



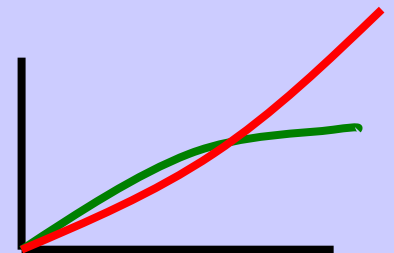
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TOCICO CONFERENCE 2007

Certification Review Workshop: Thinking Process

**Presented By: Dr. Alan H. Leader
Leader Associates**

Date: November, 2007



THINKING PROCESSES: Nature of the system

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- **The subject matter**
- **Goal**
- **Necessary conditions**
- **What governs the behavior of the system (values, culture, externalities)? Policies, measurements, behaviors?**
- **How much influence do you have with which to effect change?**

THINKING PROCESSES: Core problem

Alternate method 1- Current Reality Tree

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- **Find the core problem**
- **Start with 6-8 UDEs from different areas in the organization.**
- **Dive downward, filling in the causation as you go until you arrive at the root cause of the UDEs at the top of the page.**
- **This root cause is the problem!**
- **Under the root cause is the core conflict.**
- **Remember to continue work on the CRT only until you have found “What to change”.**



THINKING PROCESSES: Core problem

Alternate method 2- Three UDE Cloud

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- For each UDE:
- B. What need is jeopardized by the existence of the UDE?
- D. What action do you have to take to achieve the need in B?
- C. What need prevents you from taking the action in D?
- D'. What action, do you take to meet the need in C?
- A. What is the common objective to B&C?
- Read the cloud: A, B, C, D, D'
- Does D jeopardize C? Does D' jeopardize B?
- Make any needed corrections.

THINKING PROCESSES: Core problem

Alternate method 2- Three-UDE Cloud

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- **Cloud consolidation:**
- **Using the three one-UDE clouds, compile a single generic cloud.**
- **This should be the deep-lying conflict cloud.**
- **The inability to resolve the conflict between D and D' leads to the UDEs.**

THINKING PROCESSES: Core problem Alternate method 2- Three-UDE Cloud

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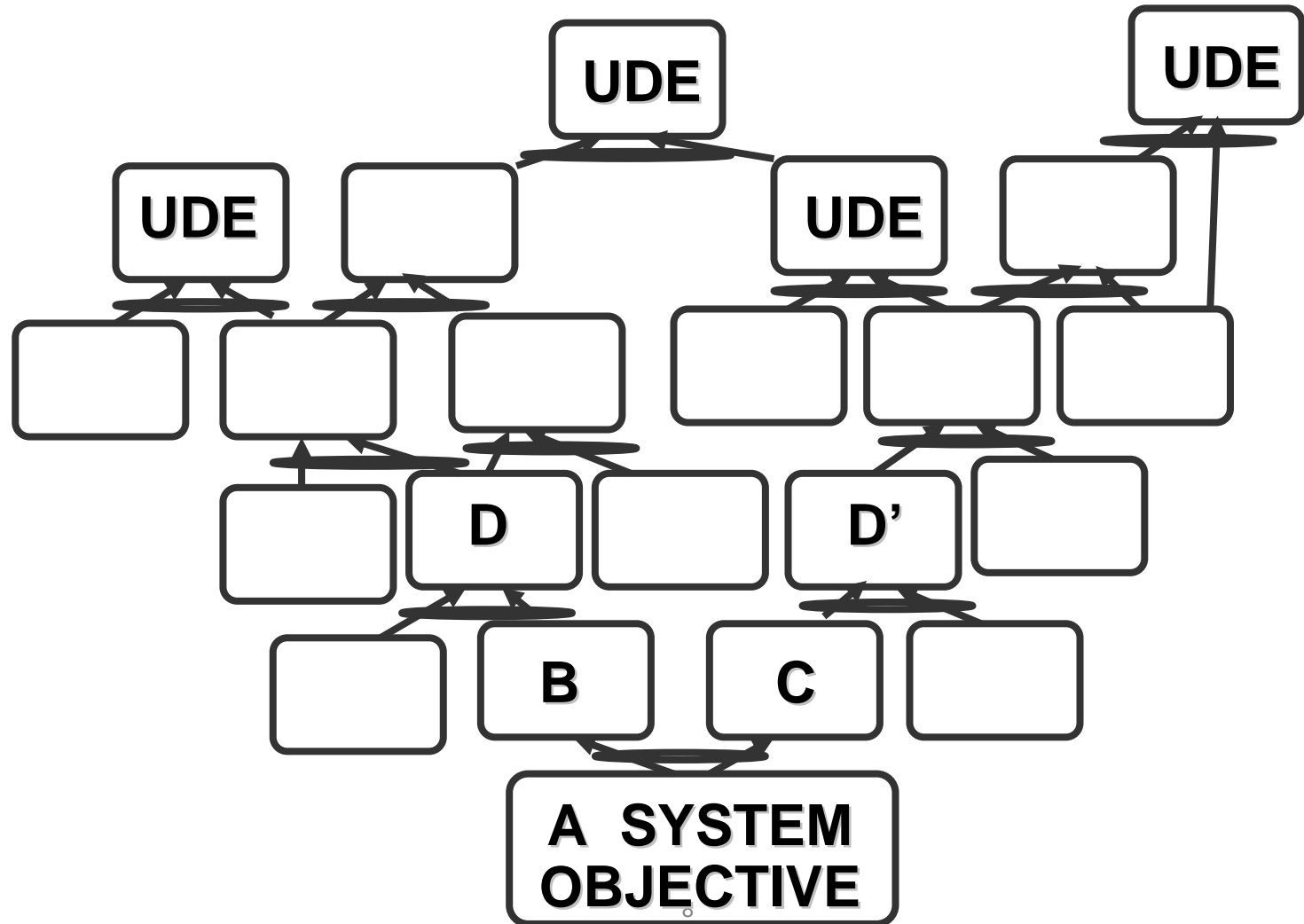
- **CONFIRM THE ROOT CAUSE: Current Reality Tree**
- **Start with an UDE map and the core conflict (rotate 90 degrees CCW) and fill in the blanks.**
- **Identify all of the UDEs uncovered.**
- **If the CRT is large, use a Communications Current Reality Tree (long arrows) to gain understanding and agreement by those necessary for solution implementation (control over resources).**



THINKING PROCESSES: Current Reality Tree

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CRT or CCRT



THINKING PROCESSES: Direction of a solution

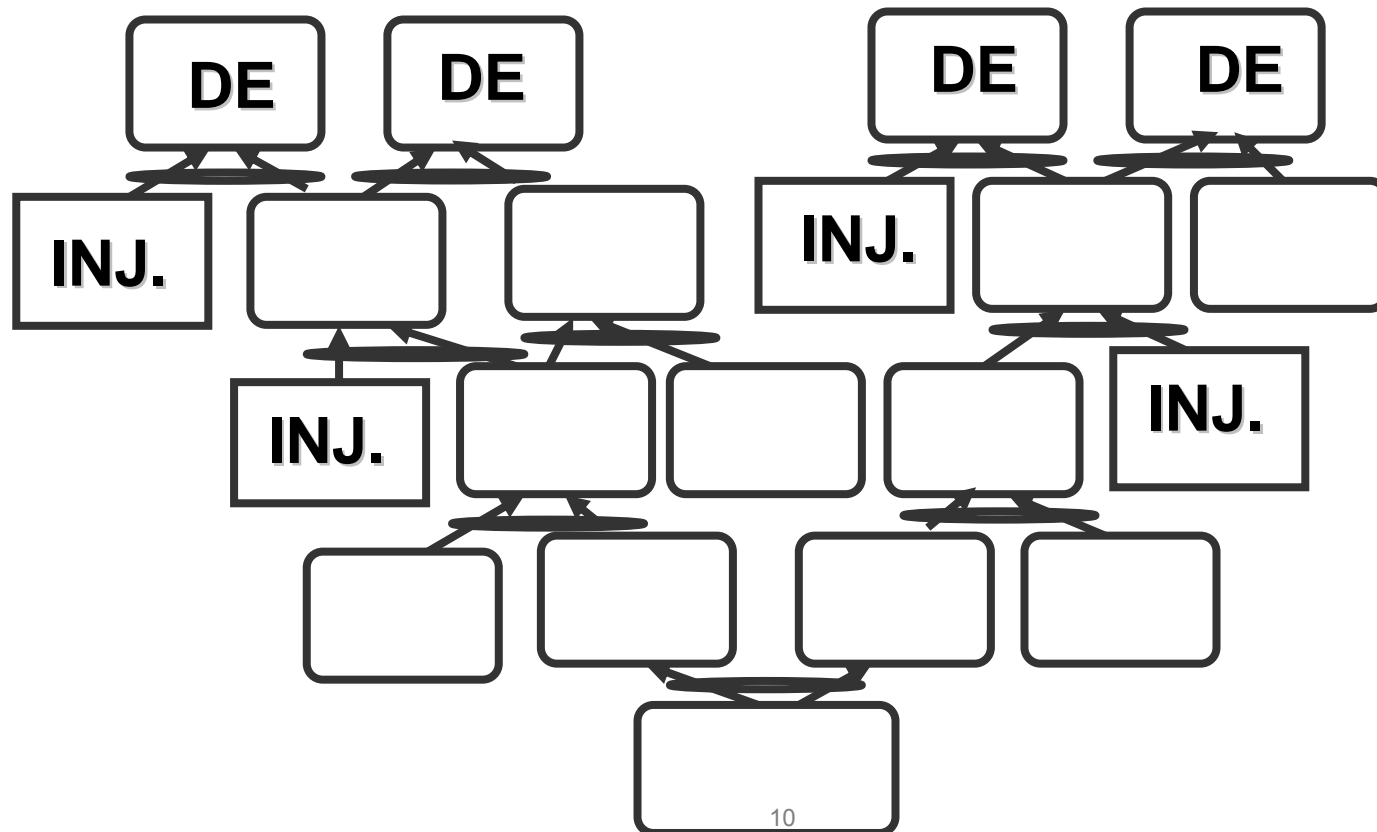
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- **DIRECTION OF THE SOLUTION: What must a good solution look like?**
- **UDEs converted to DEs.**
- **Additional requirements**

THINKING PROCESSES: Future Reality Tree

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- **DIRECTION OF THE SOLUTION:** The Injections really would convert the UDEs to DEs, the criteria for a good solution.



THINKING PROCESSES: Negative Branch

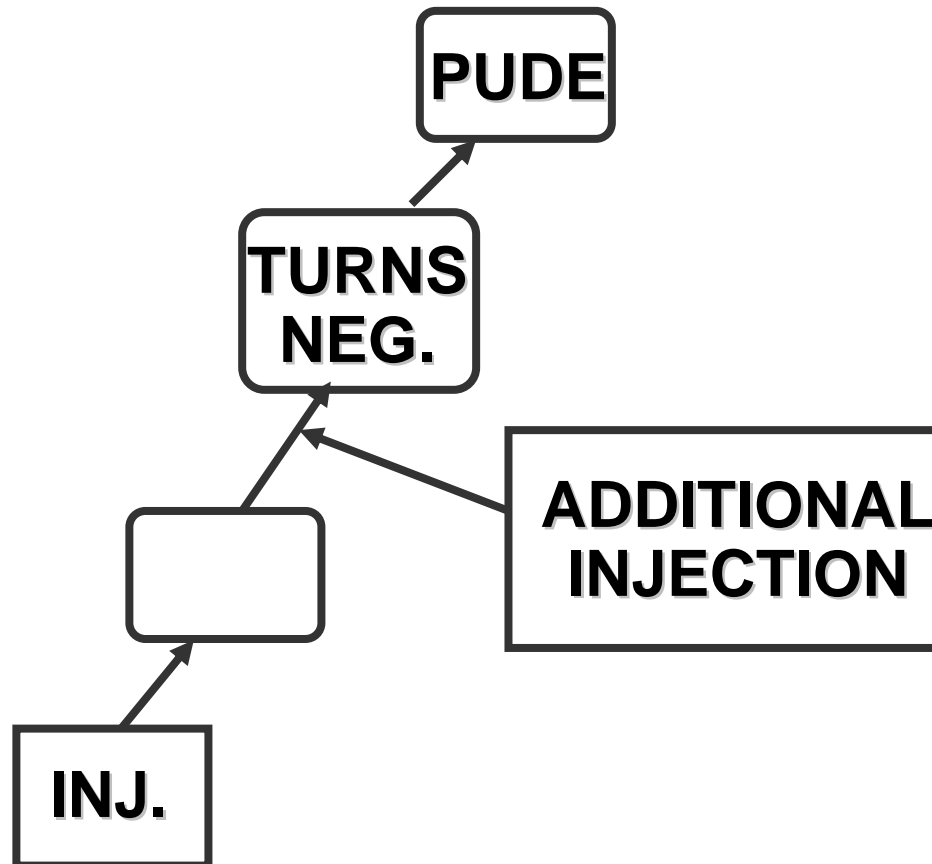
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- **NBR: Recognize potential UDEs (PUDEs) before they occur. The devil's advocate.**



THINKING PROCESSES: Negative Branch Reservation

- **NBR: Construct and trim the Negative Branch.**



THINKING PROCESSES: Intermediate - Objectives

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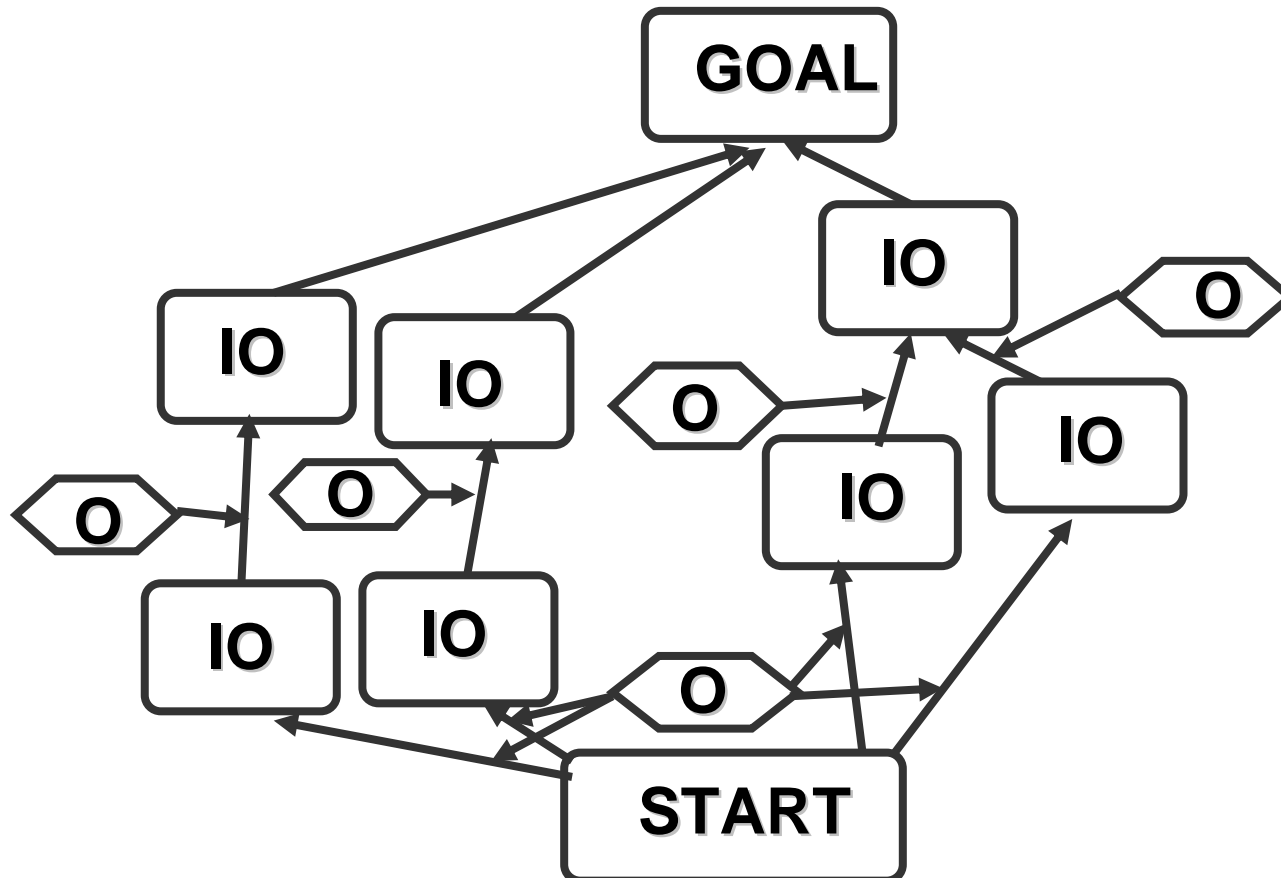
- **ACHIEVING THE AMBITIOUS OBJECTIVES. Overcoming Obstacles to achieving the injections and identifying Intermediate Objectives.**

OBSTACLE	INTERMEDIATE OBJECTIVE

THINKING PROCESSES: Prerequisite Tree

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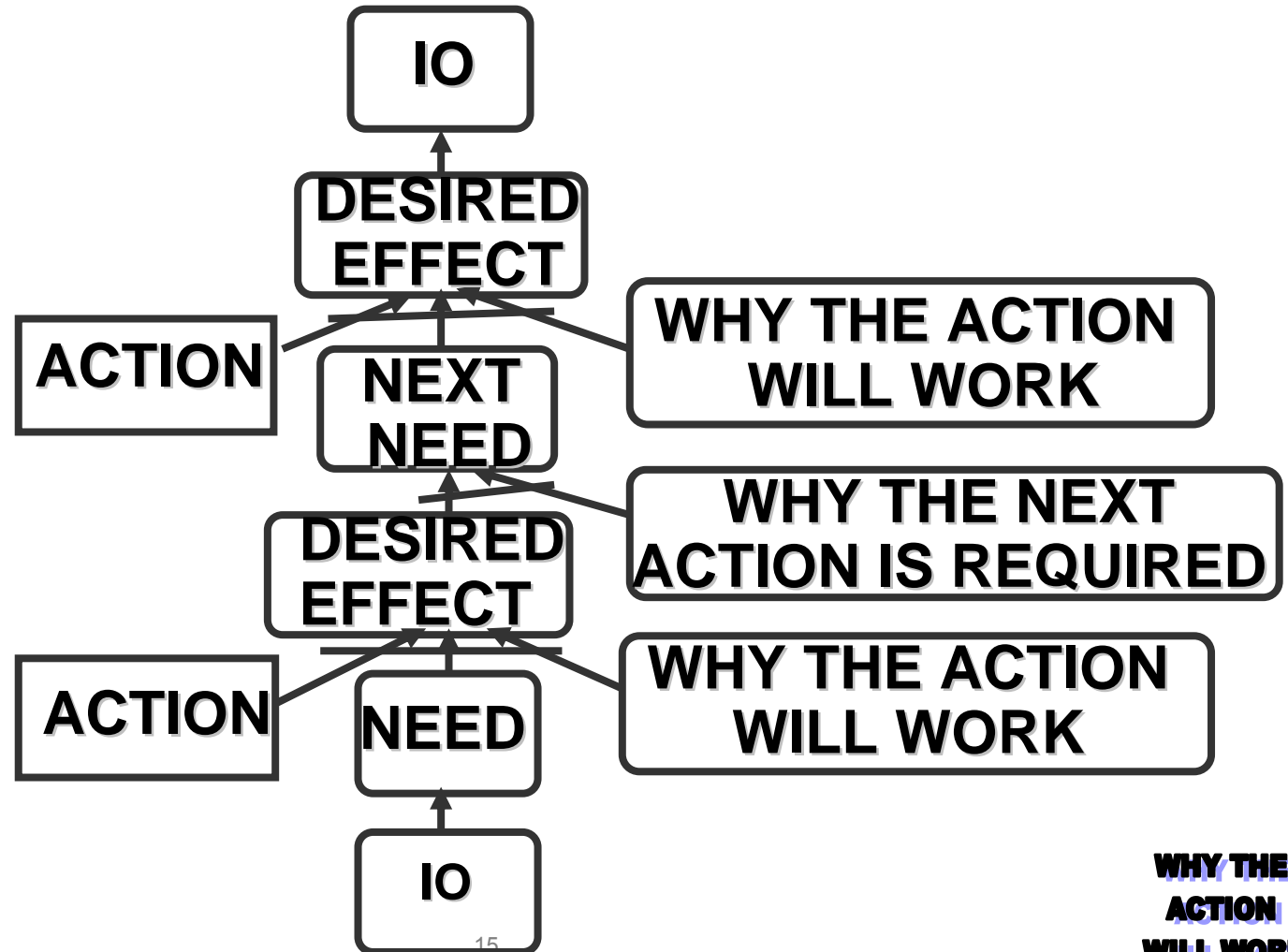
- IO MAP/PRT: SEQUENTIAL AND CONCURRENT



THINKING PROCESSES: Transition Tree

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- **TRANSITION TREE: Create procedures or action plans.**



**WHY THE
ACTION
WILL WORK**

THINKING PROCESSES: EXAM FAQs

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- **APPLICABLE TO BOTH TP EXAMS AND CASES**
- **TOCICO is not itself a teaching organization. For this reason, we do not provide detailed tutoring. The questions and answers below should provide sufficient guidance for most applicants. If more help is needed, a private instructor may prove helpful. Here are some frequently asked questions about the TOCICO Thinking Processes Exam and Case grading process.**



THINKING PROCESSES: EXAM FAQs

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- **1. How many graders will evaluate my exam or case study?**
- **Each exam or case study will be given to two graders. They will act independently and evaluate each case. If they agree, the results will be reported to the applicant by TOCICO Administration. If they do not agree, a third grader will be asked to grade the exam or case. That evaluation will be used by the Committee Chair and TOCICO Administration as a tie-breaker. The results will then be reported to the applicant.**



THINKING PROCESSES: EXAM FAQs

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- **2. What information will be reported to the applicant? Will they be told in detail what part(s) of the exam or case failed?**
- **No. Pass or fail will be reported, plus a list of the Thinking Processes that were considered inadequate.**



THINKING PROCESSES: EXAM FAQs

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- **3. What is meant by a “case study”?**
- **A case study is the story of how the Thinking Processes helped lead an organization from their current reality to an improved state. That includes showing how the people were brought through a culture change. Part of the evaluation of the case will be about how well the applicant pulled it all together.**



THINKING PROCESSES: EXAM FAQs

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- **4. Which Thinking Processes will be expected to have been included in the case study?**
- **Each case study should be comprehensive enough to include the following TP tools:**
- **-Identification of a Core Problem using several UDEs and a Current Reality Tree or Communications Current Reality Tree; or the three UDE method and the Core Conflict;**
- **-Injection, the direction of a solution;**
- **-Future Reality Tree to demonstrate that the direction of the solution does, in fact, remove the great majority, if not all, of the UDEs, turning them into Des;**
- **-Negative Branch Reservation and its resolution;**
- **-Prerequisite Tree outlining the base for a plan for implementation;**
- **Transition Tree.**

THINKING PROCESSES: EXAM FAQs

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- **5. What criteria will be used to evaluate my UDEs?**
- **An UDE should: be serious, be a condition not a lack of an activity, not blame anyone, happen frequently, have a serious negative outcome, not incorporate the solution within the statement.**



THINKING PROCESSES: EXAM FAQs

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- **6. What criteria will be used to evaluate my clouds?**
- **Is the language in each entity a whole sentence, sufficiently clear and unambiguous? Does each entity avoid internal causality, and not contain words like because, due to, in order to?**
- **Is “A” a mutually-held objective common to both “B” and “C”?**
- **Are “B” and “C” true needs necessary to the achievement of “A” and not in conflict with each other? Are both B and C needs that are acceptable and supportable?**
- **Are “D” and “D’” verbalized as actions needed to satisfy the needs “B” and “C”?**
- **Does “D” jeopardize “C” and does “D’” jeopardize “B”?**
- **Are “D” and “D’” in apparent conflict? They cannot co-exist.**



THINKING PROCESSES: EXAM FAQs

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- **7. What criteria will be used to evaluate the way I evaporate my cloud?**
- **Are the assumptions which surfaced from the cause and effect arrows logical and clearly stated?**
- **Why was the assumption chosen for evaporation the best one to choose?**
- **Does the proposed injection invalidate an assumption?**
- **Was more than one assumption identified?**
- **Was more than one injection considered?**



THINKING PROCESSES: EXAM FAQs

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- **8. What criteria will be used to evaluate my injection?**
- **Is the injection a state, not an action, how we want the system to be that does not currently exist, not something we can do, but what will result?**
- **Does the direction of the solution solve the core conflict?**
- **Does it solve the conflict without compromise, a true win-win?**



THINKING PROCESSES: EXAM FAQs

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- **9. What criteria will be used to evaluate my negative branch reservation and its resolution?**
- **Is the negative branch reservation a possible negative outcome or ramification of the injection after it has been implemented?**
- **Is the logical connection between the injection and the possible undesired effect (PUDE) clearly shown?**
- **Are sufficient existing explanatory assumptions included to demonstrate the logic leading to the intermediate entities?**
- **Does each supporting injection trim a negative outcome?**

THINKING PROCESSES: EXAM FAQs

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- **10. What criteria will be used to evaluate my intermediate objectives road map?**
- **Does the injections road map show the logical sequence needed for implementing the injections?**
- **Were reasonable implementation obstacles presented for each solution component?**
- **Were the obstacles paired with intermediate objectives?**
- **Are the intermediate objectives stated as tangible, or measurable, outcomes?**
- **Are the intermediate objectives sufficient to overcome the obstacles?**
- **Have the obstacles been incorporated into an injection road map, resulting in an intermediate objectives map?**
- **Is the intermediate objectives road map sufficient to be used as the start of a project plan for implementation of the solution?**

THINKING PROCESSES: EXAM FAQs

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- **11. What additional criteria will be used for evaluating the overall effectiveness of the application of my thinking processes?**
- **Was the problem significant and clearly explained?**
- **What conditions affected the implementation?**
- **What corrections or adjustments were necessary?**
- **What special problems were faced and how were they solved?**
- **What was the outcome?**



THINKING PROCESSES: EXAM FAQs

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- **12. In general, are there others things I should watch out for?**
- **All TOC terms should be used consistent with the current edition of the TOC Dictionary that can be found on the TOCICO web site (certification>dictionary).**
- **The study should focus on significant and important system effectiveness.**
- **TOC thinking processes should be used while recognizing the noise in the system (see W. A. Shewhart and W. E. Deming's special v. common cause variations).**

THINKING PROCESSES: EXAM FAQs

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- **What general standards will be used to evaluate my work?**
- **Three phases of the Categories of Legitimate Reservation (CLR- clarity, effect-cause-effect existence, sufficiency + ?), the Three (POOGI) Questions of Continuous Improvement, the five (6) layers of Buy-In, especially clarity and logic.**



PRACTICE: what to change

- **Describe the situation, the environment, your position, the goal, necessary conditions, policies, measures, behaviors, regulations, competition, pressures, etc.**

PRACTICE: what to change- Method 1

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- **Identify 6-8 UDEs**



PRACTICE: what to change- Method 1

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- **Connect them with effect-cause-effect arrows as appropriate**

PRACTICE: what to change- Method 1

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- **Fill in the missing links with causal statements**

PRACTICE: what to change- Method 1

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- **Dive as deep as necessary to uncover the root cause, the problem, the entity that is linked to “causes” all or almost all of the UDEs.**
- **If you go a little deeper, you will find the core conflict. The core problem is an erroneous assumption behind an arrow in the core conflict.**
- **The core problem is “what to change”**

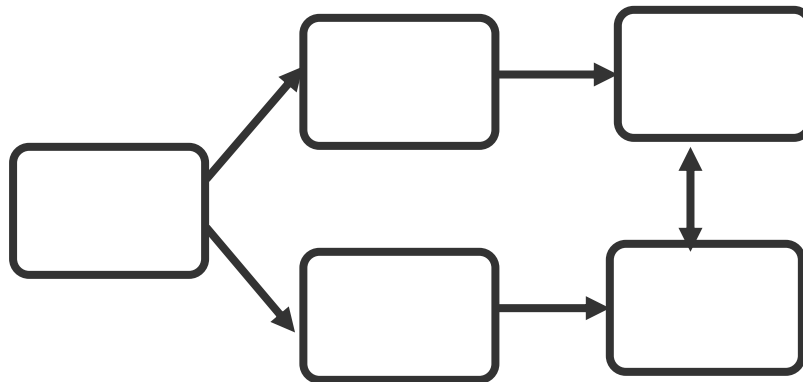


PRACTICE: what to change- Method 2

- **Write down three UDEs in the space below.**
- **1.**
- **2.**
- **3**

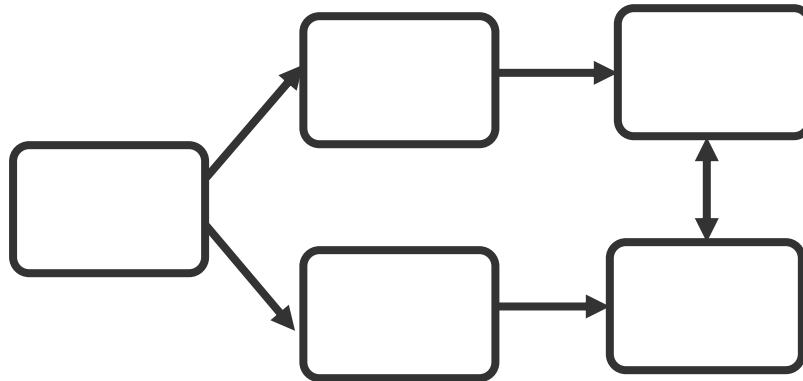
PRACTICE: what to change- Method 2

- **One UDE Cloud #1**



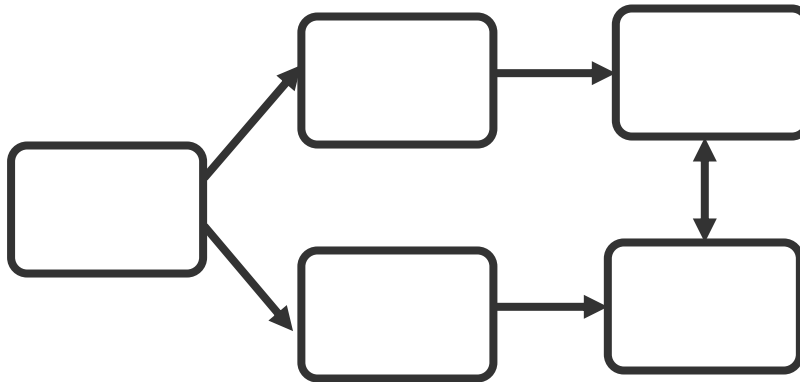
PRACTICE: what to change- Method 2

- One UDE Cloud #2



PRACTICE: what to change- Method 2

- **One UDE Cloud #3**

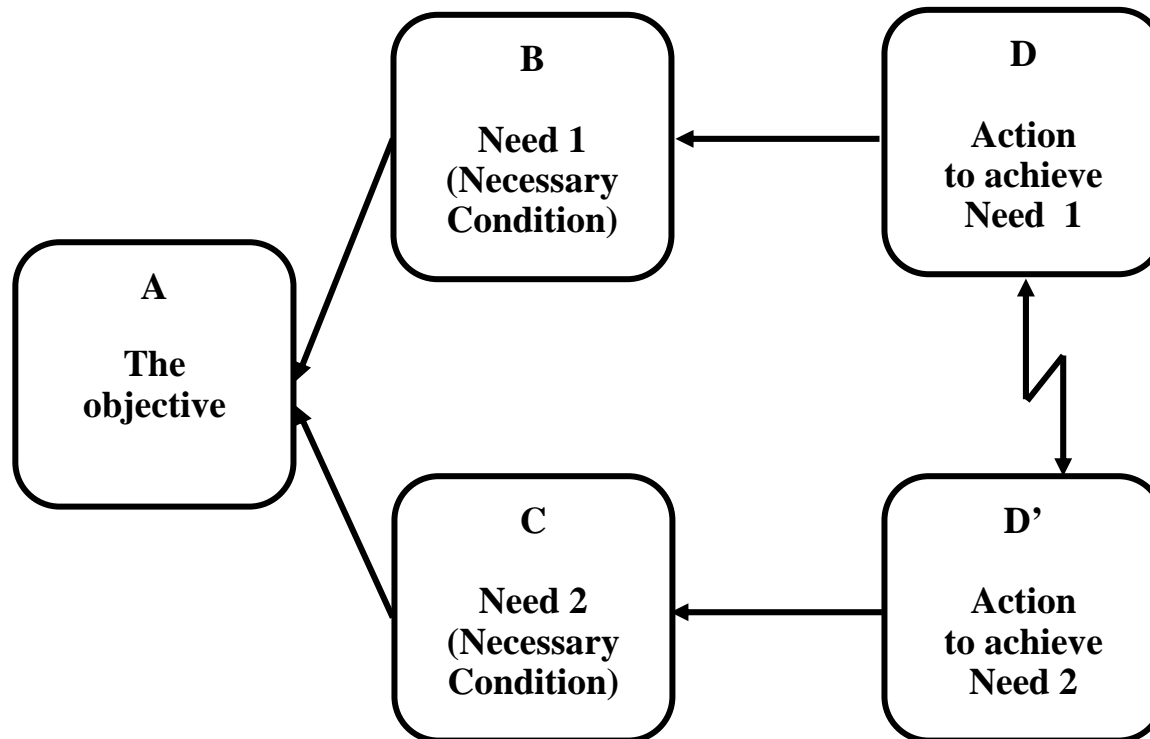


PRACTICE: what to change- Method 2

- **Consolidate the three clouds into one.**
- **$A1+A2+A3=A$**
- **$B1+B2+B3=B$**
- **$C1+C2+C3=C$**
- **$D1+D2+D3=D$**
- **$D'1+D'2+D'3=D'$**

PRACTICE: what to change- Method 2

- Draw the generic conflict, read and adjust.



PRACTICE: what to change- Method 2

- **The organization's inability to do both D and D' at the same time, but instead to either opt for one or the other or, more likely, to vacillate between the two, causes performance problems. This outcome is because the erroneous assumption behind one of the arrows has not been removed. The solution is to discover the erroneous assumption, devise an injection that invalidates it and thus evaporate the conflict and provide the direction of a solution.**

PRACTICE: what to change

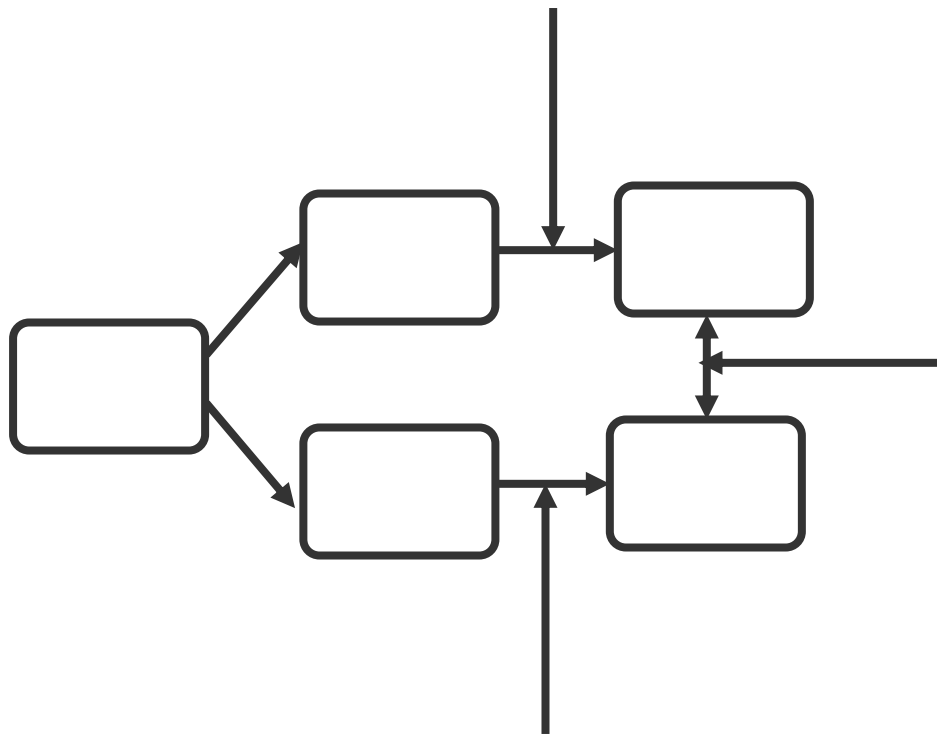
- **Agreement on the problem. How does the conflict cause the UDEs? The CRT demonstrates that the problem is truly the problem, and thus produces agreement on the problem. For this purpose, the CRT need not include all of the detail that is needed in order to discover the root cause. It must still be clear and unequivocal.**

PRACTICE: What to change to?

- **How do you behave in the presence of this conflict?**
- **Why does the core conflict exist?**
- **What is the cost of a failure to resolve it?**
- **How should we resolve it? What will a solution look like?**

PRACTICE: What to change to?

- **Surface assumptions: direction of the solution**



PRACTICE: What to change to?

- **An injection is:**
 - A condition that does not exist
 - Not an action
- **What are all the conditions that would have to exist in order for the injection to exist?**

PRACTICE: What to change to?

- **FRT.**
 - **Demonstrates how your solution would overcome the UDEs, turn them all into DEs, and accomplish your stated purpose.**
- **Remember, a solution is NOT a compromise.**

PRACTICE: What to change to?

- **NBR. If your solution was implemented exactly as you specified, what negative outcomes might there be?**
 - Describe and diagram.
 - Injection at the bottom and outcome at the top.
 - Include causations.
 - If the why exists now, set it off to the side.
 - If it results from the injection, put it in the trunk of the tree.

PRACTICE: What to change to?

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- **Why will it turn negative?**
 - **Identify when the tree turns negative.**
 - **Develop a supporting injection that will maintain a positive trunk and trim the negative outcome.**



PRACTICE: What to change to?

- **What should be the characteristics of a good solution?**
- **Does your proposed solution, meet all of these characteristics?**
- **If not, what else needs to be part of your solution?**
- **Any reservations?**

PRACTICE: How to cause the change

- **Obstacles.**
- **Construct an Injections Roadmap.**
- **What are the obstacles to implementing it?**
- **Obstacle are:**
 - **Complete statement**
 - **Not a PUDE**
 - **Specific**
 - **Significant**

PRACTICE: How to cause the change

- **Don't write the IO as the opposite of an O.**
- **Construct an obstacle conflict cloud.**

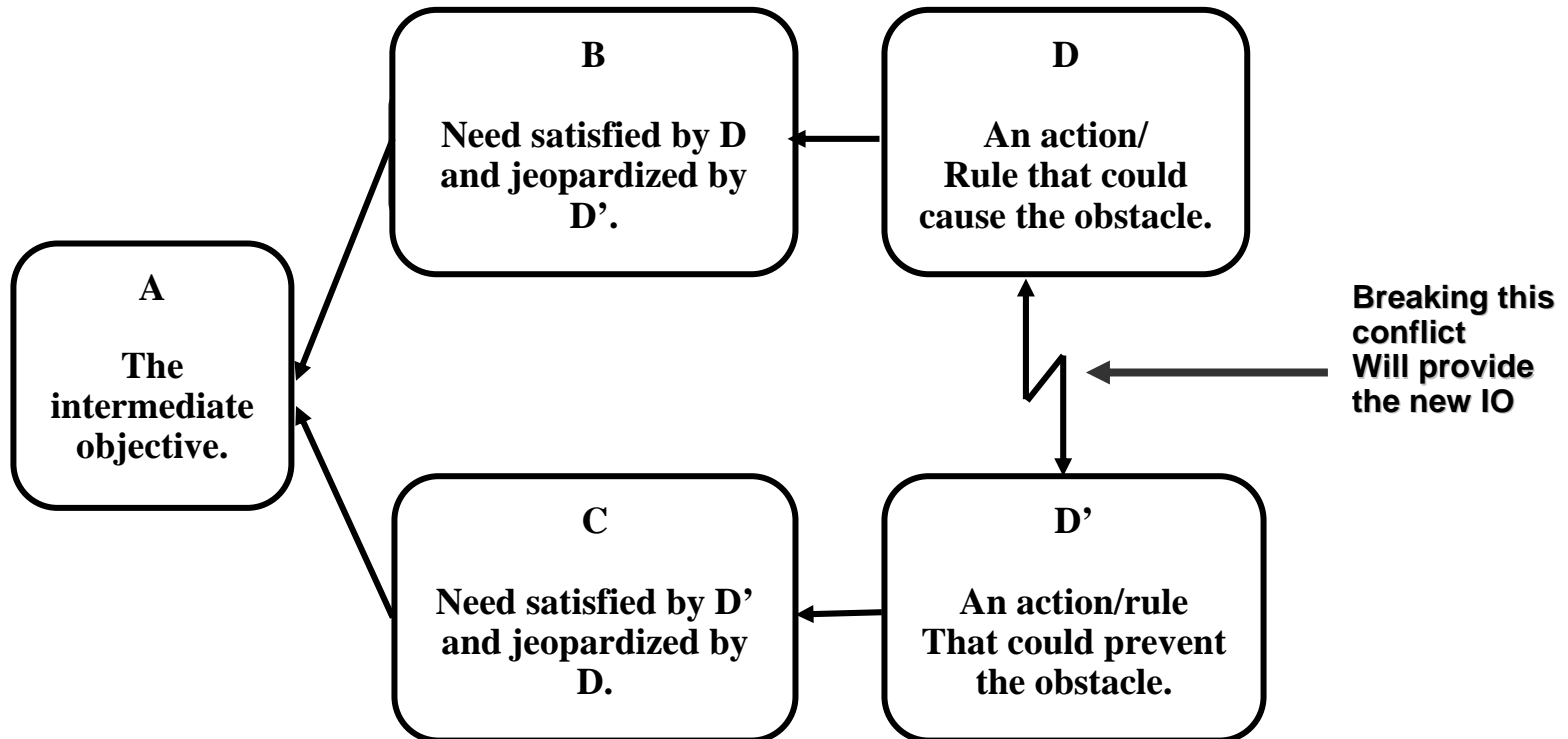
PRACTICE: How to cause the change

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- **For each obstacle, identify the intermediate objective(s) that would overcome it.**
- **IOs are tangible objectives.**
- **Conditions that, if they existed, would make the obstacle of no consequence.**

PRACTICE: How to cause the change

- **Obstacle conflict cloud**



PRACTICE: How to cause the change

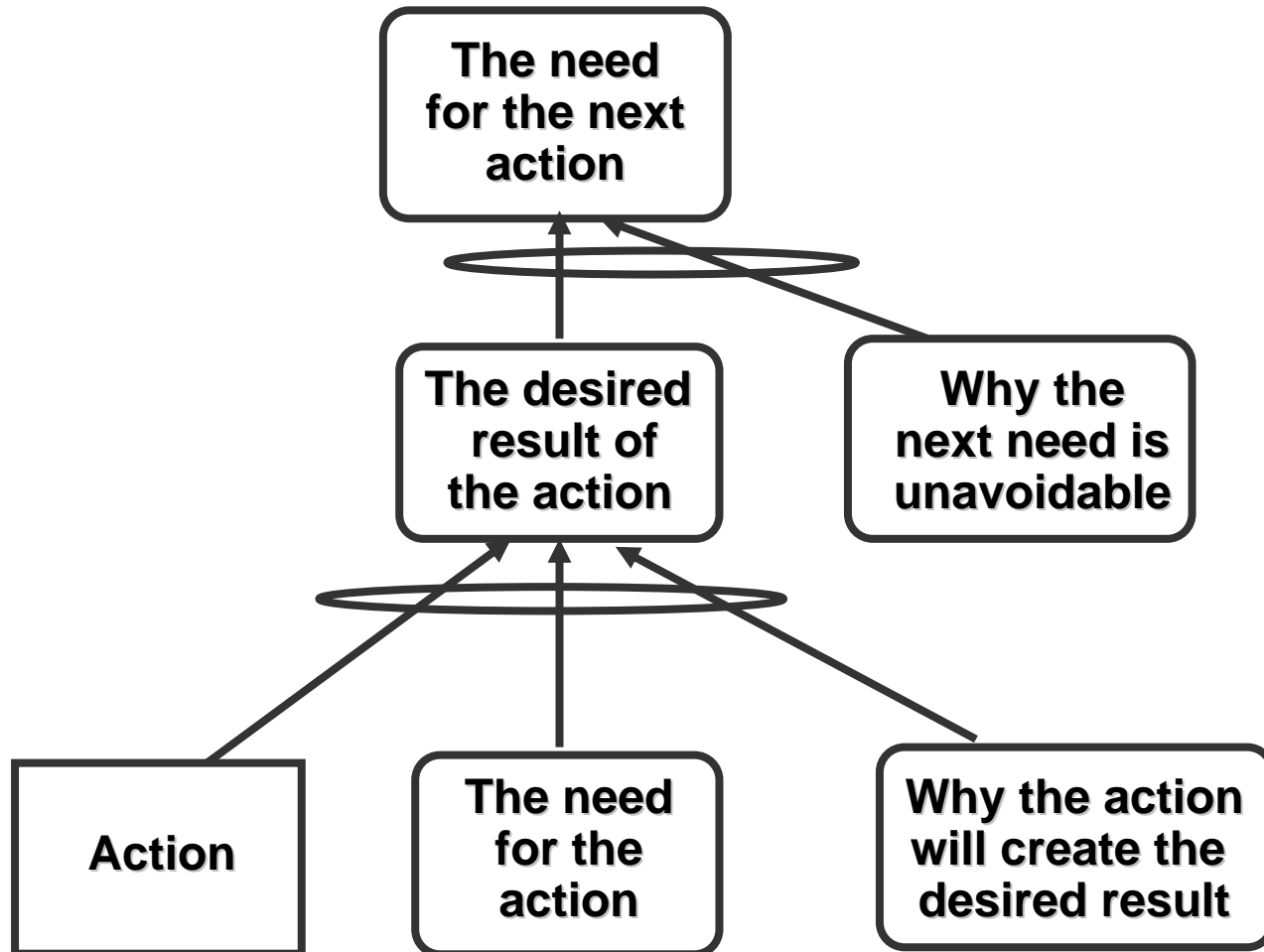
- **PrT.**
- **Add the IOs to the injection map.**
- **This becomes the draft implementation plan.**

PRACTICE: How to cause the change

- **TrT.**
- **Ensures that the project is implemented successfully.**
- **Take all of the IOs from the PrT and make them the backbone of your TrT.**
- **Add the actions, in order, that will accomplish each IO. They do not yet exist.**
- **Add the repeating logic to ensure understanding and increase the probably of correct implementation. These are all in current existence.**

PRACTICE: How to cause the change

- TrT



About Alan H. Leader

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- Dr. Alan Leader received his bachelor's and master's degrees from the University of Rochester and his doctorate in business from Indiana University. In addition to several years of industrial experience, he taught Management at Western Michigan University and the University of Guam, earning tenure and the rank of Professor at both institutions. He was appointed Dean of the College of Business and Public Administration at the University of Guam and subsequently Dean of the School of Business and Economics at Southern Connecticut State University. Dr. Leader was named Dean Emeritus by SCSU, moved to Seattle and taught TOC at Seattle University. He is a Certified Mediator and consults under the name Leader Associates. Dr. Leader is a Jonah's Jonah and is on the faculty of the Goldratt Schools. He is Chair of the TOCICO Thinking Process Committee.***

