

Lecture 6

Root Cause Analysis RCA

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تسعى لتكون الكيان الأول الذي يتبنى مبدأ المجتمع التعليمي
التعاوني ويقدم العلم مقابل العمل لتنمية وبناء المجتمعات.

مزيد من التفاصيل



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MGM510

Risk Management

Definition

- Root cause analysis: a process for **identifying the underlying causes of a problem** (including actual or possible occurrences of the problem), and then **planning, testing, implementing, learning from, and revising solutions**.
- **Focuses on processes, not individuals**
 - Identify and remove root cause(s) to prevent problem from reoccurring

Core Principles



1. All team members have the same goal(s).
2. Focus on processes, not individuals.
3. Use open, honest communication, and learn from experiences.
4. Decisions based on data and facts.
5. Customer focus (internal and external)
6. Systems thinking.

Like working on a puzzle



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Like working on a puzzle



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- Set rules /goals (e.g., find the edges)
- Examine pieces, find patterns, and try to fit them together
- Continuous observation and assessment – look for gaps
- Trial and error, try something different
- Evaluate results and processes
- Standardize successes, learn from the experience

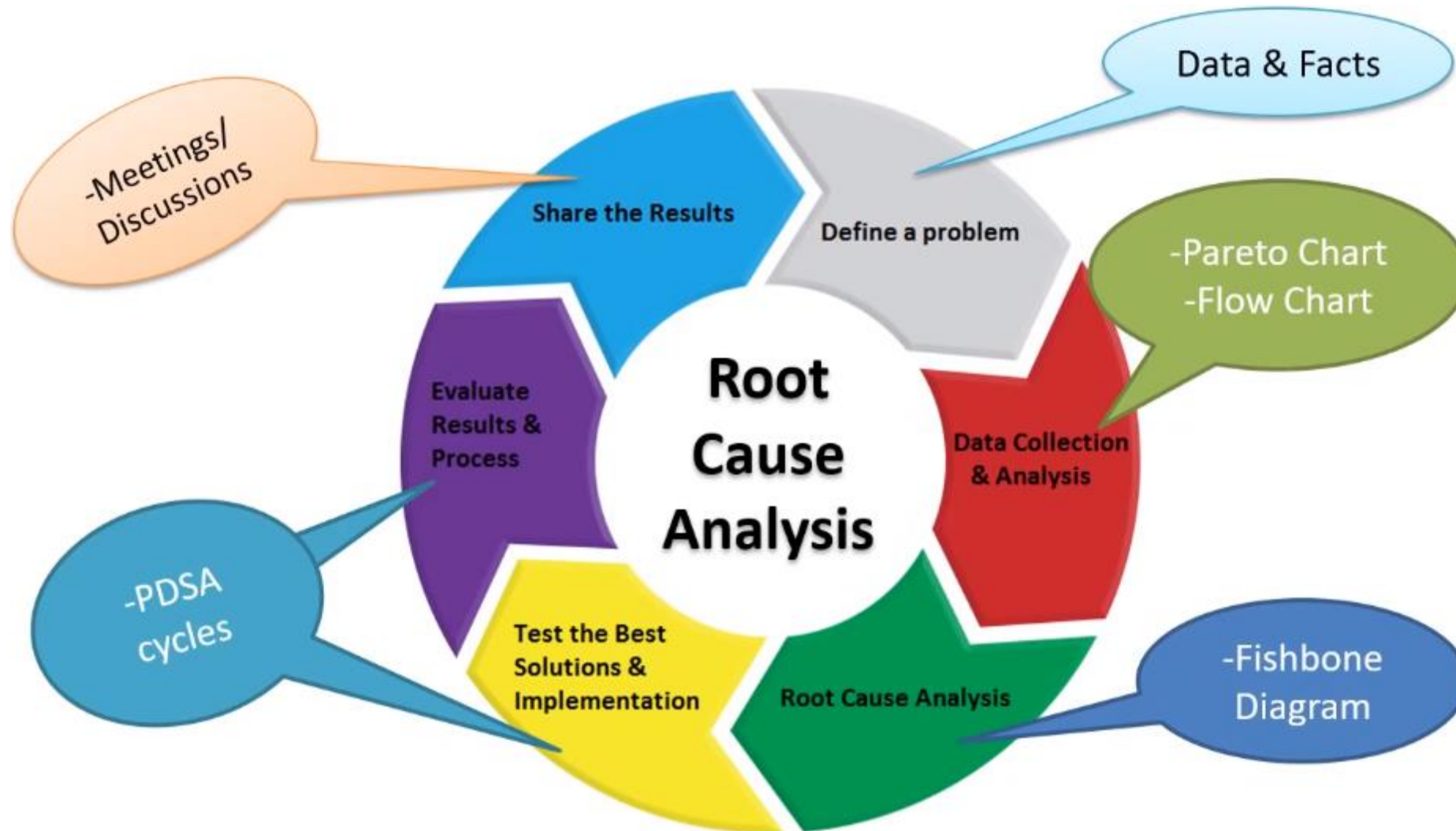
Steps of RCA

- 1) Organize a well-defined team (if department/problem)
- 2) define the problem
- 3) analyze the contributing factors and the root causes.
- 4) test the best solutions / action items & implement the plan.
- 5) evaluate the result and process
- 6) share the result.

Steps of RCA



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Step 1: Organize a Well-Defined Team

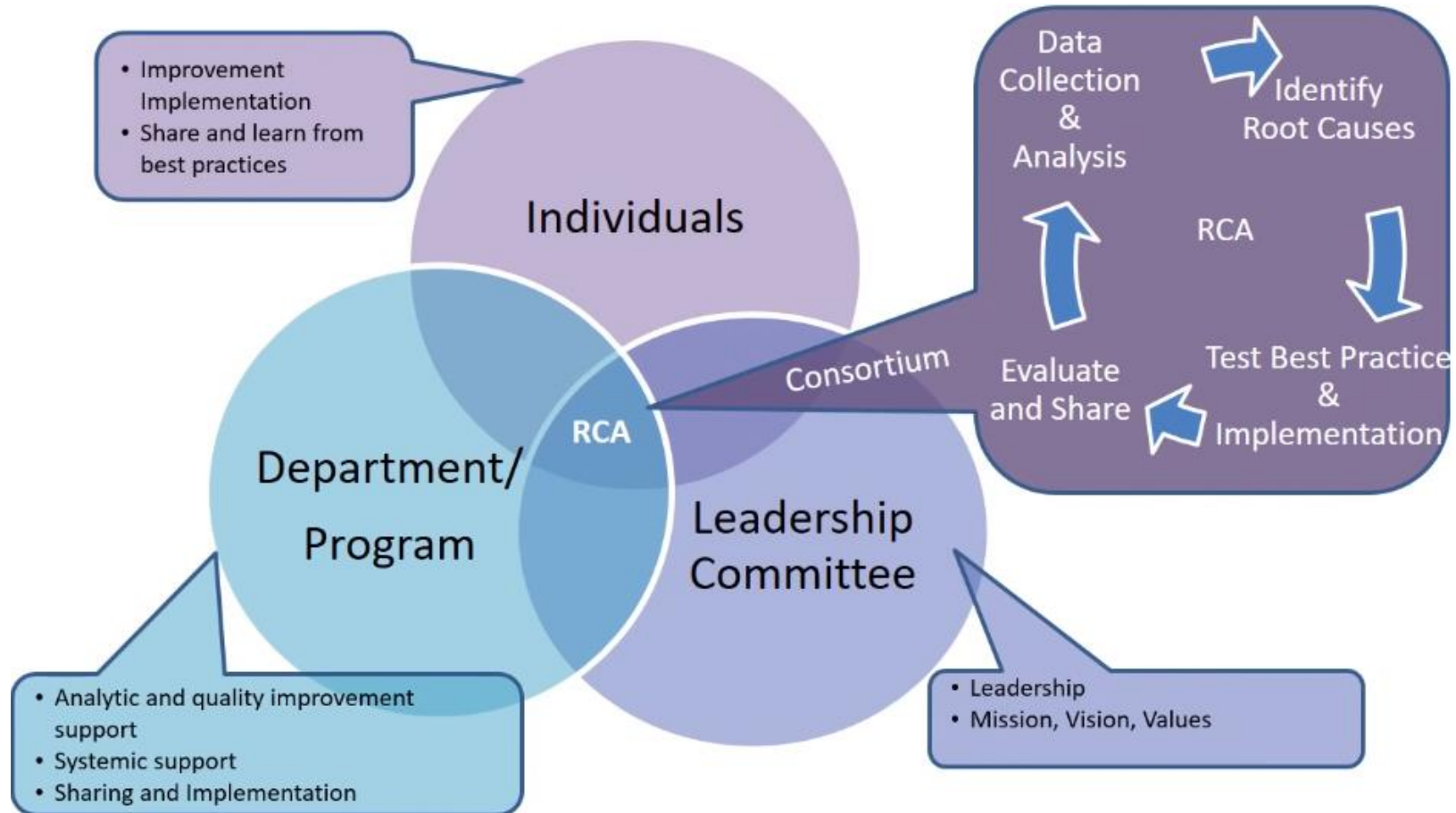


1. Keep the team small
2. Identify team leader
3. Each team member should have clearly defined roles and responsibilities.

Framework



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Team members



The team should include:

Chief / program managers / supervisors

The RCA team leader / facilitator

Individuals closest to the event

Other subject matter experts for the event

Responsibilities:

Root cause interviews, analysis, investigation, and corrective action plan implementations

Participate in the RCA meetings and discussions

Communicates honestly and openly about data and facts

Step 2: Define the problem



Facts and data

- Problem statement
 1. What do you see happening and what are the specific symptoms?
 2. What are the gaps between where you want to be and where you are now?
 3. What are the patterns and how long has it been happening?
- Flow charts
- Pareto charts
- Scatter plots
- Control charts

Problem statement



Should be short and concise but provide enough details to clearly state the problem.

- The problem statement should:
- Include criteria for measuring the extent of the problem.
- Describe the area impacted by the problem
- Include any negative consequences resulting from the problem.

Problem statement

- Poorly written statement: “ It is taking too much time for a program to get approval on a justification to fill a position.”
- Well-written statement: “For the past 12 months, justification to fill positions submitted to the human resources unit have been taking 6 months to be approved. Current policy is that justifications take 1 month to be approved. This is causing us to lose quality candidates to fill critical positions that protect public safety and increases workload for human resources and other staff because the hiring process has to be started again from the beginning”.
- Describes problem – No individual blame – No reasons – Measurable factors

Step 3: Analyze the problem & determine the root causes



why did it happen?

Analysis Tools :

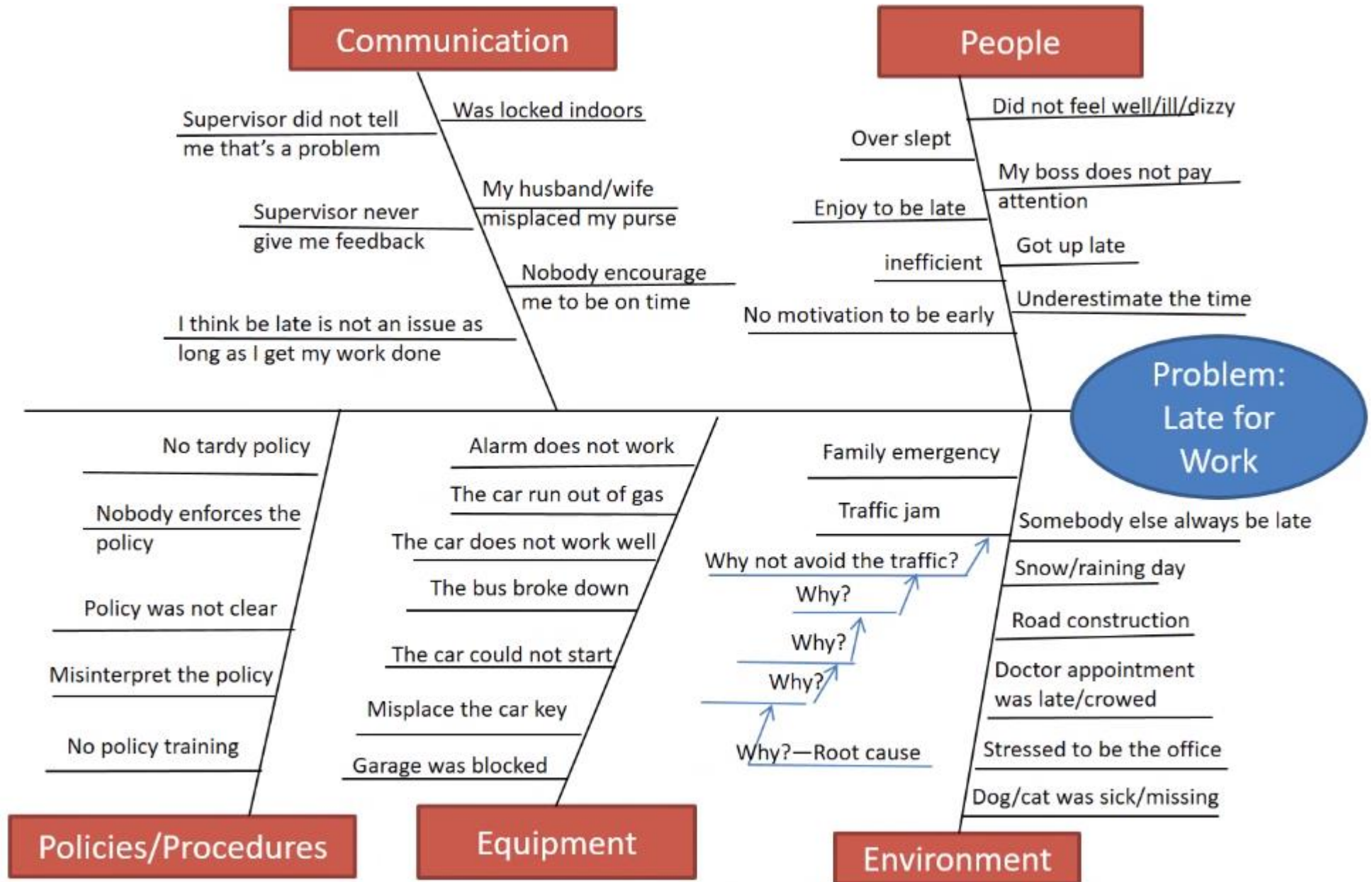
- Fishbone Diagram
- 5 Whys tool
- Brainstorming
- Drill-down : break problems into manageable parts.

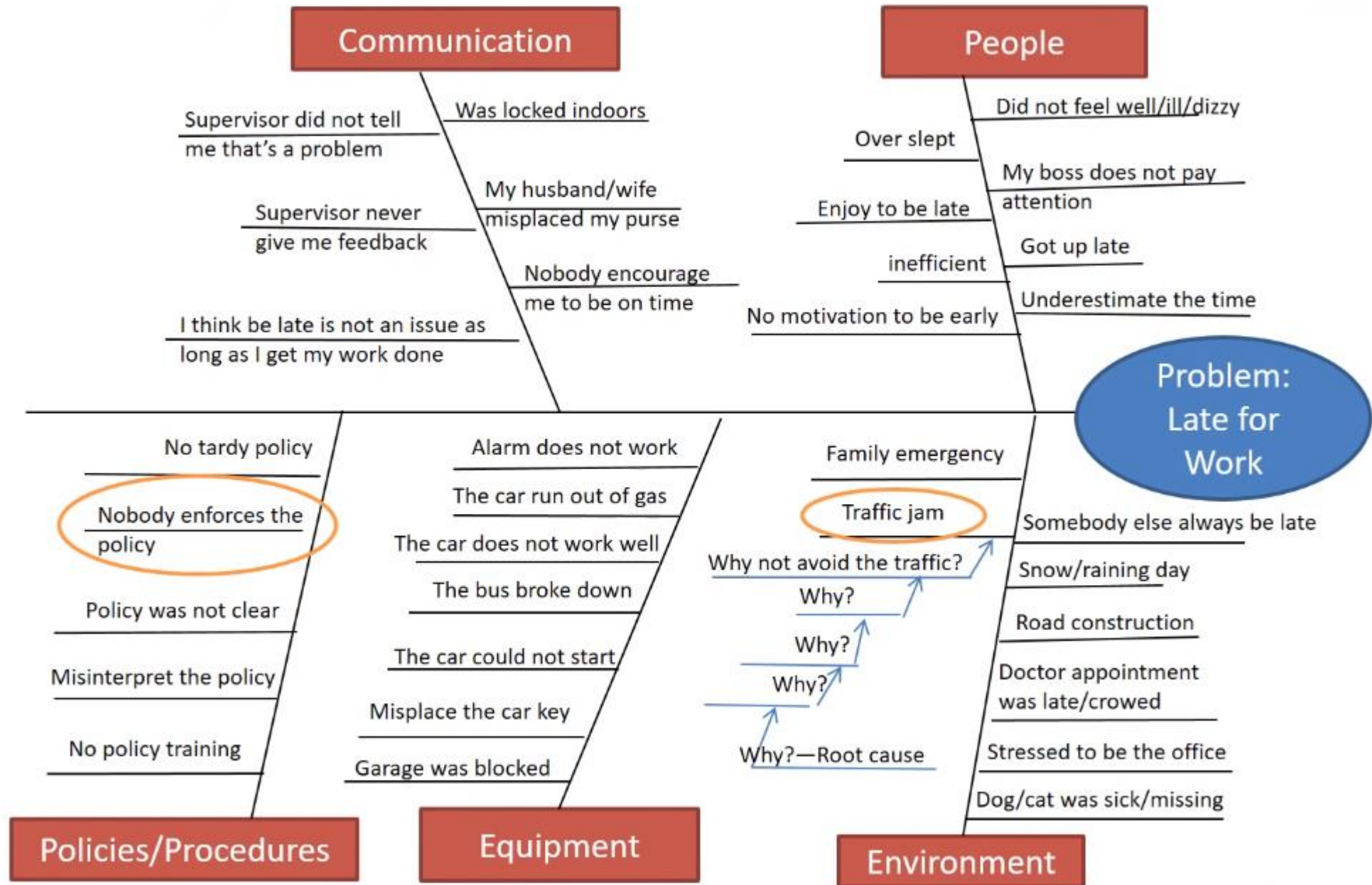
Fishbone Diagram (Ishikawa Diagram)

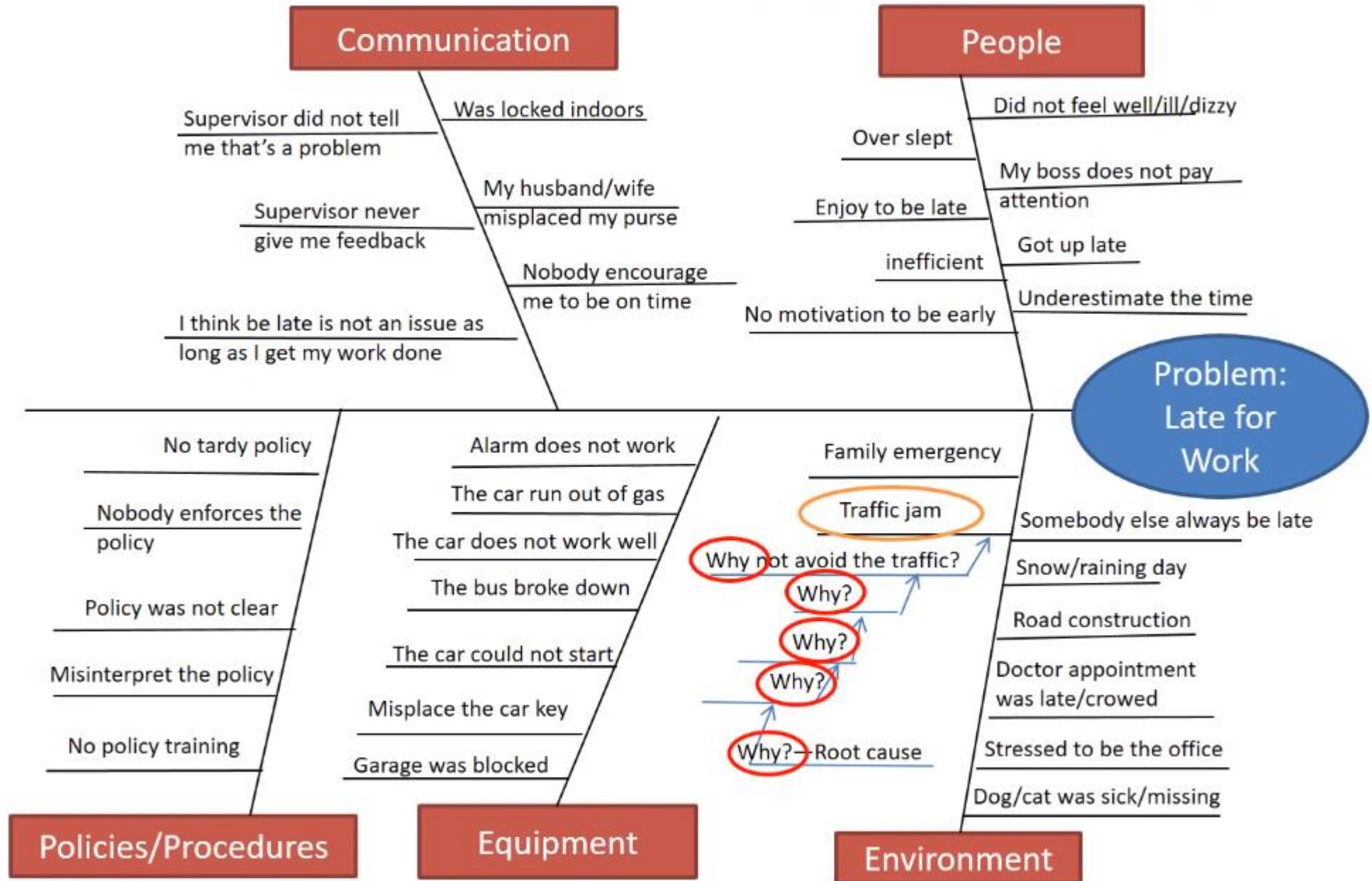


Structured brainstorming

- Understand the causes/factors of a system failure to develop actions to fix problems.
- Sorts the ideas into useful, major categories and visually displays the potential causes. For each category; ask questions and answer them in order to determine the causes and contributing factors.
 - People
 - Methods
 - Machines/equipment
 - Materials
 - Measurements
 - Training
 - Information technology



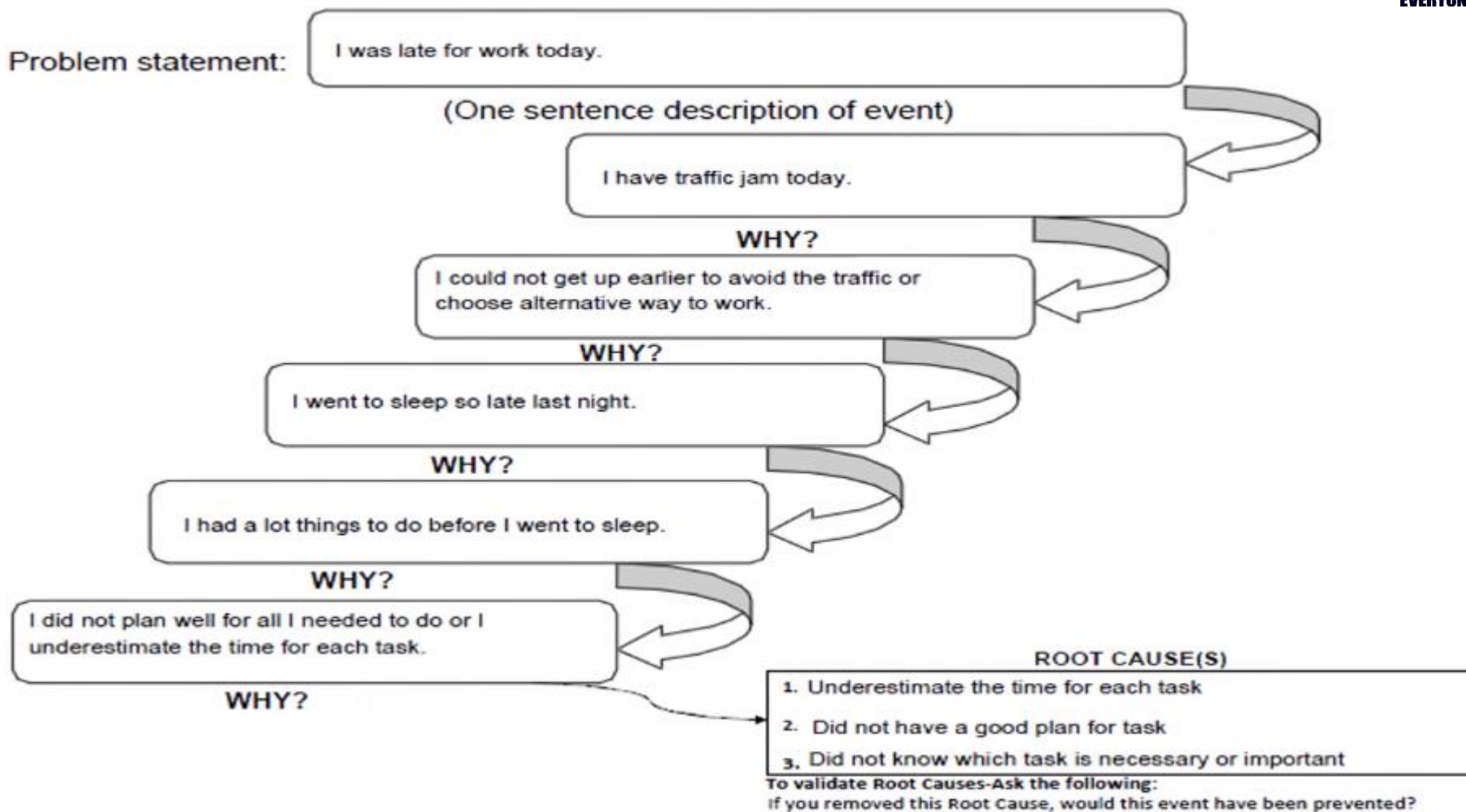




5 whys tool (late for work example)



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Fishbone diagram tips

- Task-based activity – only focus on the problem and tasks
- Team participation – voice opinions and vote on the top three contributing factors, root causes
- Task and information are clear and concise
- 5 Why's & Drill-Down techniques
- Validate and confirm RCA
 - Would the problem have occurred if the cause had been removed?
 - Will the problem reoccur if the cause is corrected or eliminated?

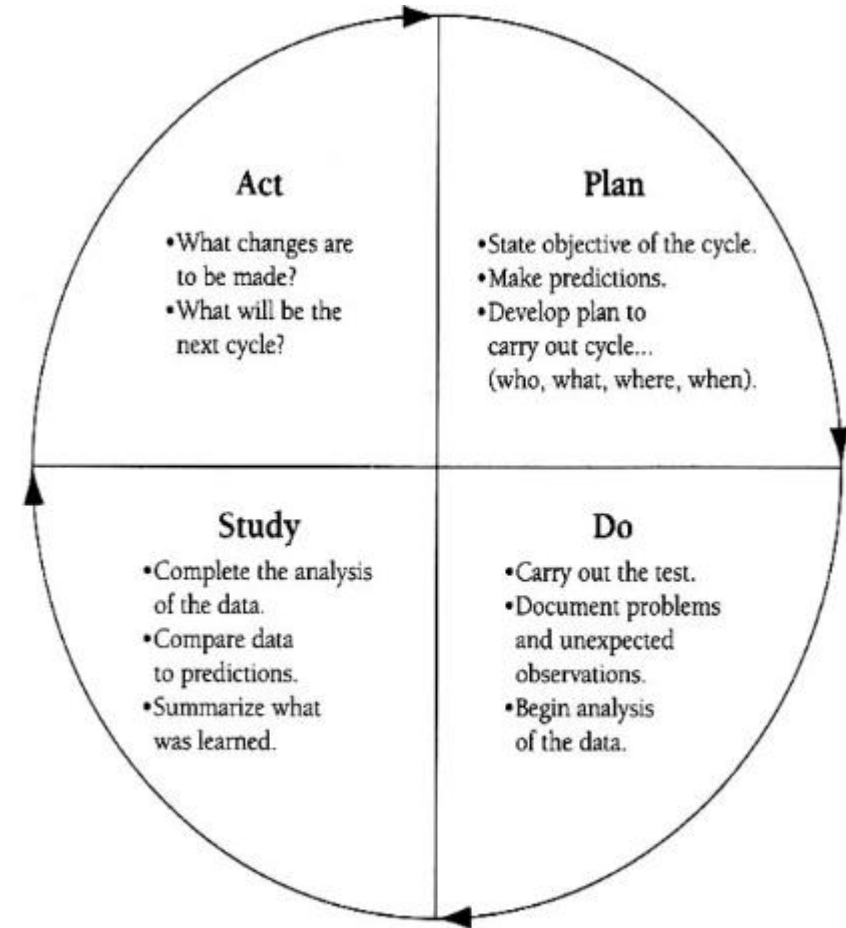
Step 4 – Plan –Do-Study-Act Cycle



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Achieving process or system improvements

- State objectives/SMART goal
- Formulate questions and predict results
- Collect useful, pertinent, and enough data
- Test your solutions and ensure they are feasible



Elements of the PDSA Cycle.

PDSA Cycle



Plan

1. Identify the objectives /SMART goal statement

PDSA Cycle



Plan

1. Identify the objectives /SMART goal statement

Specific

Measurable

Achievable

Relative

Time-bound

PDSA Cycle



Plan

1. Identify the objectives /SMART goal statement
2. Outline the steps (Who, what, where, when)

The program is going to reduce the amount of time it takes to process an application this month

NOT SMART

PDSA Cycle



Plan

1. Identify the objectives /SMART goal statement
2. Outline the steps (Who, what, where, when)

The ABC licensing unit manager and designated staff are going to reduce by 10% the amount of time it takes to process an initial application by October 21, 2016.

SMART

PDSA Cycle



Plan

1. Identify the objectives /SMART goal statement
2. Outline the steps (Who, what, where, when)
3. Include measurements used to evaluate the process and ensure all measurements align with the goal
4. Include a plan to gather data
5. Predict what will happen when you carry out the plan

PDSA Cycle



Do

1. Carry out the plan
2. Document the plan: problems, goals, observations, unexpected results
3. Collect data and analyze it

Measurements (outcome measures)

- Baseline measurement: take measurements of the problem before you implement your corrective action plan
- Use the same process to take measurements after you have implemented your plan to evaluate the effectiveness of the plan
- Minimum measurement requirements:
 - Numerator (specific event being measured)
 - Denominator (out of what total numerator is taken)
- Threshold (measurement goal, i.e. 10% reduction)
- Timeframe (by when will threshold be achieved)

PDSA Cycle



Study

1. Results as expected, per data and observations?
2. Summarize what was learned
3. Determine the next steps

PDSA Cycle



Act

1. Apply on small scale (unit instead of bureau)
2. Adapt: modify the plan/action items
3. Adopt: reliable results – implementing on larger scale
4. Abandon: Test was unsuccessful – evaluate and learn from the experience

Step 5 Evaluate the results and processes



- Survey (internal and external)
- Data comparison (bar charts, trend lines, etc)
- Progress reports

Step 6 share the results



- Meetings/discussions
- Talk about results, celebrate successes, learn from experiences
- Leadership reviews process with the team
- Update RCA procedures to reflect improvements, add/remove tools or other changes
- Summary of lessons learned shared with all employees affected by the changes