



Six Sigma & Technology

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Webteknologie, LLC
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● ● ● | A Little About Me

I own two companies:

Woodyear Enterprises, LLC
and
Webteknologie, LLC





A Little More About Me

- Mathematician from Penn State.
- Career in Information Systems
- First wave Blackbelt at Conoco when the program was launched in 2000.
- Total savings of \$3MM in 3 years on a dozen projects.

- ● ● | Know your audience





What I'm not going to do...



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What is Six Sigma

- **Six Sigma** is a set of practices originally developed by Motorola to systematically improve processes by eliminating defects.
- A defect is defined as nonconformity of a product or service to its specifications.
- Six Sigma was heavily inspired by six preceding decades of quality improvement methodologies such as quality control, TQM, and Zero Defects.



What does 6-sigma mean?

- Manufacturing and business processes can be measured, analyzed, improved and controlled
- The term "Six Sigma" refers to the ability of highly capable processes to produce output within specification.
- In particular, processes that operate with six sigma quality produce at defect levels below 3.4 defects per (one) million opportunities (DPMO).

● ● ● | Six Sigma -- Practical Meaning

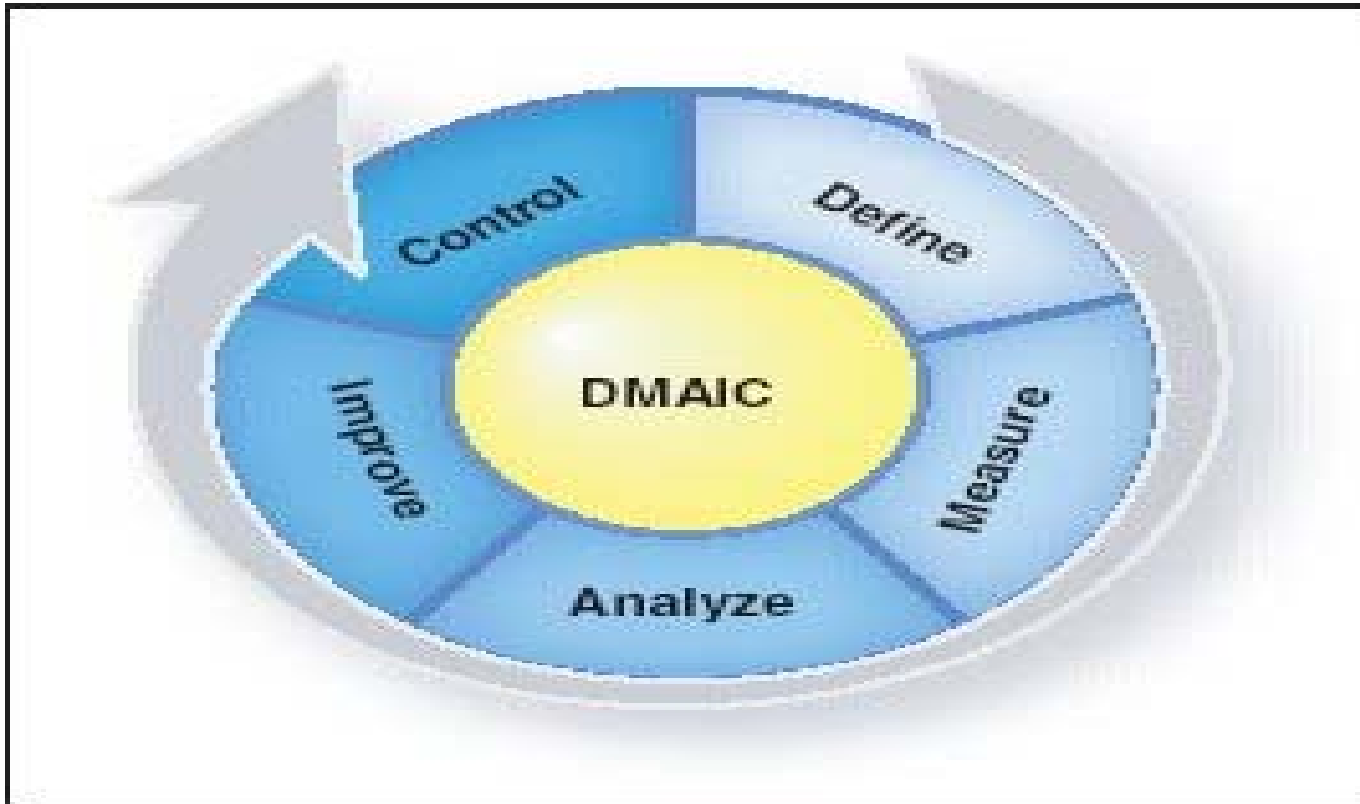
99% Good (3.8 Sigma)

99.99966% Good (6 Sigma)

- | | | |
|--|--|---|
| • 20,000 lost articles of mail per hour |  | • Seven articles lost per hour |
| • Unsafe drinking water for almost 15 minutes each day |  | • One unsafe minute every seven months |
| • 5,000 incorrect surgical operations per week |  | • 1.7 incorrect operations per week |
| • Two short or long landings at most major airports each day |  | • One short or long landing every five years |
| • 200,000 wrong drug prescriptions each year |  | • 68 wrong prescriptions per year |
| • No electricity for almost seven hours each month |  | • One hour without electricity every 34 years |



DMAIC Process





What to improve?

Password Resets

Y

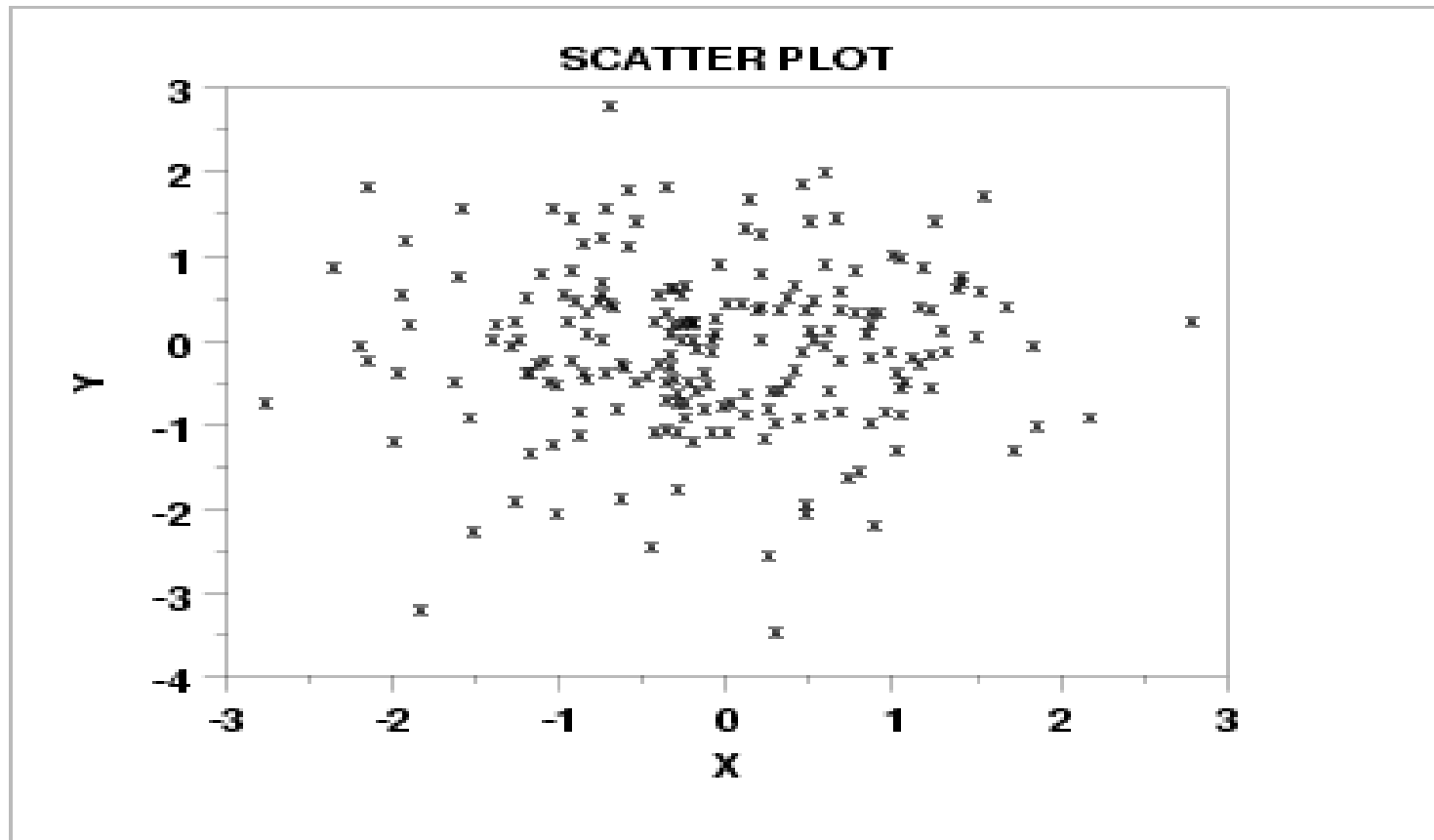
Capacity

Scorecard Metrics

Service Level Management



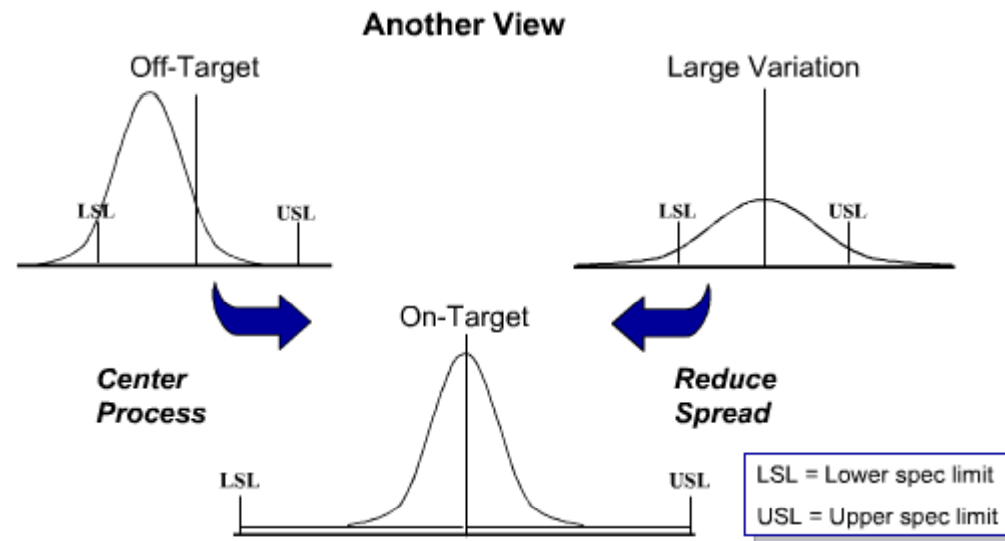
Shotgun Blast





The Super Model Bell Curve

*Usual v/s Unusual,
Acceptable v/s Defective*



The statistical view of a problem

● ● ●

Variability

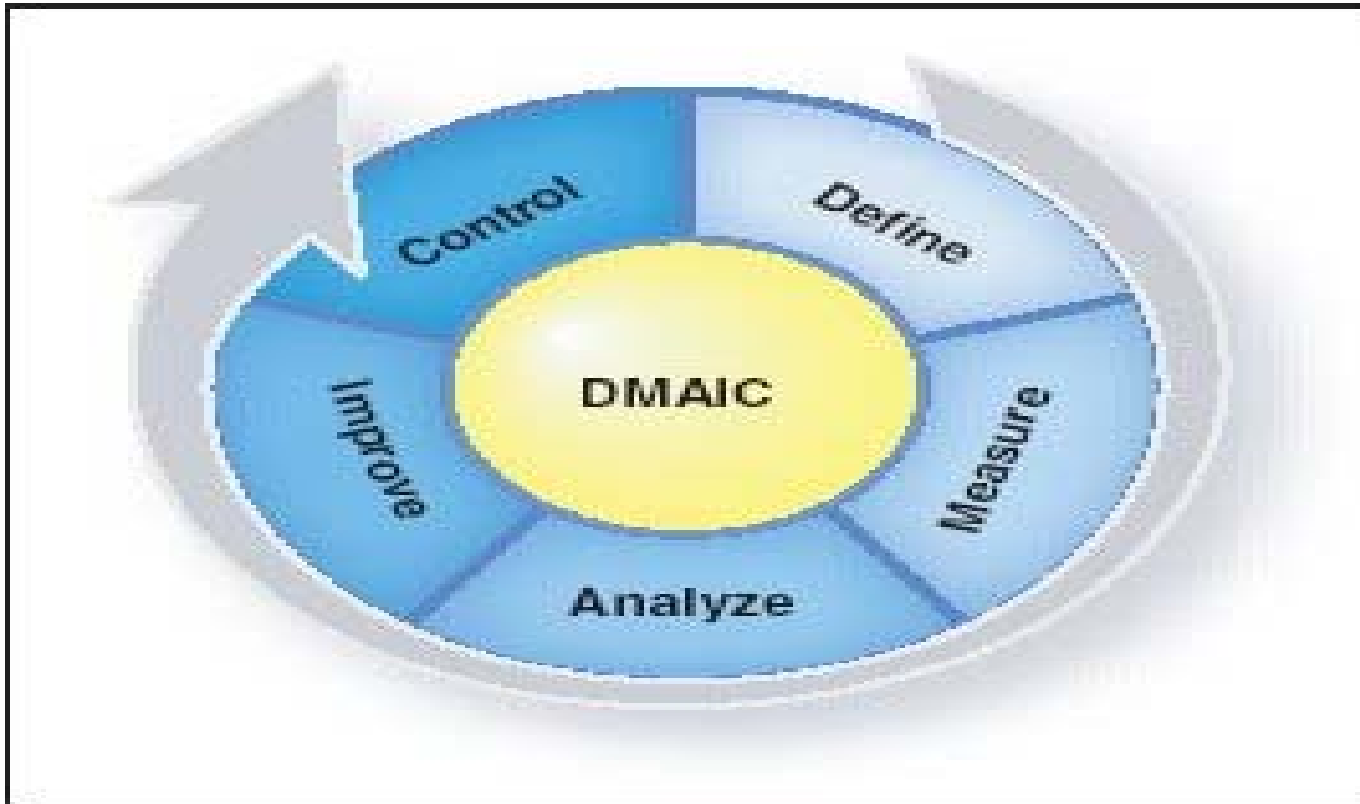
- Standard deviation = square root of variance

	Average	Variance	Standard Deviation
Jack	8.4	1.0	1.0
Jill	6.6	0.24	0.4898979





DMAIC Process





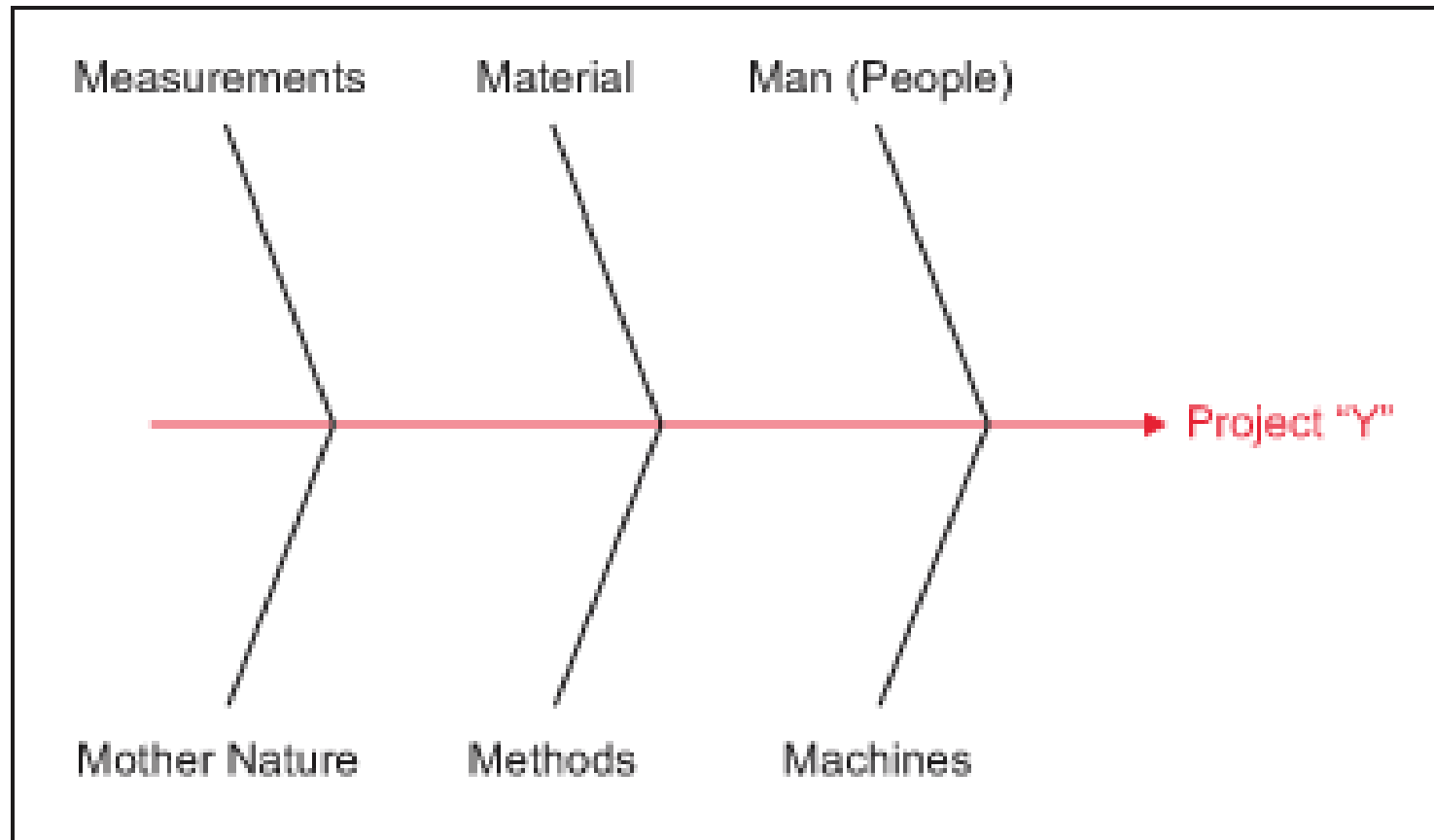
Tools to Use

- Even if you don't use the statistical analysis piece in software design, the tools are excellent for doing requirements analysis.
- Some of the tools, such as histograms, flowcharts, fishbone diagrams may already be familiar to the IT analyst.
- Other tools, such as SIPOC, VOC, and stakeholder analysis may be new to the IS profession, and can be essential to developing a solid requirements document.





Fishbone



Stakeholder Analysis



Send comments and stories to Cox-Box@iSixSigma.com



Stakeholder Analysis

- Stakeholders
- Benefits
- Concerns
- Action Plans
- WIIFM

- Customer Survey's

SIPOC

Suppliers	Inputs	Process (Billing Process Example)	Outputs	Customers
<ul style="list-style-type: none"> • ? • ? • ? 	<ul style="list-style-type: none"> • Billing Department Staff • Customer Database • Shipping Info • Order Info 	<pre> graph LR S1[Start Step 1] --> S2[Step 2] S2 --> S3[Step 3] S3 --> S4[Step 4] S4 --> S5[Step 5] S5 --> S6[Step 6] S6 --> S7[Step 7] S7 --> S8[Start Step 8] </pre>	<ul style="list-style-type: none"> • Delivered Invoice 	<ul style="list-style-type: none"> • ? • ? • ?
	Input Metrics	Process Metrics	Output Metrics	
<ul style="list-style-type: none"> • Staff Expertise • System Up-Time 	<ul style="list-style-type: none"> • System Responsiveness • Accuracy of Order Info • Accuracy of Shipping Info • Accuracy of Database Info 	<ul style="list-style-type: none"> • Rework Percentage at Each Step 	<ul style="list-style-type: none"> • Invoice Accuracy 	Quality
	<ul style="list-style-type: none"> • Time to Receive Order Info • Time to Receive Shipping Info 	<ul style="list-style-type: none"> • Number of Process Steps • Time to Complete Invoice • Time to Deliver Invoice • Delay Time Between Steps 	<ul style="list-style-type: none"> • Invoice Cycle Time 	Cycle Time
	<ul style="list-style-type: none"> • Number of Billing Staff • Invoices Processed/Month and Variability 	<ul style="list-style-type: none"> • Number of Process Steps 	<ul style="list-style-type: none"> • Cost per Invoice 	Cost



Affinity Diagram





Six Sigma a “cure-all”

- Six Sigma is NOT a magic bullet
- Projects must have narrow scope
“Don’t boil the ocean”
- Repeatable tasks / recurring events
- Available Metrics
- Owner Support
- Follow the \$money\$

