Problem Solving

Problem solving is a key skill for project managers. Whilst there are many different approaches, most include the following basic steps:

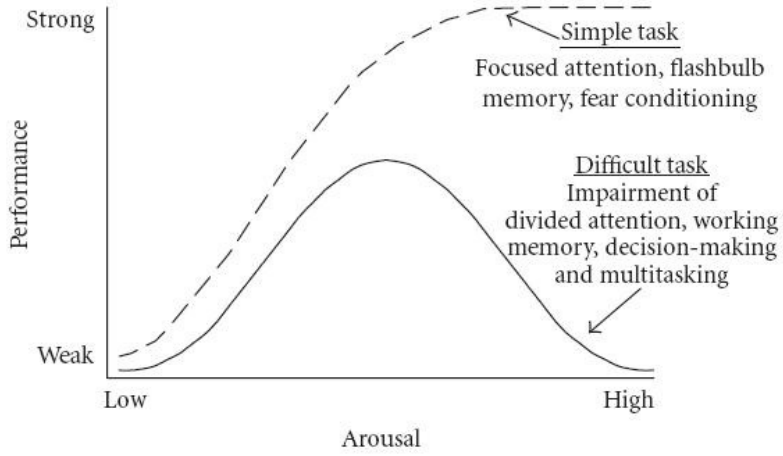
- **Investigate the problem:** Find out when, why and how it occurred and its impact.
- **Prioritise it:** Problems occur all the time, focus urgent attention on problems that are both important and urgent (ie, show stoppers)[1].
- **Identify the solutions:** Choose the solution that solves the root cause in the simplest way[2].
- **Make your decision[3] and act on it:** carefully consider important decisions but once made, act immediately by communicating the actions needed to make it happen!

Generally not making a decision is worse than making one that's not 100% correct, you can adjust your aim later; see: ***Ready, Fire, Aim*** by Gerry Riskin. To give yourself the best chance of successfully solving the problem there are four key stages you need to work though sequentially, each are covered in more detail below:

1. Define the problem, this includes identifying the real issue, placing the issue in context and formulating the 'challenge' you wish to overcome.
2. Organise current knowledge to search for solutions. The more you know, the less risky any selected option for solving the problem.
3. Implement the solution by leading the necessary change[4].
4. Review and maintain the resulting assets created by implementing the solution.

Research by the Georg-August University in Germany suggests groups are up to 30% better at performing judgement tasks than the individuals. This supports conclusions made in James Surowiecki's ***The Wisdom of Crowds*** (Doubleday, 2004). The probable reason for this is because group members learn from each other during the problem solving exercise.

The effect of stress



[1] For more on prioritisation tools see: www.mosaicprojects.com.au/WhitePapers/WP1062_Ranking-Requirements.pdf

[2] For more on ***root cause analysis*** see: http://www.mosaicprojects.com.au/WhitePapers/WP1085_Root_Cause_Analysis.pdf

[3] For more on decision making see WP1053: http://www.mosaicprojects.com.au/WhitePapers/WP1053_Decision_Making.pdf

[4] For more on leading change see: www.mosaicprojects.com.au/WhitePapers/WP1078_Change_Management.pdf

Stress is also a factor! Researchers have found a qualitative difference in how people make judgments under stress. The *Yerkes-Dodson principle* suggests that some level of arousal (stress) is beneficial but high levels of stress will impair the ability to solve complicated problems. And in 1993 Dorner and Pfeifer found that the problem solving patterns were different for individuals under stress. They found that:

- Stressed subjects tended to focus on the general outline of the problem, while non-stressed individuals relied on in-depth analysis.
- Consequently, stressed subjects made fewer errors in setting priorities whilst non-stressed subjects controlled their operations better.

Everyone reacts differently to stress and a problem can be a cause of stress in itself. Understanding how your team and you are reacting is important consideration when attempting to solve problems.

Toyota's 'A3', 8 step problem solving methodology

1. Clarify the problem
2. Break down the problem
3. Set a target
4. Analyse the root cause 'the cause of the cause'
5. Develop countermeasures
6. See the countermeasures through
7. Monitor both the results and the process
8. Standardise successful processes

Source: Extreme Toyota; John Wiley & Sones Inc.

Work out the real problem/solution

The perceived problem, is often only a symptom, solving the symptom leaves the root cause unresolved and can actually make matters worse as you reinforce the root problem in place. If you think in terms starting with 'the problem' the natural next step is to think in terms of 'the solution' – and off you go solving whatever has been defined as the problem. If the problem is not clear, this can lead to the pursuit of a 'solution' that is not actually solving the problem. Then the solution generates its own momentum and life irrespective of its ability to solve the problem.

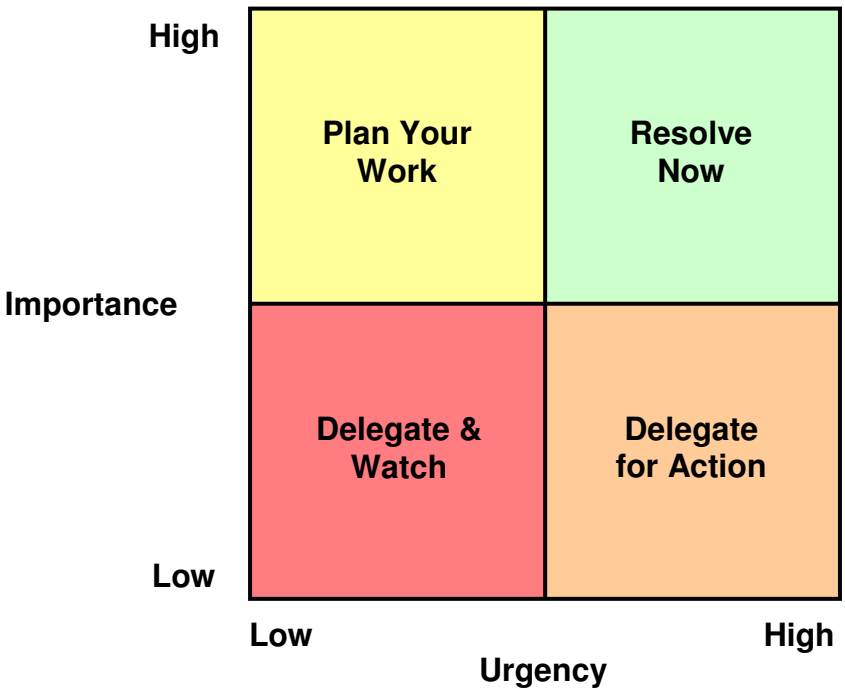
A better option is to define your desired outcomes – exactly how things will be different in the future. Not just that the problem has been solved but clear definitions of new end state with everything working 'just right'. From this position a valuable outcome can be crafted focused on the root cause of the issue.

Peter de Jager advises *'never latch onto the first problem description you come across'* and uses the following example. You walk into someone's office and they complain their PC is not working. You immediately notice the PC is not plugged into the power outlet. The description of the problem defines the type of solution and could include:

- The PC is not plugged in –
- The user did not notice the PC was not plugged in –
- The user did not know enough to check if it was plugged in –
- PCs aren't smart enough to plug themselves in –
- PCs need to be plugged in –
- Plugs are too easy to unplug –
- Power outlets are on the wall and not on the desk where we need them –

Each of the above statements leads to completely different solutions from a quick fix to training to redesigning furniture to inventing a totally new way to power PCs. Before solving the problem it is important to gain consensus on what the problem definition is (or definitions are) – all of the above insights have value some are quick and easy to solve, others need more time but may create far more value. Latching onto the first definition of a problem, particularly if it comes from the person with the problem rarely provides the best answers. Get the right definition and you are 90% of the way to the right solution.

The Urgent / Important Matrix



Problems can be categorised by their urgency and importance.

- Urgent tasks are deadline based. This is usually driven by others. The sooner the task needs completion the more urgent it is.
- The importance of a job drives how much 'time' you want to spend on it. Notice that this is independent of 'urgency' and is what you want to do.

This matrix separates problems into 4 categories:

- **Urgent and important** problems must be resolved now. These are critical and also support your goals so make a decision to solve them[5].
- **Urgent but not important** problems tend to be generated by others. Because you don't really want to spend much time on tasks not connected with your goals delegate their solution to a competent assistant.
- **Important but not urgent** problems that need to be resolved before they become urgent. Ensure you allow adequate time to resolve them.
- **Not urgent and not important** issues are probably not real problems. Definitely delegate their solution to a team member. Keep a watching brief just in case the problem escalates in importance or urgency.

[5] For more on persona time management see WP1054: http://www.mosaicprojects.com.au/WhitePapers/WP1054_Personal_Time_Management.pdf

The Socratic method of thinking

Socrates developed an effective process for questioning widely held beliefs (ie common sense) to arrive at a better understanding of the true situation. The discussion of courage outlined below is reported to have taken place between Socrates and two Greek Generals (Nicias and Laches) sometime after the battle of Plataea in 479 BC. In this battle, the Greek army had initially retreated (to cause the enemy to break ranks) before courageously defeating the Persians.

The Socratic method of thinking	
Stages in the Analysis	**As applied to courage**
1 Locate a statement confidently described as common sense	Acting courageously involves not retreating in battle.
2 Imagine for a moment the statement is false – search for situations or contexts where the statement would not be true	Could one ever be courageous and yet retreat in battle? Could one ever stay firm in battle and yet not be courageous?
3 If an exception is found, the definition is either imprecise or false.	It is possible to be courageous in battle and retreat. It is possible to stay firm in battle and not be courageous
4 The initial statement must be modified to take the exception into account.	Acting courageously can involve both retreat and advance in battle.
5 If one subsequently finds exceptions to the improved statement, the process should be repeated.	

This analytical approach can be adapted to defining and understanding the root cause of problems and to test the validity of hypotheses and potential solutions before implementing them.

Conflict[6] and turf wars don't help anyone!

To reframe a problem that could lead to conflict, honour the truth on both sides of the debate[7].

- **Embrace 'And'** – Eliminate either/or thinking by harnessing the power of 'and'. 'And' enables us to consider ideas different from our own, leading to solutions that either/or thinkers would have missed.
- **Make Peace With Ambiguity** – Fear is a primal instinct needed to survive, and fear holds us in the either/or mindset. Our brain locks on to what we believe to be true, and, as a result, we expend energy defending it, which prohibits us from hearing any other sides to the argument. Most solutions to dilemmas are in the grey areas between black and white, there may be no perfect answer! Accepting ambiguity allows a joint exploration towards the best 'truth'.
- **Allow Other Perspectives** – In order to achieve your objectives, you must consider the objectives of others. While it's easy to become consumed your own goals, ignoring the goals that are driving someone else prohibits you from working as a team to get what you both want.
- **Seek Higher Ground** – Seeking higher ground requires us to look beyond the conflict or issue at hand to see the bigger picture, considering the full context of the situation. It involves elevating our minds above

[6] For more on conflict management see: http://www.mosaicprojects.com.au/WhitePapers/WP1041_Managing_Conflict.pdf

[7] Based on ideas in *The Triangle of Truth The Surprisingly Simple Secret to Resolving Conflicts Large and Small* by Lisa Earle McLeod, Perigee; January 2010

the thinking that there are only two choices and allows the creation of a different choice — one that helps everyone achieve what they really need.

- **Discern Intent** – Proposed solutions are based on what someone believes is the best way to solve a problem. Whether or not you agree with their solution, it's critical that you try to understand their intent. Chances are their solution wasn't derived from any intent to harm you, the project or the company.
- **Elevate Others** – Help others to elevate their thinking by going beyond the narrow questions focused on blame to more expansive questions that allow us to all think more deeply. Elevating our thinking allows us to think more creatively, assimilate multiple ideas, uncover the core truths behind proposed solutions and, naturally, solve conflicts more effectively and without the drama.
- **Be The Peace** – Go beyond being a peacekeeper and instead be a peacemaker[8]. Rather than simply keeping the conflict under wraps, learn how to embrace other ideas and assimilate conflicting ideas into a solution that far surpasses either idea.

Using SOAP[9]

Decisions usually have to be made with between 40% and 80% of the information needed to make a certain decision. Applying ***SOAP*** helps clean up the process: You use SOAP in the order of the letters and write down the information gathered at each step:

S = Subjective information; ideas, insights, opinions and feelings (these are important).

O = Objective information; measurable observable data.

A = Analysis of all of the information. Combine both the subjective and the objective.

P = Plan your action. And then implement (you're ready so Fire and adjust your aim later).

Dissolving Problems

R.L. Ackoff developed the idea of dissolving problems by zooming in or out. Rather than focusing on the problem zoom out and look at the whole system[10] in perspective. This may allow parallels with similar systems to be identified and solutions developed using ideas from these similar systems.

Zooming in or out shifts the boundaries. Rather than focusing on a dispute within the project team (bounded by the project delivery system), ask the protagonists to see their role in the program, the department or the whole organisation. This shifts perspective, and by reimagining the boundaries, allows the problem to be re-imagined. Zooming out, reveals the mega boundaries. Zooming in defines sub-boundaries.

The shift allows new perspective and helps break down established positions based on the original set of boundaries (or frames). This changes the feedback loops being experienced by the protagonists and allows more construction options to be developed[11].

Systems Thinking

This topic is discussed in depth in WP1044. see:
http://www.mosaicprojects.com.au/WhitePapers/WP1044_Systems_Thinking.pdf

Also refer to the decision making model described in the *PMBOK® Guide* at p412, Appendix G.6.

[8] Effective peacemaking requires high levels of EQ and SQ- Social and Emotional Intelligence, for more see: http://www.mosaicprojects.com.au/WhitePapers/WP1008_Emotional%20_Intellegence.pdf

[9] SOAP was developed by Prof. Laurence Weed, University of Vermont.

[10] For more on systems thinking see: http://www.mosaicprojects.com.au/WhitePapers/WP1044_Systems_Thinking.pdf

[11] See: Ackoff R.L. (2006) ***Idealised Design***. Wharton Business School Press.

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