?

Attribute vs variable data

Sample size

Frequency of sampling

Non vs destructive measurements

Keep in mind what are the various sources of potential variation



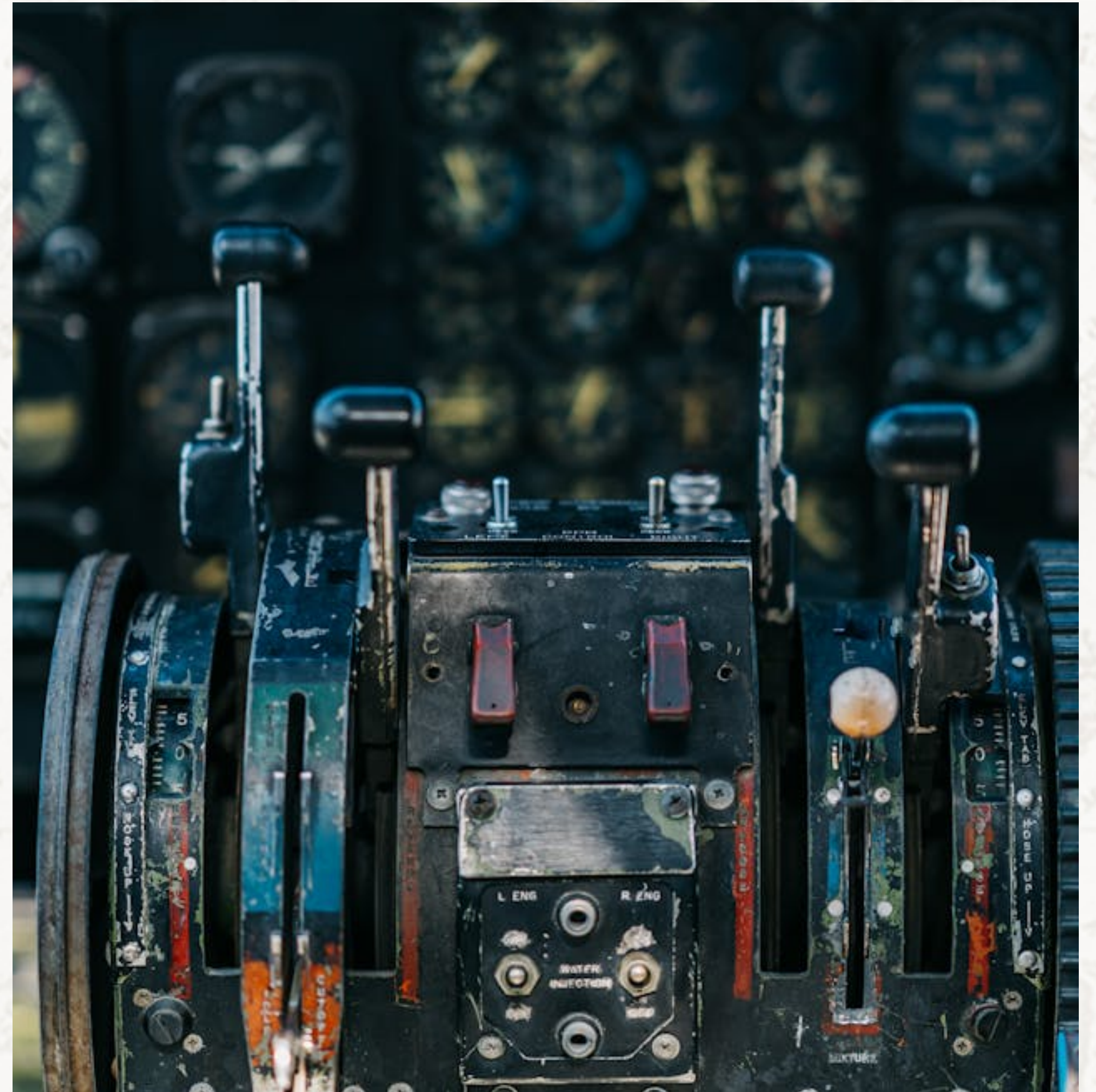
Signals & Action

What is SPC?

Probability of an out-of-control signal

A one time event is often more important than a permanent shift

A signal should initiate a root cause analysis: collect data/observations, keeps samples involved, find or truly rule out root cause of the anomaly.



How have you seen

seen SPC go wrong?

Not really SPC



Always in Control

Not really SPC

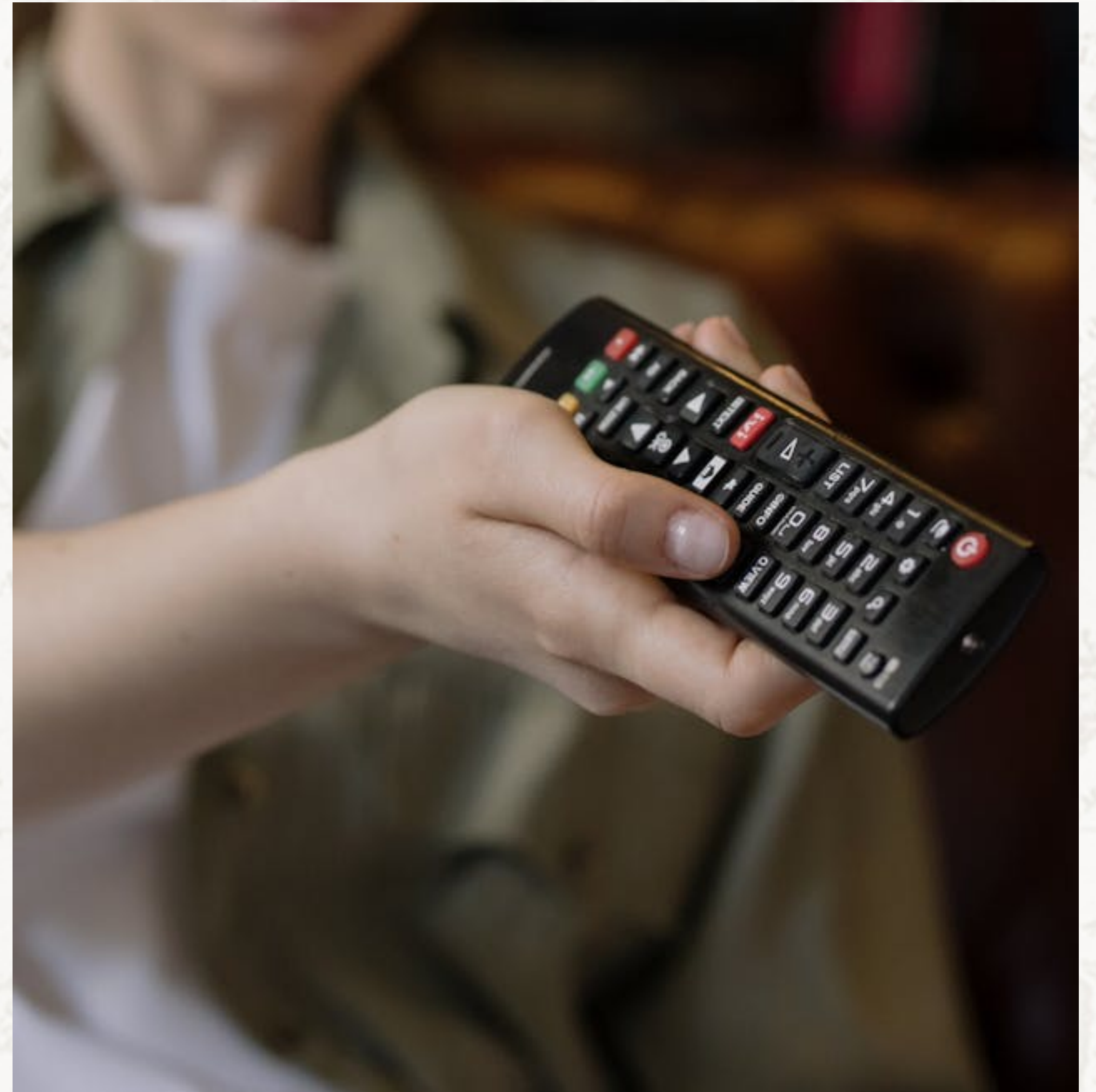
Retest till sample 'passes'

'Addressed issues' removed

Artificially large limits

'We only measure X as it's always in control.'

Measurement system not capable



Poor SPC Plan

Not really SPC

One measurement of one item an hour
(or day)

Measurements/recording not
monitored in real-time

Team not aware of how to detect signals

Team not enabled to identify or address
source of out of out-of-control signals



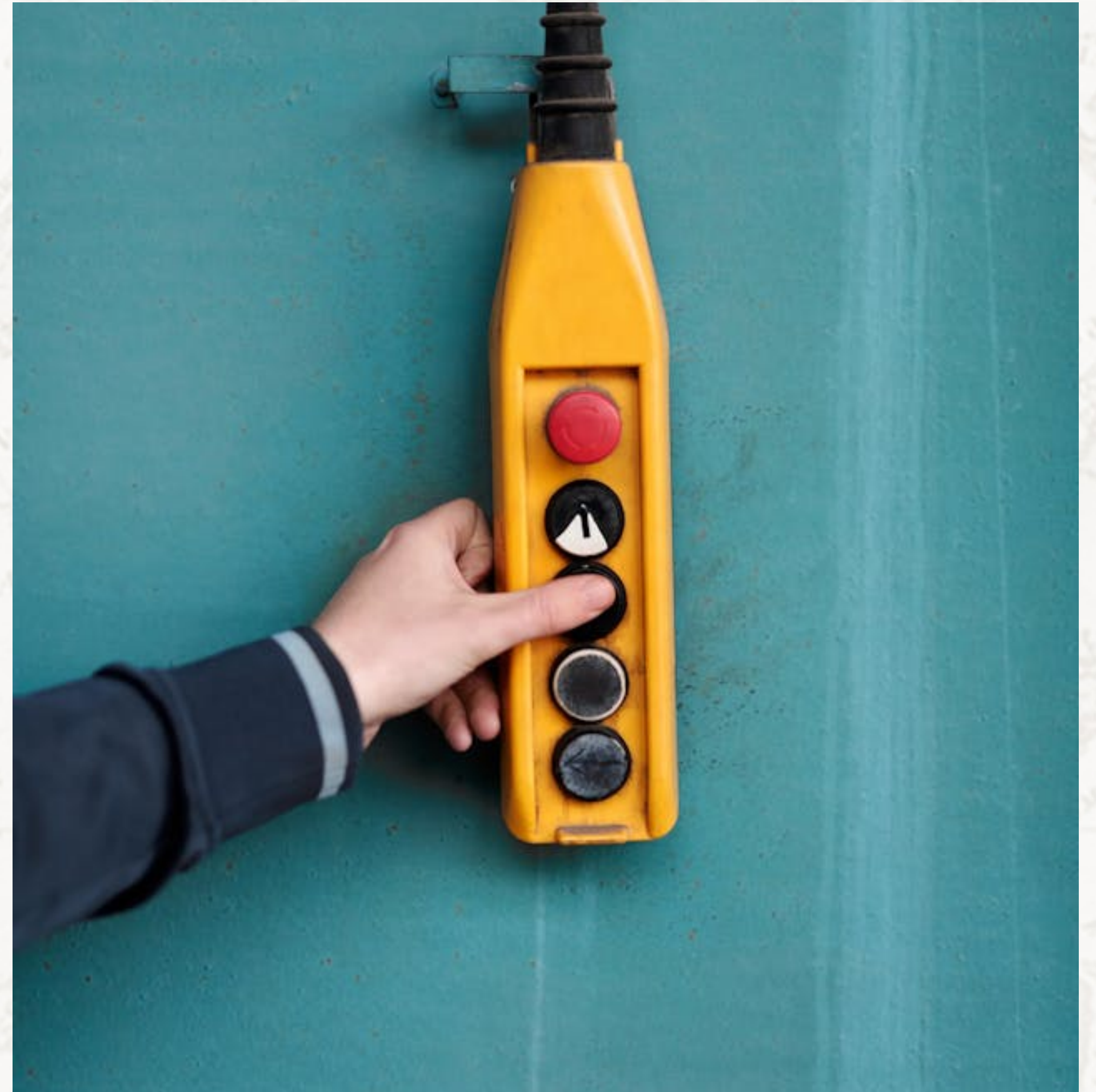
Specs not Limits

Not really SPC

If averaging measurements, specifications are not appropriate (or useful) on a control chart.

Limits are from the data (reality)

Specs are what is desired (a wish)



What is working for
your organization?

Additional Comments and Questions

Thanks

see more at AccendoReliability.com