

# Sustainability at Any Speed: Getting to That Higher Level of Safety Program Maturity

Paul A. Esposito, CIH, CSP  
STAR Consultants, Inc.  
President  
Annapolis, Maryland  
[Paul.esposito@starconsultants.net](mailto:Paul.esposito@starconsultants.net)  
410-218-8451

## Introduction

How often have we heard, “eat the elephant one bite at a time”? Getting your safety program to that fifth level – Sustainability – does not have to be an all or nothing approach. In fact, many leading companies are finding value in the “taking your time, doing it right” approach. The question is; what is the right approach? This topic presents five levels of safety program maturity, and examples of how to get there, one program element at a time.

DuPont (Bradley), Bird and others for years have been touting four levels of safety program maturity. Within the past 10-15 years, many leading companies have recognized the fifth level - sustainability - as the final level of safety program maturity. Safety and Risk Program maturity progresses when companies embrace safety as a business enabler instead of a cost center.

### Level 1 – Reactive Compliance

- Compliance Sometimes Occurs
- Lead by Safety Manager
- Blame on the Employee

At Level 1, these organizations struggle to meet their compliance responsibilities, often reacting only when something bad happens; an accident, a visit by a regulator, etc. Accidents are viewed as employee error, rather than looking at the reason the hazards exist in the first place. In addition, the lead for safety efforts is with the safety manager, even though the people that get hurt don't work for them, safety has little influence over the design of the processes, facilities, work environment, etc.

### Level 2 – Compliance Proactive (Dependent)

- Compliance is the Goal
- Supervisors become the Key Person
- Training is the Answer
- Safety Committees get Involved – Bottoms-up Approach
- Rules and Procedures
- Safety is a Priority

At Level 2, this organization realizes that regulatory compliance helps prevent incidents, and strives to implement compliance in a more proactive manner. At this point, the organization begins to realize that the organization influences the work environment, that the people getting hurt work for the organization itself, thus, the supervisor now becomes the “Key Person” for safety. In addition, training becomes very important to the organization. Rules and procedures are created to help reinforce behaviors, for safety, quality, etc. The beginnings of employee involvement occur with a safety committee. This is still a

## **Sustainability at Any Speed: Getting to That Higher Level of Safety Program Maturity**

bottoms-up approach, as the safety committee is typically asked to usurp management responsibility for identifying and fixing safety concerns, offering management a feeling of relieve that their responsibilities to provide a safe and healthful workplace are now being met. The term “bitch sessions” often comes to mind for these safety committee meetings, as workers begin to feel empowered, yet frustrated that they really are not yet there. Safety is a priority, but priorities, by definition, change. Compliance audits will begin to take place.

### Level 3 – Management Systems (Independent)

- Systematize Programs and Processes
- Accountability at Line Management
- Risk-Based Focus and Metrics
- Injury Avoidance
- Employee Involvement
- Individual Recognition
- Institutionalize Data Collection

At Level 3, this is where the maturity begins to show up in results. Up until this level, most organizations struggle to get their incidence rates to industry average. With the advent of management systems (beginning in the ‘50’s with Deming), safety professionals have been implementing and achieving Level 3 via safety management systems (SMS) beginning in the 1980’s with OSHA’s Voluntary Protection Program, British BS 8880 (in the ‘90s) and the more recent ANSI Z10 and others. Using a management systems approach, exemplified by Deming as Plan – Do – Check – Act, organizations begin to put the pieces (programs) together, as they realize the pieces (programs) are interrelated. No longer is it just the safety manager or supervisor’s responsibility to remind people to “be careful”. Management recognizes that accountabilities need to be within the organization. Metrics that were focused on “achieving zero injuries” are expanded to now include leading metrics, as there is a realization that exposures and risk are the precursors to injury and incidents and must also be measured and drive strategies.

With the standardization of Safety Management Systems (SMS), as documented in OHSAS 18001, ANSI Z10, Canadian Z1000, etc. risk and risk reduction begins to become a focus of efforts. Here, organizations begin to also audit, measure and monitor SMS, and make process (program) improvements part of their goals and objectives. The improvement of ergonomic programs, accident investigation analysis, etc. becomes goals, recognizing that they support “achieving zero”. Employee involvement now reaches beyond the safety committee, and the committee itself has matured past “reporting safety concerns” and has become involved in programs; like inspections, hazard analysis, first aid teams, even recognition programs. Data collection is typically now standardized throughout the organization, collecting not only incidence data, but action plan tracking, risk reductions, etc.

## **Sustainability at Any Speed: Getting to That Higher Level of Safety Program Maturity**

### Level 4 – Culture and Human Performance (Interdependent)

- Management Commitment
- Employee Engagement
- Behavioral Influences
- Culture of Caring
- Team-based Recognition
- Limiting Error Effects
- Communication
- Near Miss Analysis
- Organization and Resources
- Safety as a Value

Level 4 builds on Level 3 line management accountability to achieve management commitment and employee engagement, adding cultural elements such as leading metrics and worker recognition for safe behaviors and actions. Management Commitment is now visible and vocal from the top down. Employee involvement matures from involvement to engagement, where workers now understand the value of the various safety programs and are involved not only in doing inspections, investigations, and hazard analysis but influencing the direction and improvement initiatives that these and other safety programs need to make to get to world class. While behavioral observations may have been part of the safety program in the past levels, the organization now understands how behavior is influenced by management decisions, and active caring is both top-down and peer-to-peer. Worker level incentive (recognition) programs have long since moved away from just an “accident-free” perspective to one recognizing involvement and actions (safe behaviors).

Human error is now recognized as part of human nature, regardless of the level of commitment, training, reinforcement, etc. Organizations begin to take on high-reliability characteristics, ensuring that the consequences of errors yield minimum severity. The nuclear industry INPO – Institute of Nuclear Power Operations) has been leading the way with human error and reliability information, programs and training. Communications, one of our big human weaknesses, becomes part of the culture of the organization, where listening is as important as speaking, where feedback is as important as instruction. Open, three-way communication (sending - interpreting - receiving) is now the norm. Organizations at this level achieve or come very close to zero accidents, so the power of learning from near miss opportunities becomes essential. Responsibility and accountabilities now match up within the organization, no longer just assigning responsibility to safety managers and supervisors who do not have the resources to direct change and continuous improvement. Safety is now a value, not just a priority. Safety is a culture within the organization, and is owned not just by the workers, but by each part of the organization. Goals become risk avoidance (prevention) and drive values, priorities, resources, and communication, just to name a few.

### Level 5 – Sustainability

- Shared Goals - Risk Avoidance
- Continuous Improvements
- Wellness at Home and Work - Sense of Community
- Balanced Set of Metrics
- Organizational Integration and Accountability

## **Sustainability at Any Speed: Getting to That Higher Level of Safety Program Maturity**

At Level 5, organizations motivate their personnel, management and workers alike, to a sense of community. This is fundamental to its overall sustainability; be it for profit, production, quality or safety. Risk and exposure avoidance, rather than just control, is the continuous improvement mindset. Wellness, being safe and healthy, not just the absence of injury, is the motivation of the organization. These organizations recognize that the health and wellness of their people most influence their performance, where the organization and their customers are the primary beneficiaries. Here is where a balanced set of metrics finally becomes part of the overall scorecard accountability process, with recognition and reward both up and down the organization. Recognition or incentive programs now recognize the power of peer motivation, and create team recognitions in addition to individual based recognitions for safe behaviors. Safety is the responsibility of everyone and every department, not just on an individual basis. Safety becomes a business value and helps the organization succeed to higher levels of sustained performance. Ultimate sustainability is achieved when responsibilities are correctly assigned, measured and celebrated when achieved within EVERY PART OF THE ORGANIZATION. Ultimate sustainability is achieved when people behave safely, at home and at work, because they value their own safety.

### **Discussion of Metrics**

Many organizations put policies and procedures in place that say the right things which mimic the above Levels. However, organizations that succeed at actually reaching these Levels measure themselves at each Level with a more balanced set of multiple metrics. It is often said, “What gets measured gets done” followed by “what gets celebrated, gets done well”. In the mid ‘90s, Kaplan and Norton with the Harvard Business School coined the phrase “Balanced Scorecard”. Applying these concepts to safety metrics, organizational accountability and the strategic planning process is now widely recognized and used extensively in business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals.

Organizations that practice, not just preach the above Levels mature their selection and use of metrics. For example:

#### Level 1 – Reactive Compliance

Key metrics here are typically the incidence rates, both recordables and lost time / restricted case rates. While important numbers, these metrics by themselves tell you nothing about why they might go up or down. The connection between cause and effect is typically a mystery, but viewed erroneously as being influential just by publishing them.

#### Level 2 – Compliance Proactive (Dependent)

At Level 2, compliance is typically measured by audits that define improvement initiatives against regulatory standards. Organizations begin to analyze trends in their injury and illness statistics to get a handle on exposures; i.e., where the injuries and illness are coming from. Again, trend analysis can yield important data. By itself, however, this data tells you nothing about cause.

# **Sustainability at Any Speed: Getting to That Higher Level of Safety Program Maturity**

## Level 3 – Management Systems (Independent)

At an SMS level, organizations understand what Deming told us years ago, “measure the processes, and the results will take care of themselves”. Certainly it is not just about measuring process, but how you use the metrics as well; making the organization accountable to them. At Level 3, we see organizations scorecard their management systems and risks, based on the SMS criteria. Recognition and reward is about positive measurable behaviors, not the absence of reports.

## Level 4 – Culture and Human Performance (Interdependent)

Once systems are in place to an acceptable level of rigor, the measurement of culture and behavior will help you calibrate if the goals, targets and objectives of your systems are achieving the expected results. At this Level, companies will employ perception surveys to measure the culture of the organization, derive metrics from these surveys, determine action plans resulting from stakeholder meetings that include workers, and drive closure. Behavioral observations measure % conformance, not just overall, but specifically for high risk tasks. Employee involvement matures to engagement. Recognition and reward occurs at the department or team level for sustained conformance

## Level 5 – Sustainability

To be sustainable, these balanced set of metrics, both leading and lagging, are driven down the organization to the department level, peeling back layer upon layer to personalize the responsibilities and accountabilities. Perception surveys expand to focus-group interviews validating that Values are in place and improving.

At Level 5, all five levels are measured and used for accountability and recognition of both individuals and each part of the organization. These metrics drive strategies, targets, goals and objectives. Safety is integrated into the business; public disclosures, integration of quality, engineering, production, purchasing, etc. This is when an organization reaches a sustainable safety program.

### Balanced Scorecard

The balanced scorecard is a management system (not only a measurement system) that enables organizations to clarify their vision and strategy and translate them into action. It is effective in that it articulates the links between leading inputs (human and physical), processes, and lagging outcomes and focuses on the importance of managing these components to achieve the organization's strategic priorities. The balanced scorecard suggests that we view the organization from four perspectives, and to develop metrics and targets, collect data and analyze it relative to each of these perspectives. The four perspectives include:

- Customer
- Financial
- Internal Business Processes
- Learning and Growth

In explanation, Kaplan and Norton postulate that in order to drive a car, or fly an airplane, you need to use multiple instruments and measurements; looking forward and backwards. Thus, a safety program or a

## Sustainability at Any Speed: Getting to That Higher Level of Safety Program Maturity

business is more complex than driving a car or an airplane, so no one number or metric should be used to measure success or confirm strategic accomplishments.

From a safety standpoint, the challenge has been how to find metrics that fit into EACH of these perspectives. Based on working with many of the leading companies, I have found that they typically select and develop metrics from among the following:

- Customer
  - Incidence rates
  - Perception Survey scores
  - Employee involvement
- Financial
  - Worker's compensation
  - Manpower
  - Budget and resources
- Internal Business Processes
  - Safety Management Systems
  - System improvement initiatives
  - Number of changes
  - Risk reductions
- Learning and Growth
  - Number of people trained
  - Training retention
  - Conformance rates
  - Action plan volume and closure rates

Although by no means an exhaustive list, the above are examples of multiple safety metrics that can be used for EACH perspective.

### Achieving Program Specific Maturity

Here, the journey to Level 5 are demonstrated using three programs in particular; 1) hazard analysis, 2) inspections and 3) incident analysis, one at a time. If Level 5 becomes the goal or target, the length of time for implementation can be whatever you need it to be. Step by step is the right speed. Do it right, the first time, and then proceed to the next step.

Let's take a look at a hazard analysis program or process first (Table 1).

Table 1. Hazard Analysis Element (levels only briefly described for presentation purposes.)					
LEVEL:	<u>1</u> Reactive	<u>2</u> Compliant	<u>3</u> Management Systems	<u>4</u> Culture	<u>5</u> Sustainable
Written Program	Some Standard Operating Procedures (SOPs) are standardized.	Program has been written and specifies content and use of JHAs.	Written program has been implemented and communicated to employees.	The written program addresses training and communication and is integrated into the job qualification/certification process.	Written program is audited and reviewed annually.  Written program is a controlled document.

## Sustainability at Any Speed: Getting to That Higher Level of Safety Program Maturity

Table 1. Hazard Analysis Element (levels only briefly described for presentation purposes.)

LEVEL:	<u>1</u> Reactive	<u>2</u> Compliant	<u>3</u> Management Systems	<u>4</u> Culture	<u>5</u> Sustainable
Implementation	Some safety warnings have been incorporated into SOPs, work instructions.	Risk-based inventory of jobs has been documented.	JHAs are prepared or reviewed for jobs/tasks with prior injuries and perceived high risk.	JHAs have been created for most site production and routine maintenance tasks.	JHAs are an integral part of accident investigation.
JSA Team: Develop and Training	Some individuals are trained in JSA.	Individuals (Team) performing JHAs are trained and qualified.	All JHAs are reviewed by SMEs for quality.	Team is trained in and use the hierarchy of controls for critical safety hazards	JHA information is integrated into quality SOPs.
Employee Training and Communication	Some safe job procedures are communicated.	JHA identified safe work procedures are used in job training for safety awareness.	Transferred or fill-in employees review JHAs prior to operating equipment.	JHA are documented, maintained and conformance is verified.	Peer to peer training is performed and verified using competency demonstrations.
METRICS	#of JHAs.	# of People Trained.	# of Changes.  # of New Engineering Controls.	% Conformance.  % Conformance to High Risk Tasks.	Knowledge retention tested and tied to recognition award.  % reduction in hazard analysis being a root cause.

As you can see from Table 1, each Level adds progressively more rigor to a hazard analysis process. Likewise, each progressive Level adds metrics. If the data is valid, and used to measure the right parts of the organization, the overall quality and effectiveness of the hazard analysis process is enhanced. As we learned from the Balanced Scorecard discussion above, no one number should be used to measure anything that is important. If any of these metrics do not hit their targets, or trends in the wrong direction, it should be telling you that exposures or at-risk behaviors are increasing, so a corrective plan can be put in place hopefully before the incident itself happens. The hazard analysis process will most likely contribute BOTH to a safer workplace AND a lower incidence rate.

## Sustainability at Any Speed: Getting to That Higher Level of Safety Program Maturity

Next, an inspection program or process is one of the fundamental safety processes we use to verify conformance.

<u>Table 2. Inspection Element (levels only briefly described for presentation purposes.)</u>					
LEVEL:	<u>1</u> <u>Reactive</u>	<u>2</u> <u>Compliant</u>	<u>3</u> <u>Management</u> <u>Systems</u>	<u>4</u> <u>Culture</u>	<u>5</u> <u>Sustainable</u>
Inspection Process	Housekeeping and certain safety equipment is inspected.  Maintenance issues get reported.	Inspections occur to a standardized checklist.  Regulatory required items are inspected.  Training for inspectors occurs.  Maintenance issues are tracked to closure.	Checklists are tailored, and include safe work procedures.  Trending results are used for continuous improvement.  Workers are part of inspection teams.	Work activity is observed for at-risk behaviors.  Conformance is verified.  Trend improvements are tied to worker recognition programs and manager performance appraisals.	Safety criteria are integrated into other business inspections.  Improving trends tied to business strategies, per department.
METRICS	# of Inspections	Closure of Maintenance Issues.	Improving trends.  Closure rates.	% Conformance.  % Conformance to High Risk Tasks.  # Employee recognitions.	Metrics at the Department level drive their strategies.

As you can see from Table 2, each Level adds progressively more rigor to an inspection process. Likewise, each progressive Level adds metrics. The goal of an inspection process is no longer just the completion of inspections, but the confirmation that non-conformances are fewer and fewer, and that we are not seeing the same problems over and over, regardless of what you inspect. From a sustainability standpoint, the further you go down into the organization and apply these metrics for organizational accountabilities and recognitions, the more you have woven this process into the fabric of the organization itself.

The incident investigation or analysis program or process is another one of the fundamental safety processes. We use this process to find where these first two processes (hazard analysis and inspections) failed to yield the necessary prevention efforts.

## Sustainability at Any Speed: Getting to That Higher Level of Safety Program Maturity

**Table 3. Investigation Element (levels only briefly described for presentation purposes.)**

LEVEL:	<u>1</u> Reactive	<u>2</u> Compliant	<u>3</u> Management Systems	<u>4</u> Culture	<u>5</u> Sustainable
Investigation Analysis	Serious incidents are investigated.	Injuries and incidents are investigated.  Corrective actions are tracked to closure.  Employees understand to report all injuries and incidents.	Contributing factors are investigated.  Management is accountable for corrective action closure.  Corrective actions get past “re-train” or “council” the employee.  Root Causes are tied to safety programs improvements.	Investigations are conducted for all injuries, and significant first aids.  Independent teams determine root causes.  Workers help verify action plan closures stay closed.  Employee error is never a root cause.	Root Causes also look at organizational barriers.  There is a quality control process to verify root cause determination.
METRICS	# of investigations.	Closure of action plans.	Improving contributing factor trends.  Improving # of engineering action plans.	Improving root cause trends.  Teams rewarded when action plans stay closed.	Departments trend improvements strategies are tracked.

As you can see from Table 3, the goal of an investigation process is no longer placing blame on the workers, but to identify organizational barriers that interfere with prevention efforts. The goal is hazard reduction through program improvements, while emphasizing the hierarchy of controls. Since the supervisor or manager directly responsible for an incident cannot be completely objective, independent teams are used to identify root cause. Ultimate sustainability is gained by integrating the accountability and recognition down into the organization and among other business initiatives.

### Summary

Getting our safety programs to a Sustainable Level 5 may appear to be a daunting task, but if taken one program at a time, on step at a time, anyone can get there at their own speed! The first one is always the most difficult. Look for interested teaming partners, provide training and mentorship, and develop and use leading metrics as soon as possible. You are there when accountability and recognition is a part of the overall organizational structure and strategy.

### Bibliography

1. Paul Esposito: “*Selling Safety to Management Using Metrics*”, June 2002, Industrial Hygiene and Safety News.
2. Kyle Dotson: *How Do You Measure Safety?* Executive Strategies, Industrial Hygiene and Safety News.
3. Dan Petersen “*The Safety Scorecard*: Occupational Hazards Magazine, May 2001.
4. Balanced Scorecard
  - a. [www.balancedscorecard.org](http://www.balancedscorecard.org)
  - b. [http://en.wikipedia.org/wiki/Balanced\\_scorecard](http://en.wikipedia.org/wiki/Balanced_scorecard)

## **Sustainability at Any Speed: Getting to That Higher Level of Safety Program Maturity**

5. Deming: [http://en.wikipedia.org/wiki/W. Edwards Deming](http://en.wikipedia.org/wiki/W._Edwards_Deming)
6. Kaplan and Norton: *The Balanced Scorecard: Translating Strategy Into Action* (1996).
7. American Industrial Hygiene Association "*Industrial Hygiene Performance Measure Handbook*", published in May 2001.
8. Occupational Risk Assessment Strategies: Presented by Paul Esposito at ASSE National Conferences and Seminarfest.
9. Human error: INPO: <http://www.inpo.info/>