



## Problem-Solving Leadership

**Our brain, Solving Problems, and Leadership come right back to EI (again):**

Managing a diverse group of problem solvers and their various approaches to problem-solving begins with an understanding of others. Understanding other problem solvers requires understanding you first (as a problem solver) and your preferred approach (EI – Self-awareness).

As Beveridge (Beveridge 1981) notes [22, p. 2]: It is not necessary to be a mechanic to drive a car, nor trained in cognitive psychology (study of the thinking process) or philosophy to think or reason. However, there are times when the vehicle will not start, and the usual thought processes do not solve the problem; in such cases, it is helpful to have a working knowledge of the machinery being used.

In other words, even those who desire to be only competent in their problem-solving need to know something about how the brain works as it problem-solves in order (for example) to know what to do when stuck or how to approach a problem when some preferred way of solving it no longer works.

Taking the argument further: if we want to be expert problem solvers (as opposed to merely competent), we need to know even more about how the brain operates and how the problem-solving performance of other problem solvers compares with our own (EI – Social Awareness). If we want to be leaders in problem-solving, we must know at least as much (or more) than our fellow team members about how to manage different problem solvers (including ourselves), making them and us more effective by optimising individual and group performance concerning the problem at hand.

In conclusion, the technical content involved in solving many engineering problems is no longer sufficient; we also need knowledge and practice in the domain of the human engine (i.e., the brain) to successfully solve today's complex problems. Not to mention unconscious bias and emotions.

### Your Problem-Solving Approach

The following problem-solving approach may or may not be relevant depending on the situation and urgency, and you may even wish to use these in a different order or go back and forth between them:

**1. Take your time:**

If you have the time, then using time wisely is a great place to start. A rushed or incomplete solution may not provide the proper fix, or worse still, exacerbate the problem in the long term. Take a step back and conduct an in-depth analysis of the entire situation.



**2. Define or redefine the problem:**

Define your problem by clarifying the question you are trying to answer. Your approach to a problem may impact finding the right solution as quickly as possible. Therefore, defining or redefining the problem from different perspectives can be helpful.

Do you have other people related to the problem who may see things differently? If so, use their different perspectives to help you understand how it is for them (use the Moccasin Approach).

**3. Seek assistance:**

What assets can you call upon to assist or offer their thoughts quickly?

A friend or colleague, a subject matter expert (SME), trusted contacts (internal or external), someone who has dealt with this before, a user manual, or the internet.

**4. Use your previous experiences:**

If applicable, what do you know of the problem that you or others have experienced before?

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### 5. Break the problem into parts (ask yourself):

- **Who** is involved and why? Who do I need to inform? Who is my go-to expert (advice)?
- **What** is involved, and what caused the problem (parts, stock, computer/devices, vehicle)? What resources might you need to bring in (SMEs, skilled specialists, equipment)?
- **Where** is the issue, where has it occurred, and where/what might it affect next?
- **Why** is it a problem (what is this problem causing, and what are the current and future impacts)?
- **When** did this occur (first occur), and how long is it likely to continue?
- **How** did it happen, and how might it be fixed, even temporarily? How can I best share this with people (document the problem, chart/graph/image(s)/data) to gain advice and assistance?



### 6. Use Critical thinking:

Critical thinking means analysing all the facts to understand a problem thoroughly. Critical thinking is essential when identifying a problem, devising a solution, implementing it, and evaluating its effectiveness.

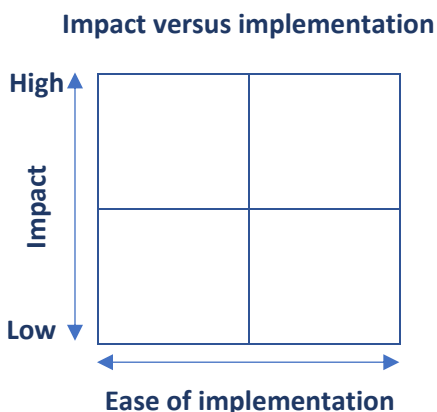
Critical thinking can also be used to maintain an objective view and approach to a problem and rely solely on the information you have rather than letting emotions or theories affect your final decision-making. Ideally (though not always) keep emotions out of it.

### 7. Have a go:

Depending on the problem and the situation, taking a proactive approach by exploring possible solutions as they arise is a good idea, especially when the root cause is unclear. Vehicle mechanics often employ this approach when the cause of the issue is unclear. They will try various options until the issue is identified and resolved.

Depending on the problem you are trying to solve, you may wish to use the “Impact vs Implementation” matrix (Watanabe 2010) to determine the best solution.

You may also need to conduct a cost-benefit analysis.



### Bibliography:

Beveridge, W. I. B. (1981). Seeds of Discovery: The Logic, Illogic, Serendipity, and Sheer Chance of Scientific Discovery, W. W. Norton.

Watanabe, K. (2010). Problem Solving 101: A simple book for smart people, Ebury Publishing.