

Graphing Data for Maximum Impact



***A Blueprint
for turning your
Data into Results!***

Learning Objectives

- Translating measurements – into data – into results for managing your day-to-day operations
- Understand the five dimensions of Results.
- Learn how to use standard office software packages to graphically represent your data for maximum impact



Who Are We?

- City / County / State Government
- Education
- Health Care
- Manufacturing
- Service



Quotes of the moment

"What gets measured gets done"

W. Edwards Deming

"Measurement is the first step that leads to control and eventually to improvement. If you can't measure something, you can't understand it. If you can't understand it, you can't control it. If you can't control it, you can't improve it."

H. James Harrington



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What is MEASUREMENT?

- **meas·ure·ment** *n.*
- 1. The act of measuring or the process of being measured.
- 2. A system of measuring: *measurement in miles.*
- 3. The dimension, quantity, or capacity determined by measuring: *the measurements of a room.*



Different Measurement Systems

- Distance (microns, inches, centimeters, kilometers, miles, Astronomical Units, Light-years, etc.)
- Time
- Profit / Loss / costs
- Lost Opportunity
- Others?



Measurement Techniques

Measure this...



Need to understand what we are looking for – and apply the appropriate measurement mechanism / system.



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The Great **m**&**m** Experiment



How many are good?

Need to understand our criteria for measurement



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Frequency of Measurement

- A long, long time ago, in a far off country...



*Need to understand the proper frequency of measurement –
and when to take action...*



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Linkage of Measurements

- Measurements need to be linked to that which is IMPORTANT (Big Y's) to your Business
- How are you measured externally?
 - Industry standards
 - Return on Investment
 - Organization Values
 - Outcomes



Bonus Learning

- Process Mapping... X's and Y's



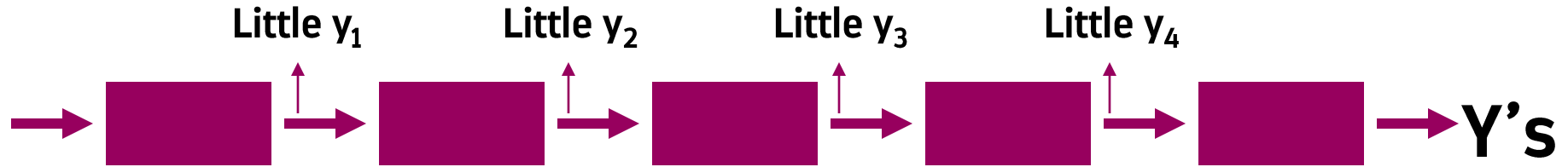
Need to know what are the BIG Y's to the organization



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Bonus Learning

- Big Ys and little y_s



Need to understand the in-process leading indicators or little y 's



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Establishing a Baseline

“If you don't know where you are going, any road will take you there.”

Lewis Carroll

*If you don't know where you **are**, how can you tell where you are going?”*

Bob Madeiros



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Establishing a Baseline

"Without a standard there is no logical basis for making a decision or taking action."

Joseph M. Juran



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Determining Key Characteristics

- Identifying those critical few BIG Ys
- Linkage to that which is important to the organization
 - Tools like:
 - *Strategic Plan*
 - *Balanced Scorecard*
 - *Cascading Objectives*



Results that are Actionable

- Being able to recognize when action is required...
And understand what action needs to be taken
 - In Six Sigma terminology

Having a Control Plan



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Understanding the Five Dimensions of Sterling Results

- Levels
- Trends
- Comparisons
- Integration
- *Gaps*



Performance Levels

- **Level n**, Numerical information that places or positions your organization's results on a meaningful measurement scale



Performance Trends

- **Trend** n, the general movement over the course of time of a statistically detectable change

DIRECTION and ***RATE OF CHANGE***



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Comparisons

- **Comparison** n, an examination of two or more items to establish similarities and dissimilarities

Show how your **RESULTS** compare to those of other, ***Appropriately Selected*** organizations



Comparisons Examples

- What **I** did yesterday
- The **BEST I** have ever done
- Comparison to other branches/divisions **AVERAGE**
- Comparison to other branches / division **BEST**
- Comparison to the **COMPETITOR's Average**
- Comparison to the **COMPETITOR's Best**
- Comparison to **BEST IN CLASS** in your **segment**
- Comparison to **BEST IN CLASS** anywhere



Integration

- **Integration** n, The harmonization of plans, processes, and results to support key organizational goals.

Show how your **RESULTS** are tied to that which is **IMPORTANT** to your organization.

- Strategic Plan (objectives and action plans)
- Balanced Scorecard
- Organizational Profile



Gaps

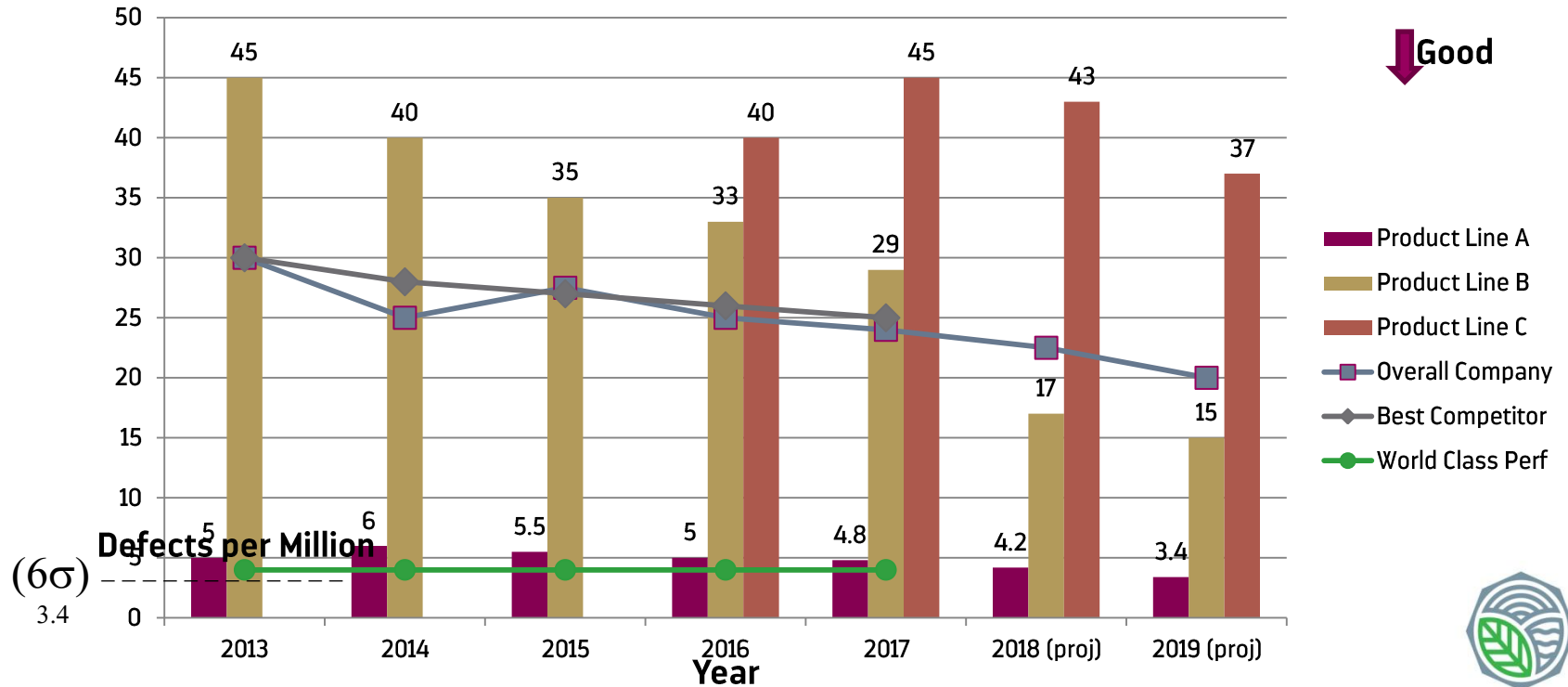
- **Gaps** *n*; An incomplete or deficient area.

Results **we expect** to see, but **don't**.



From the Management System Resource Guide

Figure 71-3 Defects Per Million Opportunities



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Graphically Presenting Data for Maximum Impact

- Types of Data
- Types of Graphical Representations
- Use of standard packages



Discrete or Continuous Data

- Discrete – Yes or No, Pass or Fail, Color, etc.
- Continuous – data measured on a continuous scale; 1.28 inches, 98.7degrees,



Types of Charts

- **Pareto Chart**
- Italian Economist that postulated that 80% of the wealth was held by 20% of the population.
- Modified by Joseph M. Juran to imply that 80% of the effects come from 20% of the causes



Vilfredo Pareto, 1848-1923

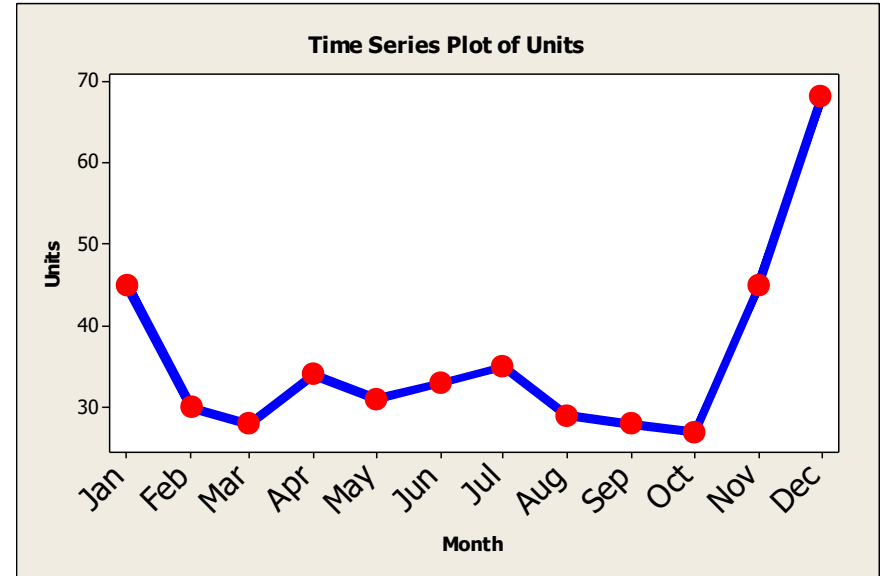
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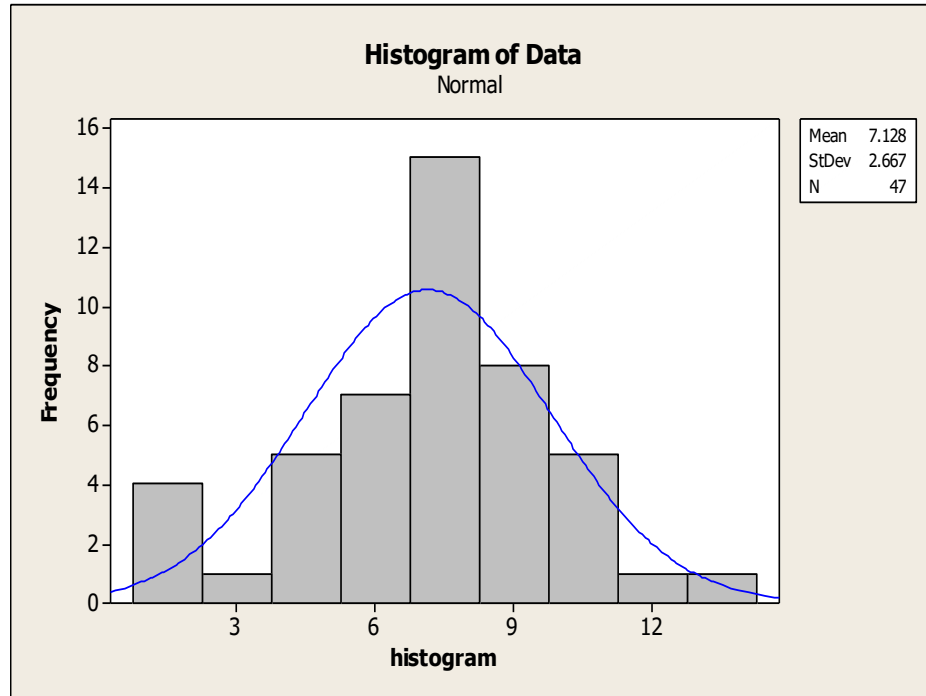
Types of Charts

- **Line Chart**
 - **Shows changes over time**
 - How long is a trend?
 - How many data points make a Trend?

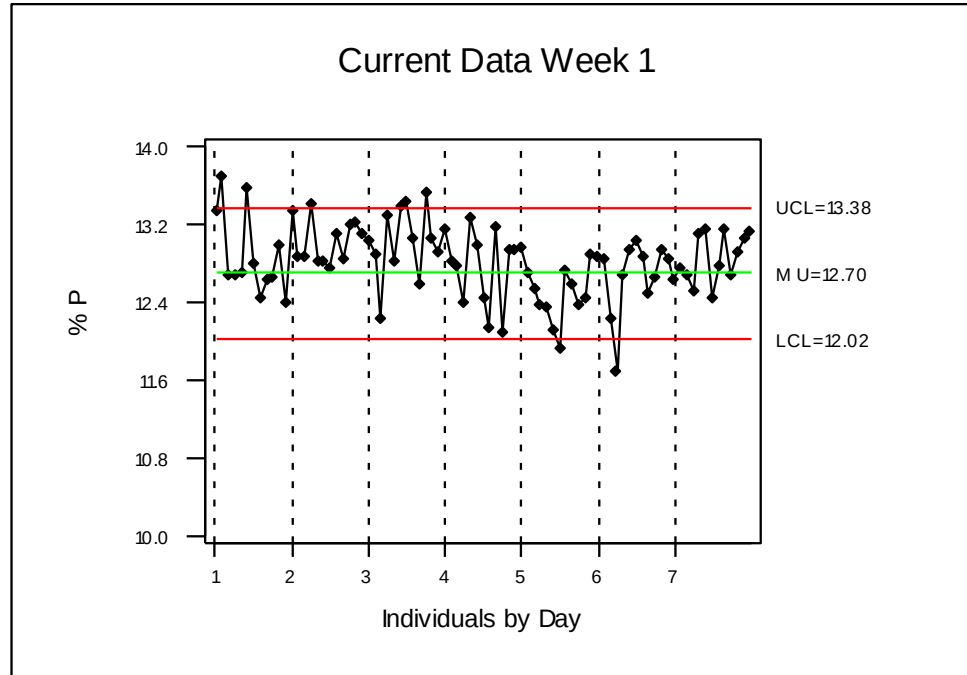


Types of Charts

- **Histogram**
 - Frequency or distribution chart



Statistical Control Charts



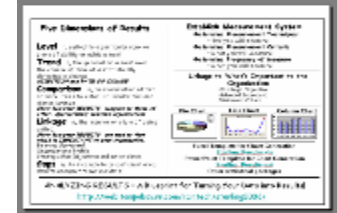
Graphing Software

- **Standard office spreadsheet programs like**
 - Microsoft Office Excel
 - Microsoft Office PowerPoint
- **Standard analysis packages like**
 - Minitab



Graphing Software

- Excel Template for Chart Generation
[sterling_results_REV_a.xlsx](#)



- PowerPoint Template for Chart Generation
[sterling_results_REV_a.pptx](#)

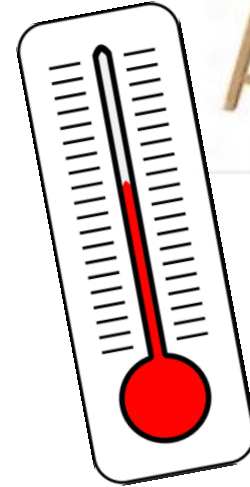
- Other statistical packages



Real-Time Data Collection

- White Board in Area
 - Line Chart
- Check Sheet
 - Qausi- Pareto

<i>Typing test analysis</i>		
Typist: <u>Kelly Hall</u>		Date: <u>12th Oct</u>
Examiner: <u>Jay Brown</u>		Test: <u>R324</u>
Type of error	Count	Score
Reversed letters		5
Missing letters		8
Extra letters		5
Wrong letters	###	10
Total errors:		28



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