The background features a dark blue gradient with technical graphics on the left side, including circular gauges with numerical scales (40, 150, 160, 170, 180, 210, 220, 230, 240, 250, 260) and various circular arrows. The bottom of the image shows a silhouette of a mountain range under a starry night sky.

ROOT CAUSE ANALYSIS AND DECISION TREES TOOLS FOR PROBLEM SOLVERS AND DECISION MAKERS

PRESENTED BY ELENA MADRID, TWC AEL TECHNICAL ASSISTANCE SUPERVISOR

AGENDA

- What are Decision Trees and Root Cause Analysis
- Why are these tools important
- Benefits of using these tools
- When to use these tools
- How to use these tools
- Practice

Decision is the ultimate power.
Decisions shape destiny.

Tony Robbins


LET'S TALK ABOUT DECISIONS IN RELATION TO AEL

GROUP ACTIVITY

- 1) What types of things do you have to make decisions on?
- 2) How much time would you say you spend making decisions?
- 3) Do you find yourself making big decisions mostly on your own? Or with a group?
- 4) How quickly do you make decisions?
- 5) Do you take time to think about the decision before you make it? If so, what types of things do you think about?
- 6) Do you consider the impact of your decisions before you make them?
- 7) Do you find yourself being more indecisive or decisive?

SHARE OUT

WHAT DID YOU LEARN FROM YOUR
DISCUSSIONS?



Top-Level Managers: These managers often spend a significant amount of time on strategic decisions, which can consume more than **50%** of their time. Strategic decisions involve long-term planning and setting the overall direction of the company ([McKinsey & Company](#)) ([Quantum Workplace](#)).

Mid-Level Managers: They typically focus on tactical decisions, translating strategic goals into actionable plans. Mid-level managers spend approximately **30-50%** of their time on decision-making activities ([McKinsey & Company](#)).

Lower-Level Managers: Their decisions are more operational, dealing with daily activities and immediate issues. These managers might spend about **25-30%** of their time on decision-making ([Quantum Workplace](#)).

DECISIONS ARE IMPORTANT

They Can Impact So Many Things and So Much Time is Spent Making Them!

What are some things decisions could potentially impact?

This is why tools and processes like Decision Trees and Root Cause Analysis is so important, because they can help us to be better decision makers.

WHAT ARE DECISION TREES?



A graphical representation used to make decisions and understand consequences.



Composed of nodes (decisions/conditions) and branches (options/actions).



Ends with leaf nodes representing final outcomes.

BENEFITS OF DECISION TREES

- **Clarity:** Easy to understand and follow.
- **Visual Representation:** Helps in visualizing complex decision processes.
- **Versatility:** Can handle both qualitative and quantitative data.
- **Actionable Insights:** Provides clear guidance on the best course of action.

USING DECISION TREES IN ADULT EDUCATION

- **Example 1:** Deciding on the most effective teaching method for a diverse group.
- **Example 2:** Evaluating strategies for student engagement and retention.
- **Example 3:** Choosing the right professional development program for staff.

STRUCTURE OF A DECISION TREE

- **Root Node:** The starting point representing the initial decision or condition.
- **Branches:** Represent options or actions from each node.
- **Internal Nodes:** Subsequent decisions/conditions.
- **Leaf Nodes:** Final outcomes or decisions.

DO I WANT A DONUT?

NO

Maybe you want
an apple?

YES

Do I
deserve it?

NO

Is it a good
doughnut?

YES

Are you sure?

NO

Wait 'til you
find an
unforgettable
doughnut.

YES

What are you
waiting for?
Grab it

NO

Do jumping
jacks first.

YES

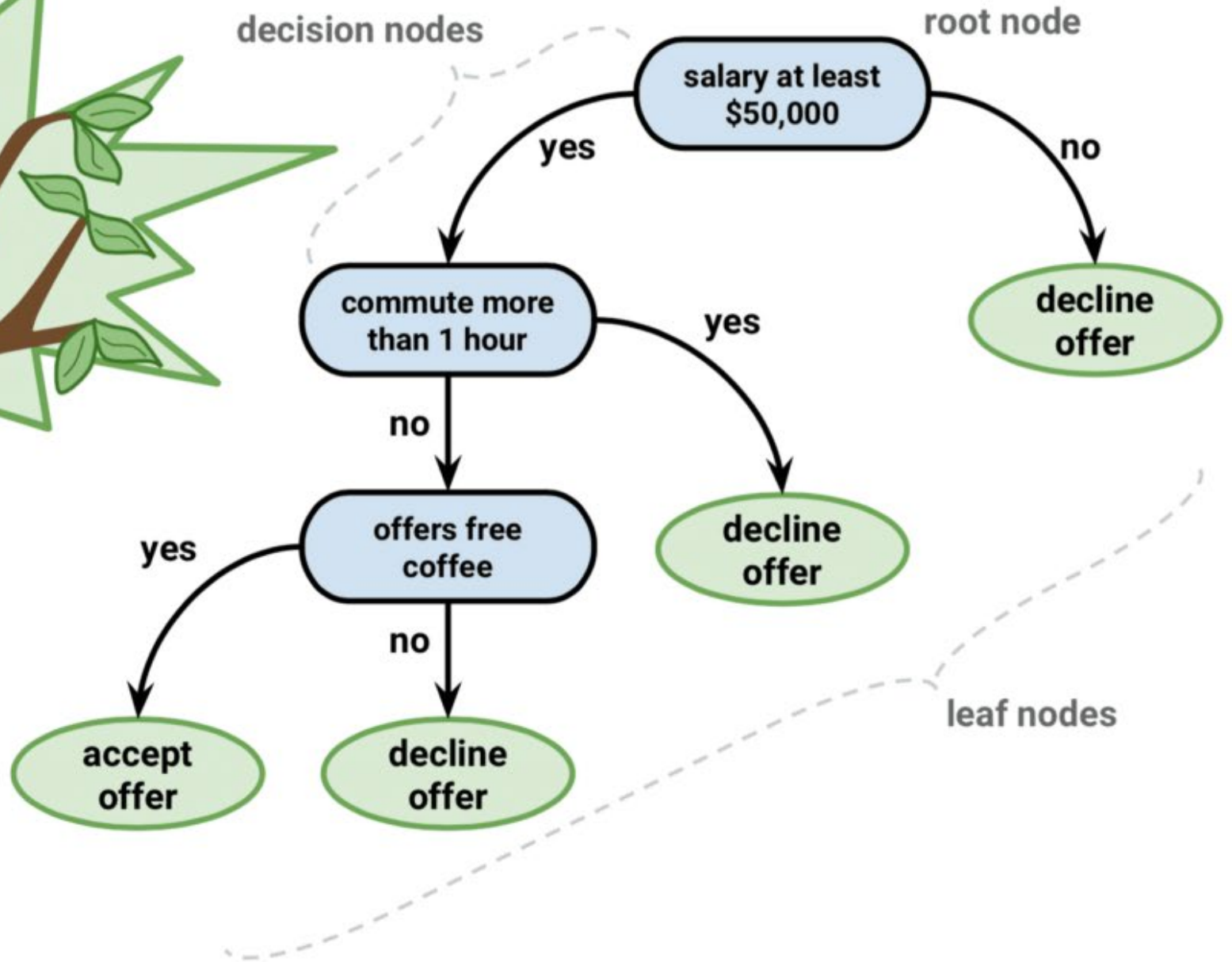
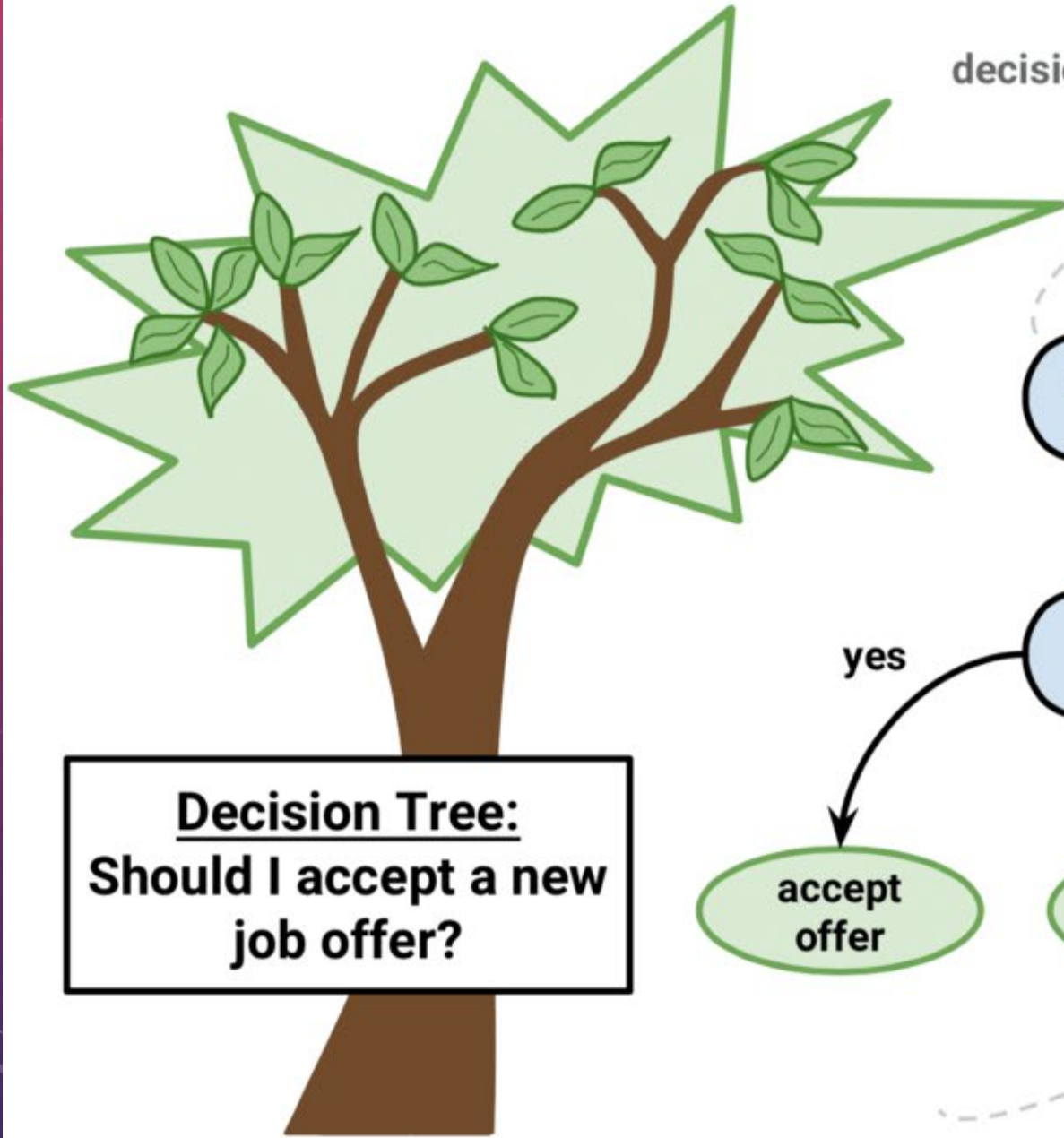
Get it.

the root node

the branches

the leaf nodes

SAMPLE OF
A DECISION
TREE IN
ACTION



BEST PRACTICES FOR USING DECISION TREES

- **Keep It Simple:** Avoid overcomplicating the tree.
- **Use Clear Criteria:** Ensure all decision points are well-defined.
- **Update Regularly:** Revise the tree as new information becomes available.
- **Involve Stakeholders:** Get input from relevant parties to ensure comprehensive decision-making.

COMMON PITFALLS AND HOW TO AVOID THEM

- **Overfitting:** Avoid making the tree too complex.
- **Bias:** Ensure the decision criteria are objective and not biased.
- **Neglecting Outcomes:** Consider all potential outcomes and their impacts.

TOOLS FOR CREATING DECISION TREES

- **Software Options:**
 - **Microsoft Excel:** Simple decision tree diagrams.
 - **Lucidchart:** User-friendly decision tree creation.
 - **Xmind:** Mind mapping with decision tree capabilities.
- **Free Tools:** Google Drawings, Canva.

GROUP EXERCISE – DECISION TREE

- **Activity:** Create a decision tree based on the provided scenario - opening a new site for a class.
- **Objective:** Apply the concepts learned and see decision trees in action.

SHARE OUT
LET'S SHARE THOSE
DECISION TREES!



The background is a dark blue gradient with several faint, light blue circular patterns. These patterns include concentric circles, dashed lines, and scales with numerical markings (e.g., 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260). Some circles have arrows indicating a clockwise or counter-clockwise direction. The overall aesthetic is technical and analytical.

ROOT CAUSE ANALYSIS

WHAT IS ROOT CAUSE ANALYSIS (RCA)?

- **Definition:** A systematic method used to identify the underlying reasons for a problem or failure.
- **Purpose:** To address the root causes of issues to prevent recurrence and improve program outcomes.

BENEFITS OF RCA IN ADULT EDUCATION

WHY USE IT?

- **Prevention of Recurrence:** Sustainable solutions lead to long-term improvements.
- **Improved Processes:** Enhanced program effectiveness and efficiency.
- **Better Outcomes:** Increased student success and retention.
- **Cost Savings:** Efficient resource utilization and reduced waste.

KEY STEPS IN RCA

- 1) Problem Identification:** Clearly define the problem.
- 2) Data Collection:** Gather relevant data.
- 3) Causal Factor Identification:** Identify potential contributing factors.
- 4) Root Cause Identification:** Determine the fundamental cause(s).
- 5) Solution Development and Implementation:** Develop and implement solutions.
- 6) Verification and Monitoring:** Ensure the effectiveness of solutions.
- 7) Documentation and Communication:** Record findings and share with stakeholders.

PROBLEM IDENTIFICATION – STEP 1

- **Example:** Low student retention rates in an adult literacy program.
- **Key Questions:**
 - What is the problem?
 - When and where does it occur?
 - Who is affected? (stakeholders)

DATA COLLECTION – STEP 2

- **Methods:** Surveys, interviews, attendance records, performance data.
- **Goal:** Collect comprehensive data to understand the problem context.

CAUSAL FACTOR IDENTIFICATION – STEP 3

- **Techniques:** Brainstorming, reviewing documentation, interviewing stakeholders.
- **Outcome:** List of all potential factors contributing to the problem.

ROOT CAUSE IDENTIFICATION – STEP 4

Tools

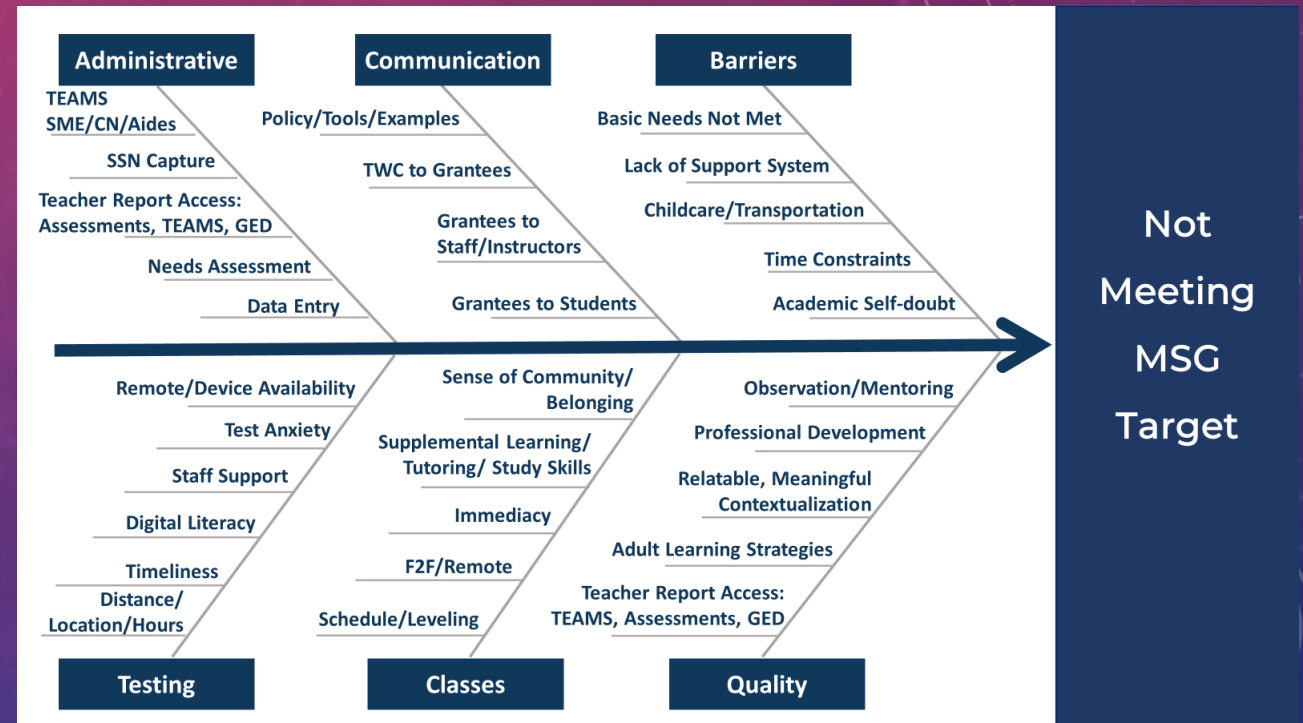
- **Five Whys:** Asking "why" repeatedly to drill down to the root cause.
- **Fishbone Diagram:** Visual tool to map out potential causes across categories (e.g., methods, materials, environment, people).

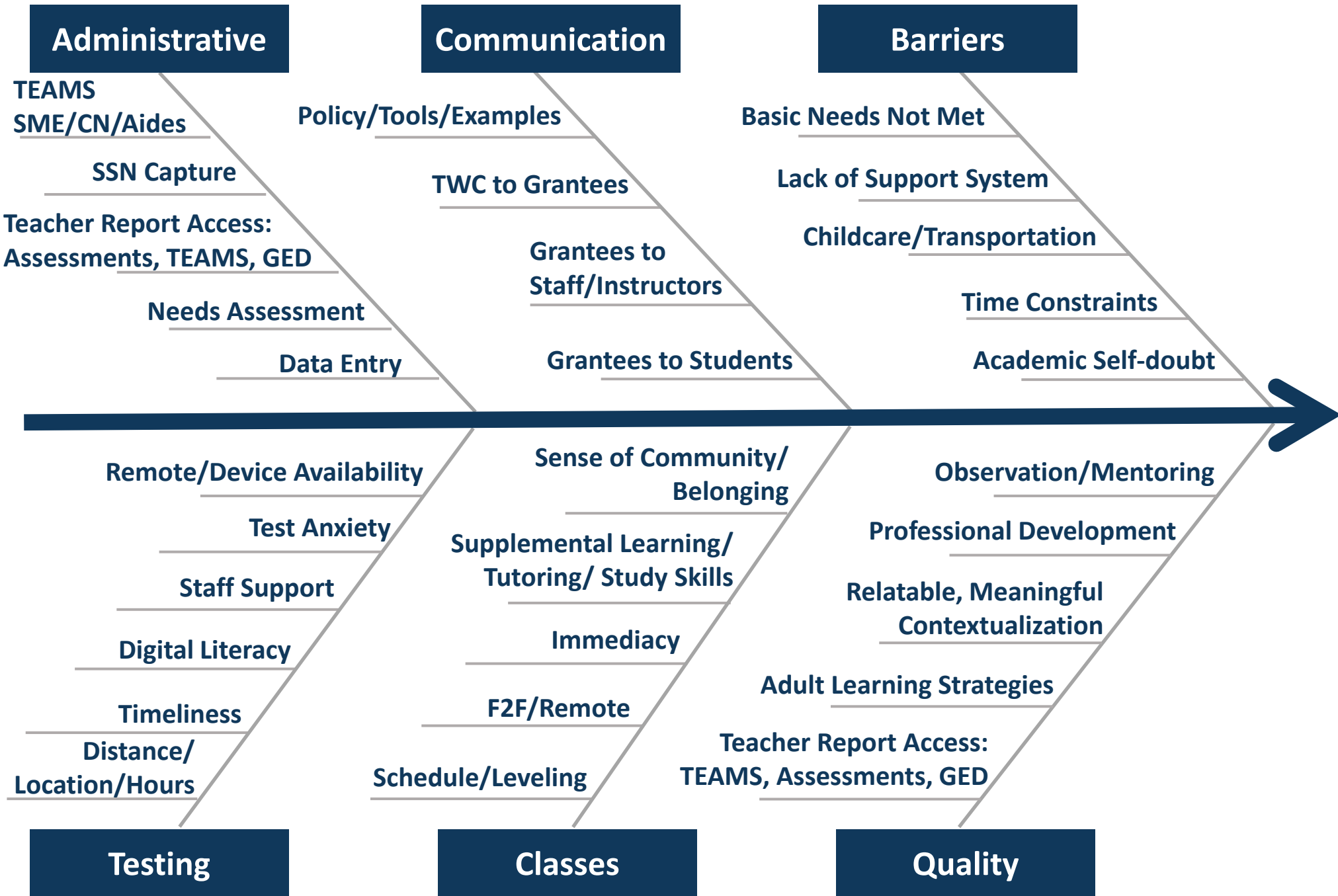
FIVE WHYS TECHNIQUE

- **Example:**
- **Problem:** Low student retention
 - Why 1: Students feel disconnected.
 - Why 2: Lack of engagement in classes.
 - Why 3: Teaching methods not interactive.
 - Why 4: Instructors lack training in engagement techniques.
 - Why 5: No professional development for instructors.

FISHBONE DIAGRAM

- **Categories:** Methods, Materials, Environment, People
- **Example:** Not Meeting MSG Target.





Not Meeting MSG Target

Five Whys Technique

- Problem: Time Constraints (Category – Barriers)
 - Why 1: The student doesn't feel like they have enough time to attend classes.
 - Why 2: The student does not know how to manage their time.
 - Why 3: The student was not taught how to manage their time.
 - Why 4: This is not part of the work force preparation or life skills curriculum early into attendance.
 - Why 5: It has not been required.

SOLUTION DEVELOPMENT AND IMPLEMENTATION — STEP 5

Steps:

- Identify practical and sustainable solutions.
- Engage stakeholders in the solution process.
- Implement solutions with clear timelines and responsibilities.

VERIFICATION AND MONITORING – STEP 6

- **Methods:** Regular follow-ups, data tracking, feedback from stakeholders.
- **Goal:** Ensure solutions effectively address the root cause and prevent recurrence.

DOCUMENTATION AND COMMUNICATION – STEP 7

- **Importance:** Record findings, actions, and outcomes.
- **Sharing:** Communicate with staff, students, and other stakeholders to ensure transparency and continuous improvement.

GROUP EXERCISE - RCA

- **Activity:** Do a Root Cause Analysis based on a provided scenario – Participants not completing an IET (Integrated Education and Training).
- **Objective:** Apply the concepts learned and do a Root Cause Analysis.

SHARE OUT
WHAT DID YOU LEARN? WHAT
SOLUTIONS WOULD YOU
IMPLEMENT?



SUMMARY

- What are Decision Trees and Root Cause Analysis
- Why are these tools important
- Benefits of using these tools
- When to use these tools
- How to use these tools
- Practice

ANY QUESTIONS?





THANK YOU!

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