

# BREAKING BOUNDARIES

for Operating Excellence



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Measures and Metrics ...  
Get them right the first time!

Issue: 151

## The Objective

The objective of every **BREAKING BOUNDARIES for Operating Excellence** article from Bovino Consulting Group, is to improve the operating performance and profitability of your business ... it is that simple!

## Background for this **BREAKING BOUNDARIES**

A previous **BREAKING BOUNDARIES** article titled "FOUR SYSTEMS TO SIGNIFICANTLY IMPROVE OPERATING PERFORMANCE" (April 2015) discussed the absolute imperative of linking and aligning the following systems to each other as the foundation of a HIGH PERFORMANCE ORGANIZATION:

- A Performance Measurement System
- An Incentive Pay System
- A Performance Communication System
- A Team-Based Improvement System

This **BREAKING BOUNDARIES** will dive deep into the **Performance Measurement System**.

## Improvement Principle #1:

*The first and most solid principle of improvement is ... "what gets measured gets done".*

All improvement efforts and initiatives start with correct, well-thought-out and well anchored measures and metrics. If a performance factor is not measured that performance factor cannot be improved to any meaningful degree. Measures are the starting point for developing performance goals, and without goals optimum business success is impossible. Measures also provide purpose, direction and the information necessary to achieve meaningful gains.



Performance measures are the foundation for the Incentive Pay System. They are the centerpiece of the Communication System and the focus of the Performance Improvement Teams. In short, organizations must GET the measures right and get them right the first time.

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# Measures and Metrics ... Get them right the first time!

Many outstanding organizations have waged the battle for improvement and achieved eye popping success. As a starting point, without exception, they identified a small number of well-thought-out, critical performance factors. These factors supported the business goals, were measured and communicated to employees in an easy to understand format.

Data, measures and metrics can be overwhelming; however, **(and this is important)** people tend pay attention to data when one or more of the following “magnets” pull them to the data:

1. The data is of interest to them (*Super Bowl half-time score*)
2. The data impacts their life in some manner (*weather forecast predicting a 20 inch snowfall*)
3. They understand the data (*the price per gallon of gas displayed on the fuel pump*)
4. They can influence the data to some degree (*monthly contributions to their retirement fund or their kids' education fund*)
5. The data is real-time or close to real-time

Not surprisingly, the same five “magnets” apply to your employees’ attention to your business operating performance data. Think about it, your employees’ interest level in last year’s EBIDA is close to flatline (barely a pulse). It has none of the above five interest “magnets”. On the other hand, you can easily capture employees’ attention and constructive behavior changes with an operating performance metric (e.g. quality) that:

- Is communicated to employees in a visual format on a regular, real-time or near real-time basis (daily ... weekly ... monthly)

- Is understood by employees (i.e. product rejection/return rate from customers)
- Is influenced by employees’ actions
- Impacts employees’ income from the Incentive Pay System



## **WAR STORY #1-Data Sharing Is Critical:**

*(The following is a classic case of a manager having an excellent quality metric, collecting accurate data by customer, displaying the data in a complex manner and “keeping the data secret” (by management inaction) from the people who can most influence the performance of the data ... the supervisors and operators on the production line)*

Over the years I have been disappointed by the vast number of employees who work in an information vacuum; they come to work, perform their tasks and go home. When asked how many “widgets” (units of output) they are expected to produce (per hour/per day) or the quality of their output, the question is often greeted with a polite smile and a shoulder shrug that screams, “I don’t know.” Or, worse, “I don’t know and I don’t care because there is nothing in it for me.”

A few years ago we worked with a large manufacturing plant in the southeast U.S. Their customers are major auto makers. Although the Plant Manager paid close attention to cost, labor, on time performance, etc., his priority was product quality, defined as (PPM), parts per million returned or rejected by customers for quality.

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# Measures and Metrics ... Get them right the first time!

When I asked about the quality performance trends, the Plant Manager proudly opened up his file (hard copy) and showed me a single sheet of paper with customers' names listed on the left side of the page and the weeks listed across the top of the page. At every point of intersection of customer and weeks was the PPM by customer by week. The page was a mass of numbers ... Lots of data, but no easily identifiable information.

Throughout the day, I showed the data table, on an individual basis, to every supervisor and 10% of the hourly workforce. No one had ever seen the data. Only a hand full of supervisors knew the meaning of PPM. Not a single person knew of the most recent performance and the nine month worsening performance trend. The results of my questioning on the 2nd and 3rd shifts were disappointingly similar.

## A successful ending to this war story

Without immersing you with the details, this story ended with victory for employees, the company and the customers.

The tables of data were easily converted to timeline charts with months on the horizontal axis and the PPM rate on the vertical axis. Now, everyone could easily see the declining quality performance that was not easily identified by viewing tables of data. (Trend lines tell the story quickly.) Customer-level PPM data was also presented on timeline charts for the top eight (8) customers. Customer-level PPM was further analyzed by six (6) major product return/rejection reason codes and displayed in easy to understand Pareto (bar) charts.

- An Incentive Pay System was developed for all employees with Product Quality as one of the seven (7) plant-level Key Performance Indicators.

- The Incentive Pay measure was PPM by month, by customer and weighted by each customer's sales.
- PPM data, along with other KPI data, was presented to employees in a Monthly Report Card that was also strategically posted throughout the plant.
- Performance Improvement Teams began an aggressive assault on the PPM problem. They effectively used the hard data that identified the primary reasons for product being returned/rejected.

***Within 6 months the plant experienced a 90% (yes 90%) improvement in product quality defined by the PPM return/rejection rate.***

**The Performance Measurement System in a HIGH PERFORMANCE ORGANIZATION has two tiers of measures:**

- The first tier of measures are the Key Performance Indicators or (KPIs)
- The second tier of measures are the Line-of-Sight Targets

## Key Performance Indicators (KPIs)

KPIs are the macro, big picture, organization-wide, business unit level (plant, mill, mine, refinery, distribution center, etc.) measures.

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**They are the metrics of business success** and the clear business drivers. KPIs represent the beam of light upon which all employees focus their energy.

When everyone in the organization has the same focus (the KPIs) the organization will achieve “near perfect organizational alignment”.

## More clarity on defining KPIs:

- Depending on the size and complexity of the company, the number of KPIs is normally 4 to 7 ... never fewer than four (4) and seldom more than seven (7).
- KPIs are typically monthly measures.
- KPIs must measure a business result and not a process.
- KPIs must measure business results and not employee efforts.
- KPIs are the only measures/metrics used for the Incentive Pay System.
- KPIs must be influenced by some, but not necessarily all employees.
- Every employee must be able to influence many, but not necessarily all KPIs.
- The results of the KPI must have an impact on employees' work life ... it must mean something to employees.
- KPIs must be easily understood by employees with a little training and repetition during the Monthly Performance Communication Meetings.
- KPI results must be presented to employees in a visual format. Timeline charts that display performance trends over time are good ... tables of data cause employees to “check out”.

- With the exception of Safety Results (work related accidents) the KPI results should minimize reliance on employee self reporting.
- A KPI timeline chart should have a well-defined visual baseline. As a general guideline, performance baselines represent the most recent 12 month historical average. Normally baselines remain in place for one year.
- The KPI performance measurement increments should be relatively small. Small improvements are the starting point for big gains.
- When deciding on a KPI and its measurement, “Keep it simple” is an overstated guideline. Sometimes “simple” is just wrong! Conversely, many managers and consultants are guilty of over-thinking and work hard to make a simple measure complex.

- **CAUTION:** *Heads-up! Be aware of potential unintended consequences of your KPIs. On occasion, a poorly thought-out KPI could produce the wrong employee actions.*



## **WAR STORY #2-Unintended Consequences:**

A company established an On-Time Performance KPI. The measure was simple ... “On-Time Shipping Percent” (defined as complete orders shipped on-time divided by all orders shipped). This measure was well-intended, but had unintended results. The unintended consequence occurred when employees missed a shipping date. The employees simply put the order, which was now late, aside and focused on getting the other orders shipped on time. There was no motivation for employees to get late orders shipped as soon as possible.

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# Measures and Metrics ... Get them right the first time!

The correct measure for On-Time Performance is a combination of On-Time Shipping Percent and Average Days Late (of orders not shipped on time).

**BEWARE OF OLD LINE MEASURES:** Many companies have been measuring the same things ... the same way for decades without much thought or self-challenge. Story #3 and #4 are great examples of tired, old line measures impeding success.



## WAR STORY #3-Broaden Metric Focus:

*(The following is a classic case of a manager hanging on to an old line "process" metric for too many years and not recognizing the value of a "results" metric.)*

A 250 employee chemical plant had one major mega machine that converted the raw material into a finished product. Their single-focused metric was "Machine Running Time" (MRT), or machine up-time percent. Unfortunately, on many occasions MRT or up time percent was high but the output of finished goods was low as the machine was not running efficiently. On other occasions the MRT or up time percent was high but the product quality was poor. Lastly, on a frequent basis the conversion rate of raw material to finished goods was very poor although the MRT and up time percent was good.

- To better align operating metrics to the success of the business and to those items controllable by employees, a comprehensive and specific suite of operating metrics was developed to include:
  - *Non-labor controllable cost per ton of finished goods*
  - *Tons of finished goods per paid hour worked*
  - *Product Quality*
  - *Raw material usage or conversion rate*
  - *On-Time Performance*
  - *Safety Results*

## WAR STORY #4-Employee Performance In A New Light:

Perhaps one of the most common financial measures of employee performance is labor cost as a percent of sales. This is an okay financial measure. It falls short of being a good measure for defining what employees actually do and is a poor measure for an incentive pay system that seeks to reward employees for their actual contributions.



When an organization increases prices 2%, labor cost as a percent of sales instantly goes down by 2% and the Employee Productivity measure goes up. *The "Employee Productivity improvement" is not a function of employee performance; rather, it is a function of changes in product pricing.* Conversely, when the same organization decreases prices 2%, labor cost as a percent of sales goes up by 2% and the Employee Productivity measure goes down. *The "Employee Productivity decline" is not a function of employee performance; it is a function of changes in product pricing.*

- To better align operating metrics to the success of the business and to factors controllable by employees the suggested metric for employee productivity is units produced per paid hour worked. If the organization produces a wide range of products, with widely varying cost content, the output measure is not units, it must be "equivalent units". *(contact Bovino Consulting Group for a more detailed explanation of "equivalent units" produced)*

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## Common KPIs for Manufacturing

*(It is impossible for this article to identify KPIs for the thousands of different businesses. Contact Bovino Consulting Group to discuss the possible KPIs for your business)*

- **Cost Productivity** ... Non labor controllable cost per unit of output
- **Employee Productivity** ... Units of output per paid hour worked
- **Raw material utilization** ... lots of different measures here ... scrap ... waste
  - *Btus (energy) of natural gas conversion to tons of fertilizer*
  - *Tons of logs consumed to produce one million feet of oriented strand board*
- **Product Quality** ... Quality is typically measured as viewed by the customer ... an external measure of quality... quality as seen through the customers' lens
  - *PPM ... Parts Per Million ... Parts rejected/returned by customers per million parts shipped to customers*
  - *Dollar value of returned units as a percent of dollar value of all units shipped*
  - *Cost of non-quality per unit shipped. (dollar value of returned units divided by units shipped)*
- **On time Performance** ... lots of different measures here
  - *On time shipping percent and average days late of those orders not shipped on time*

- **Safety Results**
  - *OSHA Frequency Rate ... how often incidents occur*
  - *OSHA Severity Rate ... how serious is the incident*
- **Operating Margin Percent**
  - *Some organizations are reluctant to communicate Operating Margin. Sales levels can be used in lieu of operating margin IF sales levels correlate closely to operating margin (they normally do)*

## Line of Sight Targets (LSTs)

Let's recap ... The KPIs are macro (plant level) metrics ... they are typically monthly measures ... they are the *only* measures that drive the Incentive Pay System.

Once the KPIs are in place, and well understood by employees, it will be time to introduce Line-of-Sight Targets (LSTs). LSTs are essential to the improvement initiative.

While KPIs are macro in nature, LSTs measure the performance of the team, department, or (if applicable) the individual. When achieved, LSTs support the KPI results. For example, let's assume a plant has an Employee Productivity KPI. Let's also assume the plant has five (5) departments. In that case the KPI would measure the employee productivity of the total plant and the LST would measure the employee productivity of each department. The closer a performance measure is to an employee the better are the chances of improving that performance.



*(continued ...)*

# Measures and Metrics ... Get them right the first time!

**While KPIs normally measure performance on a monthly basis the LSTs measure performance on a daily or weekly basis. Short-interval, real-time feedback changes employee behavior. It gives employees an opportunity to change the direction of declining performance trends or encourage employees to accelerate the pace of good performance.**



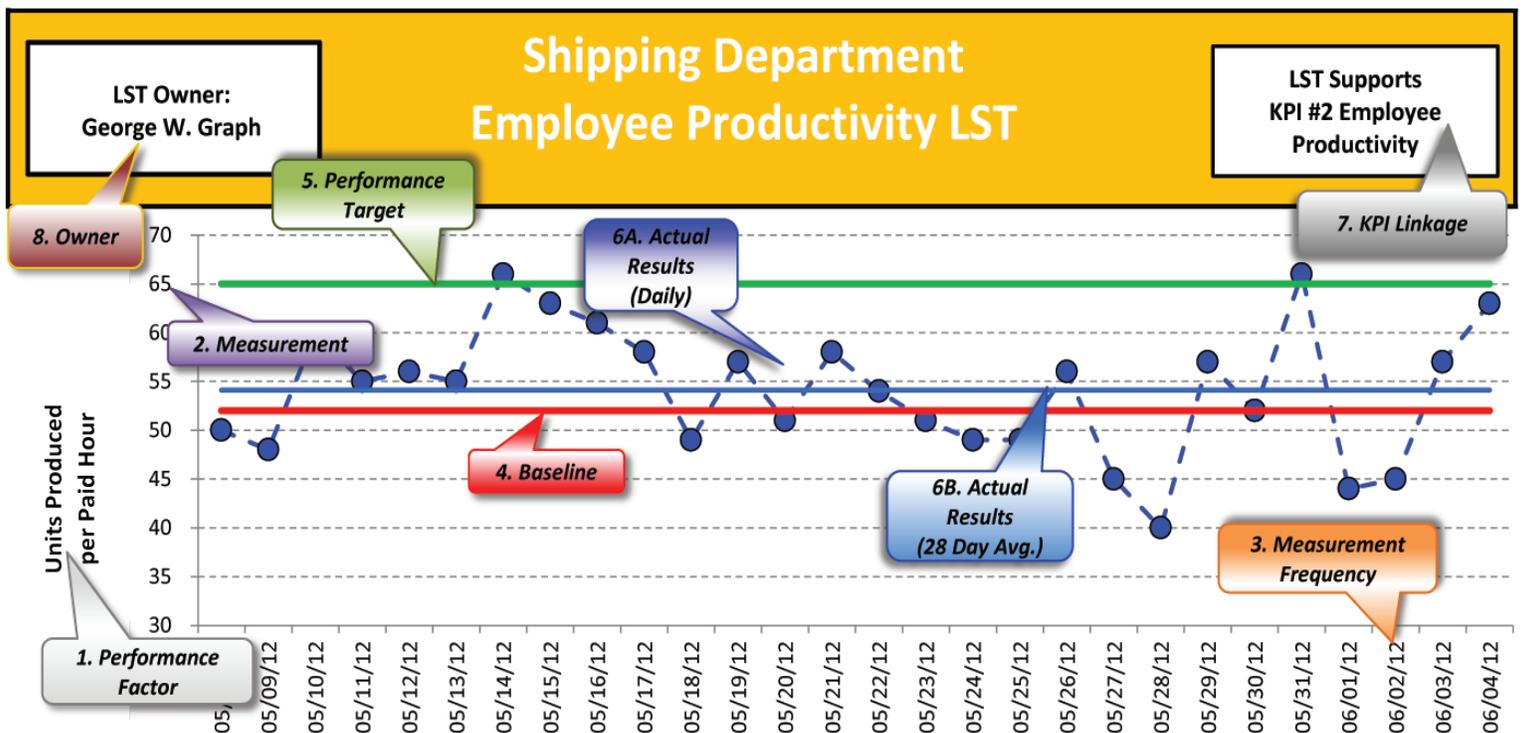
**This more timely approach provides employees with immediate feedback, which is essential to improving performance.**

A good example: While a quality KPI measures the plant level customers' product reject/return rate, the LST for the paint department would measure the customers' product reject/return rate for paint related defects.

LSTs do not directly create an incentive pay for employees; however, they influence the performance of the overall plant KPI which drives the incentive pay system.

Let's look at the anatomy or design of LSTs. They are typically timeline charts with the measure on vertical axis and the time on horizontal axis. The LSTs also display a baseline ... a goal and performance trends on a daily or weekly basis.

*(See example of an LST chart below. The multi-color explanation notes on this example do not appear on actual LST charts. They are presented in this article for explanation purposes only.)*



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The “take home message” is not the creation of the LST charts ... it is the daily or weekly review of the LSTs with the employees in the department or workgroup by the supervisor during a quick (5 minute) standup meeting at the beginning of the shift.

**Tracking daily or weekly performance gives employees a good sense of the pending month-end results and gives employees a chance to make changes to ensure a positive and financially rewarding month end result.**

I trust there was value in this INSIGHTS for you. I welcome your comments, and stand ready to discuss appropriate KPI measures and metrics for your business.

**Call Bovino Consulting Group today!**

Thanks for reading,



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