ANALYTICAL THINKING (AT)

Analytical Thinking is understanding a situation by breaking it apart into smaller pieces, or tracing the implications of a situation in a step-by-step way. Analytical Thinking includes organizing the parts of a problem, situation, etc., in a systematic way; making systematic comparisons of different features or aspects; setting priorities on a rational basis; identifying time sequences, causal relationships or If–Then relationships.

This Means...	*This Doesn't Mean...*
• resolving a problem in a systematic, step-by-step way	• attempting to solve a problem by quickly trying whatever comes to mind
• thinking through a problem before offering a solution	• jumping to a conclusion without thinking through the facts
• thinking about the chain of events that led to a problem	• explaining problems in a vague, general way, e.g. "that procedure always goes wrong"
• thinking ahead about the outcome of an action ("If I do A, then B and C will also happen")	• solving the immediate problem without thinking about other problems that may follow; the longer term impact
• identifying causes and resolving a problem that is not obvious to others	• attempting to resolve a problem with whatever comes to mind
• breaking down complex problems to identify root cause(s)	• addressing only the surface issue, ignoring other possible deeper causes

Developmental Activities	**Level 1-2 Activities**

List potential solutions to a problem before you draw conclusions or make a decision.

- Choose a challenging problem that you are currently facing that you have not yet resolved.

- List all the possible solutions that come to mind.

- Do not evaluate or critique any of the solutions or suggestions until you have exhausted all possible ideas.

- End your "critical thinking" session by identifying next steps

Reflection Tip:

* Take a moment to think about the "big picture". Do any additional solutions come to mind within this larger context?

Keep a log of situations at work for which you did not have a solution.

- Write down in detail the nature of the situation and your thoughts about it.

- Review the log, consider what you thought at the time, and what you think now as you reconsider the situation. What are the similarities, differences in your thought pattern?

- Write down alternative courses of action that could have benefited the situation.

- Make use of these actions in similar circumstances.

Reflection Tip:

* Use this information to inform the creation of your own work plan.

Conduct a problem prevention analysis.

- Select a particular problem you feel necessary to prevent.

- Ensure your investigation and solutions are accurate and implementable.

- Maintain your notes as a reference in case the problem occurs.

- Monitor how effective your prevention strategy is.

Identify a recent branch problem that was successfully resolved.

- Plan to meet with the people involved in the problem resolution.

- Find out how they dealt with the problem or situation. Ask the following:

    ⇒ What overcome these difficulties?
    ⇒ What resources did they use?

⇒ What difficulties did they encounter?

⇒ What were the specific outcomes of their efforts?

• Use this information when you are confronted with similar problems or situations.

Think systematically.

• When you approach project planning or problem solving challenges in your area of responsibility, try to follow a systematic approach of thinking through how each project or problem relates to the needs and challenges of the government as a whole.

• Work deliberately at identifying the key linkages among issues and projects.

Reflection Tip:

∗ Make sure that you pursue a discussion of the "big picture" and key linkages with people who are impacted by your work.

Develop alternative ways of looking at a problem.

• Select a branch issue which you are genuinely interested in understanding or resolving. The problem should be of limited scope and you should be familiar with its past history, i.e., what has led up to the problem and previous attempts, if any, to resolve it.

• Describe the problem in a brief statement. For example, you might state the problem as: *"The staff turnover within a particular branch has steadily increased over the past two years," or "Measures of Service Partner Satisfaction are not improving despite our new service programs."*

• Identify the key factors in the problem from your perspective.

• Pretend you are going to tell someone a story about the problem. What are the three or four key characteristics or details you would want to convey?

• Identify the key factors in the problem from the perspective of others. Ask yourself the following questions:

⇒ How would senior managers/directors view this problem? What factors would they see at their level?

⇒ How would managers/directors in other areas view this problem? What factors would they see from their perspective?

Reflection Tips:

∗ Prepare a summary of your findings.

∗ Identify the immediate steps you could take on your own to help resolve the problem. Take the first steps.

Ask for feedback.

- Ask your manager/director to identify specific times where you either showed or did not show good Analytical Thinking.

- Ask him/her to specify what it was about your behaviour which made a particular impression on them.

- Get your manager/director to talk through how he or she would have tackled the issue.

- Take note of these suggestions and try to apply them in future circumstances.

Reflection Tip:

✱ Is there a pattern to situations where you avoid using analytical skills?

Play games that require Analytical Thinking.

- The card game "bridge" is good for developing analytical thinking.

- The computer game "Lemmings" is a simple game that requires increasingly high levels of Analytical Thinking.

Identify obstacles.

- Look ahead over the next three months. Considering each of the projects you are working on or plan to work on, with which project do you anticipate encountering the most difficulties?

- Make a list of the major obstacles that you believe you will encounter that will deter you from achieving your goal.

- Analyze what is the root cause of each obstacle and identify what actions you can take to lessen or overcome the problem before you encounter it.

- Bounce your ideas off your manager and colleague, and ask for their feedback. Have contingency plans in place.

- Write out these actions in a plan, with targeted completion dates for each step. Put the plan into action and keep a note of your progress.

Reflection Tips:

✱ Discuss with your peers how they identify obstacles. Remember to keep a proactive approach rather than a reactive one.

✱ Have you encountered any of these obstacles before? If so, review the methods you used before, and the resulting outcome.

Level 3-4 Activities

Try group approaches to problem solving.

- Advise your superior that you intend to organize and lead a group to solve an important problem or issue facing the branch or government.

- Get together a group of people who can help you brainstorm how you could approach the problem before you draw conclusions or make decisions.

- Use the following outline to structure an agenda for the meeting:

  ⇒ Prepare a clear statement of the problem. Work with the group to write a sentence or phrase that clearly states what the problem is.

  ⇒ Brainstorm a list of possible ideas about the problem. This list may include causes, solutions, action steps, processes or decisions. Do not critique any ideas until the group has exhausted the list of possibilities.

  ⇒ Identify the best way to move forward with the assistance of the group.

  ⇒ Write out a specific plan of action you will take to resolve the problem or address the issue.

  ⇒ Review your plan with your supervisor.

- Keep a record of your progress.

Reflection Tips:

＊ Reflect on why you might have missed some of the details that your peers are bringing up.

＊ Do your peers have a different perspective regarding the issue than you do? What can you learn from this perspective?

＊ What would you do differently next time? Is there anyone else that you should speak with?

Take a longer-term project or assignment that you have become involved in and invest time to look ahead for potential problems.

- Break down the project or assignment into all the critical tasks and key milestones.

- Analyze each task and identify any potential areas of risk. Try to determine any areas where something could potentially go wrong such as an untried technology or a shortage of experienced employees.

- Sort the potential problems into high and low risk.

- Prepare possible alternatives if the potential problems you have identified should occur.

- Review your task break-down, risk analysis and alternatives with your leader.

- Implement an action plan to address those risks.

Reflection Tips:

> * Also consider the background of the project.
>
> * Speak with others who have been involved in similar projects about the obstacles they experienced.

When you are faced by new, difficult or expansive problems, think through the chain of events leading to the problem.

- The next time an important problem occurs, stop yourself from jumping to a conclusion as to what caused the problem. Instead, spend sometime analyzing the problem.

- Write down the causal chain of events leading to the problem (e.g., "A" occurred because of "B", "B" occurred because of "C"). It is important to actually write it down or draw a diagram. Most people cannot keep all the details of a complex situation in their heads.

- Find ways to break the problem chain (e.g., more or different resources, modification of timelines, different tactics) and forge new links which help to improve performance.

- Work together with your team to implement the solution in a feasible manner.

> **Reflection Tip:**
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> * Consider each of the components, and think about could have been done to address them at the time, and what can be done now.

Address a persistent problem impacting a key initiative.

- Identify an initiative that you are having difficulty implementing.

- Outline previous roadblocks.

- Write a brief description of any previous attempts to deal with these roadblocks, and the outcomes.

- Conduct a working group session with your peers and/or selected employees. Identify the potential benefits for the group in addressing this problem. What common elements, interdependencies, or differences with other opportunities can the group identify together?

- Try sketching or diagramming the situation on a piece of paper or chart board to illustrate the relationships and consequences to the various segments of the organization.

  ⇒ Identify the positive forces/elements that are supporting the situation on one side and the negative forces/elements that are opposing the situation on the other side.

  ⇒ For the positive forces/elements, brainstorm ideas to strengthen their support of the situation. Select the two or three ideas that will have the greatest impact and develop action plans.

  ⇒ For the negative forces/elements, identify which ones your group has control over and which ones are beyond your control. Select the two or three forces that you have greatest control over and develop action plans to address them.

- Determine key steps and accountabilities with the working group and then implement your solution.

> **Reflection Tips:**

* Reflect on the various methods used to deal with the roadblocks. Are there any themes? Can you see a relationship between those themes, and the respective outcomes?

* Are there some people within the group that can create this diagram more easily than others? Utilize their skills.

* Follow up on actions taken. If key steps aren't having any impact, then reconvene the group, and rework the plan.

Incorporate several perspectives into your problem-solving approach.

- Identify individuals who are most affected by a problem.

- Ask them for information about the nature of the problem and for suggestions about possible solutions.

- Imagine that you have no constraints to solve this issue or problem -- what would you do? Why would you do it? What prevents you from acting on the thoughts you have?

- Talk to people who are not familiar with the issue you are grappling with. This may include those from totally different areas of expertise or disciplines than you are used to -- what kinds of things do people come up with?

- Try to picture what you are trying to achieve. What does it look like? Is there anything you would like to change? What one thing would you like to change in that picture? Will the courses of action that you have generated allow you to achieve your goals?

- Take the results of these approaches and try to come up with some novel solutions to your problem.

- Bounce your ideas off trusted colleagues and the individuals affected.

- Try to learn from and incorporate the comments you have collected. Make some notes to yourself regarding some of the things that have helped you to become more creative.

Reflection Tips:

* Be sure to gather enough information that you understand the background to the problem.

* What sort of thought processes did those people use to break down or conceptualize the problem?

* Think about what situation this particular problem reminds you of. Are there any interesting similarities or differences between the current and past situations? What can you learn from them?

* Ask for specific feedback regarding the feasibility of the approaches you have defined.

Identify a difficult problem or situation where there are several possible courses of action you can take to resolve it.

- Write down the problem.

- Use a chart similar to the one below to help you determine your best course of action:

Criteria	Option 1	Option 2	Option 3
Resource Cost (time, people, capital)			
Profitability			
"Political Risk"			
Efficiency			

- The criteria are those factors you will use to evaluate each option.

- The options are possible solutions to the problem.

- Determine how well each option meets each criteria. Assign a rating for each option against each criteria using the scale below:

    ⇒ 1 = Option does not meet criteria
    ⇒ 2 = Option minimally meets criteria
    ⇒ 3 = Option somewhat meets criteria
    ⇒ 4 = Option fully meets criteria
    ⇒ 5 = Option exceeds criteria

- Total the rating scores for each option at the bottom of the chart.

- Determine the pros and cons of each option on the chart.

- Consider both of these pieces of information in selecting the option which best meets your criteria and provides the most effective cost: benefit ratio.

Reflection Tip:

* Think about how you might "short-cut" this process and use it more frequently for slightly less difficult problems.

Assess the costs and benefits of a plan.

- Identify a difficult business/organizational situation you are going to have to confront over the next few days or weeks and list the choices of action you have.

- List the most likely significant consequences for each choice (use the table shown in the example at the end of this exercise).

- Rate the *importance* of each consequence. Use a five-point scale:

    ⇒ 1 (not very important) to 5 (very important).

- Label each consequence as a cost (-) or as a benefit (+).

- Make a rough estimate as to the *likelihood* of each consequence. Use 0% (certain the consequence won't happen) to 100% (certain the consequence will happen).

- Multiply the importance rating by the likelihood value for each consequence and sum the total (see the example following).

  Example: Should we introduce a new line of service to our already busy schedule?

Consequence	Importance	Likelihood	Total
Improve Service	+4	100	400
Positive response by clients	+3	50	150
Increased stress level	-5	100	-500
TOTAL			**+50**

  In this example, the analysis indicates the benefits outweigh the costs for this particular choice of action.

- Repeat the above analysis for each choice of action you have identified.

- Select the option with the highest totals once you have completed the totals for each option.

- Review your analysis with your leader and ask for his or her input. Add any other consequences you both identify and repeat your analysis.

- Ensure nothing important is missing and commit to your course of action.

- Keep a written record of the decisions you make based on this technique.

Reflection Tip:

✳ Take note of the thought processes that your manager uses in deciding if there are any additional
   consequences. Ask him/her to "think out loud", in order to share their evaluation process with you.