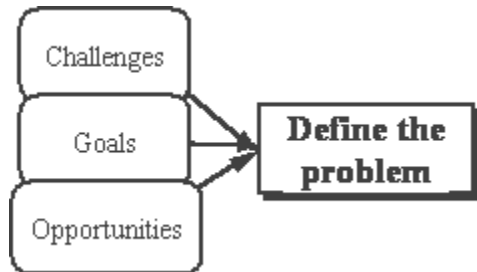# Problem Solving

Defining the problem/ gathering information

Define the Problem

What prevents you from reaching your goal?
You may need to state the problem in broad terms since the exact problem may not be obvious.

- you may lack information to define it
- you can confuse symptoms with underlying causes

Prepare a statement of the problem and find someone you trust to review it and to talk it over. If the problem is a job situation, review it with your supervisor or the appropriate committee or resource.

Consider these questions:
- What is the problem?
- Is it my problem?
- Can I solve it? Is it worth solving?
- Is this the real problem, or merely a symptom of a larger one?
- If this is an old problem, what's wrong with the previous solution?

- Does it need an immediate solution, or can it wait?
- Is it likely to go away by itself?
- Can I risk ignoring it?

- Does the problem have ethical dimensions?
- What conditions must the solution satisfy?
- Will the solution affect something that must remain unchanged?

Causes!

When problem solving, identify the causes of the problem in order to solve it.

- Identify causes of your problem
  Look at the current situation, rather than its history
  Do not consider the "trouble" it creates whether now or in the future.
- List and organize the causes of the problem

*Fishi-kawa! Ishikawa diagrams! Fishbone diagrams! ***

Similar to the practice of concept mapping and brainstorming,
place each "cause" along a line that ends in a box identifying a problem
creating your very own fishbone diagram.

At the beginning brainstorm and identify all the possible causes.
One strategy is to use post-it notes for each cause,
then paste them into your "graph" along the "spine" for a visual representation,
either on a whiteboard, flipchart, or other large surface that can be modified.
If some causes relate to others, you can develop layers connecting and extending out from
the first rays. As you develop your diagram, arrange the causes toward the fishhead/problem
to indicate importance.
Identify/map all the causes before considering solutions to the problem.

What are examples of causes of the problem?
- **People**
  Are there enough participants to help?
  Are the participants' skills adequate?
  Are some participants perceived as not helpful?
- **Resources**
  Are there enough, for example funding?
  Are some not identified?
  Are some not used effectively, or mis-placed?
- **Environment**
  Is it conducive to problem solving? Is there too much stress?
  Is the power structure (administration or line of authority) supportive?
  Is the power structure (administration or line of authority) aware of the problem?
- **Processes, procedures and rules**
  Are they understood, or badly defined?
  Are they perceived as an obstacle?
- **Vocabulary/terminology/concepts**
  Is there an agreed-upon vocabulary, and understanding of their meanings and definitions?
  Are some "hidden"?

Working with the diagram:
- Consider all the causes and rank them in importance
  either on their post-its, or by circles with numbers etc.

- Examine relationship

Drop some causes to secondary levels, or off the chart to indicate irrelevance.

* The Ishikawa Diagram was developed by Kaoru Ishikawa (1968) with applications in manufacturing and later published in "Introduction to Quality Control (1990. It was first used in the 1940s, and is considered one of the seven basic tools of quality control.[4] It is known as a fishbone diagram because of its shape, similar to the side view of a fish skeleton. Mazda Motors used the procedure in the development of the Miata sports car. "Every factor identified in the diagram was included in the final design."

Gathering Information

Stakeholders

Individuals, groups, organizations that are affected by the problem, or its solution. Begin with yourself. Decision makers and those close to us are very important to identify.

Facts & data

- Research
- Results from experimentation and studies
- Interviews of "experts" and trusted sources
- Observed events, past or present, either personally observed or reported

Boundaries

The boundaries or constraints of the situation are difficult to change. They include lack of funds or other resources. If a solution is surrounded by too many constraints, the constraints themselves may be the problem.

Opinions and Assumptions

Opinions of decision makers, committees or groups, or other powerful groups will be important to the success of your decision. It is important to recognize truth, bias, or prejudice in the opinion.

Assumptions can save time and work since is often difficult to get "all the facts." Recognize that some things are accepted on faith. Assumptions also have a risk factor, must be recognized for what they are, and should be discarded when they are proven wrong.