

Easing your Way into Process Measurement

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The Lure of Measurement

Proactive process measurement holds out the promise of the ability to *objectively*:

- Isolate and diagnose process problems
- Validate proposed improvements
- Leverage past performance to model expected outcomes
- Understand current performance within an operational context
- Predict future cost, schedule, and defect profiles

An Improvement Scenario

- Process improvement initiative undertaken
 - Did it make a difference?
- High-level measures taken
 - Results much worse than expected.
- What happens next?
 - Abandon the process ...
 - Ignore the results ...
 - Try to understand what is happening and how to obtain necessary results ...
- Now it gets hard

The Challenges of Measuring

- Expert knowledge needed
- Dependence on historical data
- Time required to obtain necessary data
- Identification of actions based on measurement results
- Runaway complexity
- Not responsive to immediate needs - especially for new processes

Needed: *A simple, actionable, leading measure for stabilizing the performance of key processes.*

Extreme Responses

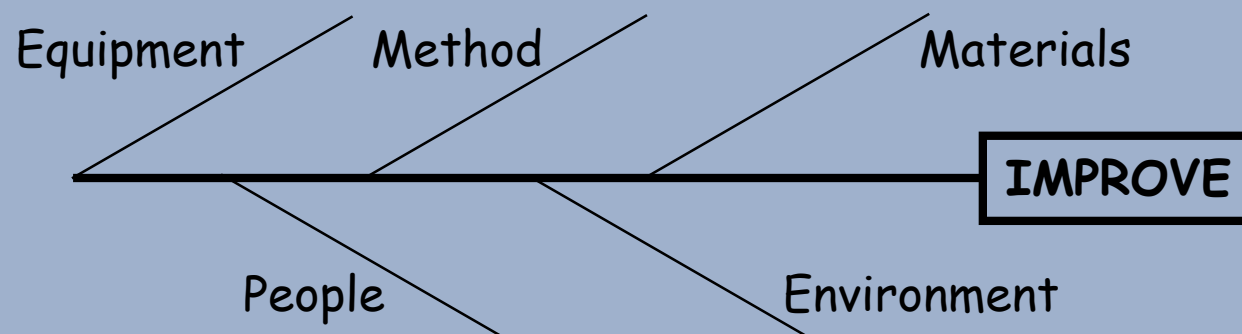
Where do we go from here?

- Poke the process with a stick
 - Use your intuition
 - Get management involved
 - Advantage: it's fast!
 - Disadvantage: it makes things worse
- Invoke statistical process control
 - Identify the special causes
 - Eliminate them
 - Turn your focus to common causes
 - Disadvantage: may take a very long time
 - Advantage: (Ultimately) makes things better

The Middle Ground

Simplify the problem with some key assumptions ...

- Host organization does not have a sophisticated measurement capability.
- The subject process is in a low-performing state.
- Major opportunities for improvement cluster in known areas.



Process Execution Analytic KPI

- Two components reflect major focus areas
 - Participation (People)
 - Fidelity (Method)
- Three-level scale represents performance
 - Full (1.0)
 - Partial (0.5)
 - Absent (0.0)
- Consolidated and combined for each participant
- $PEAK > 70\%$ indicates consistently executed process

$$PEAK = \frac{\sum_{i=1}^N P_i \times F_i}{N} \times 100\%$$

PEAK in Practice

Participant	P_i	F_i	
Inspector 1			
Inspector 2			
Inspector 3			
Inspector 4			

Criteria (Inspection Logging)

Participation

- 1.0 - On-time & prepared for logging
- 0.5 - Late or unprepared for logging
- 0.0 - Did not participate in logging

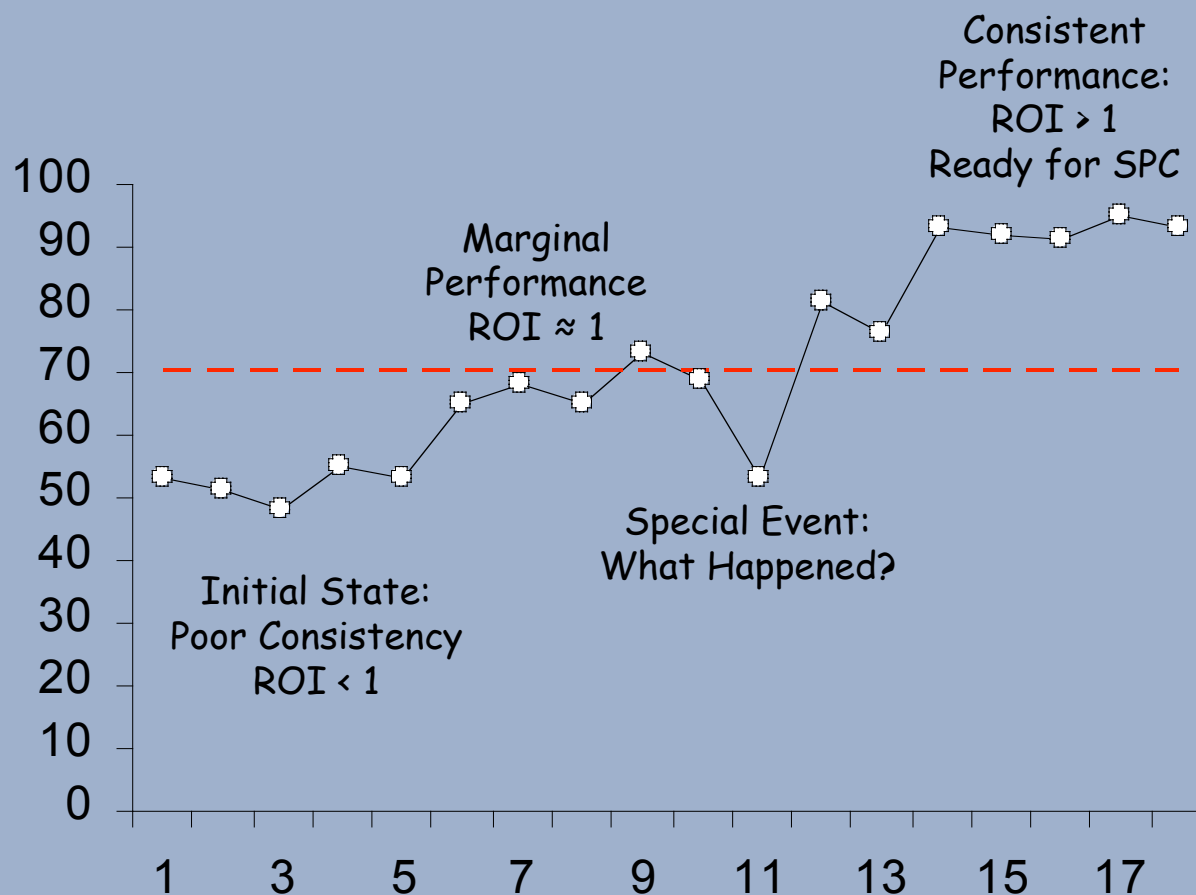
Fidelity

- 1.0 - Not less than 80% median defects
- 0.5 - Not less than 50% median defects
- 0.0 - Less than 50% median defects

Notes:

- PEAK < 70% - Inconsistent, unreliable process
 - Process creates more overhead than value
 - *Leading indicator* of probable failure of logging process
- Clear, consistent, objective criteria are essential
- Can be used to characterize single events or a series of like events

Process Monitoring



Opportunities

You can use the PEAK on virtually any process ...

- Meetings
 - Among the least effective and most critical processes in a technical organization
- Technical Reviews
 - Transform from pro forma to high performance
- Collaborations among Teams
 - Each team assumes a participant role
 - Structure criteria around commitment agreements
- Supplier Management
 - Focus on on-time delivery of key milestones
 - Useful for internal or external suppliers

Essentials

- Clear criteria for participation & fidelity
 - Unambiguous definitions for 1, 0.5 and 0
 - Independent (non-overlapping)
 - Relevant
- Well-defined opportunity for collecting the measure
 - Real-time
 - In presence of participants
- Objective individual to assign scores
 - Independent of participants
 - Willing (and able) to apply the criteria without bias
 - Self-scoring never works
- Annotations

Summary

- A simple, leading measure of process consistency
 - Can be applied to virtually any process
 - Targets the most common process problems
- Best applied to low capability processes
 - Provides relative measure of process ROI
 - Best used in the 2σ to 3σ range
 - Indicates when more sophisticated measurement techniques will be economical
- Easy to deploy and use
 - No extensive measurement infrastructure needed
 - Simple to analyze, understand and interpret

Questions?