
Problem Solving Skills

Problem-Solving Steps

- ! Recognize that there is a problem
- ! Identify the problem
- ! Generate alternative solutions
- ! Choose among the alternative solutions
- ! Implement the chosen solution
- ! Evaluate the solution

Techniques for Recognizing Problems

- ! **Comparison against others**
- ! **Monitor for weak signals**
- ! **Comparison of current performance with objectives or past performance**
- ! **Checklists**
- ! **Inverse brainstorming**
- ! **Listing complaints**
- ! **Role playing**

Identify the Problem: Ask Who?

- ! Who says that this is a problem?
- ! Who caused or is causing the problem?
- ! Whom does it or will it affect?
- ! Who has done something about the problem?

Identify the Problem: Ask What?

- ! What happened or will happen?
- ! What are the symptoms?
- ! What are the consequences to others?
- ! What circumstances surround the occurrence of the problem?
- ! What is not functioning as desired?

Identify the Problem: Ask When?

- ! When did it or will it happen?
- ! When did it first occur?

Identify the Problem: Ask Where?

- ! Where is the problem occurring?
- ! Where did it or will it have an impact?

Identify the Problem: Ask Why?

- ! Why is this a problem?
- ! Why did it or will it occur?
- ! Why was nothing done to prevent the problem from occurring?
- ! Why did no one recognize and do something about the problem sooner?
- ! Why is a response needed now?

Identify the Problem: Ask How?

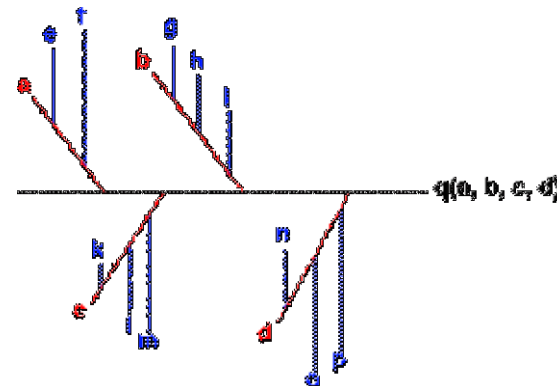
- ! How should the process be working?
- ! How are others dealing with this or similar problems?
- ! How do you know this is a problem; what supporting information do you have?

Problem Identification: Final Questions

- ! How will you know the problem is solved?
- ! What does the desired state look like?
- ! What data will you need to answer these questions?

Techniques for Identifying the Problem

- ! Talking to others
- ! Consensus building
- ! Fishbone diagram
 - \$ an analysis tool that provides a systematic way of looking at effects and the causes that create or contribute to those effects
 - \$ When should a fishbone diagram be used?
 - *Does the team...*
 - Need to study a problem/issue to determine the root cause?
 - Want to study all the possible reasons why a process is beginning to have difficulties, problems, or breakdowns?
 - Need to identify areas for data collection?
 - Want to study why a process is not performing properly or producing the desired results?

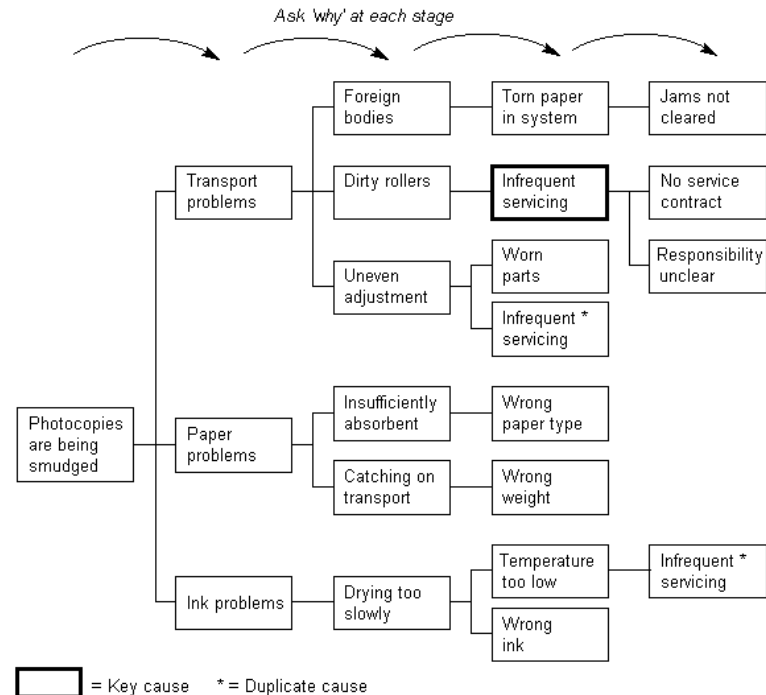


A Fishbone Diagram

Techniques for Identifying the Problem

! Why-Why Diagram

\$ a Tree Diagram where each child statement is determined simply by asking 'why' the parent occurs

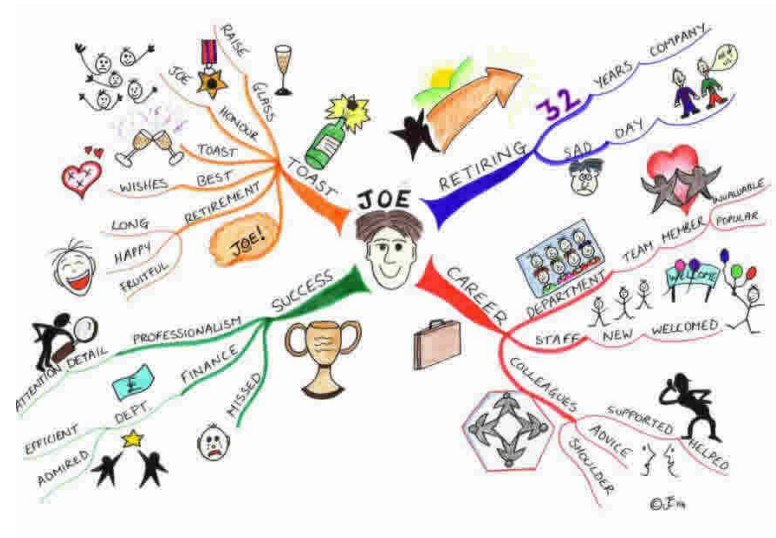


Problem Statement

- ! The end result of problem identification.
- ! Brief, clear, to-the-point identification of the specific problem to be addressed, including the key rationale for why it should be solved.

Individual Techniques for Generating Solutions

- ! Analysis of past solutions
- ! Fresh eyes
- ! Mind mapping
 - \$ a diagram used to represent words, ideas, tasks or other items linked to and arranged radially around a central key word or idea



Individual Techniques for Generating Solutions

- ! **Sleeping on it**

- ! **Visualization**

 - \$ **process of creating internal mental images**

- ! **What if?**

 - \$ **a page with a list of words. Start with "What if it was..." and insert a word from the list to see what new insight it can give you about your problem.**

Advantages of Using a Group

- ! **Shared knowledge and experience will broaden the search and generate more alternative solutions.**
- ! **Leads to a better understanding of how and why a decision was made and it will be accepted more readily.**
- ! **Members who are willing to take more risks and those who avoid risks contribute to the scope of possible solutions and move each other to the middle ground of risk taking in choosing a solution for implementation.**
- ! **Collective judgment is usually better than that of an individual.**

Limitations of Using a Group

- ! Pressure to conform may negatively influence decision-making.**
- ! One person may dominate the group.**
- ! A group requires more time to reach a decision than do individuals.**
- ! Groups generally don't make better decisions than an expert or someone with special knowledge and skills.**

Group Techniques for Generating Solutions

! Brainstorming

- \$ a group creativity technique designed to generate a large number of ideas for the solution to a problem

! Alternative brainstorming method

\$ Brainwriting

- similar to Brainstorming. The general process is that all ideas are recorded by the individual who thought of them. They are then passed on to the next person who uses them as a trigger for their own ideas

\$ Brainwriting pool

- Each person, using Post-it notes or small cards, writes down ideas, and places them in the center of the table. Everyone is free to pull out one or more of these ideas for inspiration. Team members can create new ideas, variations or piggyback on existing ideas.

! Nominal group technique

- \$ a consensus planning tool that helps prioritize issues

Choosing Among Alternative Solutions

- ! How practical is the idea?
- ! Is it realistic?
- ! How cost-effective is it?
- ! Can it be easily implemented by a limited number of individuals, or does it require that large numbers of other people be convinced that it is a good idea? Will they be easy to convince?
- ! Is the idea consistent with the directions already undertaken by the organization?

Implement the Chosen Solution

- ! What resources are needed?
- ! Who else within the organization needs to approve the solution to the problem, and what will it take to win their approval?
- ! What has to happen in order to implement the solution; what are the steps in implementation?
- ! Who is going to be involved, and what will they do?
- ! When will the various phases of implementation take place?