Continuous Improvement

WSQA's Guide to PDCA for Specialized Dementia Care

WSQA★

THE PATH TO PERFORMANCE EXCELLENCE

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Contents

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Introduction

The objective of this course is to provide a survival kit of common tools that can be used to lead a team through the four basic steps of effective problem resolution. These steps are summarized as:

PLAN   Identify opportunities, develop theories. Select a problem and state the desired outcome.

DO   Implement plan. Gather the data necessary to fully understand the problem and the pilot results. Test theories.

CHECK   Study what was learned.

ACT   Identify next step and act on the test results.

Contingency Diagram

Using the Contingency Diagram below, the class will work together to establish ground rules for this training.
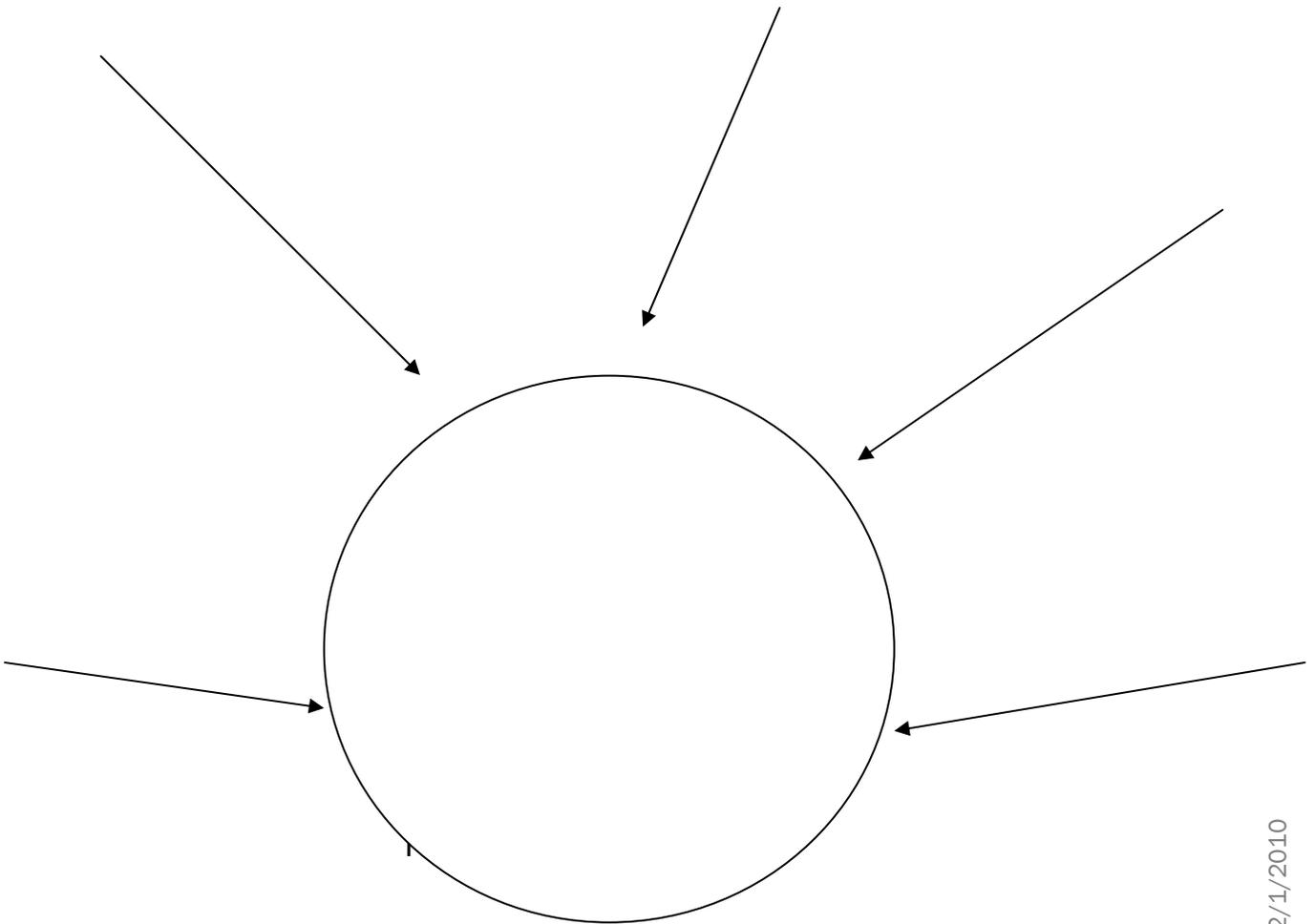
Ground Rules

- _____

- _____

- _____

- _____

- _____

- _____

- _____

Parking Lot

The Parking Lot is simply a white piece of paper with the words "Parking Lot" written across the top. Write down those items that are out of scope for the discussion, but you may want to return to later. This is a very simple, but effective way of keeping focus and reducing "sidetracking" among a team.

Getting Started

Decision Making

As a manager there are several methods of decision making available:

Authoritative	**Consultative**	**Compromise**	**Consensus**

Each method is appropriate and effective depending on the need and the situation. It is the manager's key responsibility to know when to use which method. Three factors for consideration are:

- Criticality- Importance of the decision

- Acceptance- Need for buy-in

- Timeframe- Time available to make and implement decision

As these factors increase, the need to move to the right of the scale increases.

The first step in decision-making is to define the problem. When the problem is clearly defined, the solutions often appear by themselves.

Creating Teams

Forming a team is the primary method of reaching a consensus. However, teams can be a useful method of reaching compromises. By definition, a team is a number of persons grouped together by a common cause or purpose. Teams in the working environment are formed to meet a variety of goals.

Types of work place teams

Project Team:

Applies to the completion of a specific assignment or implementation of an idea. It is generally limited to implementation, rarely requires significant quantities of data collection or testing.

Crisis Team:

Problem requires immediate attention. Solutions must be implemented immediately, often with little or no supporting data. Emphasis is on immediate correction. There is no time to thoroughly evaluate all solutions. Usually results in "stop-gap" solutions with root cause solutions to be developed later. Often uses compromise or consultative methods of decision-making.

Steering Committees:

Broad in scope, with ongoing responsibilities.

Work teams:

Responsible for a specific work process.   Requires ongoing responsibilities.

Corrective Action Teams

Formed to resolve specific problems. These teams differ from project teams in that they are never given only implementation portions of a project. These teams maintain the responsibility of data gathering and solution forming.

When to form a team:

Indicator for a team: Problems continue to resurface after "solutions" have been implemented. Also consider these factors:

- Solutions require input from multiple sources.
- Issue is of great importance.
- Organization is concerned about the issue and will support the team.
- Issue is of reasonable scope.
- Issue is solvable by the team members available.
- Issue can be clearly defined.

- You do not have the answer.

When narrowing a scope, ask "What are the critical processes involved in this scope and what is the problem that needs to be solved?"

When not to form a team:
- A process is in transition or being studied by another team.
- Decisions and actions are needed immediately
- You have the necessary information and ability to make the decision yourself.
- You are looking for a specific solution.
- You have a solution and acceptance is assured.
- A solution would not be justified by the time spent by a team.

Team Responsibilities & Characteristics
The roles involved in a team include:
- Executive Team
- Sponsor
- Facilitator (optional)
- Lead
- Members

Executive Team Responsibilities
- Ensure that the project makes good business sense (evaluate payback and resource availability).
- Prioritize among other issues.
- Determine if the issue is appropriate and warrants a project team.
- Approve the teams.
- Select a sponsor.
- Approve the selection of a team lead and team members.
- Authorize the charter for the team.
- Provide endorsement, authority and resources for the team.
- Monitor the progress of the teams.
- Administer rewards and recognition.

Sponsor Responsibilities

- Provides the resources.
- Select Lead and Team members. The Lead should provide input for Team members.
- Together with the Lead, prepare a team charter.
- Provide resources for the team (people, time, funding).
- Remove obstacles from the team.
- Attend the first meeting.
- Establish milestones for feedback.
- Ensure that the team has sufficient data to determine root causes for problems.
- Meet frequently with the Lead to review progress.
- Recognize and reward the team's progress.
- Support the team's solutions or provide reasons for differing opinions. If solutions cannot be accepted due to a constraint, which was not properly identified in the charter or earlier stages of the process, ensure that the team is aware of this earlier oversight.

Sponsor Characteristics

- Is receptive to the concept of involving and empowering employees.
- Devotes sufficient time to team (charter creation, attendance to some meetings, meeting with the lead on a regular basis).
- Makes time available to the members to participate in the team meetings.
- Has solid facilitation skills
- Uses the team problem solving tools in meetings and with work groups.

Facilitator Responsibilities

An effective team facilitator should possess all the attributes of an effective leader and have the ability to teach team skills to members and their leaders. Essentially, the team facilitators are the strongest leaders who can also teach. They are used as a resource for team leaders and sponsor to strengthen the team process. As the leaders become more experienced and skilled there is less of a need for an independent facilitator.

- Assist the Sponsor in drafting a clearly defined team charter and in the selection of lead and members for the team.
- Assist the lead in conducting meetings as needed.
- Help maintain focus on the charter.
- Monitor the Lead in meeting management, communication skills, presentation techniques, and team dynamics and problem-solving tools.
- Help to predict and offset intra-team problems. Help solve those problems that arise.
- Remain unbiased in the direction of the team.

Facilitator Characteristics

- Credibility within the organization and the team.
- Knowledge and fair judgment of individual's strengths, improvement needs and skills.
- Strong knowledge of problem solving tools
- Good meeting management skills.
- Effective training skills.
- Ability to synthesize ideas.
- Understanding of team dynamics.
- Excellent interpersonal verbal communication skills.

Lead Responsibilities

- Someone who gets others to do what he or she is not able to do alone.
- Assist in development of Charter.
- Assist in selection of team members.
- Plan for and organize meetings as needed.
- Conduct meetings as needed.
- Effectively utilize the time of the team members.
- Maintain focus on charter.
- Provide feedback to sponsor on project status, need for assistance, obstacles, and difficulties.
- Follows up on action items.
- Ensures adherence to time line and budgets.
- Ensure adherence to ground rules.
- Create a psychologically safe environment for the team.

Lead Characteristics

- Credibility within organization.
- Knowledge of the primary functional element of the issue.
- Knowledge of problem solving skills and leadership skills.
- Good use of LQC's (Listening, questioning and clarifying)
- Ability to maintain focus and follow through on actions
- Fairness in judgment.
- Ability to utilize consensus decision-making. Ability to lead and yet maintain an equal standing in the decision making process.

Team Member Responsibilities

- Attend and actively participate in team meetings.
- Contribute your expertise.
- Question other's input if not clearly understood.
- Assist the lead in maintaining focus.
- Complete agreed upon action items.
- Communicate to work area and gain input from coworkers where necessary.
- Keep Supervisor informed of commitments.
- If you are representing a group or department, keep those individuals informed and bring their feedback to the group.

Meeting Management

Meetings are an effective means of communication when there is a need for:

- Participation (issue of high criticality and acceptance)
- Feedback
- Timing

Once a meeting is decided upon the next decision is who to invite. Ask these three questions:

Who knows? - Knowledge and expertise

Who can act? - Is the needed authority at the meeting?

Who cares? - Who will be affected?

Describe some of the characteristics of the best meetings that you have attended.

Describe some of the worst meetings that you have attended.

Meeting Guidelines

1. Set Clear Goals
   - Identify the reason for the meeting.
   - State the objective on the agenda, and at the start of the meeting. Post the objective in the meeting and restate in the minutes.
2. Provide Structure and Content
   - Identify supporting roles if needed (scribe, timekeeper, facilitator).
   - Establish meeting guidelines.
   - Review action items from previous meeting.
   - State start and end times for the meeting on the agenda. START ON TIME.
   - Invite the proper people.

3. Encourage Participation
   - Provide a comfortable environment.
   - Use LQCs.
4. Keep Focus
   - Record thoughts in a visible place.   Use a parking lot if needed.
   - Prioritize issues.
5. Summarize Decisions and Agreements
   - Record decisions as they occur.
   - Provide a verbal summary of decisions and agreements at the end of the meeting.
   - Complete +/Δ for the meeting.
   - Write minutes to summarize and distribute shortly after meeting.
6. Follow Up Dates and Responsibilities
   - Prepare a task plan.
   - Ask people to summarize their responsibilities and understanding of the meeting.
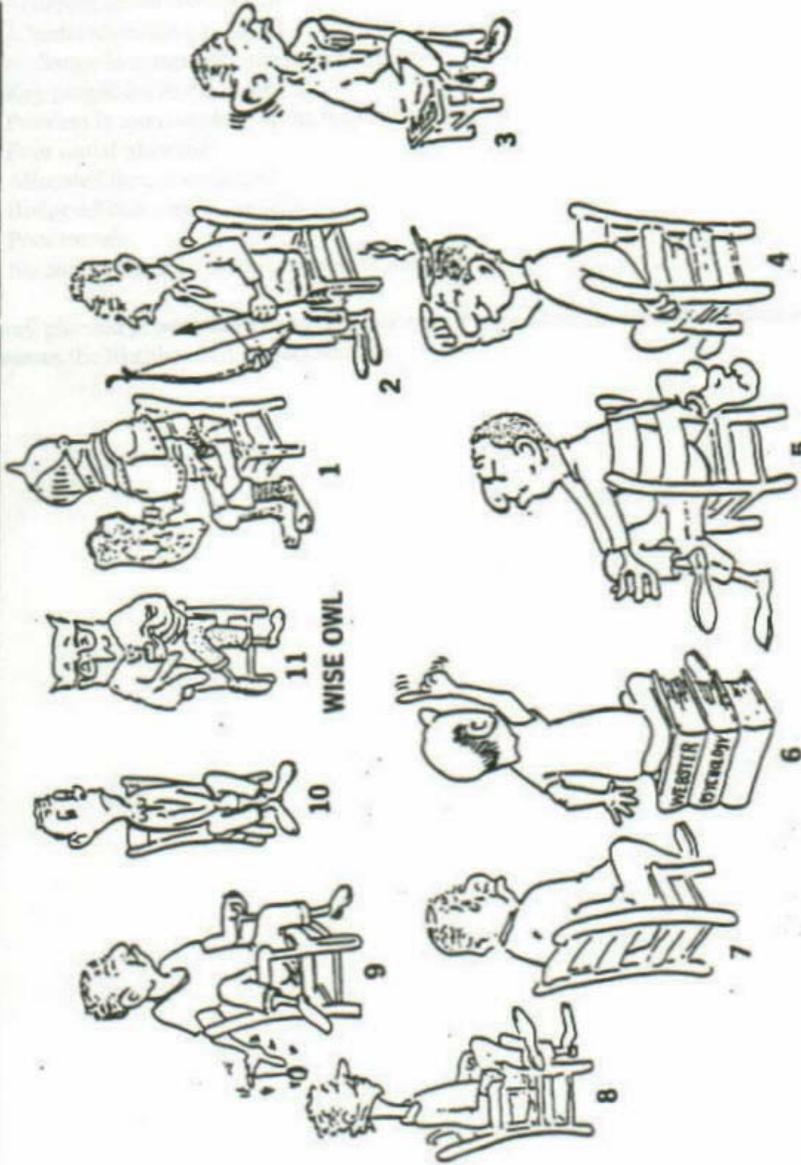
Plan

Planning is the foundation of the problem solving process.

The output of this step will guide the team for the duration of the project. The input for this step is the establishment of a problem solving team. Their purpose is to resolve an existing problem or create a needed process. The output from this step is the written statement of the problem, the team objective and a list of the benefits that will be realized if the objective is met. The tools covered during this step include:

- BRAINSTORMING
- MULTIVOTING
- JUDGMENT MODEL
- PROBLEM DEFINITION
- TASK PLAN
- FISHBONE DIAGRAM
- SIPOC
- FLOW CHARTING
- DATA GATHERING & ANALYSIS

Brainstorming

Output:
A list of ideas about a stated topic.

Examples of use:
Generate ideas for Data Gathering, Solutions, Monitoring Methods

When to use:
When it is of value to gather as many ideas as possible. When a group is stuck and out of workable options. When the group wants all the options available for consideration.

Benefits:
When properly used, brainstorming is an effective way for the group to utilize the power of the team. Ideas from one individual can provide the impetus for another individual's ideas. Structured brainstorming is also an effective means to gain the entire group's participation.

Types:

Structured Brainstorming: ideas are offered from the group on a rotational basis. If it is an individual's turn and they have no ideas, they say, "pass".

Unstructured Brainstorming: ideas are offered from the group on a random basis. Ideas are recorded as an individual thinks of an idea (not in any specific rotation).

Steps:

1. State the use of the tool. Select a structured or unstructured format.

2. State the topic.

3. Contribute: Have the group offer ideas related to the topic. During this period there are no comments from other team members relating to the quality of the suggestions. Focus should be on capturing as many ideas as possible. No thought should be placed on the quality of ideas at this point in the process.

4. Clarify: After all the ideas are exhausted, ask members to clarify any ideas that are unclear.

5. Evaluate the ideas. Eliminate duplicative ideas and group common ideas together.

While brainstorming is the most commonly used tool it is also the most commonly misused. Clarifying and evaluating prior to the completion of the contribution is the most common mistake.. Keep in mind that evaluations can be verbal and nonverbal.

Exercise- Brainstorming

Unstructured Brainstorming

Places to go on Vacation

Multivoting

Output:
A reduced list of options or ideas.

Examples of use:
Narrowing a list of Data gathering options, Factors to evaluate

When to use:
Normally used in conjunction with brainstorming. It is used when it is not feasible or practical to include all of the ideas generated in brainstorming.

Benefits:
Allows the entire group to contribute to the selection process in a rapid fashion.

Steps:

1. Use after the list has been generated, clarified and evaluated. Be sure that each item is understood and that, by group agreement common ideas have been combined.
2. Each member is assigned a standard number of votes, generally 5-10.
3. Determine if a limit should be applied to the number of votes placed on an individual topic. In the case of 5 votes, typically no more than three votes can be placed on a topic.
4. Ask the group to decide how they want to distribute their votes.
5. When the group is ready, have participants come forward place tally marks beside each of their choices. Alternatively, the lead can ask for a show of fingers.
6. Votes are tallied for each idea. Reduce the list to the top three or identify the natural cut-off.

Example- Multivoting

Refer to the list of vacation ideas. Everyone has 5 votes, with no more than 3 allocated to any one location.

Exercise- Brainstorming and Multivoting

In small groups, choose a topic from below. Using brainstorming, write down as many ideas as possible about the topic. Using Multivoting, reduce this list of ideas to the top three to five ideas.

Topics:

- Ways to reduce customer telephone hold time
- Ways to reduce the product development time
- Ways to increase ride sharing
- Ways to reduce backorders

Judgment Model

Output: A single option.

Examples of use:
- Selection of equipment
- Selection of a solution

When to use: When you have three to five mutually exclusive options.

Benefits: Allows individuals to evaluate the factors involved in making the selection. The tool applies an unbiased form of measurement to the options.

Steps:
1. List the options along the left side.
2. List the criteria that could be used in making the selection. Discuss the criteria listed and come to a consensus on the final list of criteria.
3. Place the final list of criteria along the top row.
4. Define the criteria.
5. Determine if weighting should be applied to the criteria.
6. Rank each option against the criteria.
   a. 0-1 method. The option meets or doesn't meet the criteria.
   b. 1-5 method: Ranking with 5 being the highest
7. Apply weighting if applicable.
8. Add the products for each option and place the sum to the far right.
9. The highest score will indicate the strongest desire of the team.

Note: Criteria must be clearly defined. Quantifiable criteria can use data to support a ranking.

Exercise-Judgment Model

Return to your small groups. Refer to your list of ideas or select the topic below. Develop a judgment model to select one idea.

- Buying a new car

- Refer to the list of vacation spots. Use the judgment model to select a location.

- Selecting a hobby

Problem Definition

The problem definition should be clear, concise, focused and written. Where possible, the statement should include quantifiable numbers.

Objective of the team should be to describe what the team intends to do about the problem. This should be a realistic statement. This should not include a cause of the problem. Be mindful of the teams timeframe and financial constraints when developing the objective.

Benefits that will be realized if the objective is met can be presented in bullet or sentence format.

Example-Problem Definition
The lead-time for international shipments is too long. It currently takes about 2 weeks.

Problem

_____

_____

_____

_____

Objective

_____

_____

_____

_____

Benefits

_____

_____

_____

Exercise-Problem Definition

In small groups, select one of the following topics.   Develop a statement of the problem, objective and benefits.

Topics:
- Currently 2% of our products arrive damaged or late.

- We currently have a back order rate on literature of 20%.

- We have a product backorder rate of 10%.

Problem

_____

_____

_____

_____

_____

Objective

_____

_____

_____

_____

Benefits

_____

_____

_____

_____

Charter Development

A charter is a statement of empowerment, which sets forth the activities of the project. It is also termed the Project Management Plan.   It provides information needed to clarify and negotiate your goals and expectations, gain mutual acceptance and understanding from team members, supervisors and management.

Characteristics of an effective charter:

- Describes the issue and why it is important. Includes the way in which the project ties to the strategic goals of the department and organization. Includes managerial philosophies, policies and criteria that should apply to the project.
- Establishes primary goals and objectives of the project.
- Describes project milestones.
- Establishes parameters including starting and stopping points, responsibilities, authority, approval that must be sought, constraints, reporting lines and requirements, and the expected timeframe.
- Defines resources available.

A charter should include objectives:

- Technical objectives: volume, turnaround time, error handling, yield improvements, etc.
- List of documents to be issued.
- Timing objectives: implementation dates, training dates, etc.
- Budget Objectives: total cost, operating cost, resource cost, etc.
- Scope guidelines: starting and stopping point of process, equipment included, work areas included, etc.
- Contracting plan
- Master Schedule
- Communication methods
- Constraints. Typical project constraints include: time, technology, personnel, and money.

Exercise - Charter
Develop a charter for one a project.

Analyze

Analyze represents one of the most time intensive steps in the planning process. It is during this phase that the team can become overwhelmed, disinterested, confused or all three.

The input to this phase is the problem statement. The output of this phase is a potential solution. In between is the data gathering and analysis.

"Scope creep", the unexplainable enlargement of the original scope, often occurs during this stage. For this reason, it is important that the group, specifically the lead, maintain focus on the problem definition.

Task Plan

The task plan is an organized method of keeping track of who will be doing what. This can be done in a table format or in a ghant chart. Using software like Microsoft Project, the information can be entered once and the data presented in task lists or chart format.

The minimum information contained should be:

Task	Who	When	Status	Comments

This list can then be sorted by any of the columns.

Example-Task Plan

The last few months you have received a number of complaints that the hold time has been excessive. Develop a task plan to get the needed data.

Task	Who	When	Status	Comments

Data Gathering

There are many methods of data gathering. In this step we will discuss:
- Tick sheets
- Sampling plans
- Surveys
- Historical data/records

Although we will not be addressing statistical techniques, applying common statistics to the data where possible can give greater comprehension to the data. Some recommended calculations include standard deviations (using a +- 3 standard deviations will provide insight into the breadth of a range required to accommodate nearly all of the population), testing the significance of a correlation, and capability index.

Tick Sheets

Tick sheets are a form that indicates the number of occurrences.   This method is commonly used for queuing. Tick sheets can also be completed to present the data in bar chart format.

Example-Tick sheets

Good Times Tours provides white water rafting trips for adventurous vacationers. The company is working to improve the comfort of their clients as they ride in the rafts. To determine which areas to improve, the company has asked their guides to complete the tick sheet below

.

Rafting Comfort Tick Sheet

Guests who complained about the van ride

Guests without life jackets

Guests without helmets

Number of soggy lunches

Number of overturned rafts

What is wrong with this tick sheet? How can we correct it?

Sampling Plan

Sampling provides representative information of a large population based on the review of a smaller segment of the population.

Random Sampling: Sample items are chosen with out order or consideration to time or placement.

Systematic Sampling: Items chosen are in a predetermined sequence.

Stratified Sampling Plan: Items measured are chosen from predetermined subgroups of the whole. The subgroups are defined based on common characteristics. Example: customers are separated into geographic areas prior to being selected for customer satisfaction surveys.

Example-Sampling plan

Betty, Joe, and Dave are writers for the Enthusiastic Eater column of the local newspaper. They are currently evaluating brunch buffets around town. They know they cannot possibly eat every item on the buffet, so the decide to develop a sampling plan. Each one will use a different sampling method. Please describe each sampling method:

Random

Systematic

Stratified

Measurement System Analysis (MSA)

There are some sophisticated methods to analyze measurement systems, along with an analysis methodology known as Gage R&R (repeatability and reproducibility). This actually produces a score that rates your system. However, for this introductory course, we will focus on the vital few steps for success.

Before beginning data collection, make sure you have operational definitions in place. Operational definitions ensure everyone is using the same rules for measuring. For example, if you are counting defects in M&Ms, the term "defect" needs to be defined. Is it a chip, a bulge, wrong color . . ..? This will help ensure that the data collection is

- **Reproducible** (between people): Ability of different individuals to get the same measurements at the same time.

- **Repeatable** (by person): Ability of a given individual to get the same measurements for the same item when measured multiple times

Measuring the cycle time for accounts payable

1. Establish the operational definition of start and stop times. In this case, the start time is the day the bill arrives in the office. The stop time is the day the check is written.

2. To test the measurements, select samples that represent the entire population. Ask each person to measure and record the cycle time for three bills (everyone gets the same three bills) that are received. Give the bills back to them and ask them to do the exercise again. At the end ask:

3. Did each person determine the same cycle time for the same bill? For example, if Bill #1 was 10 days, was that result determined by everyone?

4. When the exercise was repeated, did each operator get the same result as the first time?

5. If you determine that there are too many errors in the process, fix the process and repeat the test until you receive acceptable results.

Surveying

Output:
A summary of individual perceptions, knowledge or ideas.

Examples of Use:
- Climate survey
- Customer Satisfaction survey

When to use:
When you need to know what people thing or know about a specific topic.

Benefits of the tool:
Gathering data from people outside of the team can provide additional information that the team was unaware or can confirm the teams findings or beliefs.

Steps:

1. Determine the information needed.

2. Determine if the survey will be administered in an interview or on paper.

3. Develop the questions to gain the information that is needed.

4. Ask a few individuals to complete the survey. Gather feedback on unclear, redundant or additional questions that should be asked.

5. Revise the survey as needed.

6. Administer the survey.

7. Summarize the results.

Key:

- Keep the audience in mind when phrasing the questions. The language should be common to the audience (if using technical terminology, be sure it is understood).

- Keep the survey as concise as possible.

- Ask one question at a time.

- Consider the purpose when choosing between open ended and closed questions.

- Consider the purpose when choosing between 'yes/no' or rated questions.

Example- Surveying

You run Dandy Donuts Shop. The shop is located across from Hungry Harry's hat making factory. The majority of your business comes from selling donuts to Hungry Harry's employees. Lately you have been losing business. You want to conduct a survey to find out why you are not selling as many donuts.

- Who would you survey?
- How will you survey?
- What information do you want?
- What questions will you ask?

Exercise - Surveying

1. Divide into four groups
2. Select a case from below
3. Develop a survey for that case

Cases

- You would like to offer an incentive for ride sharing, but you don't know what to offer.

- You want to reduce the lead-time for international shipments. An order currently spends 4 days within system, but you don't know what happens during that time or where time can be reduced.

- You would like to reduce the turnover rate of the Territory Sales Representatives. You want to find out why the turnover rate is so high.

Historical Data

Why collect date that has already been collected? If the wheel was already invented, the team's time can be better spent in other areas. Learn the locations of historical data. If these resources are not well known or understood by the team, consider having a representative from some of the data collection points give a brief presentation on the types of data they have available. The following are a few examples of the type of data available at most companies:

Accounting:	Manufacturing Yield Information
	Standard labor rates and time
	Overhead rates
	Product cost
	Customer demographics
	Sales data
	Material costs
Sales:	Sales Data
	Forecasts
Quality Assurance:	Customer complaints
	Receiving Inspection data
Human Resources:	Turnover rates
	Longevity

Pareto Analysis

Output:
A bar chart with the "bars" presented in descending order.

Examples of Use:
- Causes of rework
- Customer complaints
- Types of Accidents

When to Use:
When you need to narrow the focus to the one or two categories in which the majority of the problems occur.

Benefits of the tool:
Presents the date in a means that is readily apparent as to which categories are causing the majority of problems.

Steps:

1. Define the categories

2. Sort the data into these categories.

3. Represent the data in bar graph format, with the highest category on the left. Remaining categories descend to the right.

Key:

This tool is also called the 80/20 rule. Eighty percent of problems occur on twenty percent of the categories. Ideally, charts should show 80% of the problems located in the first one or two categories. As a rule of thumb, if you can capture 50% of the problems in the first one or two categories, these categories should be worthwhile to pursue. You may have to try dividing the data in a number of different methods to obtain 50-80% of the problems in the first 1 or two categories.
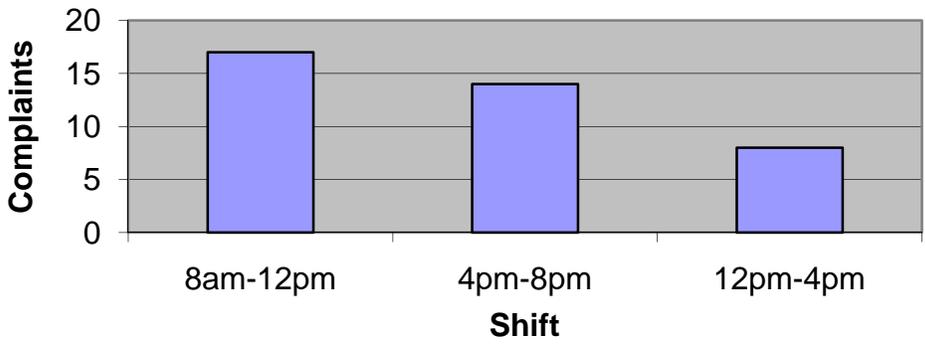
Example – Pareto Analysis

A team at a local department store was working to reduce the number of customer complaints received. In order to determine where they should focus their attention, they decided to chart the data using Pareto Analysis.
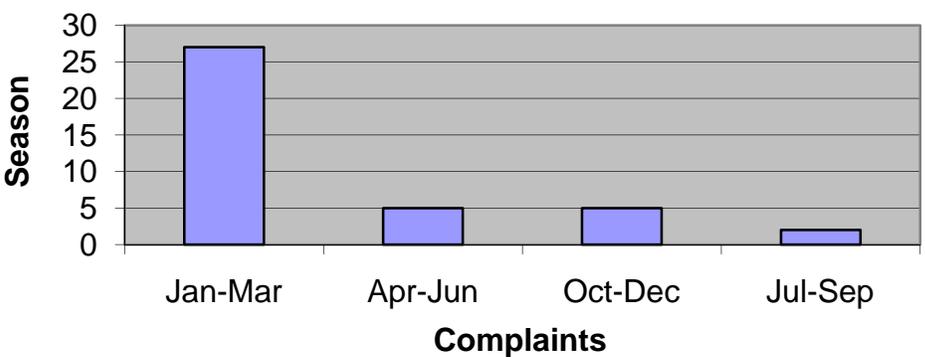
Customer Complaints by Department
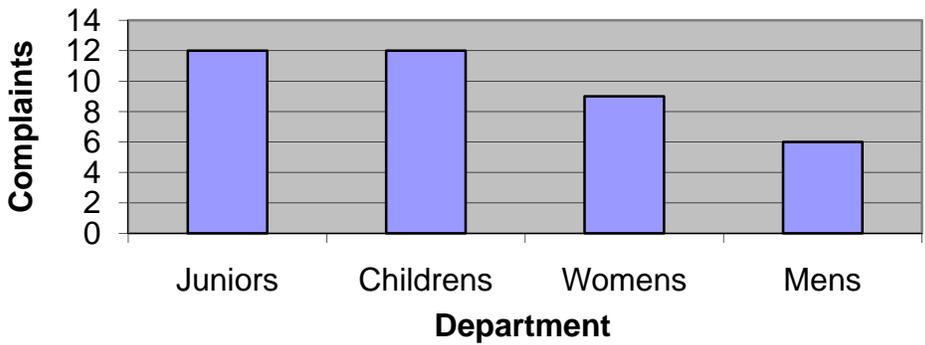
Customer Complaints by Shift

Customer complaints by Season

Exercise –Pareto Diagram

1. Divide into four teams.

2. Using brainstorming, list the reasons that couples argue.

3. Using multivoting, select the reasons, which cause the largest number of arguments.

4. Tally the votes for each reason.

5. Present the reasons in bar graph format, with the largest category to the left and descending to the right.

Flowcharting

Output:
An easy to follow representation of the steps of a process in the sequence they occur.

**Examples of Use:**
- Material ordering process
- Hiring process
- Training process
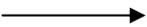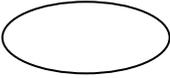- Implementation of solution

When to Use:
When the group needs to understand the order of activities that occur in a process.

Benefits of the tool:
Provides clear and common understanding of how work is or how work should be done. Can highlight areas of redundancy or steps which have little value added.
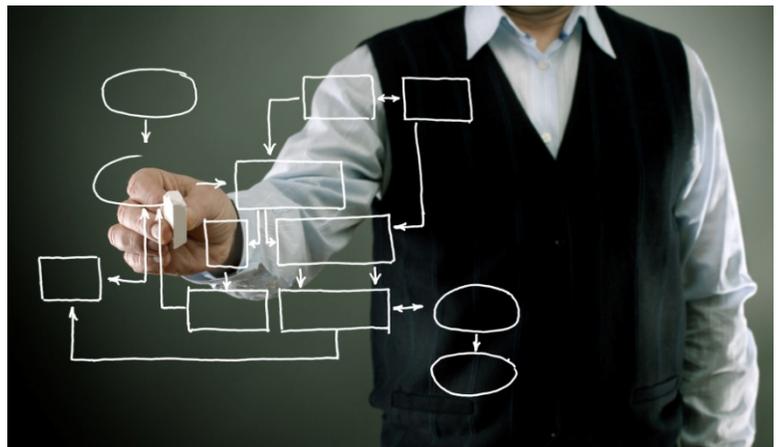
Definitions:

Diamond	◇	Decision Point
Rectangle	▭	Activity
Arrow	→	Direction of flow
Oval	⬭	Start and End
Documents	▱	Documents
Circle w/Alpha character	○ A	Continuation

Steps:

1. Select the starting and ending point.

2. Brainstorm the main activities that occur and the decision points.

3. Arrange these activities and decisions into sequential order, placing arrows between the activities and decisions to indicate the direction of flow.

Key:

The first pass can be less detailed. Activities can then be further developed as needed.

Identifying the Starting and Ending point is critical to the efficiency of the tool.

If possible, indicate the places in the flow chart where the problems have occurred.

Example - Flowcharting

Flow chart getting ready for work in the morning.

Step 1. Identify the starting and ending points.

Step 2. Brainstorm the activities and decision points.

Step 3. Arrange the activities and decision points in sequential order.

Exercise – Flowcharting

1.   Divide into four groups.

2.   Select a work process.

3.   Develop a flow chart to describe that process.

Contributing Factors & Root Cause

Once the data has been gathered it is time to begin identifying the contributing factors to the problem. Below are two tools, which can help in recognizing those factors.

Fishbone Diagram

Output: A list of possible causes for the problem.

Examples of Use:
Identifying causes for:
- Part Failure
- Loss in sales
- High turnover rate

When to Use:
When the problem is well defined, the process is commonly understood and the group is beginning to identify causes of the problem.

Benefits of the tool:
Assists the group in identifying causes that might not have otherwise been recognized.

Steps:

1. Draw a box at the right hand side of the sheet. Place the problem definition in the box. This is the head of the fish.

2. Draw four "fish bones" from the body of the fish. Label each bone with a category of cause. The most common categories are: Materials, Methods, People, Process or Machines. Service organizations often use: People, Procedures (or processes), Policies, and Places.

3. Using brainstorming, begin recording possible causes on the diagram. After all the causes have been identified begin clarifying the causes. Then evaluate by combining or eliminating where appropriate.

Key:

The fishbone diagram is only a list of possible causes, the data needs to be checked to confirm or eliminate a cause. It does not matter to which "bone" a cause is attached. The diagram can be posted in the area of interest so that people can add to it as they come up with ideas.

Exercise – Fishbone Diagram

1. Divide into two groups.

2. Select a problem definition from the ones listed below or develop you own.

3. Construct a fishbone diagram.

Cases

- You would like to reduce the amount of customer complaints received due to a lack of Sales Representative follow up.

- You would like to reduce the turnover rate of Territory Sales Representatives.

- You would like to reduce the Product Development Timetable.

DO

If team enthusiasm seems to wane during the Analyze step, it will be resurrected during the Realize step.

The input into this phase is one or more potential solutions. The output is a completed objective.

This step focuses on implementing the solution. During this step the following tools will be presented.

- FORCE FIELD ANALYSIS

- COST JUSTIFICATION

- BUY-IN

- PRESENTATION SKILLS

- PHASED IMPLEMENTATION

- MEASURING RESULTS

Force Field Analysis

Output:
A list of driving and obstructing forces for achieving the team's objective.

Examples of Use:
- Implementation of a solution
- Giving a successful presentation

When to Use:
When you have a plan to implement and want to increase the chance of success.

Benefits of the tool:
Identifies the obstructions to implementation prior to implementation, providing the opportunity to prevent a failure.

Steps:

1. Draw a large "T" on the paper.

2. Write the current situation or problem at the top center. Place the solution on the right side of the sheet.

3. Brainstorm for driving forces. Things that are "on your side" for implementing the solution. List these items on the left side of the "T".

4. Brainstorm for restraining or obstructing forces. Things that are working against successful implementation of the solution. List these items on the right side of the "T".

5. Circle the obstructing forces that cannot be changed.

6. Determine whether the solution can work. Are there too many obstructing forces? Or is there an obstructing force that cannot be altered that would preclude the implementation of the solution? If so, the solution may not work. Can the obstructing forces be reduced or eliminated? If so, then develop a task plan.

Example – Force Field Analysis

You work with Elephant land wild Animal Park. With the increased amount of elephants, it will now take the keepers eleven hours/day to clean elephant areas. This means you will need to hire an additional keeper. Instead, you are recommending to buy the current keepers larger shovels. By fitting more onto a shovel you have data to show that work will be reduced to three hours/day. This will eliminate the need to hire an additional keeper.

Complete a force field analysis for the solution.

Exercise – Force Field Analysis

1. Divide into three teams.

2. Select a solution from below or develop your own.

3. Complete a force field analysis for the solution.

Solutions:

- Purchase and implement sales tax software to improve sales tax filing in different states.

- Implement new Clinical Data forms to assist in proper completion of the form by the clinics.

- Run the Accounting invoices more frequently to reduce the shipping time (currently run twice a day).

Cost Justification

Output:
Financial justification for a solution.

Examples of Use:
- Selecting between two mutually exclusive solutions
- Justification for a new piece of equipment

When to use:
When expenditure is required and their will be a financial benefit associated with the solution.

Benefits of the tool:
Allows the team to understand the business aspects of the solution. Can provide excellent supporting data to gain support in the implementation of the solution.

Definitions:
Intangible Benefits: Those benefits which are extremely difficult or impossible to assign costs. Examples include loss of customers, damaged reputation, improved safety, and improved morale.

Steps:

1. Brainstorm a list of the cost factors related to the solution.

2. Separate the factors into initial (one time only costs) and annual (ongoing costs).

3. Total each set of costs.

4. Determine the savings benefits of the solution. Separate these into initial and annual savings. Total each set of savings.

5. Subtract the total annual cost from the total annual savings to obtain the net annual benefits.

   Net Benefits = Total Annual Savings – Total Annual Costs

6. Subtract the initial savings from the initial cost to obtain the net cost.

7. Place the net figures in a ratio with Net cost over Net Benefits.
   Net Costs/Net Benefits
   The resulting units are years. This is typically referred to as the pay back period. The amount of years required to pay back the initial investment.

8. Ratios can be used to compare options or determine if a solution is worthwhile.

9. List the intangible benefits under the ratio.

Key:

While Intangibles can be a deciding factor especially in the case of Improved customer satisfaction or improved safety, survival of a company depends on sound financial decisions.

Payback periods are viewed very differently in different organizations and differently within the various cycles in an organization. For example, start up organizations will generally require shorter payback periods. As a rule of thumb a ratio of three years or less is viewed very positively. Ratios of five years or more will receive a more questionable opportunity of implementation.

Accounting groups performs calculations of Net Present Value (NPV) and Internal Rate of Return (IRR). While the payback period calculations can be used as a first pass, the Accounting group is available to perform the additional calculations of NPV & IRR, which will incorporate depreciation, and the cost of funds factors.

Generally, labor should only be included if a position can be eliminated or otherwise reassigned to add to the bottom line. Labor savings can be calculated using burdened and unburdened rates. Unburdened refers strictly

to the hourly or salaried rate of the position. Burdened rates include the benefits and can include a portion of the administrative and facility costs. When providing a solution, which will result in the elimination of a position, it is typical to burden the labor rate with only the benefits portion of the overhead.

Example – Cost Justification

The Accounting department is evaluating the purchase of a new microfiche processor. The Cost of the new processor is $5,000. The old processor can be sold for $500. The Cost of materials to run the new processor is $100/year. The cost of materials to run the old processor was $200 per year. The new processor requires an annual routine servicing which will cost $200. The old machine has continual maintenance problems, which cost an average of $1000 per year. In addition the old machine was continually out of order which caused delays in obtaining information needed for the FDA on three separate occasions last year.

INITIAL   NEW   OLD

Total Initial:

ANNUAL

Total Annual:

New Benefits = Total Annual Savings (–) Total Annual Costs

Net Costs = Total Initial Cost (–) Total initial Savings

New Cost/Net Benefits

Exercise – Force Field Analysis

Frank is debating on the purchase of a new van for his locksmith business. His existing Van has 150,000 miles and a bluebook value of $5,000. The new van will cost $20,000. The annual maintenance on the new van would be $100. Last year the old van cost him $2,100. The old van gets 10 mpg, where the new van gets 20 mpg. Frank spent $3,000 on gas last year. The old van cost $25/year to register. The new van will cost $125/year. The new van would have air conditioning and he has had a lot of business in Borrego Springs lately. Calculate the number of years it will take Frank to pay for the new van.

INITIAL   NEW   OLD

Total Initial:

ANNUAL

Total Annual:

New Benefits = Total Annual Savings (-) Total Annual Cost

Net Cost = Total Initial Cost (-) Total initial Savings

Net Costs/Net Benefits

Buy in

While this is listed as a tool, it could also be categorized as individual courtesy.

Output:
 Support for a solution by key members in the organization.

Examples of Use:
- Implementing a new performance system
- Purchasing a new piece of test equipment

When to Use:
Whenever there is solution to be implemented that will affect individuals outside the team.

Benefits of the tool:
Provides others with an opportunity to learn of the solution first hand. Provides the team with an opportunity to identify concerns and gather supporting information.

Steps:

1. Brainstorm a list of individuals who will be affected or concerned about the proposed solution.

2. Beside the individual list possible concerns.

3. Prepare to meet with the individuals by gathering information, which addresses their concerns.

4. Meet with the individuals. Present the solution. Ask for input and share your data. If needed, gather additional information and meet again with the individual. Ask for the individuals support.

EXAMPLE- GAINING BUY IN

You work with the Marketing department of Slick Sal's Slinky Company. You would like to expand the sales territory to include the European Market (which has an extreme shortage of slinkys). Currently selling only in the US.
Who might you want to meet with to discuss this plan? List the concerns you may encounter and the type of information that you would want to have available to address these concerns?

Presentation Skills

Output:
An effective presentation.

Benefits of this tool:
By following the few guidelines below, the presenter will be less nervous, and the presentation will flow smoothly and stay focused.

Guidelines to a successful presentation:

Pre-Presentation

1. Recognize and gear the presentation to the audience. If the audience is not familiar with the technical terminology, use words that will be understood.

2. Organize and plan the presentation. Identify the purpose of the presentation: Informative, Instructive, Selling, Gaining Approval, Getting a decision.

3. Identify the specific objective of the presentation. In example, Getting approval to purchase software.

4. Keep each portion of the presentation interesting and brief.

5. Three times is a charm rule:
   - Tell them what you are going to tell them
   - Tell them
   - Tell them what you told them

6. Be prepared to answer their questions.

7. Prepare clear, bold visuals

8. Practice the presentation (in front of others is possible). Practice. Practice. Practice.

During the Presentation

1. Look at the entire audience. If looking into the individual's eyes makes you nervous, simply look over their heads.

2. During the questions, don't be afraid to utilize those individuals who gave their buy in. Allow the "experts" within the group or the audience to field questions.

3. If you or your group does not have an answer to a question, say so. Defer the question until the group can get the needed information. Never lie or over exaggerate to provide an answer.

4. If your goal was to obtain a decision or approval, be sure you have the answer or understand the next steps to obtaining the answer.

Following the Presentation

1. Obtain constructive feedback.

2. Provide any answers that were promised during the presentation.

Exercise – Presentation Skills

1. Divide into three groups.

2. Brainstorm supplies for a presentation survival kit.

3. Share your findings with the class.

Phased Implementation

Output:
An implementation plan that allows for the solution to be implemented in steps.

Examples of Use:
- Training Program
- Automation of a process
- A Marketing campaign

When to Use:
When the solution involves a large expenditure, has a large risk of failure or severe outcome if the solution fails.

Benefits:
Allows the solution to be implemented with reduced risk

Steps:

1. Identify the risks of failure. In addition to the financial losses of wasted capital, risks could include: the continuation of the problem, loss of morale, loss of image in the marketplace, loss of future revenue, etc..

2. Analyze the implementation of the solution by developing a flow chart. Discuss the chart among the team. Brainstorm for possibilities of testing the solution or implementing the solution in phases.

   Examples of testing include:

   - Renting a similar piece of equipment
   - Building pilot equipment
   - Running a pilot study on a smaller population

   Examples of Phasing include

   - Training sub groups of the entire company
   - Implementing a new sales campaign by districts
   - Automating portions of a process.

3. Develop a task plan, which incorporates the phased approach.