

The logo for The 3 Point Group, featuring the letters '3p' in a stylized font with a red and black background.

Has Six Sigma Lived Up to It's Hip?

by

Vern Goodwalt

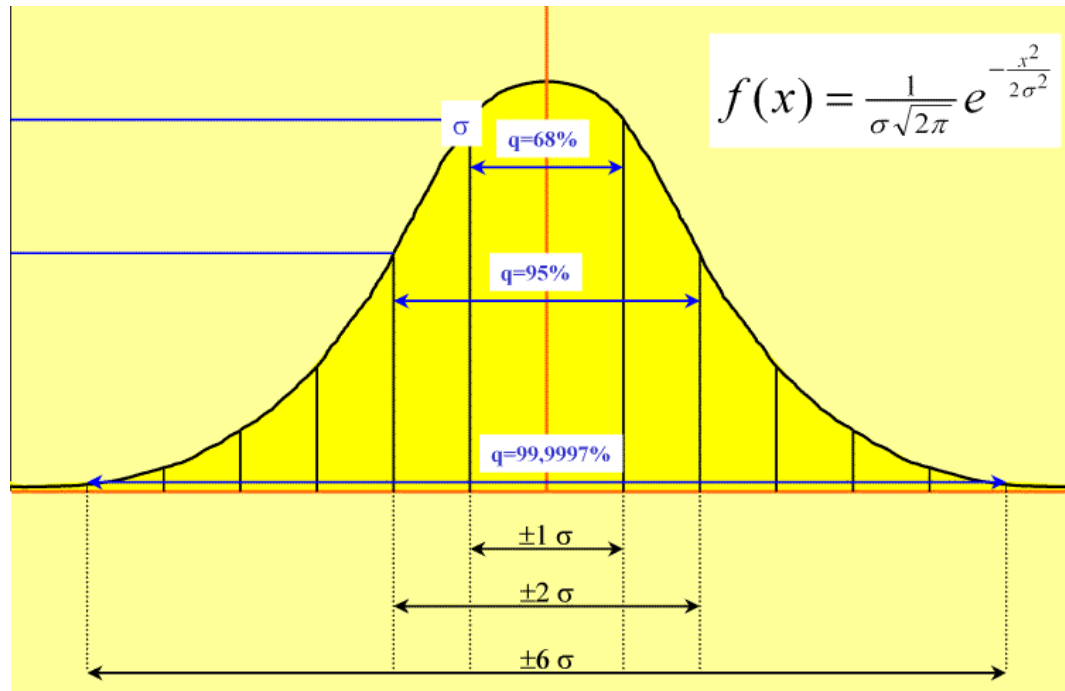
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A well thought out **APPROACH** effectively **DEPLOYED**
favors positive **RESULTS.**

Vern Goodwalt

What's Your Sigma Defect Level?



Sigma level	DPMO	Percent defective	Percentage yield	Short-term C_{pk}	Long-term C_{pk}
1	691,462	69%	31%	0.33	-0.17
2	308,538	31%	69%	0.67	0.17
3	66,807	6.7%	93.3%	1.00	0.5
4	6,210	0.62%	99.38%	1.33	0.83
5	233	0.023%	99.977%	1.67	1.17
6	3.4	0.00034%	99.99966%	2.00	1.5
7	0.019	0.0000019%	99.9999981%	2.33	1.83



DPMO: Defective parts Per Million Opportunities what's opportunities?

Six Sigma's Rise and Fall

- The core of Six Sigma was “born” at Motorola in the 1970s out of senior executive Art Sundry's criticism of Motorola's bad quality.
- Six Sigma originated as a set of practices designed to improve manufacturing processes and eliminate defects.
- A six sigma process is one in which 99.99966% of the products manufactured are statistically expected to be free of defects (3.4 defects per million).
- Six Sigma was heavily inspired by the quality improvement methodologies of the six preceding decades, such as quality control, Total Quality Management (TQM), and Zero Defects, based on the work of pioneers such as Shewhart, Deming, Juran, Ishikawa, Taguchi and the Toyota Production System.
- In the 80's & 90's GE's Jack Welch further advanced the application of Six Sigma in the USA.
- In the 2000-2010 decade, Six Sigma morphed to Lean Six Sigma to Lean Sigma to the Lean Methodology that's broadly used today.

Is Six Sigma Dead? No, It's just not for every body.



Why the Migration from Six Sigma to Just a Lean Methodology?

2007 Study of Six Sigma Companies

- **In 2007, before the big recession a QualPro study showed that 53 of 58 companies using Six Sigma trailed the S&P 500. Why?**

Source: October 2011 ASQ Quality Progress

Some questions:

- How would you calculate a Six Sigma quality level?
 - What are the industry requirements?
 - What resources are required?
 - How long will it take?
 - What will the cost be?
 - Who is going to pay for Six Sigma?
 - What kind of organization is up to doing Six Sigma? And,
 - Other questions
- **Maybe there are some answer for this?**

2007 Study of Six Sigma Companies

(Continued)

- **Probable causes**

You will need;

- Deep pockets
- Buy-in at all levels
- A long term commitment
- An organizational culture that's willing to learn and change
- 3 to 5 years to reach a basic level of competency
- An understanding that the customer won't pay for it.

- **Maybe there is less demanding, less costly, and quicker ways?**

- A personal experience on this subject.



**If Lean Methodology is the thing today,
what does L-E-A-N look like?**

My Definition of L-E-A-N

- **L = learning**
 - knowledge, skills, and ability (SKI's)
- **E = effectiveness**
 - efforts that produces positive results
- **A = analysis and agility**
 - understanding the situation and the ability to adapt
- **N = numbers**
 - data and measures (metrology) that presents the truth

Most Currently Used Approaches for LEAN

- **Continuous Process Improvement Approaches**
 - **5S +1** (Sort - Systematically Organize - Shine - Standardize - Sustain - Safety)
 - **PDSA/PDCA** (Plan - Do - Study/Check – Act)
 - **DMAIC-V** (Define - Measure - Act - Improve - Control - Verify)
 - **The 7 Hidden Wastes** (see slide #10)
 - **ASQ Quality Tools** (see slide #11)
 - **Process and Project Teams**, ASQ International Team & Project Excellence (ITEA) Criteria <http://wcqi.asq.org/team-competition/index.html>
- **Organizational Management Systems**
 - **ISO 9001 2008** for Quality and Process Management <http://www.iso.org/iso/home.htm>
 - **Shingo** for Operations Excellence <http://www.shingoprize.org/>
 - **Baldrige** for Organizational Performance Excellence <http://www.nist.gov/baldrige/>

7 + 1 Hidden Wastes

(Component of the Toyota Production System)

1. **Over Production** - Occurs when we manufacture, assemble, or build more than what is needed.
2. **Defects & Rework** - Happens when we do not have robust preventive systems that include Poka-Yoke (fail-safing or mistake-proofing) techniques.
3. **Motion** - Unnecessary movement of people, product or equipment that adds no value to a process.
4. **Transportation** - Occurs when people, product, equipment or information are moved more often or further than needed.
5. **Inventory** - hide many unwanted conditions.
6. **Over Processing** - Caused by making a product or service better than a customer needs or is willing to pay for.
7. **Waiting Time** - From people, processes or partially finished goods sitting idle while waiting for instructions, information or raw materials.
8. **Underutilized People** - Underutilization of mental, creative, and physical skills and abilities of employees of the organization. Some of the more common causes for this waste include; organizational culture, inadequate hiring practices, poor or non-existent training, and high employee turnover.



ASQ Quality Tool Sets

Cause Analysis Tools

Tips and tools for the first step to improvement: identifying the cause of a problem or situation.

Evaluation and Decision-Making Tools

Making informed decisions and choosing the best options with a simple, objective rating system, and determining the success of a project.

Process Analysis Tools

How to identify and eliminate unnecessary process steps to increase efficiency, reduce timelines and cut costs.

Seven Basic Quality Tools

These seven tools get to the heart of implementing quality principles.

Data Collection and Analysis Tools

How can you collect the data you need, and what should you do with them once they're collected?

Idea Creation Tools

Ways to stimulate group creativity and organize the ideas that come from it.

Project Planning and Implementing Tools

How to track a project's status and look for improvement opportunities.

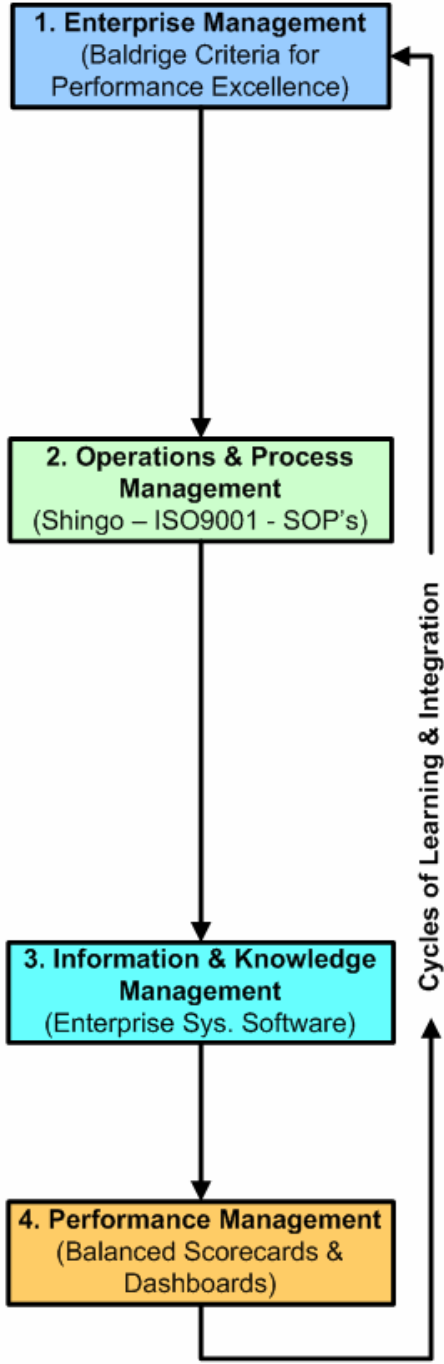
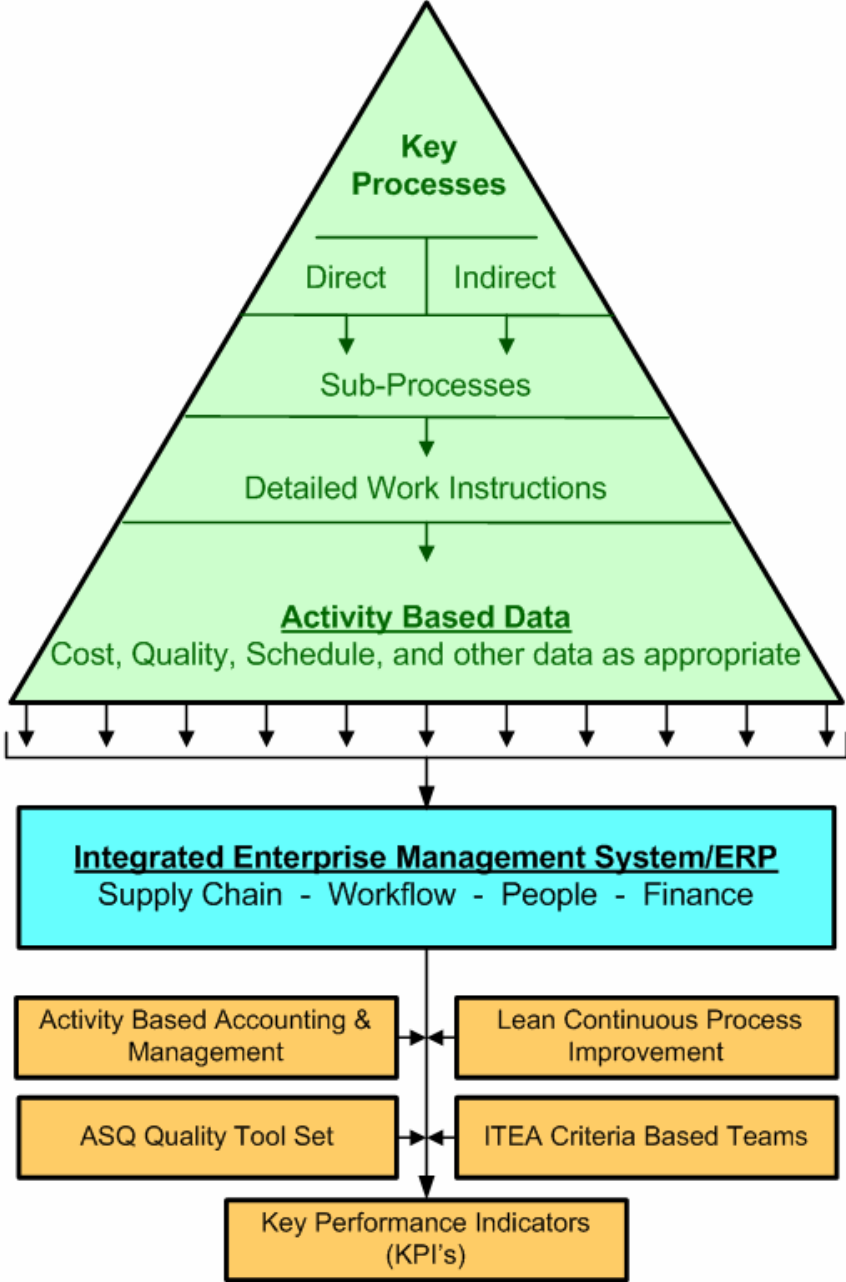
Seven New Management and Planning Tools

Ways to promote innovation, communicate information and successfully plan major projects.

- **Data and performance measures (metrics) that present the truth.**
 - Activity Based Accounting
 - Performance Data
 - Performance Metrics
 - Key Performance Indicators (KPI's)
 - Balanced Scorecard
 - Dashboard



Enterprise Sustainability Tree ©





Questions