Getting Performance From Process Improvement

Content

Answering the Mail

Dr. Ashton Carter, DoD Assistant Secretary AT&L, advised industry of a new program with the goal of increasing warfighting capabilities by three percent without proportionately higher budgets.

NDIA responded with 58 recommendations. Only my late entry addressed CMMI and organizational performance.

We can answer the mail, but only by talking about performance, not just the CMMI or maturity levels.

What We Believe

There is a pervasive belief in the defense contracting industry that the achievement of CMMI maturity levels, ISO/AS registrations, or DO-178 compliance mean that we have:

- ❑ Improved our processes

- ❑ Improved organizational and project performance

- ❑ Improved the quality of our products and systems

- ❑ Become more effective and efficient

How many of us ever ask the question: Is this true?

Things That Used to Mean Something[1]
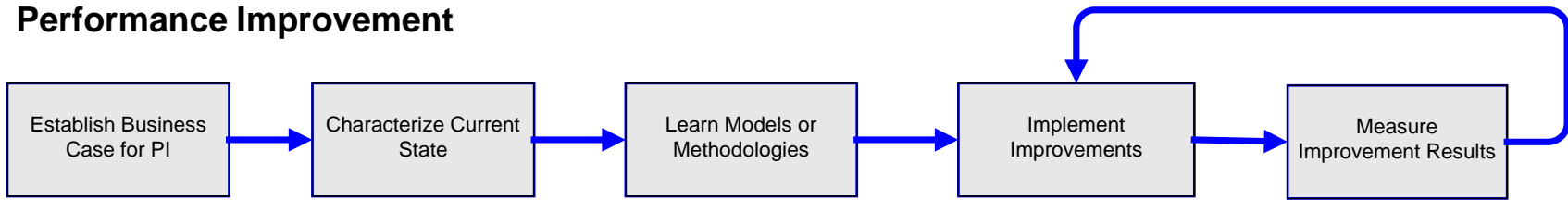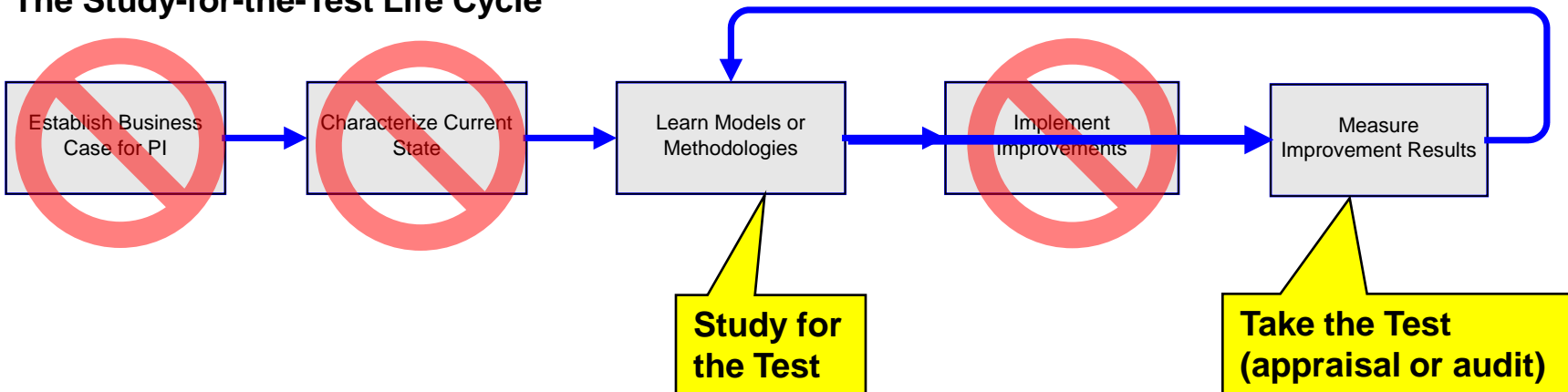

MegaCorp

CMMI Level 5

CMMI
Level 3

CMMI SM

**Proud to Be
CMMI 3
We're Awesome!**

Natural SPI

Things that Use to Mean Something$_2$:
The Changing Process Improvement Life Cycle

A Life Cycle for real Process and Performance Improvement
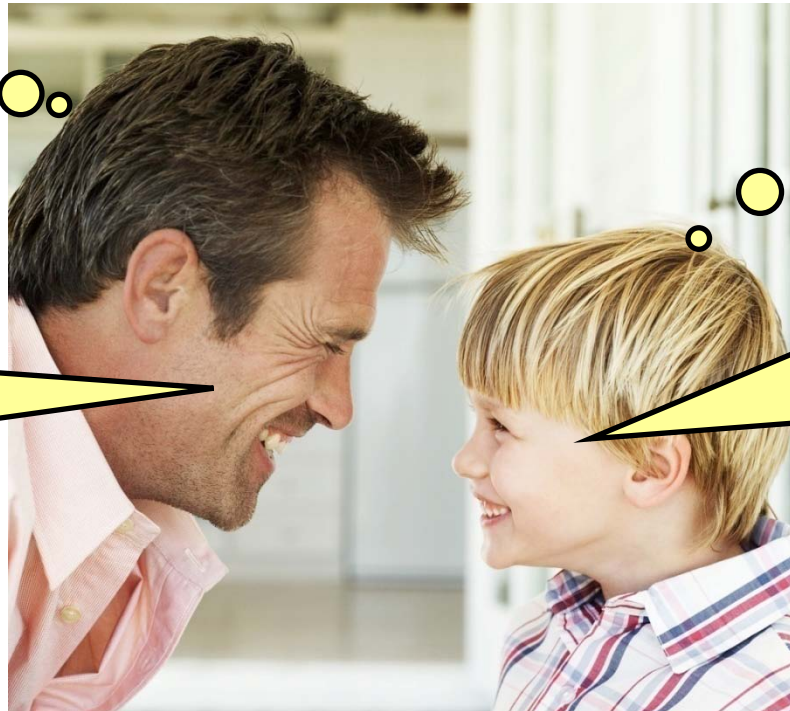
| Establish Business Case for PI | → | Characterize Current State | → | Learn Models or Methodologies | → | Implement Improvements | → | Measure Improvement Results |

The Study-for-the-Test Life Cycle

| Establish Business Case for PI | → | Characterize Current State | → | Learn Models or Methodologies | → | Implement Improvements | → | Measure Improvement Results |

Study for the Test

Take the Test (appraisal or audit)

Things That Used to Mean Something₃

Perception and Hyperbole Have Won

If the status is **Green**, it's **Green**!

If your organization has been rated Maturity Level 3, then it's Maturity Level 3.

Whether or not there are facts, measures, details, or analyses supporting the perception is irrelevant. Whether or not there was improvement is irrelevant. Whether or not the SCAMPI method was even conducted is irrelevant.

Sadly, perception and hyperbole have won.

The Dumbing Down of Facts and Measures[1]

Why do the hard work of trying to understand measures or measurement data …
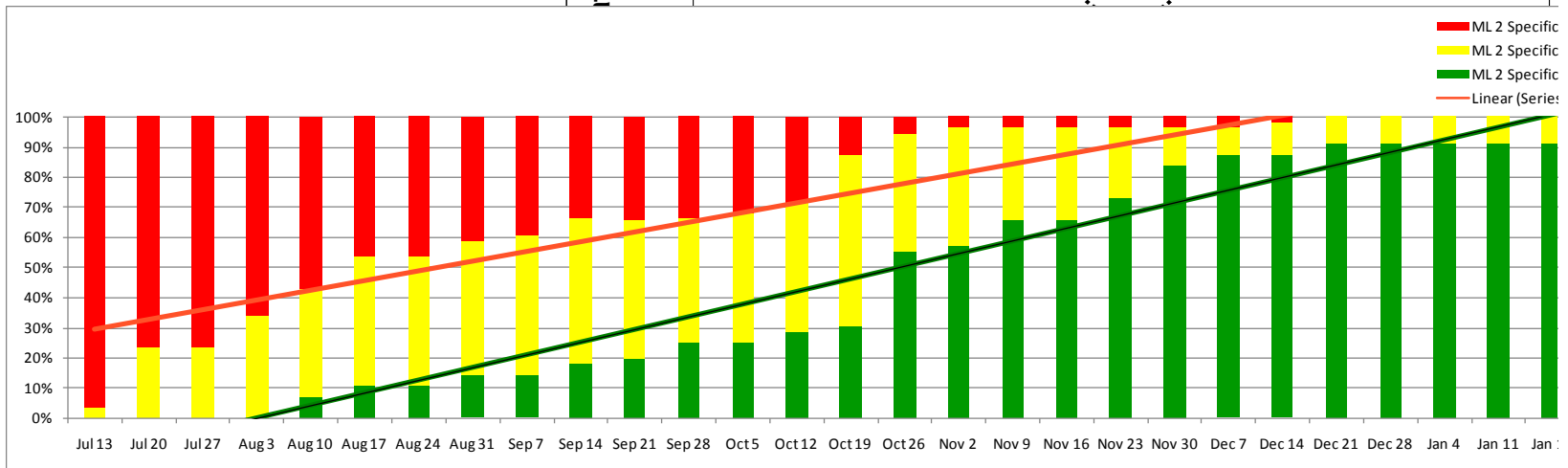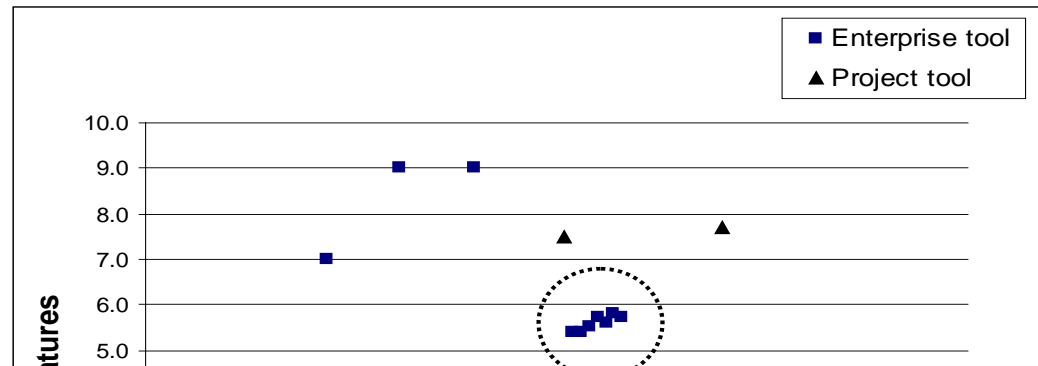
The Dumbing Down of Facts and Measures$_2$

When we can just look at red-yellow-green charts that can mean anything, nothing, or whatever we want it to mean.
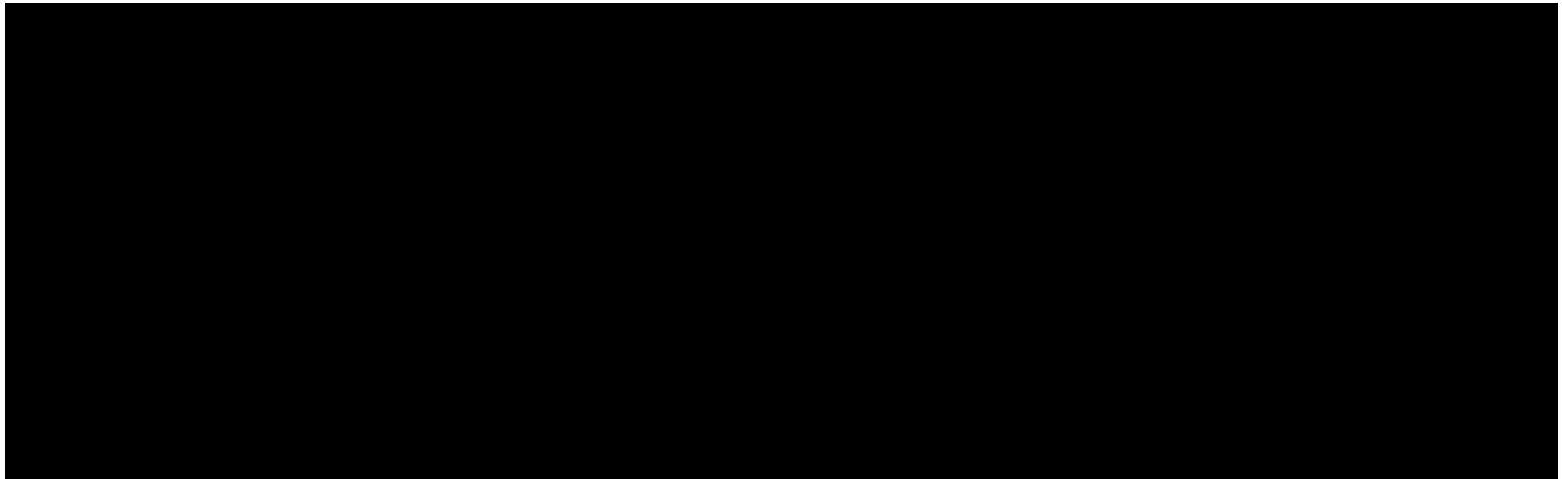
The CMMI and Performance

CMMI		Performance
Operational Excellence	≠	Efficiency
Robust process	≠	lean/flexible
Maturity Level	≠	Performance measures

What Do CMMI Maturity Levels Mean?[1]

ML 2   You manage process performance, and your performed processes are consistent with the practices defined in ML 2 (at CL 2) in the CMMI.

ML 3   You manage process performance in accordance with a defined process, and your performed and defined processes are consistent with the practices defined in ML 3 (at CL 3) in the CMMI.

ML 4   You quantitatively manage your processes, and your performed and defined processes are consistent with the practices defined in ML 4 (at CL 3) in the CMMI.

ML 5   You quantitatively optimize your processes, and your performed and defined processes are consistent with the practices defined in ML 5 (at CL 3) in the CMMI.

Nowhere in the CMMI does it say that achieving a maturity level means the organization or projects have improved business performance.

What Do CMMI Maturity Levels Mean?$_2$

When a Tier 1 contractor, achieves a maturity level, it's touted it in press releases as reaching "the high bar." But in sub-tier vendor/supplier selections, CMMI maturity levels are expressed as the "minimum entry criteria," a.k.a., "the low bar."

Why?

What Do CMMI Maturity Levels Mean?[3]

The Economic Basis of CMMI Commoditization

- ☐ Intrinsic value isn't

- ☐ So then, what is the perceived value of the CMMI?

- ☐ In economics, perceived value for commodities and assets are assigned a proxy (currency, shares) with which the commodity/asset is bought, sold, and traded

- ☐ So then, what is the proxy for the CMMI?

- ☐ The proxy for the CMMI has become appraisals and, specifically, maturity levels

- ☐ And the SEI has set up close to 500 SEI Partners as their own mints, to print as much currency as they want

CAUTION!

What is one of the common consequences of flooding the economy with currency?

How We Know What Isn't So*[1]

So, why do we believe that CMMI maturity levels (or ISO registrations, etc) represent improved performance?

- ❑ Because we want to believe

- ❑ Because someone in a position of authority said so

- ❑ Because we live in a culture that cannot or does not distinguish correlation from causation

- ❑ Because CMMI maturity levels are much easier to achieve than real process and performance improvement

- ❑ Because of the way the CMMI is sold to us

* Gilovich, Thomas; How We Know What Isn't So,: The Fallibility of Human Reason in Everyday Life, The Press Free, 1991   **© 2010 Natural SPI**

How We Know What Isn't So*$_2$

When the "benefits" of CMMI use are presented or published, only a subset of the entire set of possibilities are addressed.

	Successful organizations	Unsuccessful organizations
Organizations that use the CMMI	This is the subset of organizations touted to promote CMMI adoption.	What is the size of this subset relative to the superset?
Organizations that don't use the CMMI	What is the size of this subset relative to the superset?	What is the size of this subset relative to the superset?

What Is Process "Improvement?"

What do You Think is Process Improvement?

What do you do in your organization that you call "process improvement?"

What is Provably Not Process Improvement

The notion that simply documenting your processes and procedures in a way that reflects practices in the CMMI or standards (ISO 9000, TL 9000, AS 9100, DO-178) constitutes "process improvement" is false because:

❑ Performance improvement can only be achieved in the performance of the process, not the definition of process

❑ Even if there was high fidelity between your defined processes and performed processes, how does a adoption of "best practices" equate to the high bar for process performance?

The Question Never Asked[1]: Why Are We Doing This?

Why? Is the most important, yet most overlooked, question to ask and to answer. Before your organization begins planning a goal and measurement project, ask and answer these questions:

- ❑ What business are we in?

- ❑ What do we need to improve, and why? (How do we know we're not already doing something well enough?)

- ❑ If we produce results – goals and measures – will anyone value or use them?

- ❑ What is our level of ignorance? Do we have the slightest idea what we're doing? Are we competent?

The leadership question of the Modern era was, "Can we …?" In the post-modern era, that question is now moot. The leadership question of our era is, "Should we …?" and, if so, "Why?"

The Question Never Asked$_2$: The Pursuit of the False Goal

As leaders, we are still addressing "What can we do?" not "What should we do?"

The false goals pursued using the CMMI:

- ❑ Maturity Levels
- ❑ Consistency (for its own sake)
- ❑ Quality (for its own sake)

The pursuit of a CMMI maturity level and the pursuit of measurable performance improvement are not mutually exclusive (but we unconsciously treat them as if they were.)

When the "R" is the "Why"

Example

When striving to achieve a performance goal, organizations often care about a positive **R**eturn **O**n **I**nvestment (**ROI**). If we ask "why" enough times, we will eventually understand the real goal. For example …

Draft goal: We will standardize our processes.

Question: Why?

Answer: So that people perform their work the same way.

Question: Why?

Answer: Because then we'll reduce waste and rework associated with "reinventing" things.

Question: Why?

Answer: As an organization, we can produce more deliverables with the same resources if people reuse work products.

New goal: Improve productivity by n% annually.

22

Improving Defined Processes

When I improve my <u>defined</u> processes, some of the improvement activities my organization will do include:

- ❑ Create new process representations or change existing process representations so that people find them more adoptable, adaptable, and helpful

- ❑ Make my process representations more accessible

- ❑ Make my process representations more intuitive

- ❑ Make my process representations easier to change with changes in the business

- ❑ Change the process representations such that people comprehend them quicker and can use them more effectively and efficiently

- ❑ Lower the cost of process definition and maintenance

Improving Performed Processes

When I improve my <u>performed</u> processes, some of the improvements we can make include:

- ❑ Reduce the amount of time required to perform the process

- ❑ Make the performance of process count; make every task or step yield a work product, or a change of state to a work product (i.e., never have activity that yields nothing but activity; activity ≠ work)

- ❑ Make process performance yield higher quality work products (but only if a quality goal is justified by a higher business goal)

- ❑ Make the performance of process something that is natural and intuitive to people

- ❑ Make process performance rewarding to individuals

Improving Performance Through Process Improvement

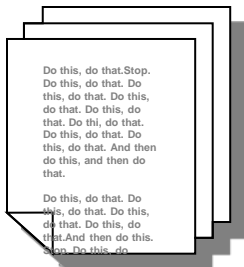# 3 Things You Can Change to Improve Performance

There are only three things you can change to improve business performance:

Improving skills, knowledge, and learning can affect productivity and quality.

Improving technology can affect delivery cycle time through greater automation.

Improving processes can contribute to greater effectiveness, efficiency, and quality via process performance.

Measuring What We Improve$_1$

Measure what you improve:

If we improve processes but then measure project or product performance, our measures are "muddled" and results are speculative.

When we improve processes and measure processes, we reduce the variability of influencing factors, and our measurement information is more meaningful.

Influencing Factors

Project & Product Performance

People

Cost

Processes

Schedule

Technology

Quality
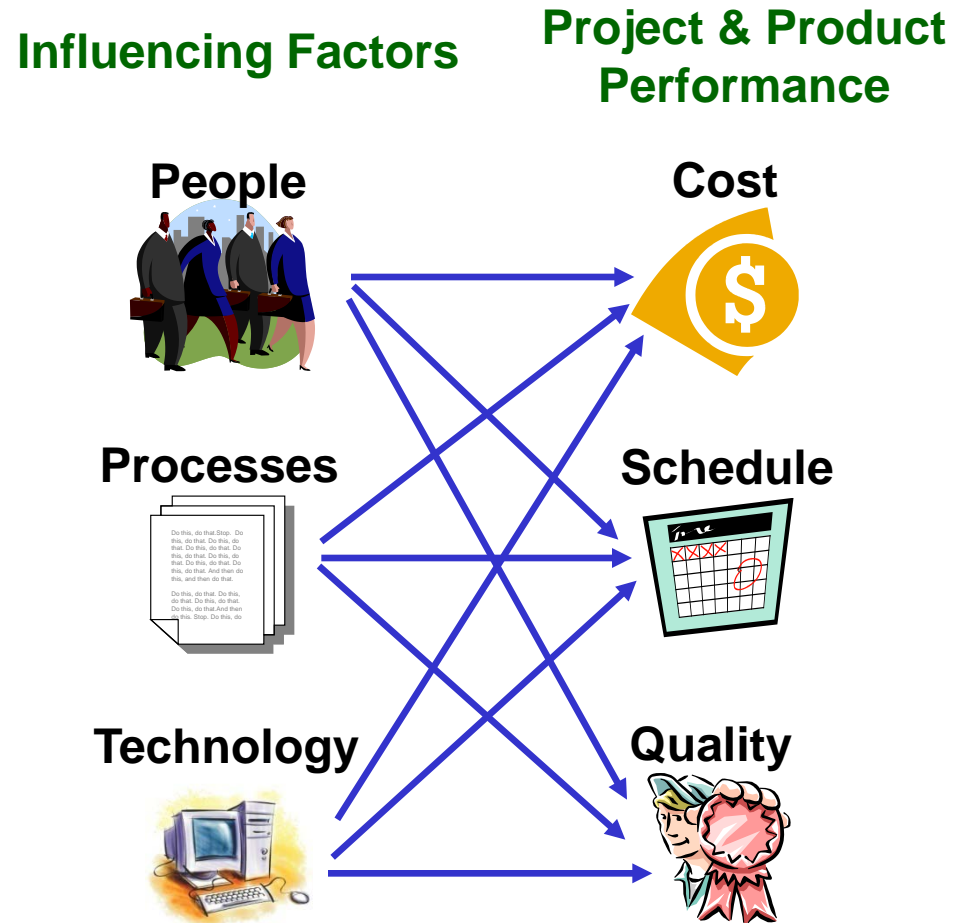
Measuring What We Improve$_2$

When we establish performance improvement goals and then execute plan to achieve those goals, we need to know which measures to collect, analyze and use for different performance vectors.

Project Performance	Product Performance	Process Performance
Cost (CPI)	Quality	Efficiency
Schedule	Functionality	Efficacy
Earned Value	Maintainability (and MTBF)	Billable : Overhead ratio (or Direct : Indirect)
Cycle time	Safety	Productivity
Scope management	Security	Tailorability/Scalability
	Unit Product Cost	
	Shelf-life	
	Market life	

Contextual Performance Measurement

When we talk about performance, or report performance measures – cost, schedule, quality, or content – it is almost meaningless to talk about one performance dimension without addressing its relationship to the others.
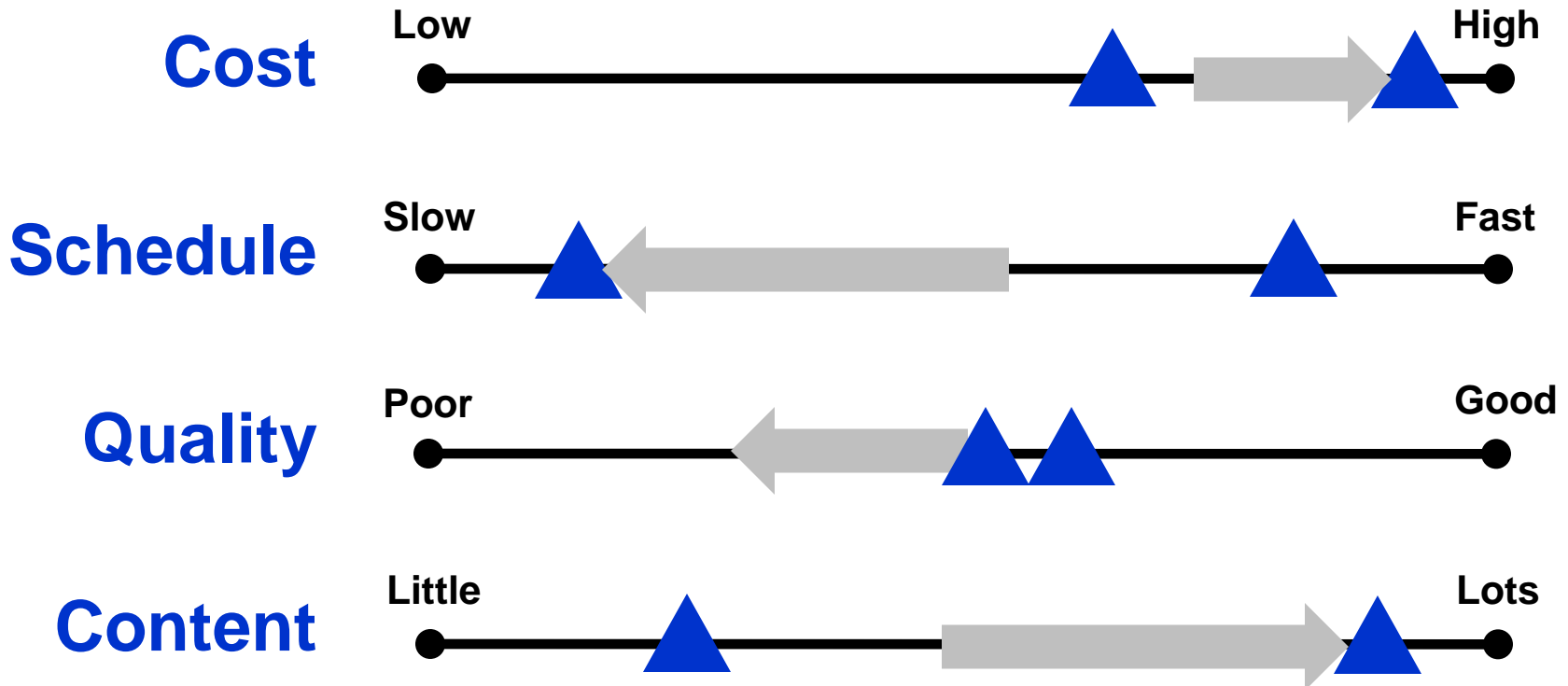
Establishing the Link Between Process and Performance$_1$

We said earlier that simply documenting processes based on a model or standard is not "improvement." However, we can positively affect business performance dimensions such as throughput, efficiency, efficacy, and product quality **if the following conditions are true**:

1. Our process representations (defined processes and assets) enable efficient and effective process performance, **and if**

2. There is high-fidelity between the performed process and the defined process, **and if**

3. The affects of skill or technology changes on performance are negligible

Establishing the Link Between Process and Performance[1]

Example

Process Improvement	Expected Business Performance Improvement	Relationship
Improve project risk management practices	Projects perform within estimated budgets	Effective risk management practices can mitigate the impact of risks that cause over-spending
Define test procedures	Reduce the number and density of defects in released products and subsequently increase customer satisfaction	Missed or incorrectly performed steps in testing causes product defects to go undetected
Develop a standard for product requirements and use that standard to review requirements	Reduce the cost associated with rework in product design and development	Design and development rework has been attributed to poor requirements
Introduce standards for conducting meetings	Reduce operating costs	There is waste/loss cost associated with meetings that do not result in defined decisions, actions, or outputs
Implement an organization-wide lessons learned	Reduce operating costs	There is signficant waste/loss cost associated with individuals and teams relearning things that have been previously learned by others

31

Process and Performance Manifesto

To better ensure process improvement results in business performance improvement:

❑ Either let go of or scrutinize your existing beliefs about the relationship between process improvement and business performance improvement.

❑ Don't tamper with the system … know what to improve, know what to leave alone, and why in both situations.

❑ Improve what you intend to measure, and then measure that which you improve.

❑ Connect process improvement to performance improvement by defining the relationships between the two.

❑ Measure the effects of process improvement on business performance and, in doing so, learn how to be honest with yourself.

Process and Performance Improvement in Harmony

Are CMMI maturity levels and performance improvement mutually exclusive?

You're going to spend hundreds of thousands of overhead (or millions) dollars achieving a maturity level anyway, so …

Why not offset some of that cost by achieving savings through real process and performance improvement?

You can have both!

NSPI Clients

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