

Human Performance Improvement: Who Says We Can't Measure Ourselves?

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Measuring the Real Change of Process Improvement

What do we know about human performance?

- We are a competitive species.
- For the most part, we do not like to be measured but we do like to "measure"
- We are all “enamored” with human performance and human performance statistics.
 - How long did it take?
 - How far did he run in an hour?
 - How fast did he throw?
 - What are the statistics for the year for an individual, a team?
 - Who has lost the most weight and under what program?

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- Business world is not any different
- Organizational leaders want to see winners in their environment
 - Successfully pass that CMMI assessment
 - Be ISO certified
 - Complete projects consistently on time, within budget, and with acceptable levels of productivity
 - Get quality awards
- Underlying motivation to get to that winning position -- *bottom line profitability*
- An organization cannot change on its own; *people* drive and need to change the organization

Measuring the Real Change of Process Improvement

Value driven organizations are savvy enough to know that performance improvement is linked to process improvement.

- Improving ones' processes should improve the quality of the product, reduce development and maintenance costs, reduce time to market, and in general, improve the satisfaction of their clients
- The benefits received from improving the way they do business can be quantitatively measured and traditionally outweigh the issues with implementing changes to existing processes
- Constant reminder in process improvement methods that we should 'dehumanize' our metrics – measure the process and not the individual or the people, yet it is the people that make change happen
- What are the success factors behind process improvement from a human performance perspective? Does the success of process improvement really come from “fixing” the process or "fixing" the people? And can we measure it?



Measuring the Real Change of Process Improvement

Value driven organizations are savvy enough to know that performance improvement is linked to process improvement, and performance is driven by human behavior.

- Process Improvement is not a new concept
- Long history of forward thinkers
- Sometimes used interchangeably with “Quality Management” or “Performance Management”.
- Leaders in the field focused on eliminating waste, reducing defects, and improving quality...all key drivers in the bottom line profitability
- Let's review some of the founders key points.....

W. Edwards Deming

Deming's 14 principles surrounding quality

1. Constancy of purpose
2. The new philosophy
3. Cease dependence on mass inspection
4. End lowest tender contracts
5. Improve every process
6. Institute training on the service
7. Institute leadership
8. Drive out fear
9. Break down barriers
10. Eliminate exhortations
11. Eliminate arbitrary numerical targets
12. Permit pride of workmanship
13. Encourage education
14. Top management commitment and action



Armand V Feigenbaum

Total Quality Control, which later became better known as *Total Quality Management (TQM)*.

- The fundamental belief of TQM - the quality of products and processes is the responsibility of everyone who is involved in its creation or consumption of the products or services created by the organization.
- Includes management, all resources, suppliers, and customers.

Linked to the use of *Quality Circles*.

- Quality circles are typically supervised groups consisting of employees
 - Identify and analyze organizational issues
 - Present a solution to upper management for possible implementation.

Dr Joseph M. Juran

- Encouraged training for managers
- Focus on human relations problem in quality improvement.
- Believed the root cause of quality issues was cultural resistance
- AKA, Resistance to change.

Philip B Crosby

Crosby created the *Principles of Zero Defects*.

The four principles are:

1. Quality is conformance
2. Defect prevention is preferable to quality inspection
3. Zero Defects is the quality standard
4. Quality is measured in monetary terms – the Price of Nonconformance (PONC)

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Depending on your position in the company, when we talk about process improvement -- your trigger words may be:

- *money* (costs to implement)
- *savings* (ROI)
- *quality* (product improvement)

Whatever the major driver is behind improvement activities, most organizations follow a standard road map - have you ever been in a process improvement initiative that looked like the next scenario?

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Sponsor

- Leader within the organization
- Communicates the need and desire to change
- Provides adequate resources to carry out the initiative
- Supplies the capability for needed infrastructure and training.

Champion

- Has the vision and influence
- Promotes and drives the process improvement effort
- Monitors the initiative's activities and progress
- Removes obstacles to success

Change Agent

- Support management in effecting purposeful transformation of the organization
- Have relevant skills and a willingness to change
- Can communicate to others
- Can answer the question, "Why am I being asked to change?"
- Defines specific procedures, tools, & methods for implementation
- Defines the implementation approach and schedule
- Experts of the changes

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- Use a process improvement model to determine best practices
- Task the people responsible for performing the work to document their best work processes
- Use a process action team to determine how certain activities should be optimally executed
- Discussion...deliberation...documentation...stakeholders agree to the process
- Countless hours and thousands of dollars are invested
- Training is conducted for the model and the processes
- Evaluations are done to determine compliance with the selected model
- Process is rolled out
- *And then the inevitable happens..... Just when you think you have it “right”, you suddenly find it’s a constant, uphill battle to get people to follow them? The assessment didn’t go as you planned. Bottom line - the processes are not being followed.*

What went wrong?

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Oversight

- Processes may be so ingrained that the resources did not document all the steps needed to execute the process
- Sometimes difficult to document something that is commonplace
- Some steps are actions that are performed “unconsciously” and therefore are overlooked (or not even considered) when documenting the process
- Process owner(s) assumes that everyone will know to perform the action steps because they perceive they are “obvious”

But more than likely, it is the Human Factor....

- Unless the organization is a fully automated environment, *humans* are interacting and performing the work.
- (If it's not broke (perceived) , don't fix it) Performing actions that are familiar, even knowing something isn't working and wishing it was different, is far easier than adopting change -- even if you know the change is for the better.
- Humans are creatures of comfort and have a difficult time changing their behavior



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Still, some may ask themselves, if you know something isn't working or there is an easier way to complete a task, why wouldn't people jump at the chance to change?

- Doing things the way you have always done them seems to at least get the job done
- Don't understand why they are being asked to change
- Don't understand the benefits- what's in it for me?
- Priorities within organizations are always changing
- Lack of clear vision can often cause confusion and feelings of chaos
- History of change within the organization culture
- Constant re-invention without clear purpose (This will go away if we wait long enough)

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So how does an organization know when it is winning? When it has reached “success”?

Typically measure process improvement initiatives by the results

- Number of processes developed versus outstanding
- Number of audits versus the number of non-compliance issues
- Estimates versus actual for budget and schedule
- Pass/fail for a certification of some kind
- The speed in which the organization got through the compliance to the model
- Attempt to measure ROI

Common measures indicate *compliance* to a process

- Driven by rewards, fear, or organizational peer pressure
- Important operationally

But does it give the total picture?

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Cost of a process improvement initiative -

- Dollars spent by internal resources through labor hours
- External consultant costs
- How much of the total costs of improving processes came from the fact that resources resisted the change? Extended the schedule of the project? In turn, increasing the cost?

Is that really enough to know how successful a process improvement initiative is just by measuring the operational state at a point in time?

- Equally important is *sustainability*
- Sustained process improvement is gauged by the measure of changed behavior

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Given that to truly improve process, you need to change the behavior of the organization's resources.

Changing behavior...

- is the most difficult ingredient in process improvement
- is the most important ingredient in the initiative
- can seem to be difficult to measure
- is measurable using “human performance” factors

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Understanding Change

Dictionary.com defines the word change as –

*to become different , altered or modified; transformed or converted (into)

- Change is learning something new, even if that something new is a new behavior
- Perhaps that is why we are so resistant to it
- Adults still have the capacity to learn so it is not an inability to change, it is a choice
- Is it true that as we get older we are less inclined to change?

According to the article *Set in Our Ways: Why Change Is So Hard* published in Scientific American, “after a person’s early 20s, the fascination with novelty declines, and resistance to change increases. This pattern holds true regardless of cultural background.” ([Westerhoff](#), 2008).

How old is our IT workforce? How old is our consultant workforce?

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- Systematic and systemic approach to solving and measuring performance issues in an organization - *Human Performance Improvement (HPI)*.
- HPI is "the process of identifying and analyzing important organizational and individual performance gaps, planning for future performance improvement, designing and developing cost-effective and ethically justifiable interventions to close performance gaps, implementing the interventions, and evaluating the financial and non-financial results."
- An integration of standard process improvement with the human factor

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The 9-Vector View of Human Performance (Darby, 2010) identifies the top nine components to the success of implementing change.

1 Stakeholder relationship management

- Identify not only the stakeholders performing the work but those who are affected by the change also
- Determine the skills being affected and more importantly any gaps in skills
- Prepare for training and plan the actions which need to take place

2 Leading changes

- Plan for the impending changes
- Choosing the right change agents
- Invest the time to determine the appropriate resources

3 Change strategy

- Planning is a key element to success
- Need to determine the implementation “how”
- Procedural changes may not be identified but the strategic and practical approach needs to be determined early on.



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4 Communication

- Change can be scary for some
- Unknown can cause much anxiety among resources, which can derail the initiative before it gets off the ground.
- Stakeholders at all levels must understand the changes to come, why they are changing, and what is expected from them.
- Communicating future expectations may help alleviate some of the concerns

5 Human capital management

- *Discuss* resource capacity
- Does the organization have enough resources to perform *after* the changes or are additional resources required?

6 Learning and training

- Change really is learning a new way of performing
- Identify skills gaps between the current state of performance and the future expectations
- A training strategic plan should be used to close the gaps



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7 Process and infrastructure

- No organization should implement process just for the sake of having process
- Identify needs or improvements to process prior to making any changes
- Planning process changes reduces the amount of rework or rewrite
- Most organizations do not get all processes right the first time - execute the process to determine if they work as expected
- It is crucial that the impact to the organization is reduced - additional “fixes” to the process reduces the confidence level and adds to the anxiety

8 Project management

- Process improvement initiatives are projects like any other - they are just internal
- Project plans, budgets, schedules, resources, and status reporting are needed
- Project manager should be assigned and run the project the same as if an external client were paying



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9 Performance management

- No one right way to implement change - Just as people are different, so are organizations
- Individual culture is a key factor in the best approach or methodology to implement
- More than determining methodologies - it is also identifying how the organization will measure the changes
- Effective change management requires measures
 - Determine the goals and values which are important
 - Goals need to be clear as to how the data collected will be used and what is to be measured
 - Baseline the current level of performance
- Standard measures such as schedule, costs and process compliance measures...and human performance indicators will help you determine the state of the organization

Value of measures comes from the ability to make decisions and the actions taken as a result of the data collection and analysis



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Important considerations in performance measurement

- The information should not be used against those struggling to change
 - When measures are used to reprimand the participants, it often has an opposite affect that expected.
 - It is better to use the results to determine training and coaching needs than to use as threats or immediate disciplinary actions.
- Data can be manipulated to present the desired picture without actually changing the behavior.
- Resources often join together to help each other mask the fact that processes are not being followed.
- Make sure you have the personnel and the skill set needed to effectively collect, analyze and report the measures identified. (Data consistency and validity.)

Any effort that diminishes the value will be seen as just another 'fruitless exercise by management' that will soon be forgotten, thus promoting or reinforcing the perception that "I do not really need to change."



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How am I measuring the human factor - change in behavior?

1) *Change sensitivity*

- Baseline data in place for comparison
- Run a simple t test
- t test
 - Will tell you if there are changes in the measure over time
 - Calculates the mean difference between the sample and the known value of the population mean
 - The average value of the process conformity as a whole
 - The decision is whether the sample mean is showing improvement

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Step 1. Calculate the standard deviation

$$S = \sqrt{\frac{\sum (X - \bar{X})^2}{n - 1}}$$

Step 2. Calculate the t- test sample

$$t = \frac{\bar{X} - \mu}{S} \sqrt{n}$$

Step 3. Calculate the degree of freedom (number of values in the final calculation that may vary)

$$t = \frac{\bar{X} - \mu}{S} \sqrt{n}$$

**Change
sensitivity**

Step 4. Analyze the data

If the calculated value is greater than the table value, there is a significant difference between the population and sample means.



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How am I measuring this change in behavior?

2) Percentage of Positive Change Measure

- May be used to determine resistance on an individual or team basis
- Works well when collecting non-compliance measures

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Step 1. Identify the resources who are not following process as they are developed or changed

Step 2. Collect non-compliance measures by resource

Process reviews conducted = X

Non-compliance issues = Y

Step 3. Calculate the measure

$$\frac{Y}{X} (100) = n\%$$

Step 4. Analyze the data

A reduction in the percentage of non-compliance by resources indicates a modification of behavior.

**Percentage of
Positive
Change
Measure**

Action: Train or counsel resources with the highest percentage of non-compliance

References

- For more information:
 - The David Consulting Group
 - www.davidconsultinggroup.com
 - Sheila P. Dennis, VP, CFPS
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