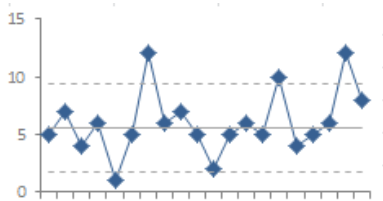


PuMP Step 6: XmR Chart Signals

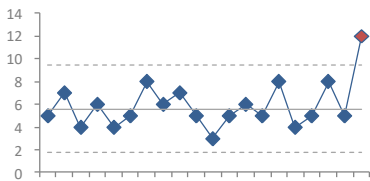
Unstable (chaos)



IDENTIFY: No predictability, heaps of random variability. There is little control or influence being exercised over the result (e.g. policies or standards or systems). Or perhaps there are actually a bunch of signals going on. Or it might just be very “noisy” performance.

RECALCULATE: Don’t bother with when to change your Natural Process Limits and Central Lines – instead, focus on standardising the process that produces this result until you get more stability or predictability in performance.

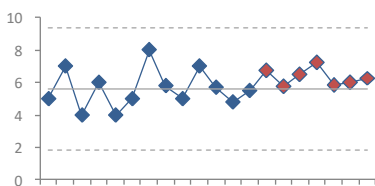
Special cause (or outlier)



IDENTIFY: A point outside the Natural Process Limits indicates something unusual happened. Just find out what it was, don’t try to fix it unless it’s a real problem, but it’s likely to be a one-off.

RECALCULATE: Don’t recalculate anything.

Long run



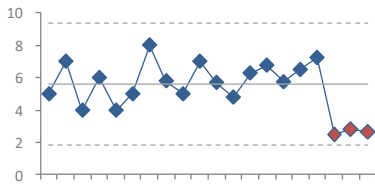
IDENTIFY: At least 8 consecutive points running on one side of the Central Line (or 10 in 12, or 12 in 14) indicates a sudden but small change. It may be by design, and if not, find out the cause.

RECALCULATE: Use the 8 points that constitute this new suggested level of performance, and use those points to recalculate your Central Line and Natural Process Limits.

PUMP

SUMMARY PAGE

Short run (near the limits)



IDENTIFY: At least 3 out of 4 consecutive points closer to the control limit than to the Central Line is also a sudden but large change. Because the size of the change is so dramatic, 3 or 4 points are enough to be confident it's a real change. It may be by design, and if not, find out the cause.

RECALCULATE: Wait until you have at least 5 points that continue to follow the new suggested level of performance, and use those points to recalculate your Central Line and Natural Process Limits.