



Creating Value: Solving Tough Problems

(It's the Implementation that Counts)

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Our Plan for Today

- Introduce “The 7 Basic Tools”
- Share the classic improvement cycle PDCA
- Give you Pareto (The “80/20 rule”)
- Determine when it’s appropriate to use each tool
- Apply the tools in some association scenarios

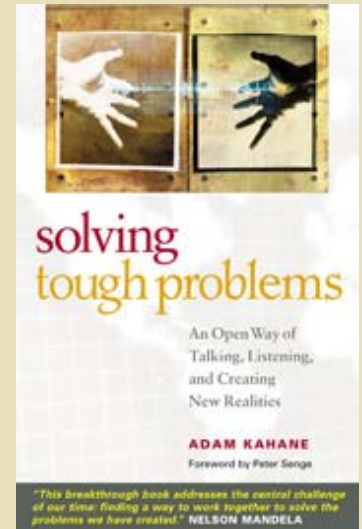


Success

- Exposure – Familiarity
- Interest – Enough to use a tool(s) to solve a problem

Tough Problems

- Simple Problems = Simple Tools
- Complex Problems = Complex Tools
- Complexity
 - Dynamically (C&A far apart in time & space)
 - Generatively (unpredictable)
 - Socially (perspective dependant)





Business Problems

Some are Tough

Some are Not

Knowing the difference requires
Wisdom



Enter Pareto

The Rule of 80:20

Vital Few vs. Useful Many



The Old Seven: The First Seven: The Basic Seven

- First emphasized by Kaoru Ishikawa, a professor of engineering at Tokyo University
 - Father of “Quality Circles”

“80% of all problems can be solved with the 7 Basic Tools.”



The Basic Seven

1. Cause-and-effect diagram
2. Check sheet
3. Control charts
4. Histogram
5. Pareto chart
6. Scatter diagram
7. Stratification

1. Cause-and-effect Diagram

- A/k/a: Ishikawa / fishbone chart
- Identifies many possible causes for an effect or problem and sorts ideas into useful categories
- A simple tool for ordering large numbers of contributors into visual order

1. Cause-and-effect Diagram





1. Cause-and-effect Diagram

- When to use:
 - When identifying possible causes for a problem
 - When there are a large number of factors to consider
 - Many inputs, to one output
 - When a team's thinking tends to fall into ruts



1. Cause-and-effect Diagram

- In Associations
 - Membership retention
 - Conference satisfaction
 - Member Satisfaction
 - One stop Service
 - Order accuracy



2. Check Sheet

- A/k/a: Defect concentration diagram
- A structured, prepared form for collecting and analyzing data
- A generic tool that can be adapted for a wide variety of purposes



2. Check Sheet

Telephone Interruptions

Reason	Day					
	Mon	Tues	Wed	Thurs	Fri	Total
Wrong number	+++			+++	+++	20
Info request						10
Boss	+++		+++			19
Total	12	6	10	8	13	49



2. Check Sheet

- When to use:
 - When data can be observed and collected repeatedly by the same person or at the same location
 - When collecting data on the frequency or patterns of events, problems, defects, defect location, defect causes, etc.
 - When collecting data from “volume” process



2. Check Sheet

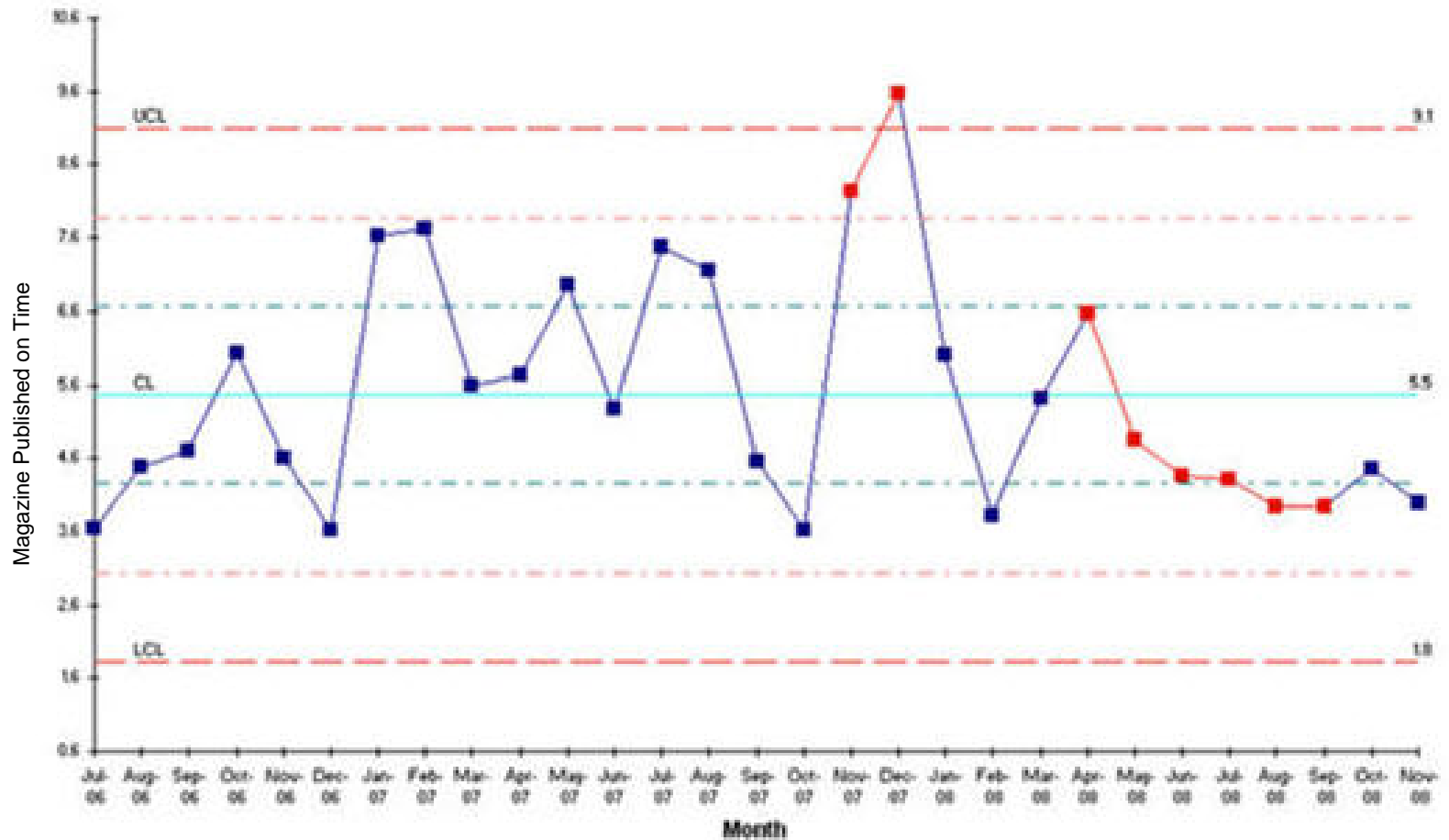
- In Associations
 - Call analysis
 - Order analysis
 - Web traffic analysis
 - Complaint analysis



3. Control Charts

- A/k/a: Statistical process control
- Graphs used to study how a process changes over time
- Visual depiction of variation

3. Control Charts





3. Control Charts

- When to use:
 - When controlling ongoing processes by finding and correcting problems as they occur “
 - When predicting the expected range of outcomes from a process
 - When determining whether a process is stable (in statistical control)
 - When analyzing patterns of process variation from special causes (non-routine events) or common causes (built into the process)
 - When determining whether your quality improvement project should aim to prevent specific problems or to make fundamental changes to the process



3. Control Charts

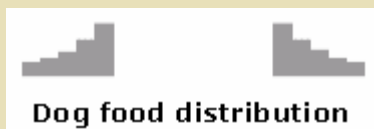
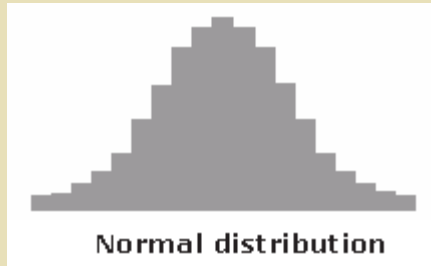
- In Associations
 - Membership retention
 - Member growth
 - Satisfaction
 - Volumes of anything



4. Histogram (time and frequency)

- Most commonly used graph for showing frequency distributions, or how often each different value in a set of data occurs

4. Histograms (common shapes)





4. Histogram

- When to use:
 - When the data are numerical
 - When you want to see the shape of the data's distribution, especially when determining whether the output of a process is distributed approximately normally
 - When analyzing whether a process can meet the customer's requirements
 - When analyzing what the output from a supplier's process looks like
 - When seeing whether a process change has occurred from one time period to another
 - When determining whether the outputs of two or more processes are different
 - When you wish to communicate the distribution of data quickly and easily to others



4. Histogram

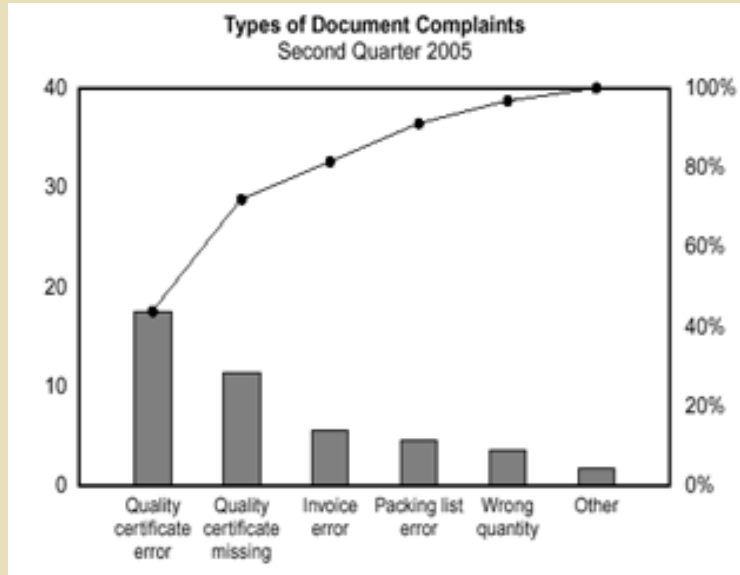
- In Associations
 - Defect tracking
 - Satisfaction tracking
 - Trending anything
 - Attendance



5. Pareto Chart (Paul's personal favorite)

- Shows on a bar graph which factors are more significant
- Causes “ordered” from highest to lowest

5. Pareto Chart





5. Pareto Chart

- When to use:
 - When analyzing data about the frequency of problems or causes in a process
 - When there are many problems or causes and you want to focus on the most significant
 - When analyzing broad causes by looking at their specific components
 - When communicating with others about your data
 - When setting priorities



5. Pareto Chart

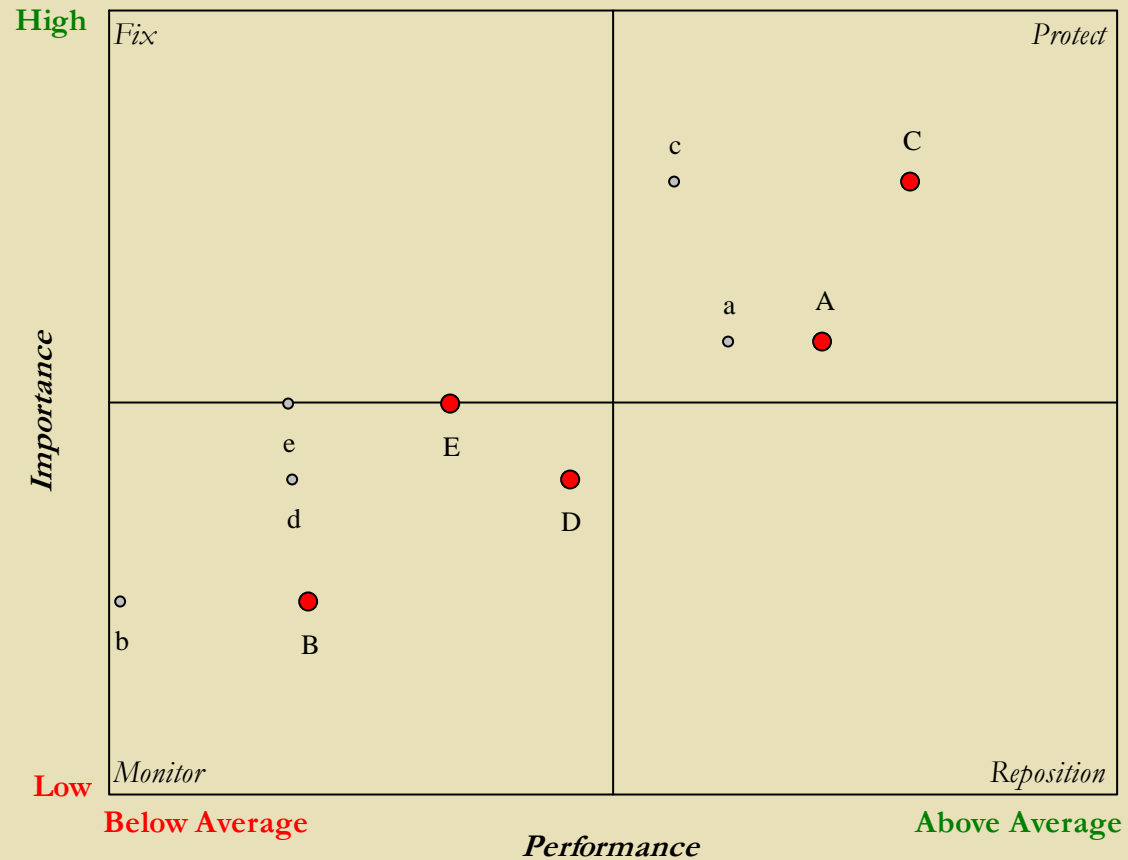
- In Associations
 - Complaints
 - Satisfaction
 - Any voting outcome
 - Cost management



6. Scatter Diagram

- A/k/a: Scatter plot, X-Y graph
- Graphs pairs of numerical data, one variable on each axis, to look for a relationship

6. Scatter Diagram



6. Scatter Diagram

- When to use:
 - When you have paired numerical data
 - When your dependent variable may have multiple values for each value of your independent variable
 - When trying to determine whether the two variables are related, such as...
 - When trying to identify potential root causes of problems
 - After brainstorming causes and effects using a fishbone diagram, to determine objectively whether a particular cause and effect are related
 - When determining whether two effects that appear to be related both occur with the same cause
 - When testing for autocorrelation before constructing a control chart



6. Scatter Diagram

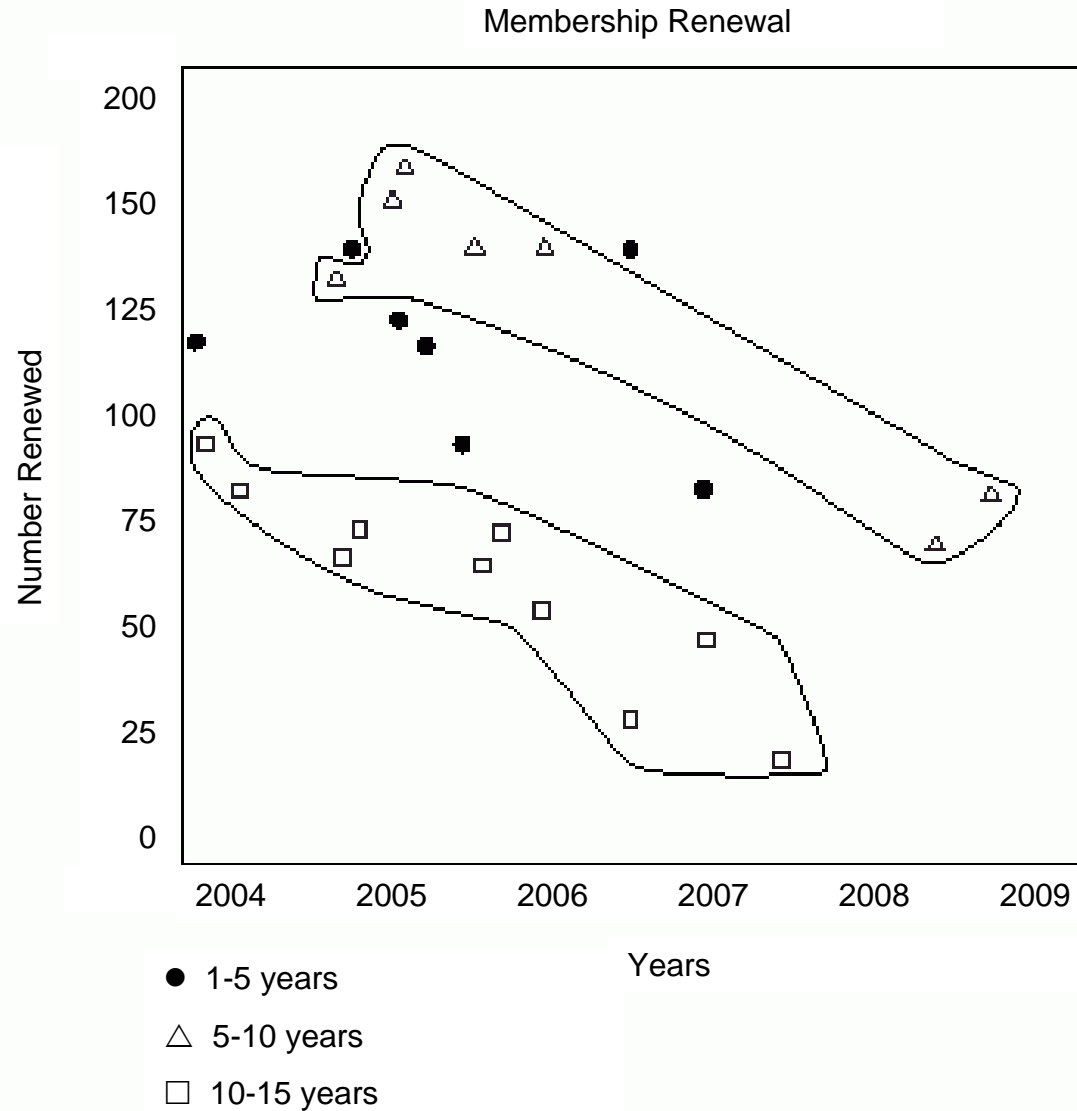
- In Associations
 - To find out if training is valuable
 - Value of products
 - Compare renewals year over year



7. Stratification

- A technique that separates data gathered from a variety of sources so that patterns can be seen

7. Stratification



7. Stratification

- When to use:
 - Before collecting data
 - When data come from several sources or conditions, such as shifts, days of the week, suppliers or population groups
 - When data analysis may require separating different sources or conditions



7. Stratification

- In Associations
 - Survey on products that drive loyalty
 - Business planning
 - Membership trends
 - Personnel costs



PDCA (secret tool #8)

- **P**lan, **D**o, **C**heck, **A**ct
- Four-step model for carrying out change (**Improvement**)
- Just as a circle has no end, the PDCA cycle should be repeated again and again for continuous improvement

PDCA (secret tool #8)





PDCA (secret tool #8)

- When to use:
 - As a model for continuous improvement
 - When starting a new improvement project
 - When developing a new or improved design of a process, product, or service
 - When defining a repetitive work process
 - When planning data collection and analysis in order to verify and prioritize problems or root causes
 - When implementing any change

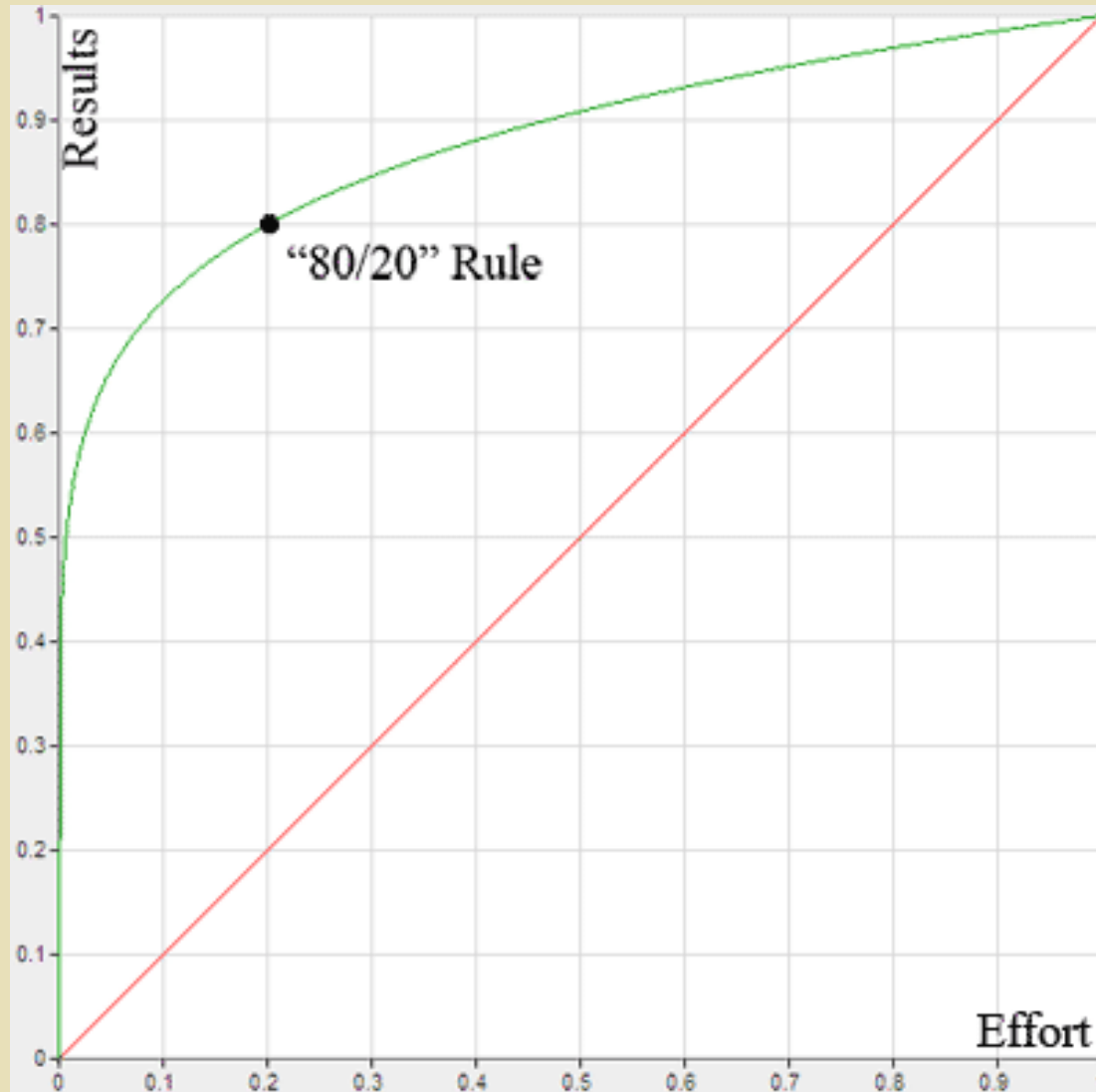


Pareto – 80/20 Principle (secret tool #9)

- In anything, a few (20%) are vital and many (80%) are trivial
- Project Managers know that 20% of the work (the first 10% and the last 10%) consume 80% of your time and resources
- You can apply the 80/20 Rule to almost anything, from the science of management to the physical world



Pareto - 80/20 Principle (secret tool #9)





Pareto – 80/20 Principle (secret tool #9)

- When to use:
 - Does 20 percent of your sales force produce 80 percent of revenues?
 - Do 20 percent of your products account for 80 percent of product sales?
 - Do 80 percent of your visitors see only 20 percent of your Web site pages?
 - Do 80 percent of delays arise from 20 percent of the possible causes of delay?
 - Do 80 percent of customer complaints arise from 20 percent of your products or services?



The Basic Seven (+2 Secret)

1. Cause-and-effect diagram
2. Check sheet
3. Control charts
4. Histogram
5. Pareto chart
6. Scatter diagram
7. Stratification
8. PDCA
9. Pareto 80/20 Rule



What do these
tools look like in
action?



Scenario 1

- Your association publishes a monthly magazine. The layout and style of the magazine are outdated. You want to breathe new life into the publication. Which quality tool should you use?
 - PDCA Cycle
 - Histogram
 - Pareto 80/20 rule



Scenario 1 Answer: PDCA Cycle

- Why?
 - You're improving a current product and/or process
- What might it look like?
 - **Plan:** Design a new look for the publication including cost analysis and timing of release
 - **Do:** Test the new design on selected members
 - **Check:** Gather feedback from the members on what they like/don't like, etc.
 - **Act:** Print the newly designed publication for release to all members

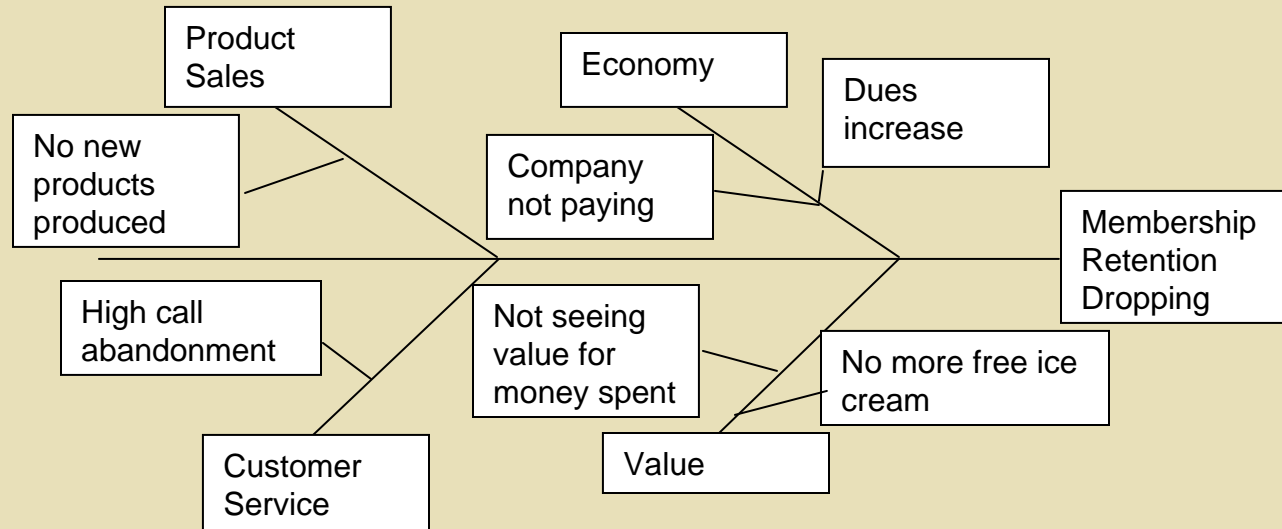


Scenario 2

- Your membership retention numbers are falling. There are several factors that may play into why members aren't renewing. Which quality tool could you use to find the root cause of membership erosion?
 - PDCA Cycle
 - Histogram
 - Cause-and-effect Diagram

Scenario 2 Answer: Cause-and-effect Diagram

- Why?
 - There may be multiple reasons for the drop in membership retention
- What might it look like?



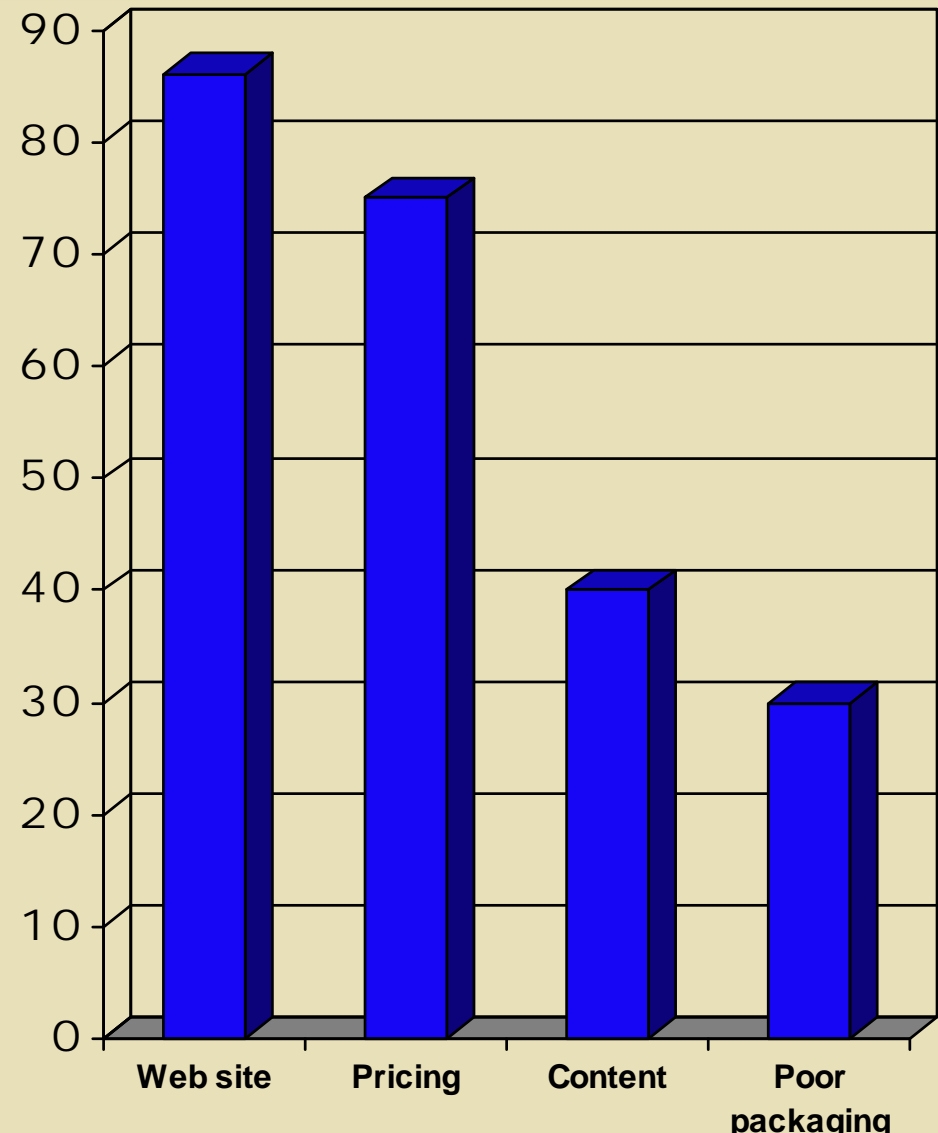


Scenario 3

- Your customer service department has received several complaints from members. The complaints include a variety of items, ranging from poor packaging to Web site inefficiencies. Which quality tool should you use?
 - PDCA Cycle
 - Histogram
 - Pareto 80/20 rule

Scenario 3 Answer: Pareto 80/20

- Why?
 - You need to prioritize the complaints to find out which ones are the most important
- What might it look like?





Thank you!