The Theory of Constraints (TOC) Thinking Processes

Demi B. Yilmaz
Twitter: @demiculus
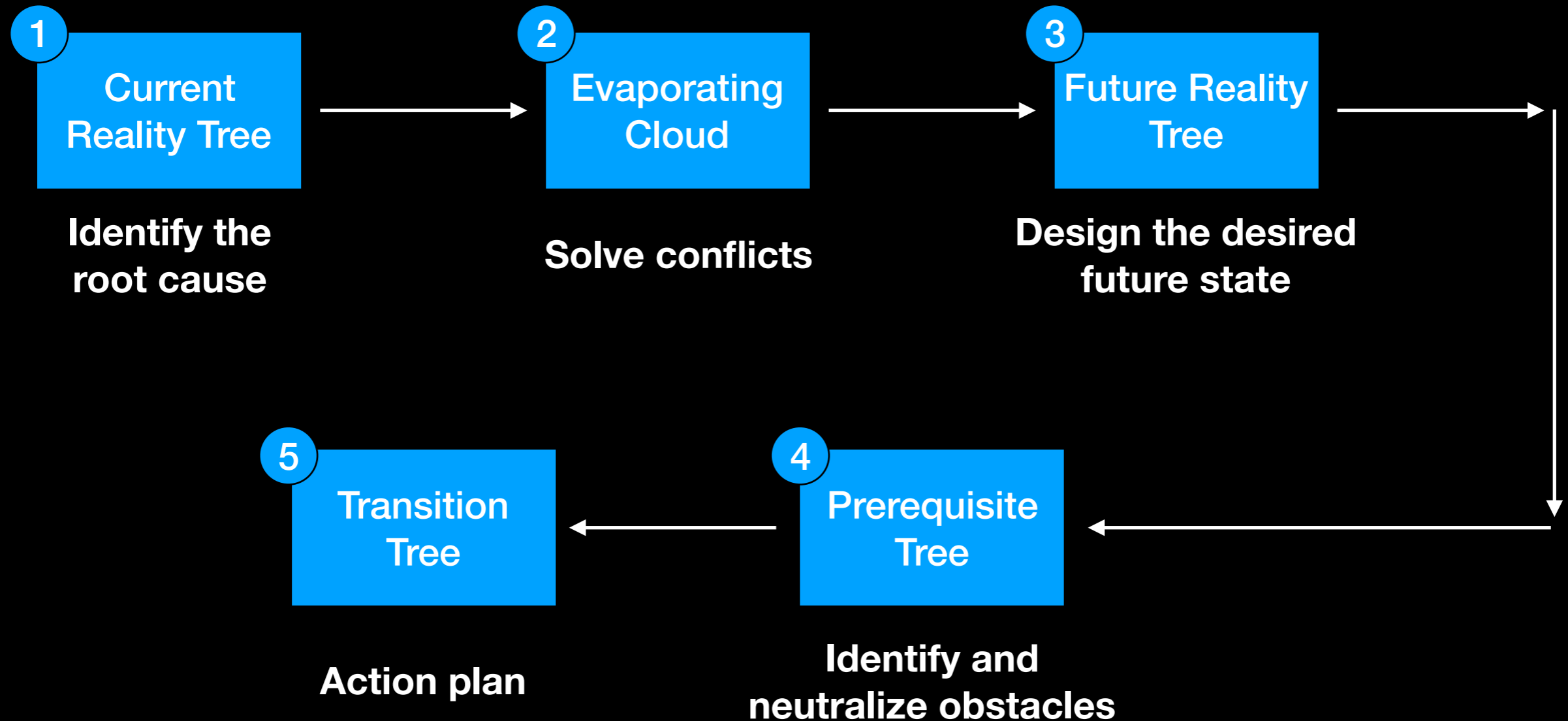**demiculus.com**

Purpose

Translate intuition to a format that can be discussed rationally
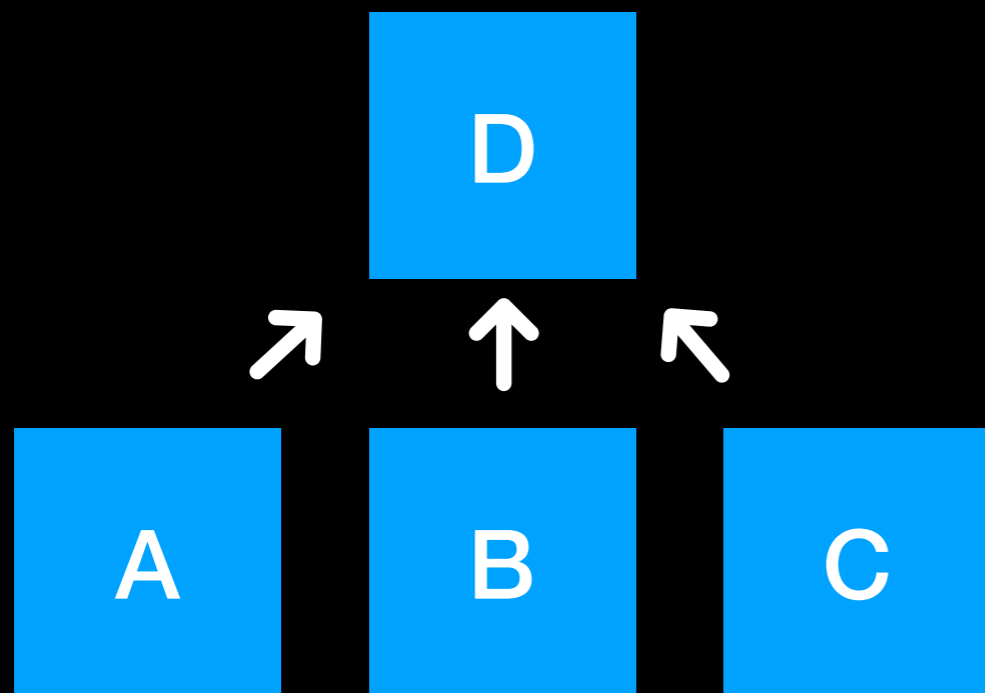
3 Key Questions

Three key questions in any improvement process:

1. What to change?
2. What to change to?
3. How to make that change?

4. Why change?
5. How to maintain the process of ongoing improvement (POOGI)?

Thinking Processes - Elements & Flow

1 Current Reality Tree → **2** Evaporating Cloud → **3** Future Reality Tree

Identify the root cause

Solve conflicts

Design the desired future state

5 Transition Tree ← **4** Prerequisite Tree ←

Action plan

Identify and neutralize obstacles
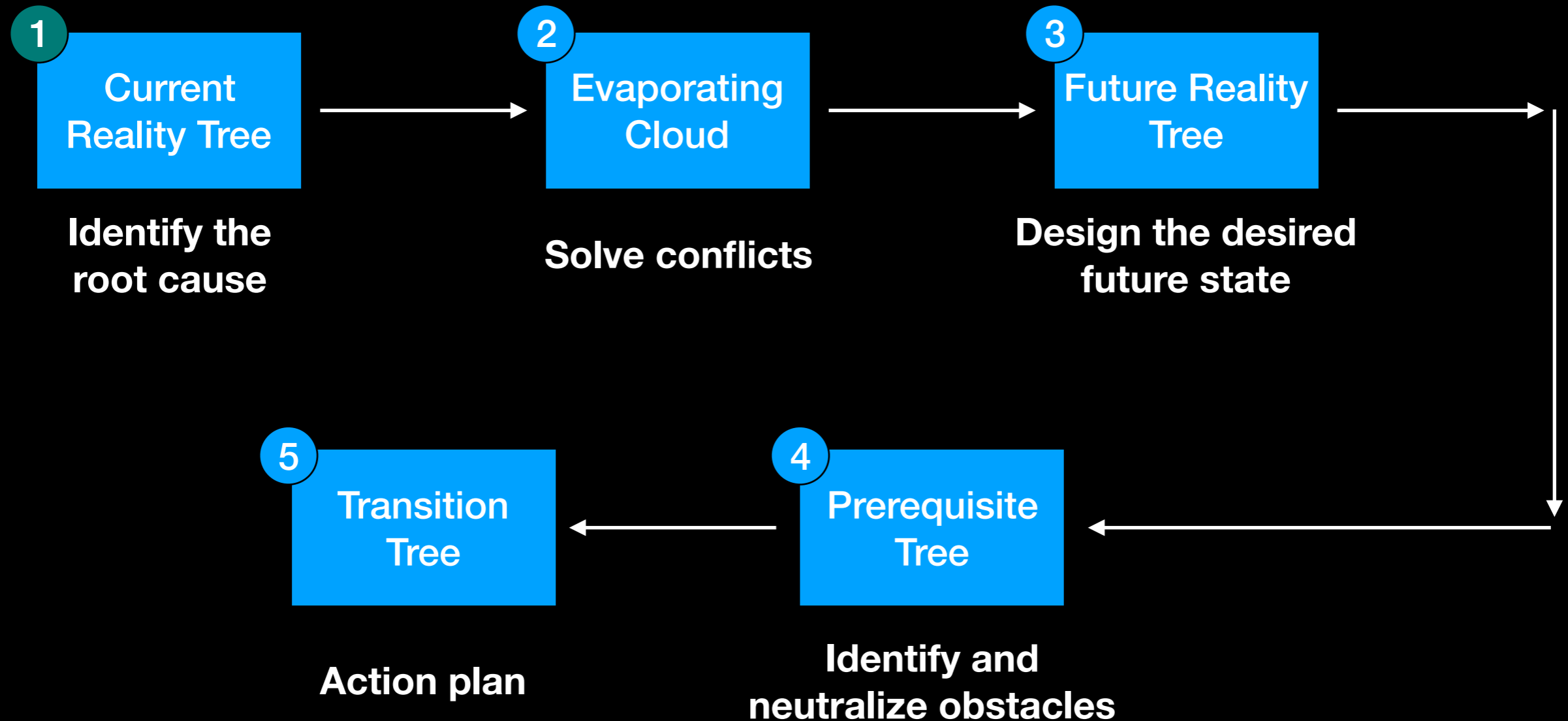
Sufficiency & Necessity Logic

If A, and if B, and if C, then D

because
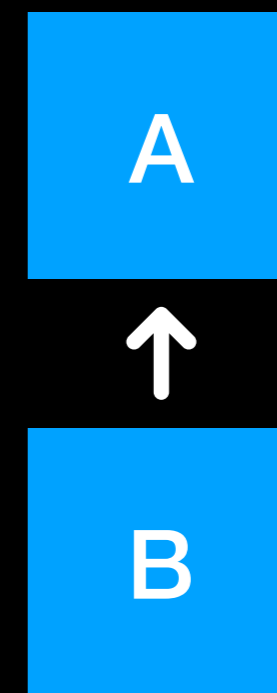
In order to A, we must B

because

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Current Reality Tree (CRT)
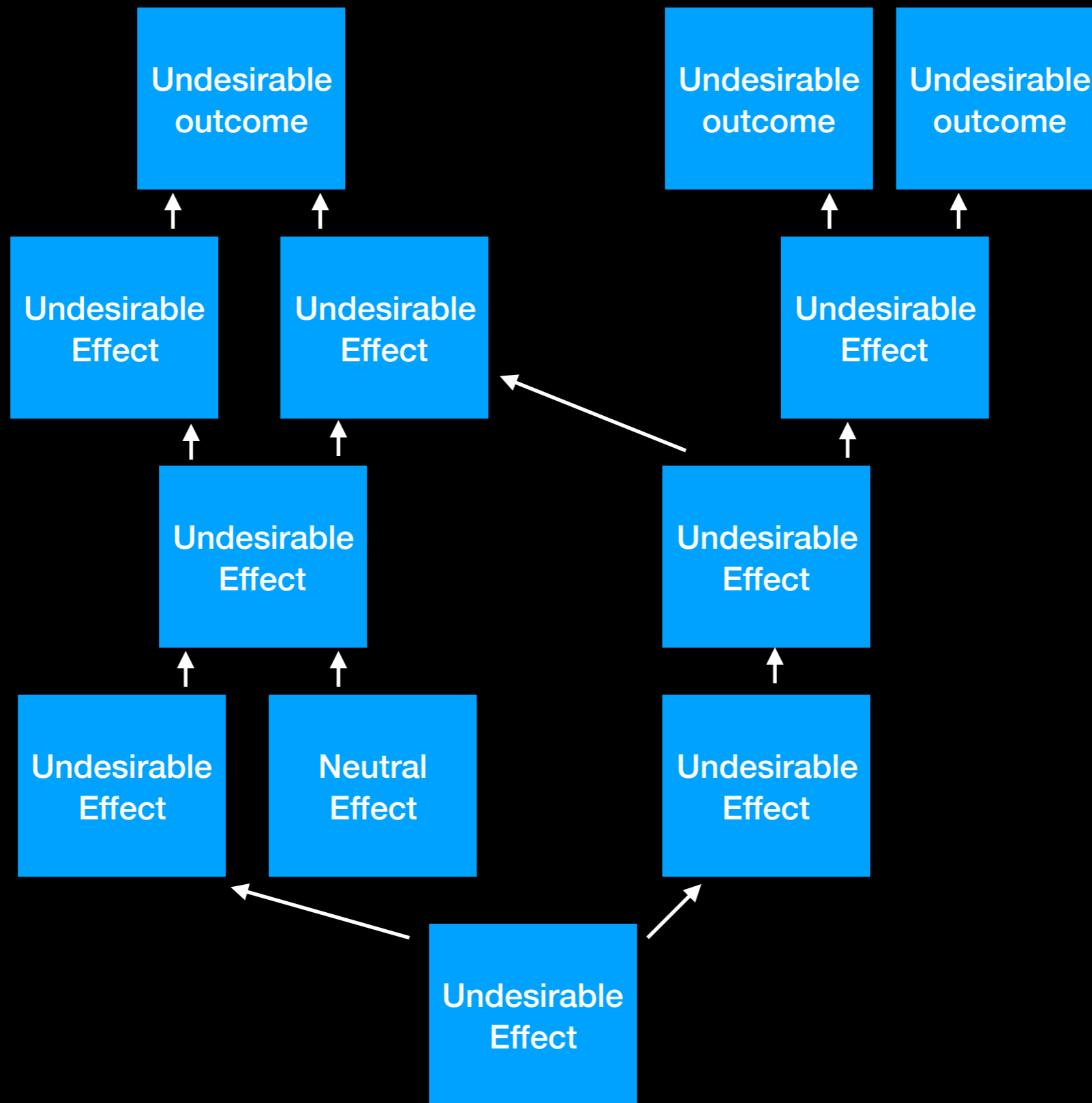
Current Reality Tree (CRT)

1. Create a list of UDEs (undesirable effects)

|		
1. We don't have sufficient stable income	2. We don't have much recognition in TR	3. We're not working on any project
4. We don't have cash-flow to hire more people	5. We're not marketing	6. We don't have many outsiders investing in our capital
7. We're playing too much games	8. Our environment is stagnant	

Current Reality Tree (CRT)

2. Arrange UDE's according to cause and effect

4. We don't have cash-flow to hire more people

1. We don't have sufficient stable income

7. We're playing too much games

3. We're not working on any project

6. We don't have many outsiders investing in our capital

2. We don't have much recognition in TR

5. We're not marketing

8. Our environment is stagnant
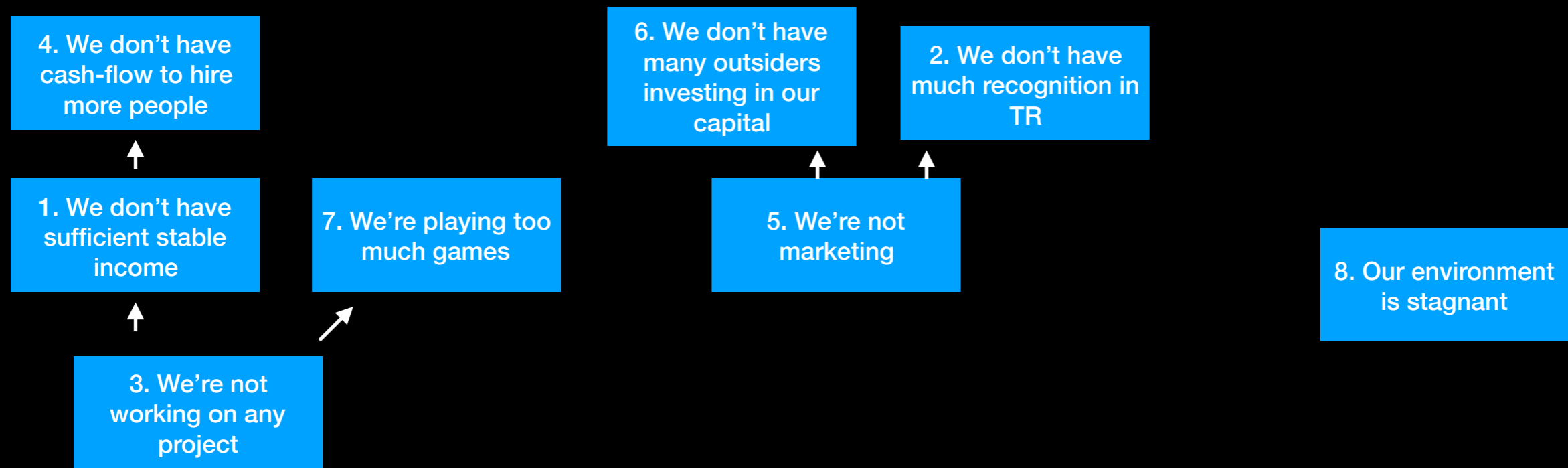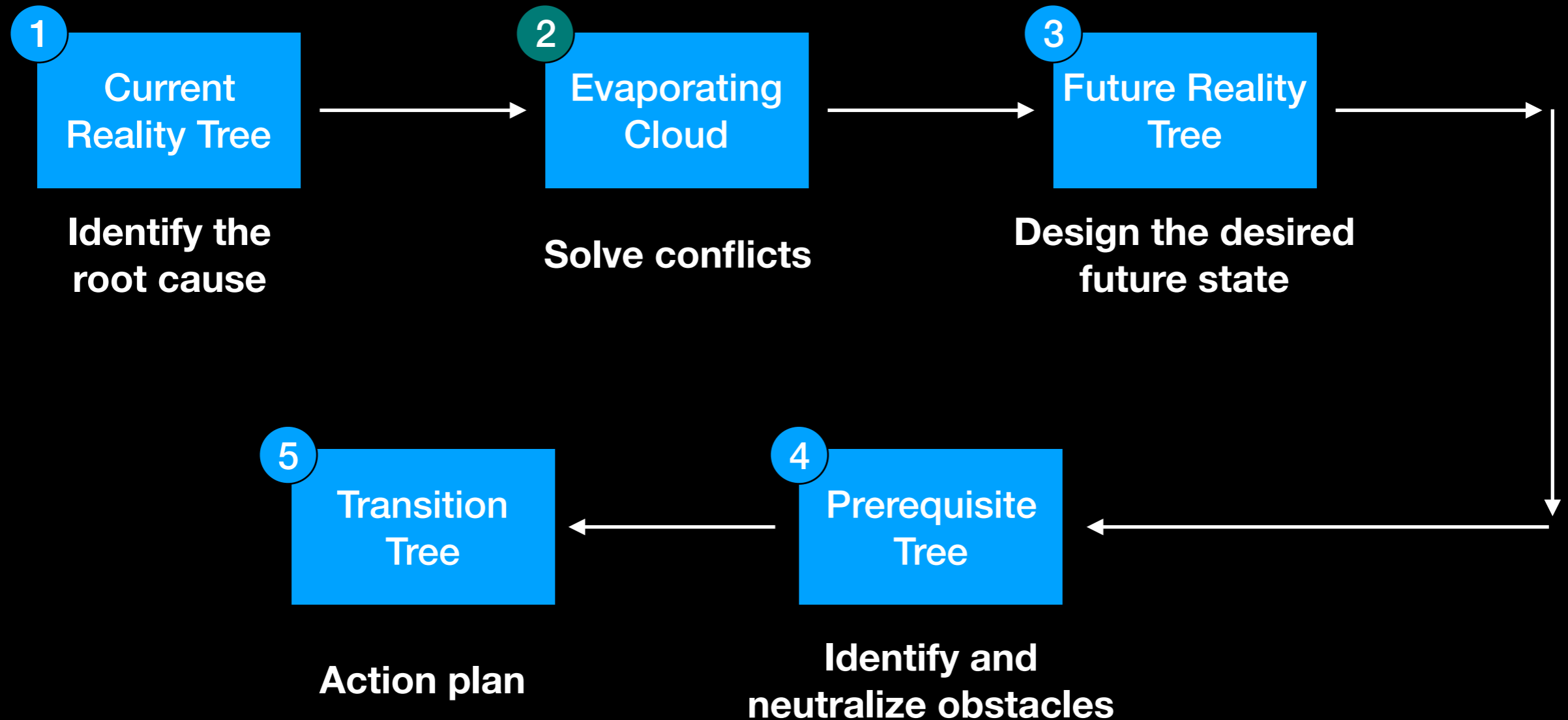
We can read the relationship as if UDE-3 then UDE-1 & UDE-7. If UDE-1 then UDE-4.

Current Reality Tree (CRT)

3. Build down from these systems to deeper underlying causes

4. We don't have cash-flow to hire more people

6. We don't have many outsiders investing in our capital

2. We don't have much recognition in TR

8. Our environment is stagnant

1. We don't have sufficient stable income

7. We're playing too much games

5. We're not marketing

UDE: We're living in a stagnant place

We're not taking action to build our environment

3. We're not working on any project

UDE: We're not sure what we should be marketing

UDE: We're comfortable in our comfort zone

Neutral Effect: We've prepaid for the house/city

UDE: We're not sure what we should be doing

UDE: We're not sure building this environment will be good use of time

UDE: We're too afraid to do the wrong thing

UDE: We judge each other too much

UDE: We don't want to waste time

NE: We want to spend time on high ROI tasks

Thinking Processes - Elements & Flow

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Evaporating Cloud (EC)

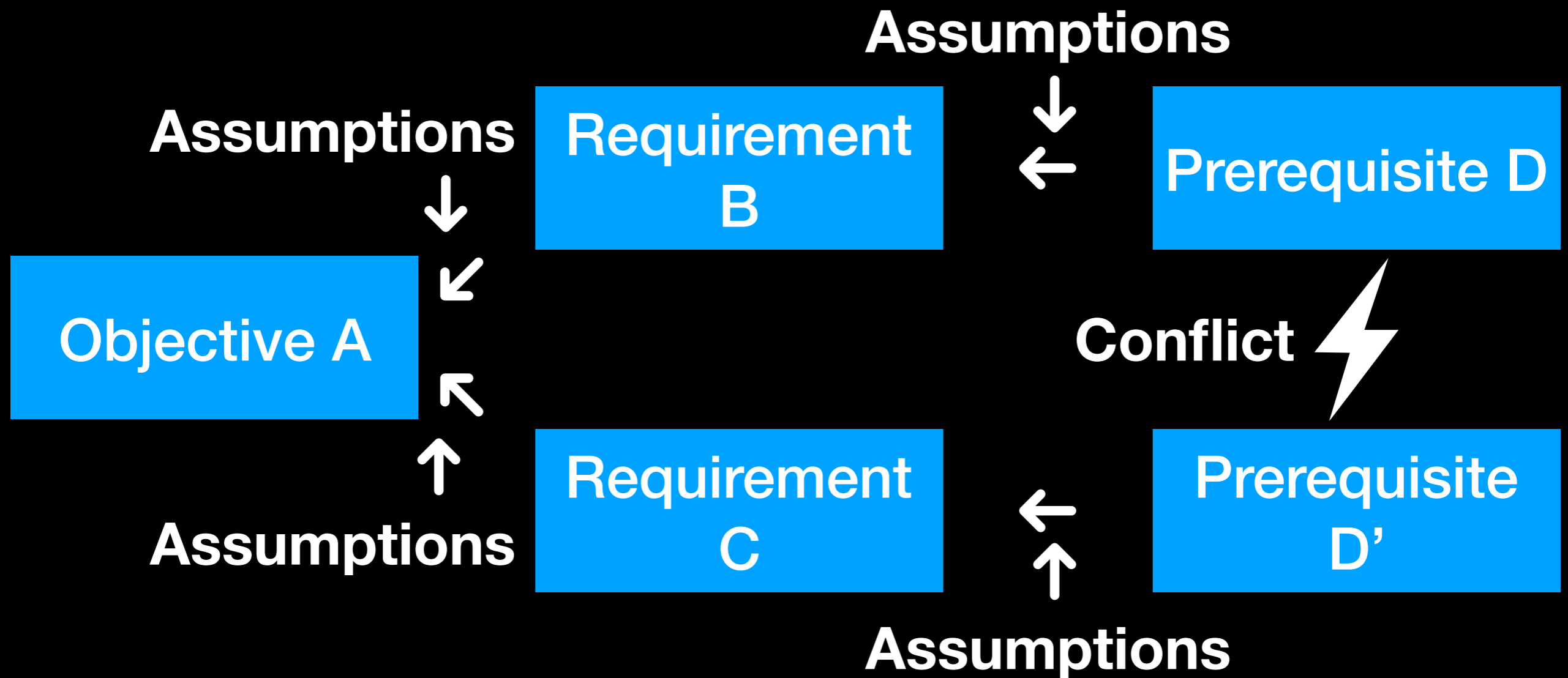Requirement B ← Prerequisite D

Objective A

Conflict ⚡

Requirement C ← Prerequisite D'

- In order to have objective A, it is necessary to have requirement B...
- In order to have requirement B, it is necessary to have prerequisite D...
- In order to have objective A, it is necessary to have requirement C...
- In order to have requirement C, it is necessary to have prerequisite D'...
- But prerequisites D and D' are in conflict...
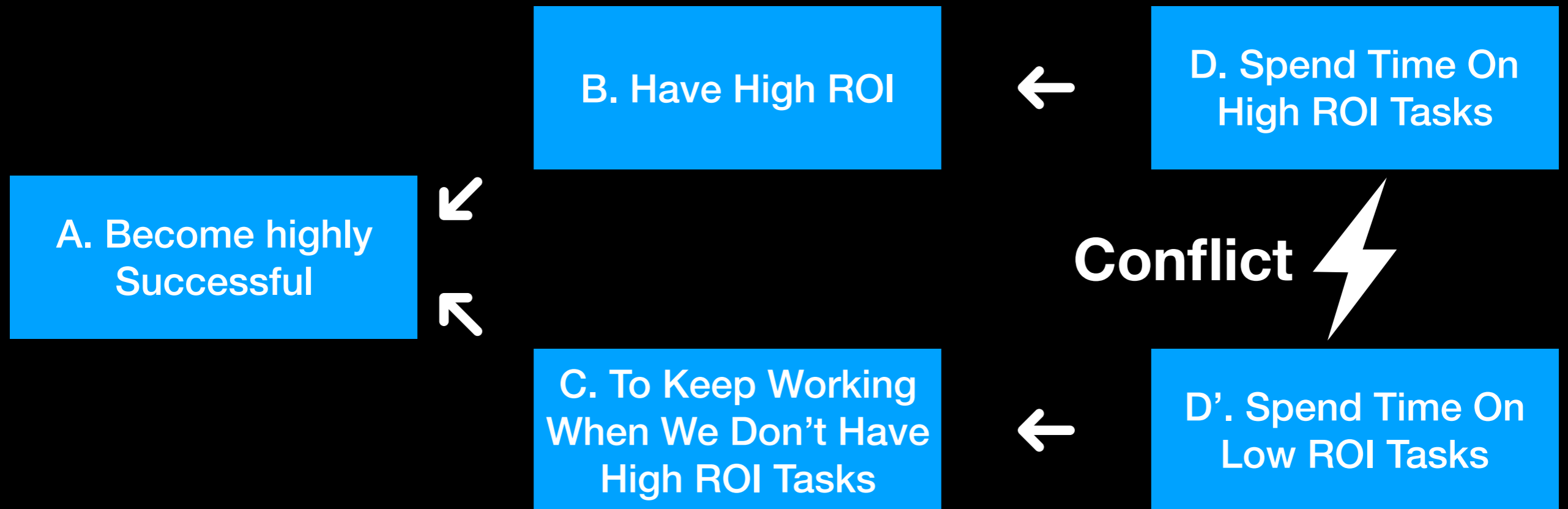
Evaporating Cloud (EC)

Assumptions

Assumptions

| Requirement B |

Prerequisite D

Objective A

Conflict ⚡

| Requirement C |

Prerequisite D'

Assumptions

Assumptions

- Assumptions are revealed with the 'because' statement
- Find the weak assumption and remove it

Creating the Evaporating Cloud
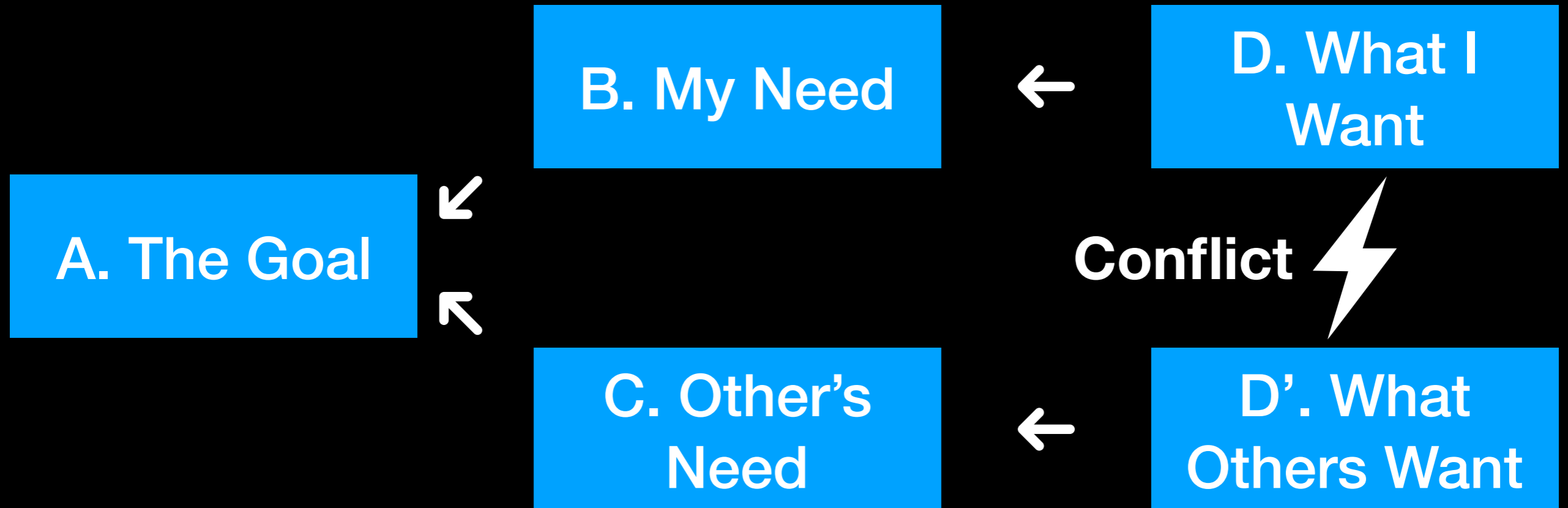
B. My Need ← **D. What I Want**

A. The Goal

Conflict ⚡

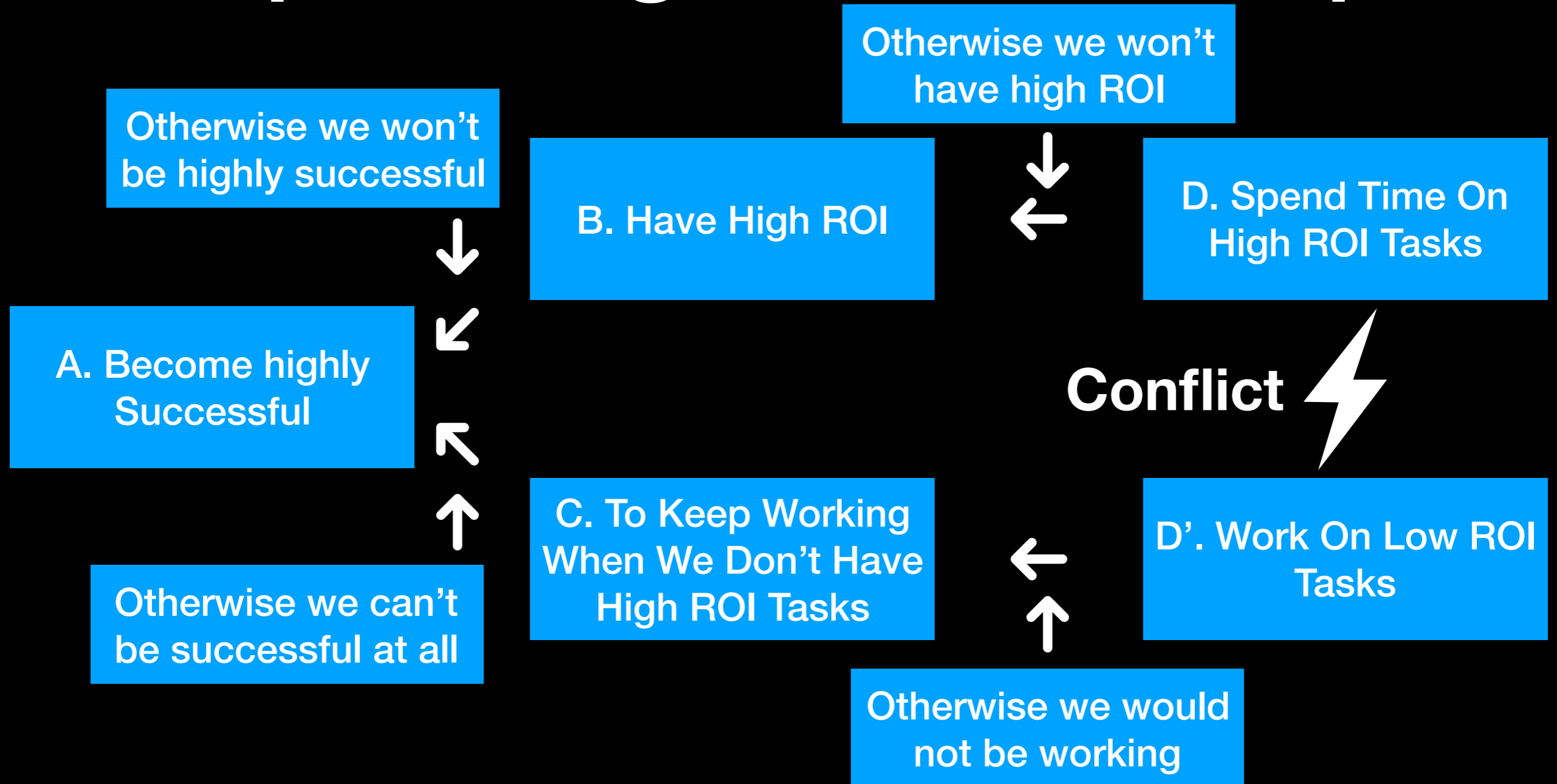**C. Other's Need** ← **D'. What Others Want**

1. What is that thing I'm having trouble getting? (D)
2. What is that thing I don't want others to have? (D')
3. Why do I want what I want? (B)
4. Why do the others want what they want? (C)
5. What goal do we share mutually? (A)

Creating the Evaporating Cloud

| B. Have High ROI | ← | D. Spend Time On High ROI Tasks |

Conflict

| A. Become highly Successful |

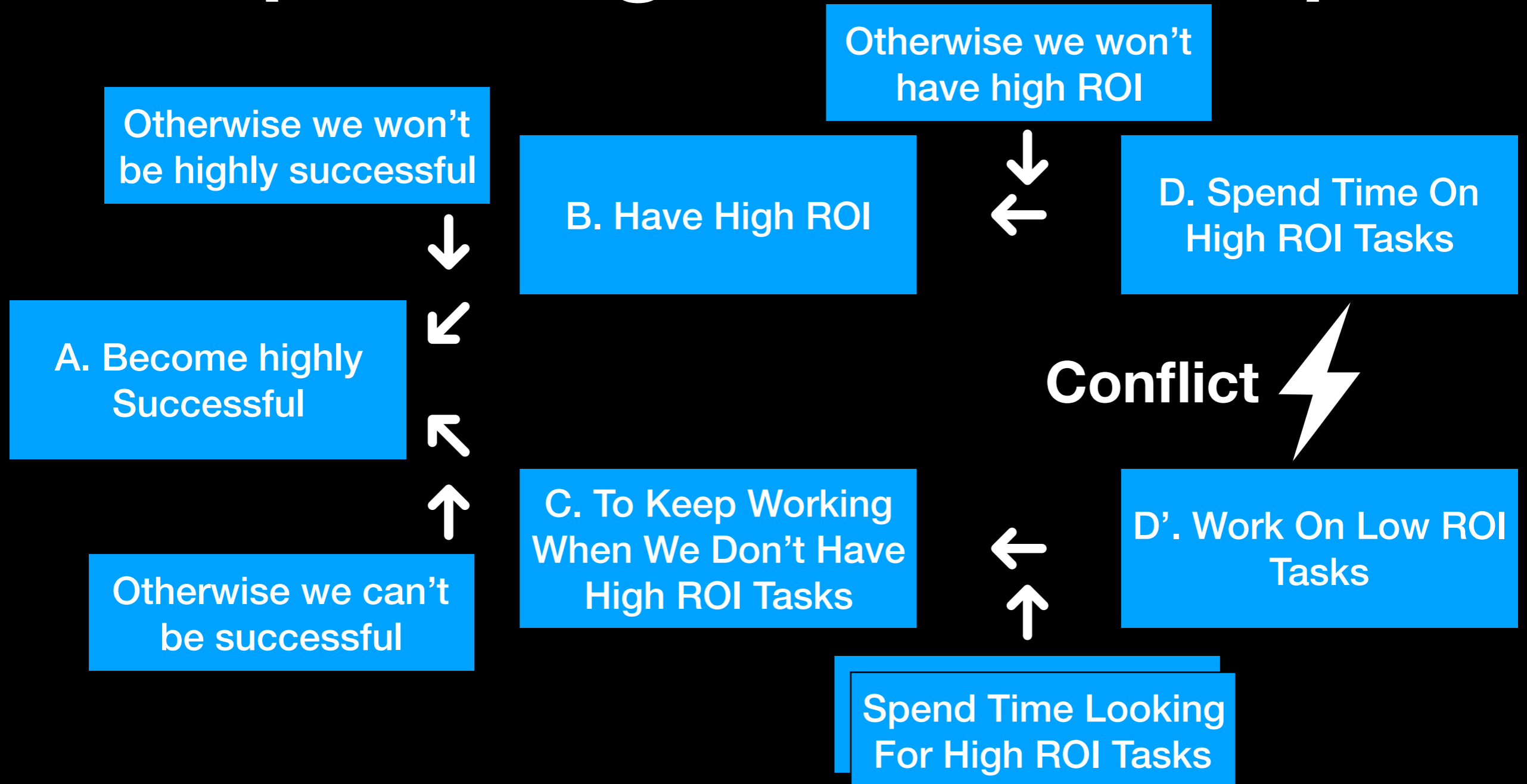| C. To Keep Working When We Don't Have High ROI Tasks | ← | D'. Spend Time On Low ROI Tasks |

1. What is that thing I'm having trouble getting? (D)
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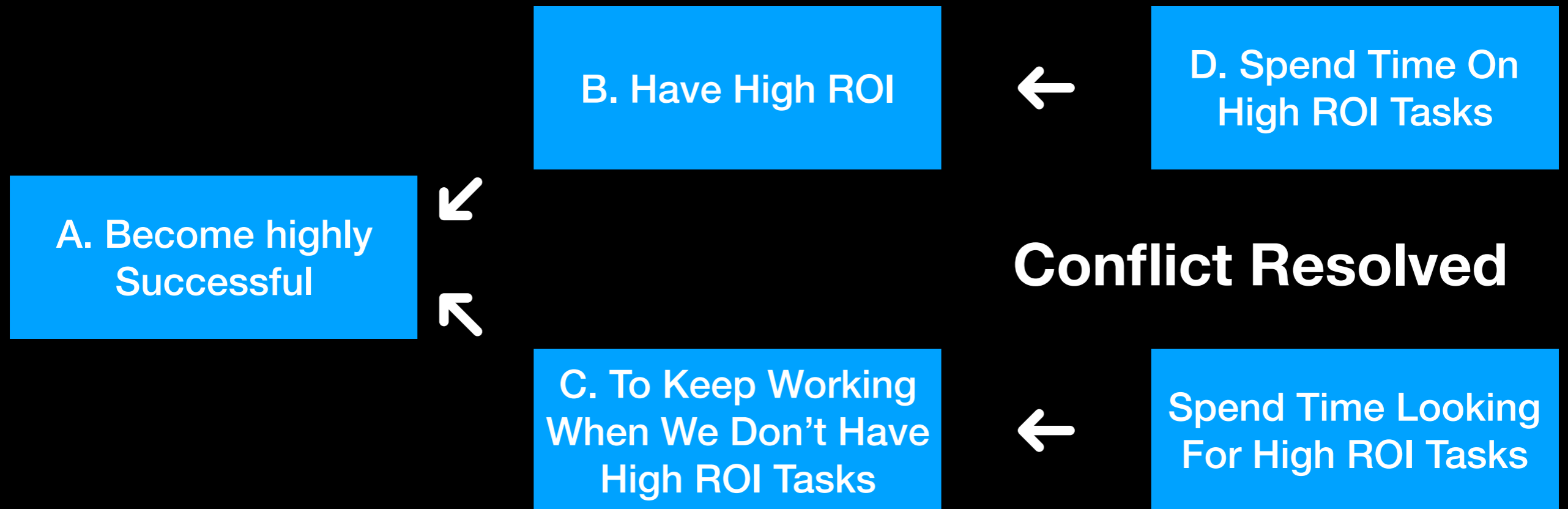
Evaporating Cloud Example

Otherwise we won't have high ROI

Otherwise we won't be highly successful

B. Have High ROI

D. Spend Time On High ROI Tasks

A. Become highly Successful

Conflict ⚡

C. To Keep Working When We Don't Have High ROI Tasks

D'. Work On Low ROI Tasks

Otherwise we can't be successful at all

Otherwise we would not be working

- In order for us to … we need to … because ….
- In order for us to have high ROI we need to spend time on high ROI tasks because otherwise we won't have high ROI
- In order for us to keep working we need to work on low ROI tasks because otherwise we would not be working
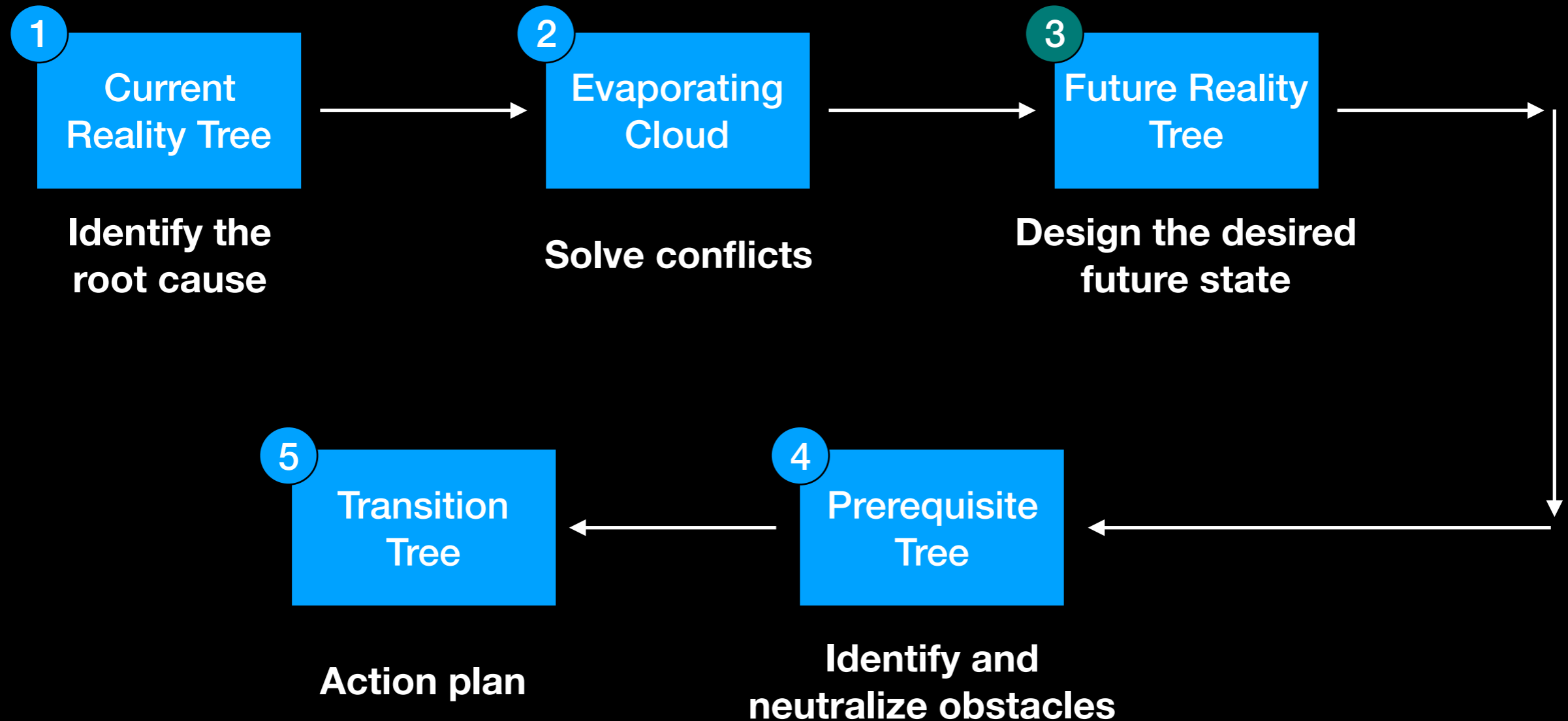
Evaporating Cloud Example

Otherwise we won't have high ROI

Otherwise we won't be highly successful

B. Have High ROI

D. Spend Time On High ROI Tasks

A. Become highly Successful

Conflict ⚡

C. To Keep Working When We Don't Have High ROI Tasks

Otherwise we can't be successful

D'. Work On Low ROI Tasks

Spend Time Looking For High ROI Tasks

- **In order for us to keep working when we don't have high ROI tasks, we need to spend time looking for high ROI tasks.**

Evaporating Cloud Example

B. Have High ROI ← **D. Spend Time On High ROI Tasks**

A. Become highly Successful

Conflict Resolved

C. To Keep Working When We Don't Have High ROI Tasks ← **Spend Time Looking For High ROI Tasks**
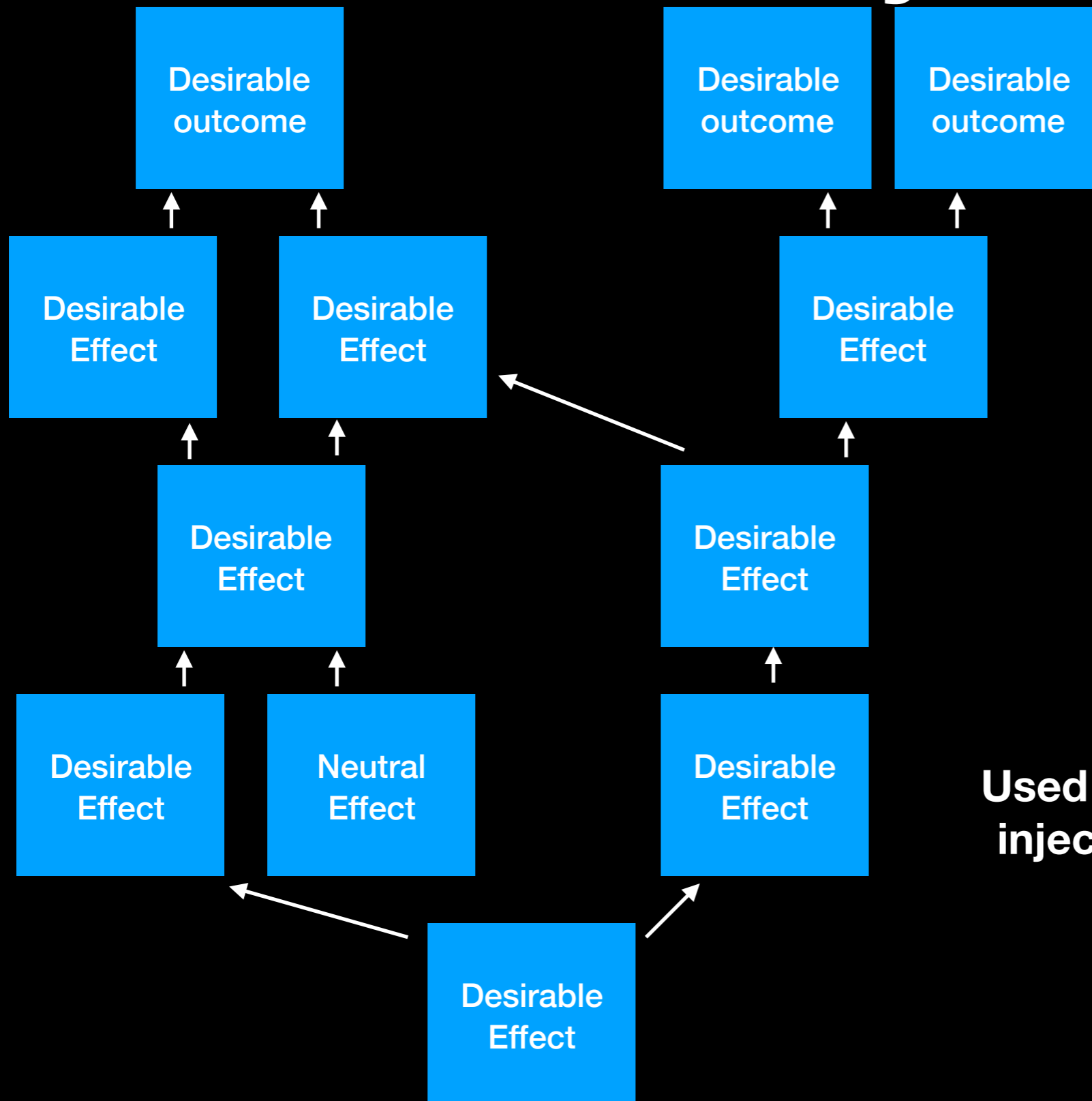
– **In order for us to keep working when we don't have high ROI tasks, we need to spend time looking for high ROI tasks.**
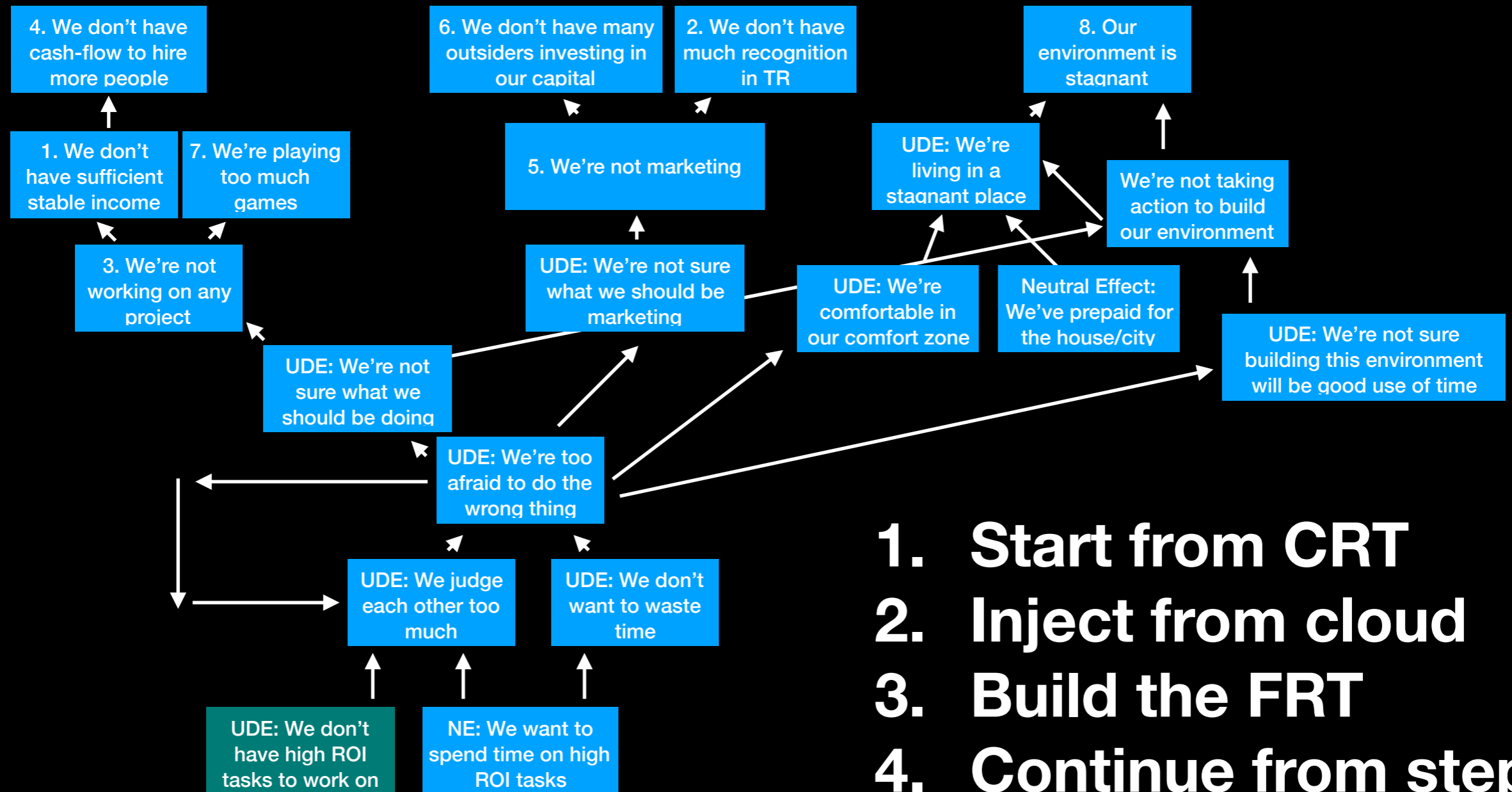
Thinking Processes - Elements & Flow
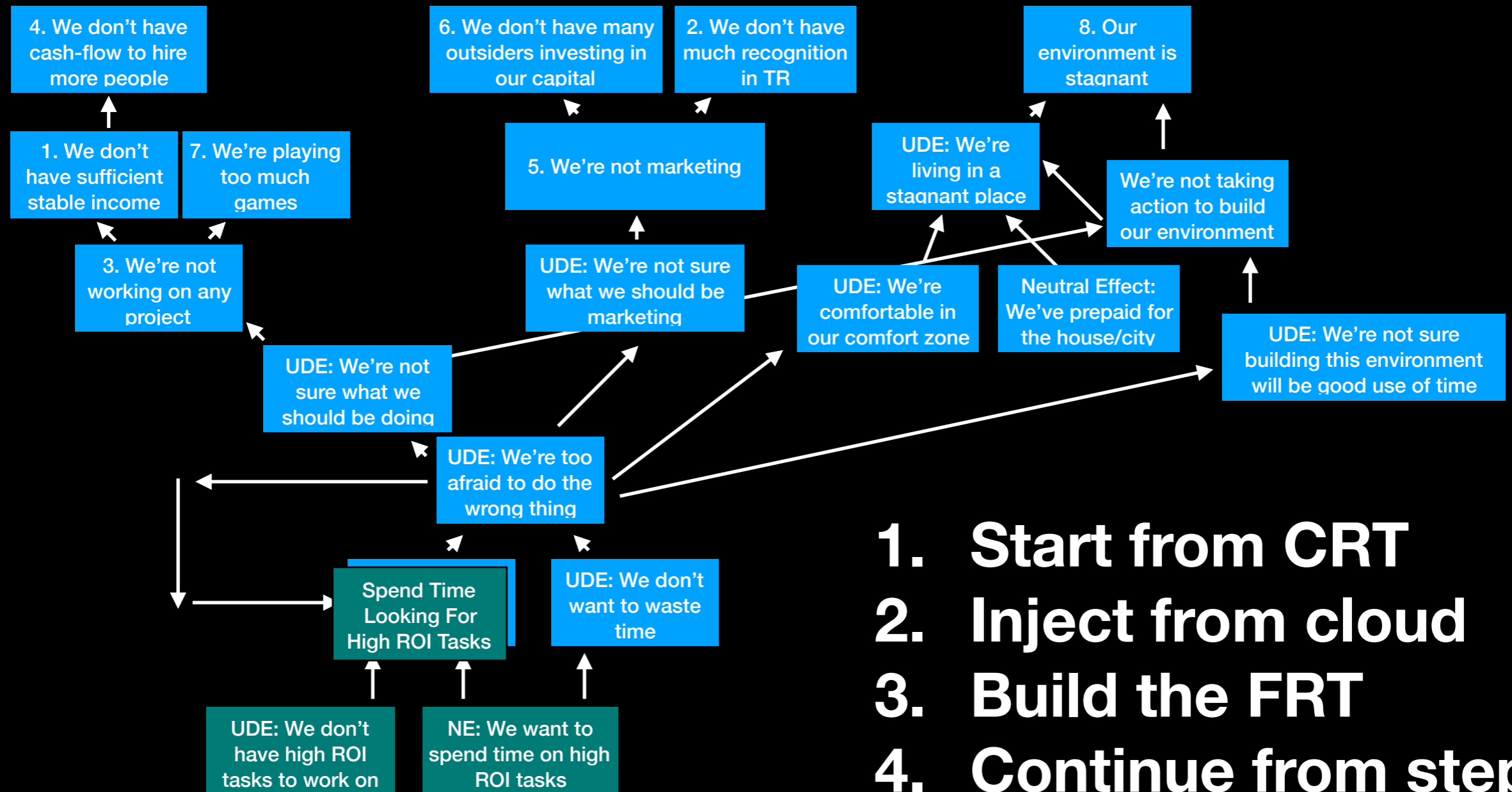
1 Current Reality Tree → **2** Evaporating Cloud → **3** Future Reality Tree →

Identify the root cause   **Solve conflicts**   **Design the desired future state**

5 Transition Tree ← **4** Prerequisite Tree ←

Action plan   **Identify and neutralize obstacles**

Future Reality Tree (FRT)

4. We don't have cash-flow to hire more people

6. We don't have many outsiders investing in our capital

2. We don't have much recognition in TR

8. Our environment is stagnant

1. We don't have sufficient stable income

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UDE: We're living in a stagnant place

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UDE: We judge each other too much

UDE: We don't want to waste time

UDE: We don't have high ROI tasks to work on

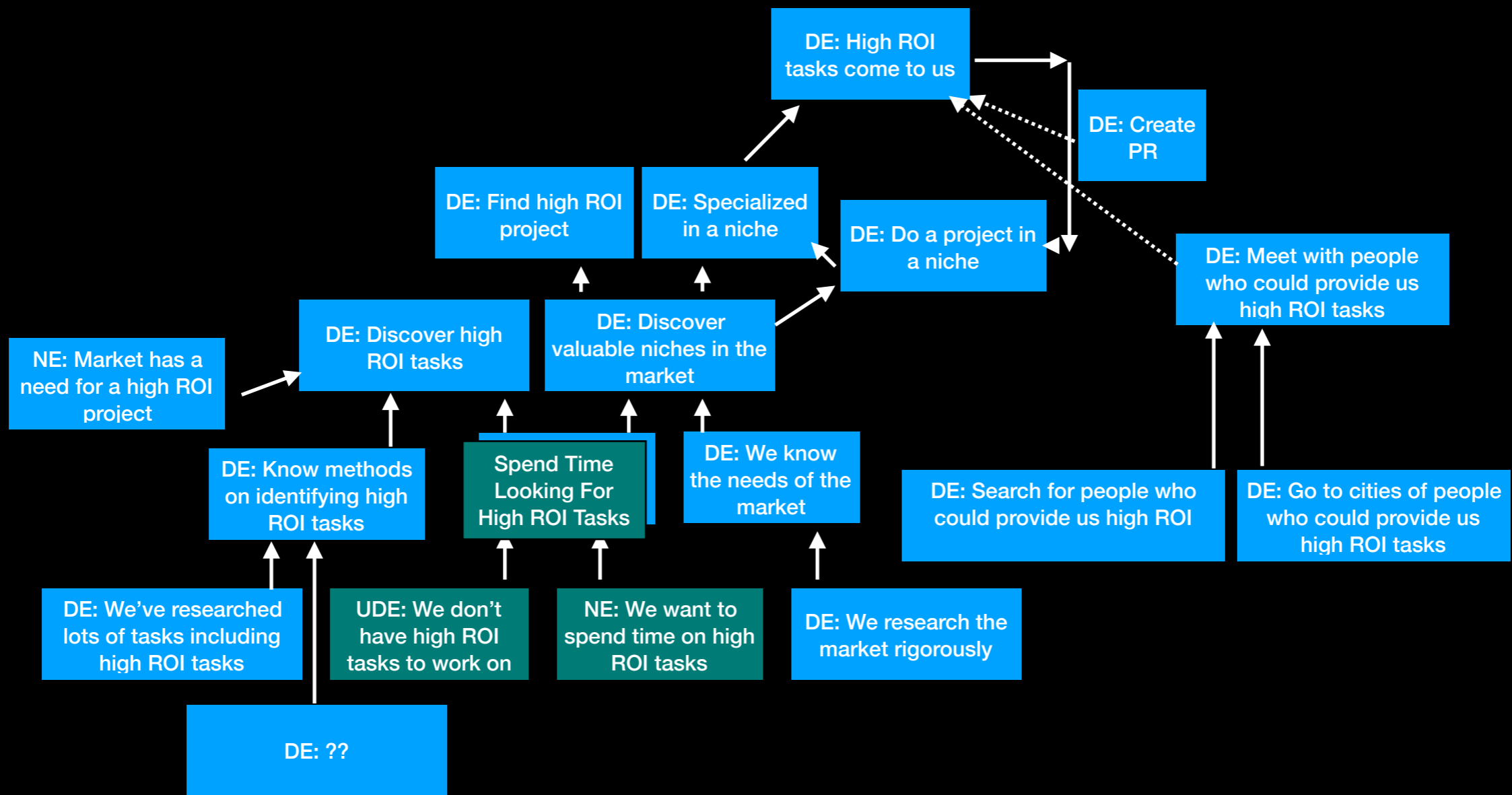NE: We want to spend time on high ROI tasks

1. Start from CRT
2. Inject from cloud
3. Build the FRT
4. Continue from step 2 until FRT is built

Future Reality Tree (FRT)

1. Start from CRT
2. Inject from cloud
3. Build the FRT
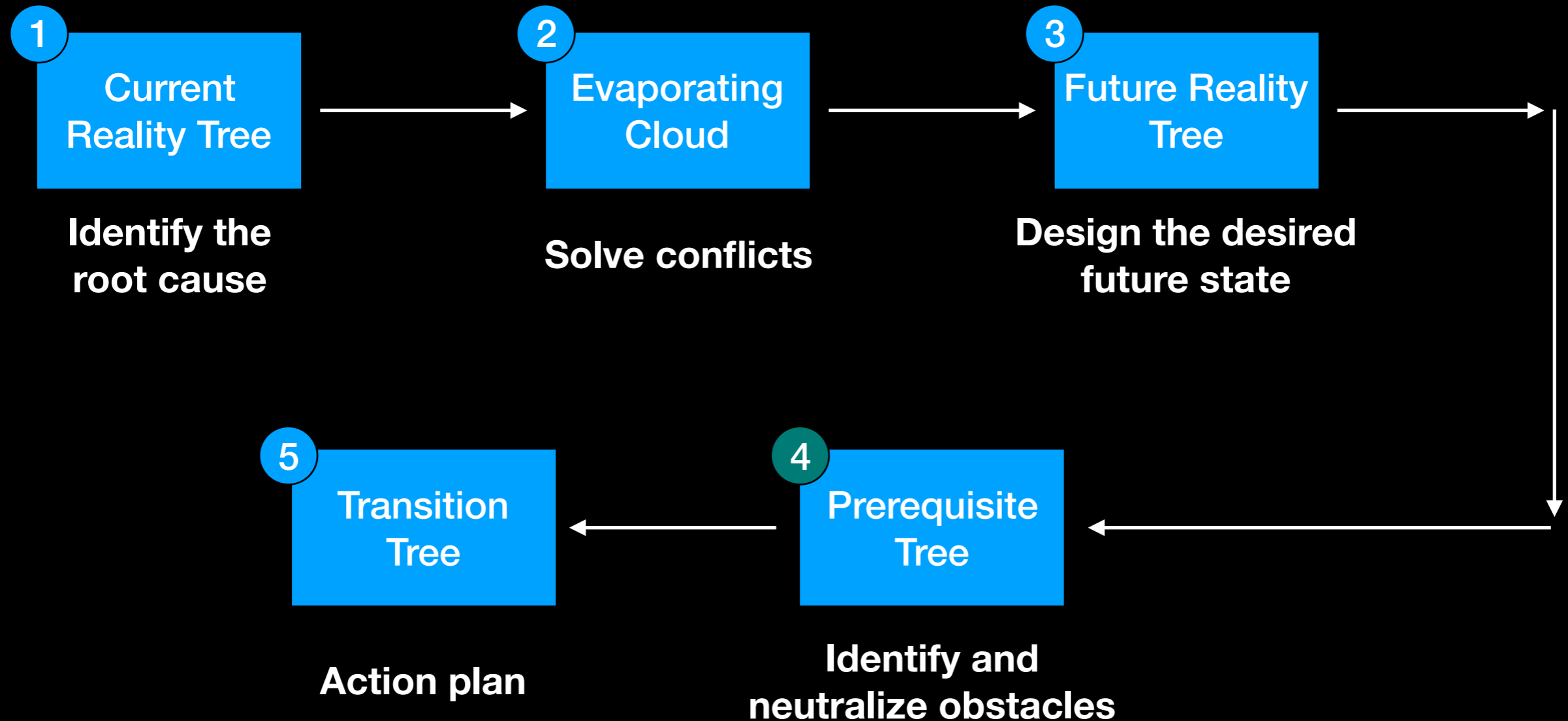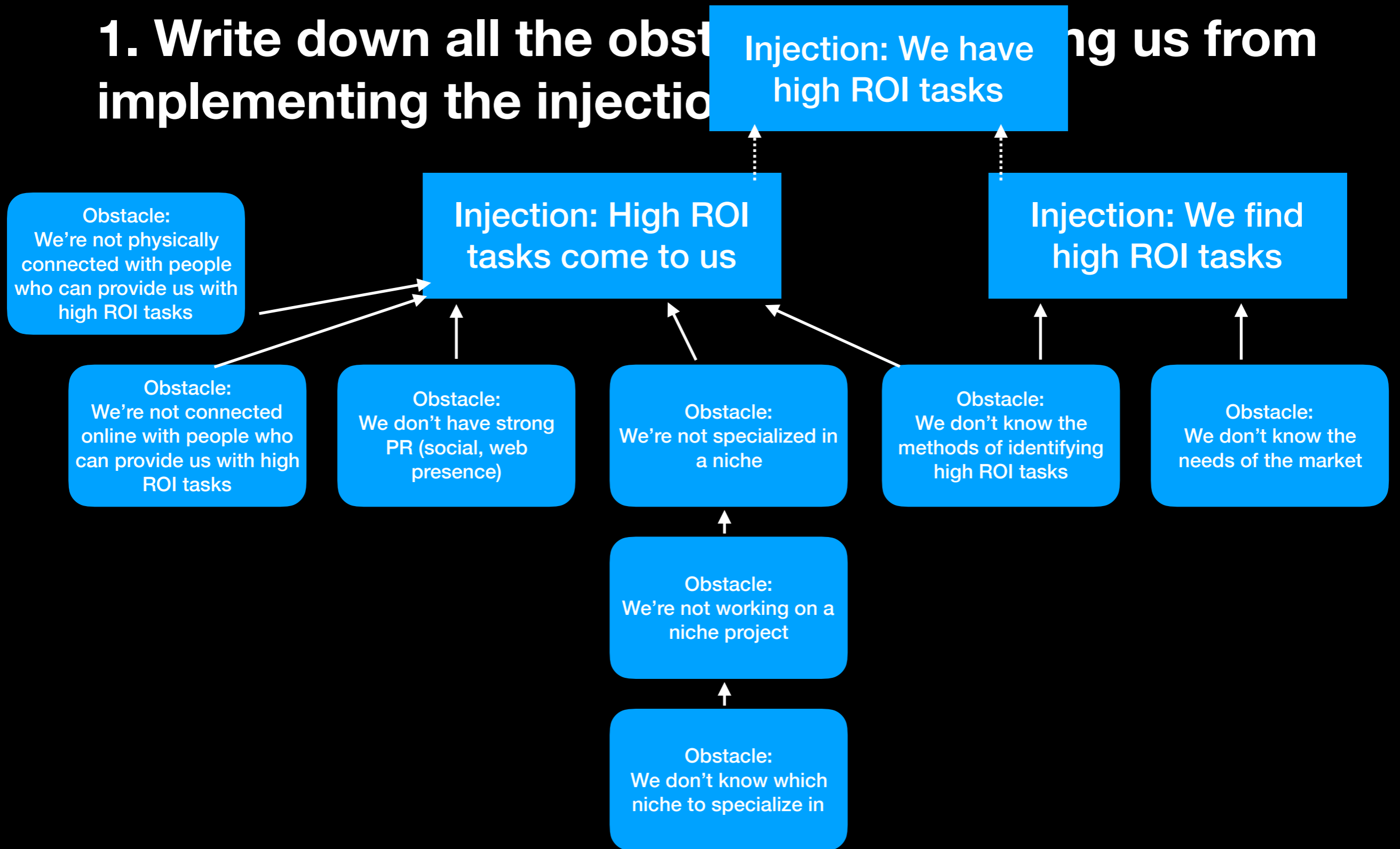4. Continue from step 2 until FRT is built

Future Reality Tree (FRT)
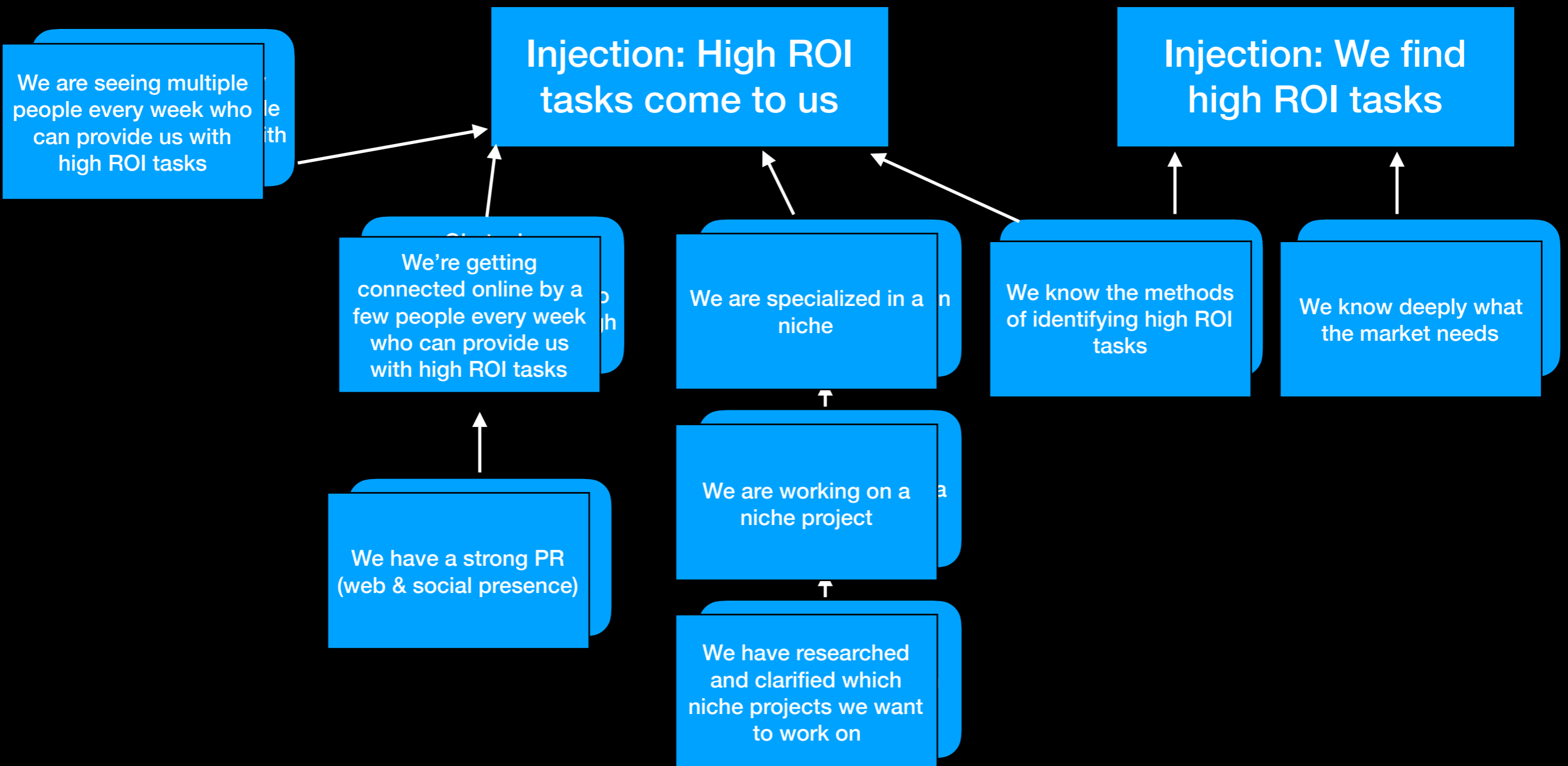
Thinking Processes - Elements & Flow

1 Current Reality Tree → **2** Evaporating Cloud → **3** Future Reality Tree

Identify the root cause

Solve conflicts

Design the desired future state

5 Transition Tree ← **4** Prerequisite Tree

Action plan

Identify and neutralize obstacles

Prerequisite Tree (PRT)

1. Write down all the obst...ng us from implementing the injectio...

Injection: We have high ROI tasks

Injection: High ROI tasks come to us

Injection: We find high ROI tasks

Obstacle: We're not physically connected with people who can provide us with high ROI tasks

Obstacle: We're not connected online with people who can provide us with high ROI tasks

Obstacle: We don't have strong PR (social, web presence)

Obstacle: We're not specialized in a niche

Obstacle: We don't know the methods of identifying high ROI tasks

Obstacle: We don't know the needs of the market

Obstacle: We're not working on a niche project

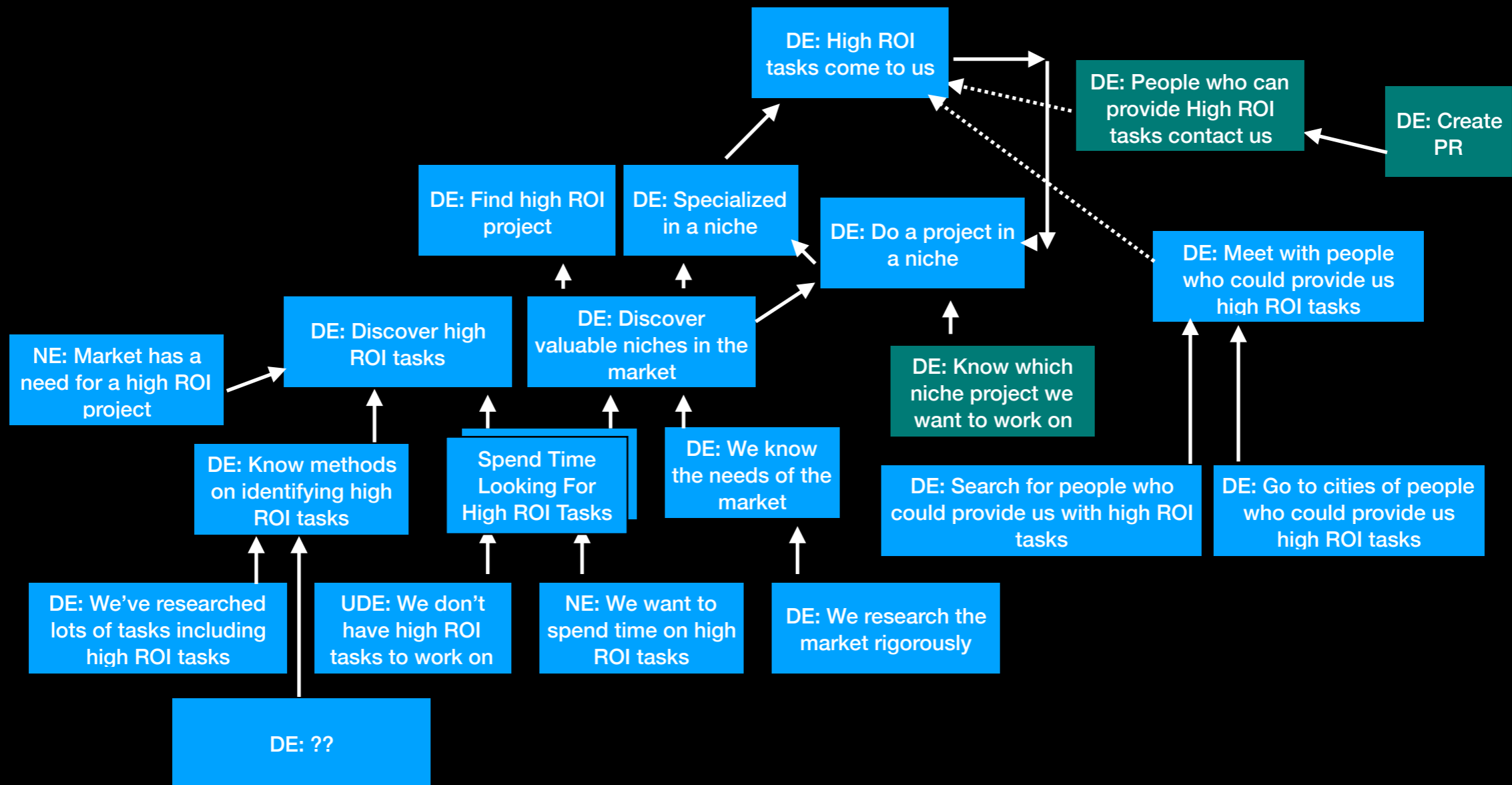Obstacle: We don't know which niche to specialize in

Prerequisite Tree (PRT)

2. For each obstacle find an intermediate objective(IO). This is something that, if achieved, would overcome the obstacle
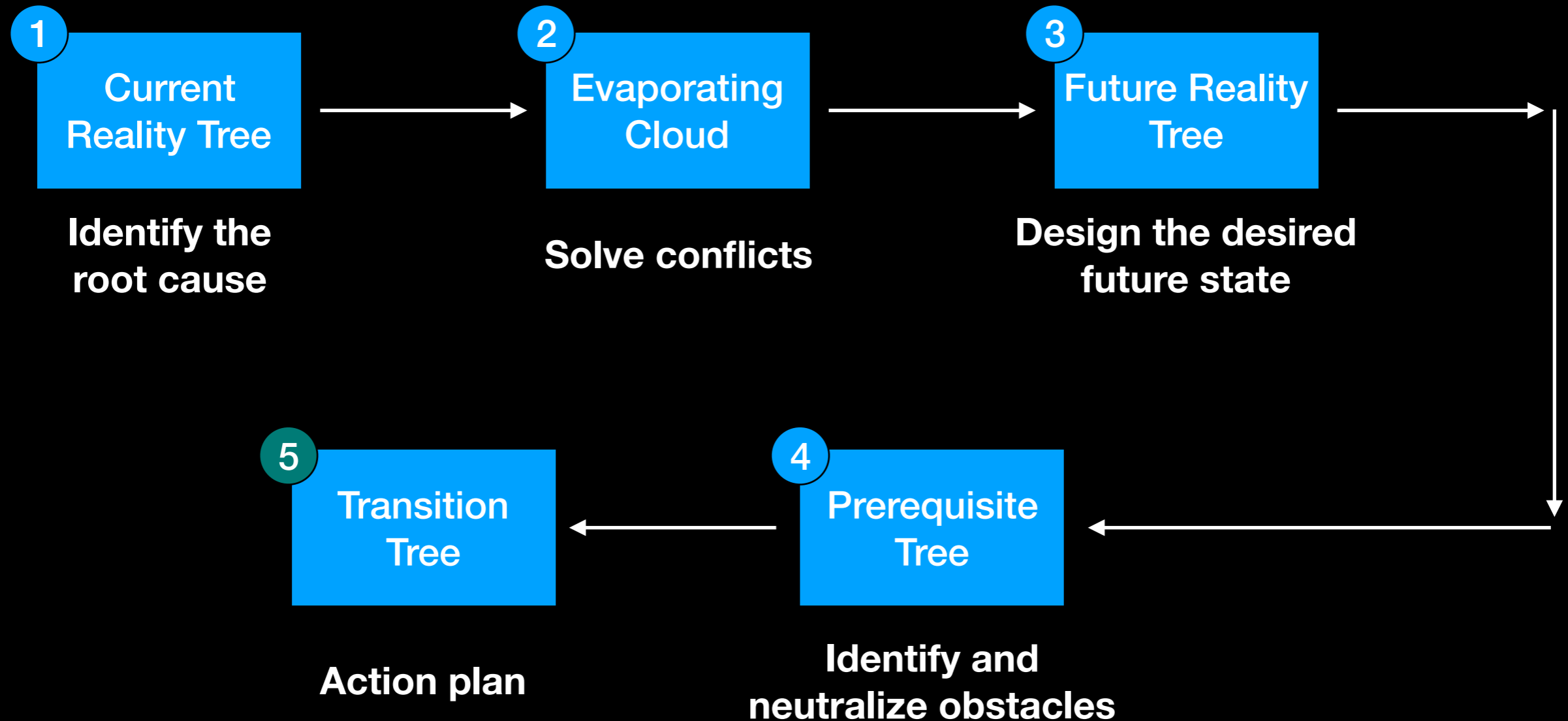
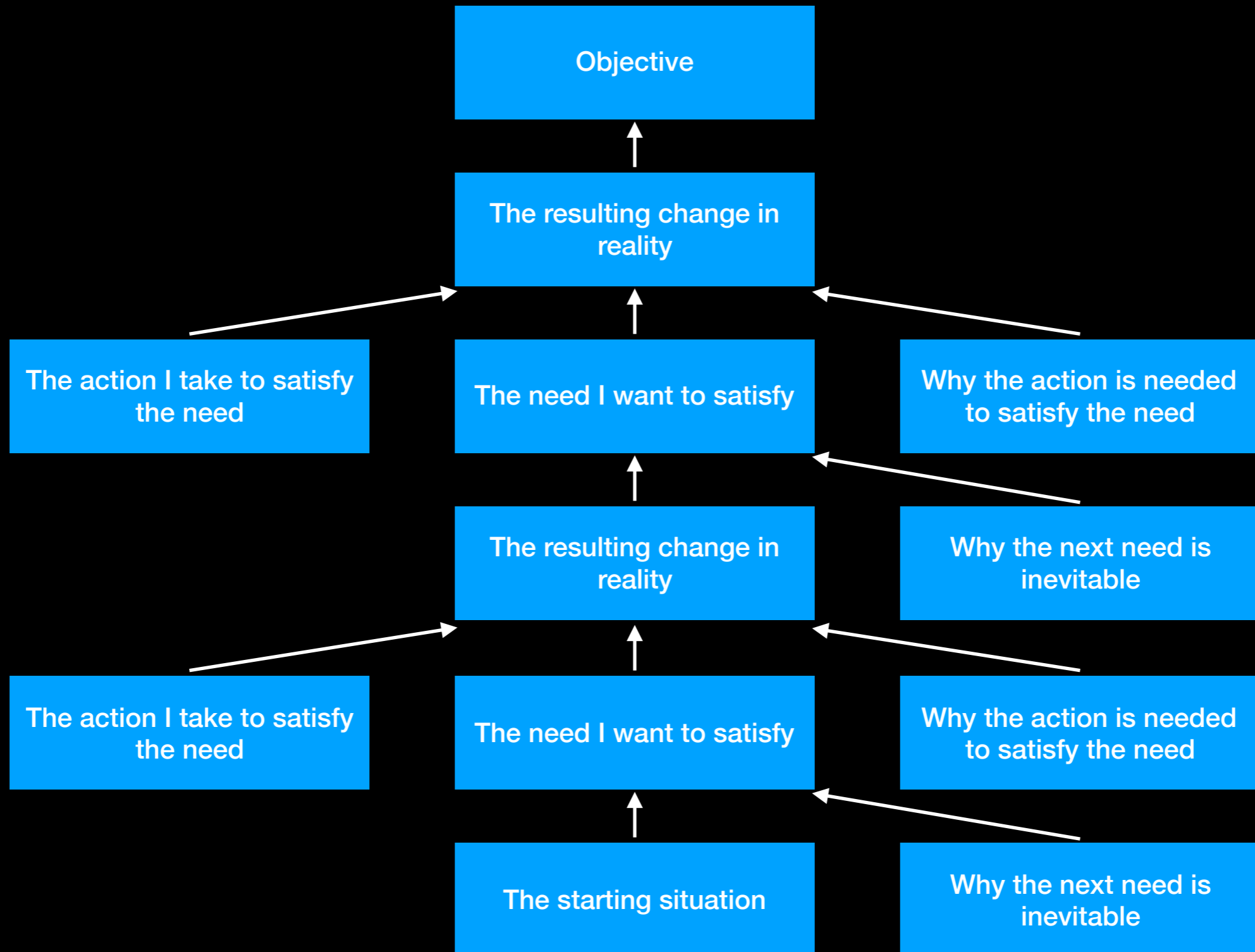We are seeing multiple people every week who can provide us with high ROI tasks

Injection: High ROI tasks come to us

Injection: We find high ROI tasks

We're getting connected online by a few people every week who can provide us with high ROI tasks

We are specialized in a niche

We know the methods of identifying high ROI tasks

We know deeply what the market needs

We have a strong PR (web & social presence)

We are working on a niche project

We have researched and clarified which niche projects we want to work on

Prerequisite Tree (PRT)

3. Add missing parts to the Future Reality Tree
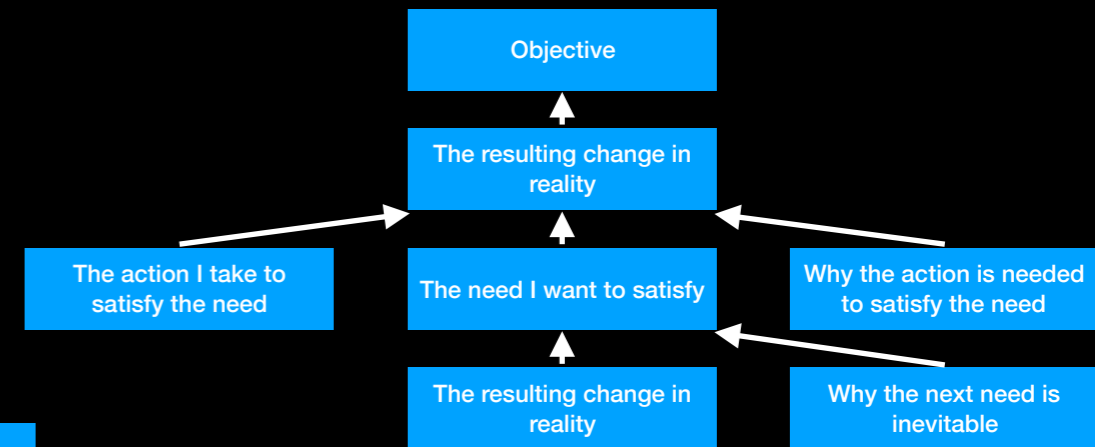
Thinking Processes - Elements & Flow

1 Current Reality Tree

Identify the root cause

2 Evaporating Cloud

Solve conflicts

3 Future Reality Tree

Design the desired future state

5 Transition Tree

Action plan

4 Prerequisite Tree

Identify and neutralize obstacles

Transition Tree (TrT)

Transition Tree (TrT)

	Objective	
	↑	
	The resulting change in reality	
The action I take to satisfy the need	The need I want to satisfy	Why the action is needed to satisfy the need
	The resulting change in reality	Why the next need is inevitable

	Objective: Find high ROI tasks	
	↑	
	We have high ROI tasks that we want to do & can do	
Clearly define what type of tasks this team wants to do and is good at. Check if the tasks are appropriate if not go back one step and find more tasks	Need: Choose which high ROI tasks we want to work on	We should not be doing high ROI tasks which we don't like doing.
	We have many tasks	We have many tasks and we can identify which ones are high ROI but if there are many high ROI tasks we need to choose.
There are multiple ways of finding tasks. Getting tasks from connections, finding tasks ourselves. To find tasks we need to research the market rigorously.	Need: Find tasks	Getting tasks from connections is long term. We can find many more tasks in a faster way if we initiate the action.
	We know when we see a high ROI task	We can identify high ROI tasks but we need tasks to know if they are high ROI or not.
We research, learn and define what a high ROI task is. Come up with some examples of high ROI tasks.	Need: Know the definition of high ROI tasks	Why: Without a clear definition & some examples it is impossible to agree whether an action is HIGH ROI or not
	Start: No high ROI tasks	We need to define clearly what high ROI tasks are otherwise we won't know one when we see it

Summary

We judge each other thus we are afraid of doing tasks.

1 Current Reality Tree

Identify the root cause

Look for high ROI tasks

2 Evaporating Cloud

Solve conflicts

Ways we can find high row tasks

3 Future Reality Tree

Design the desired future state

Create a step by step action plan

5 Transition Tree

Action plan

Define obstacles and create ways to overcome them

4 Prerequisite Tree

Identify and neutralize obstacles

Q&A

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References

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- **It's Not Luck (https://www.goodreads.com/book/show/157385.It_s_Not_Luck)**

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- **https://en.wikipedia.org/wiki/Thinking_processes_(theory_of_constraints)**

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Creating the Evaporating Cloud
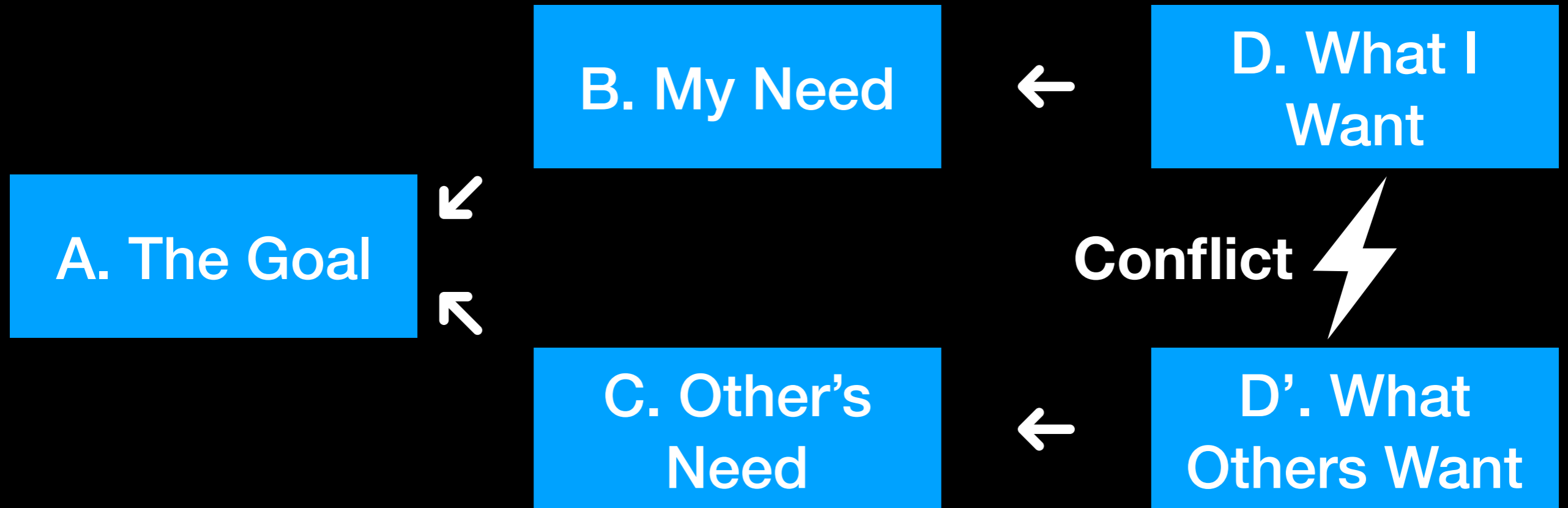
B. My Need ← **D. What I Want**

A. The Goal

Conflict ⚡

C. Other's Need ← **D'. What Others Want**

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5. What goal do we share mutually? (A)

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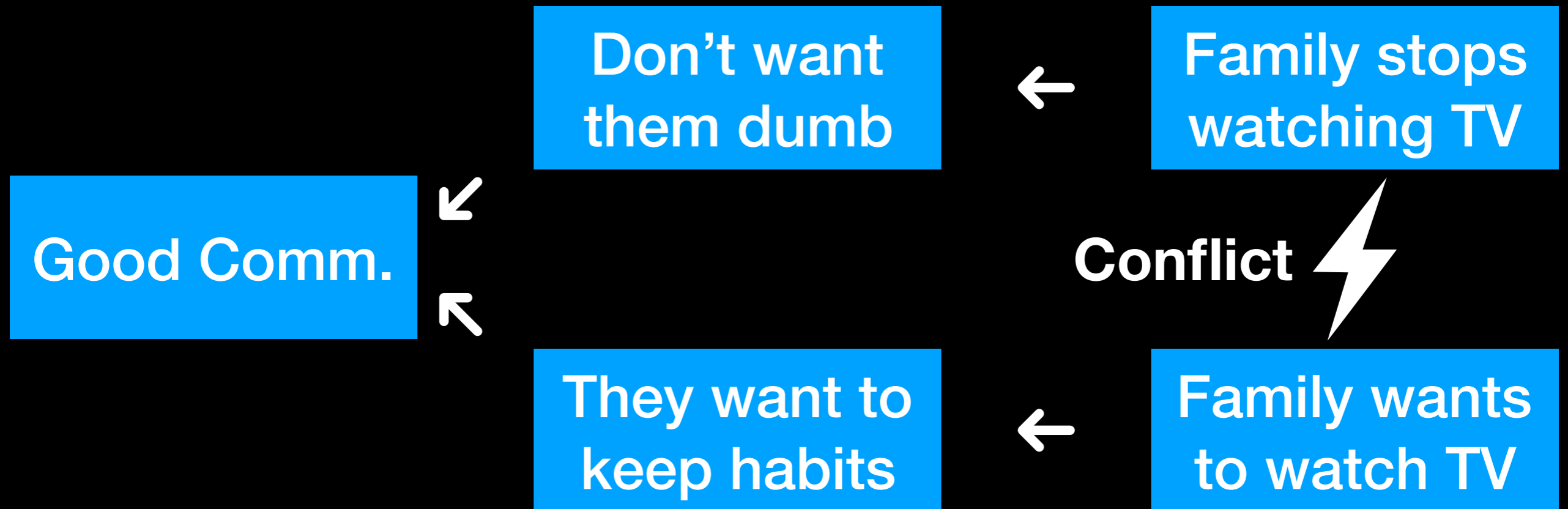
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Evaporating Cloud Example

TV makes people dumb

Don't want them dumb	Family stops watching TV

Good Comm.

Conflict ⚡

They want to keep habits	Family wants to watch TV

They have nothing to put in place

- In order for them to not be dumb, they need to stop watching tv because …
- In order for them to keep their habits, they need to continue watching tv because …

Evaporating Cloud Example

TV makes people dumb

Don't want them dumb

Family stops watching TV

Good Comm.

They want to keep habits

Find a new habit to keep

The TOC Thinking Process
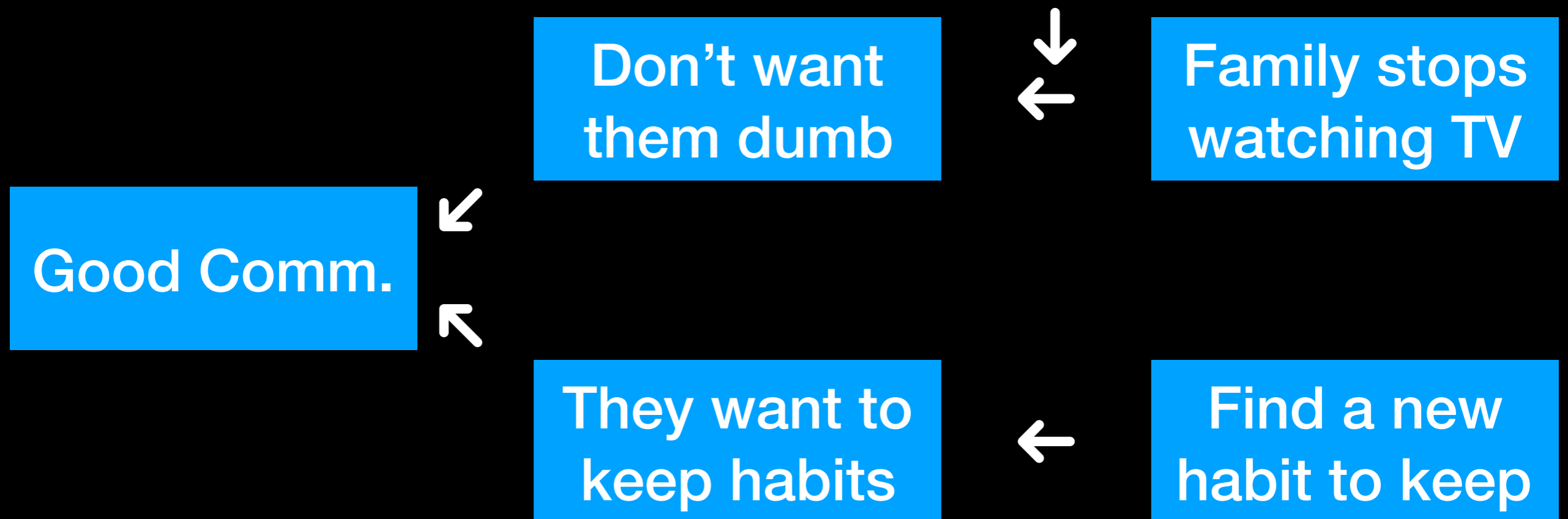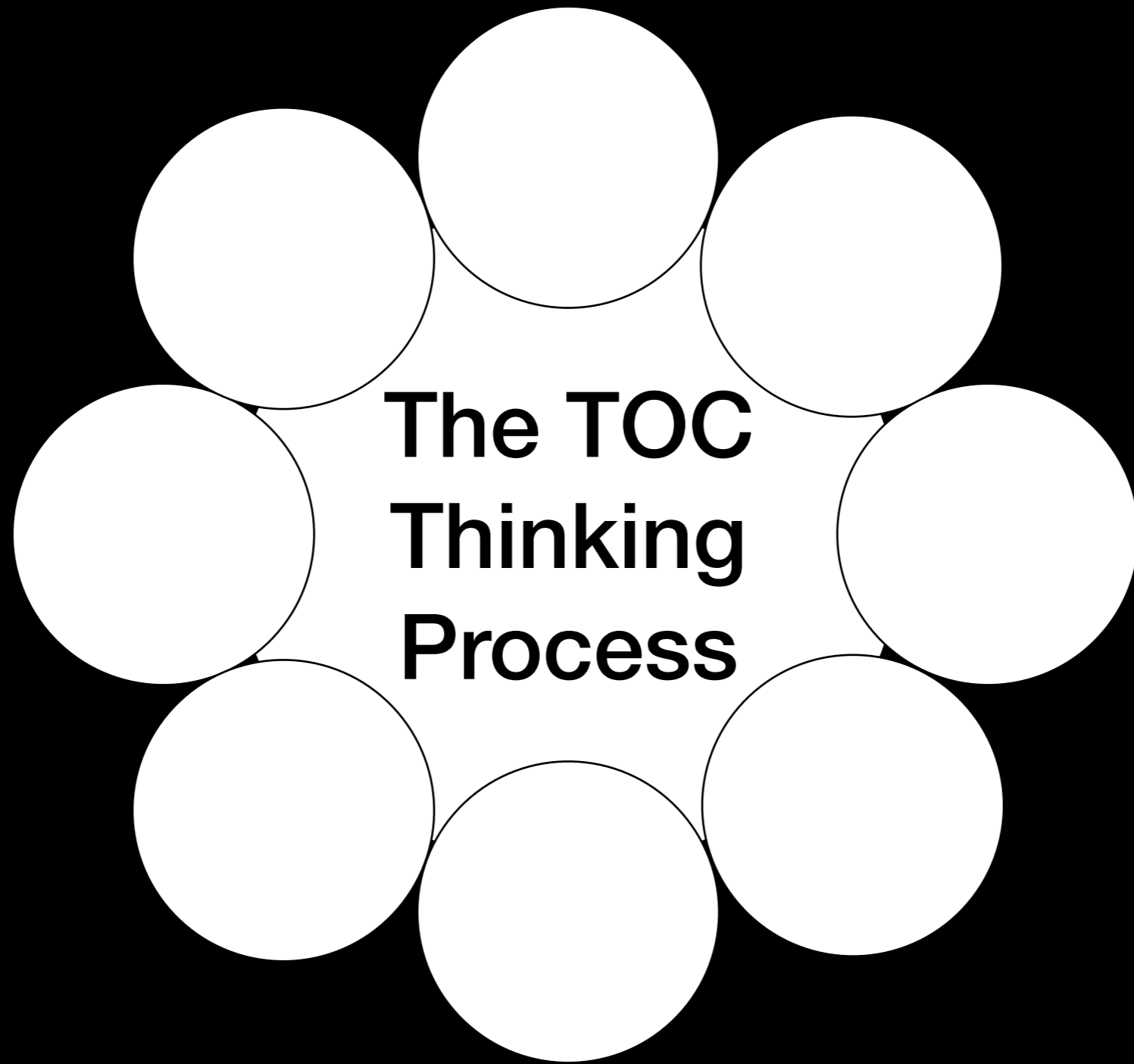
Thinking Processes - Pillars

Inherent Simplicity

Every Conflict Can Be Removed

People Are Good Always A Win-Win

Every Situation Can Be Substantially Improved
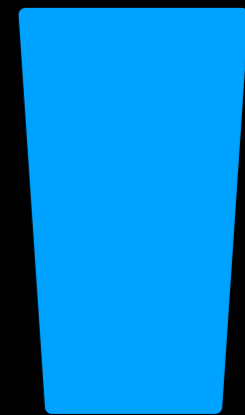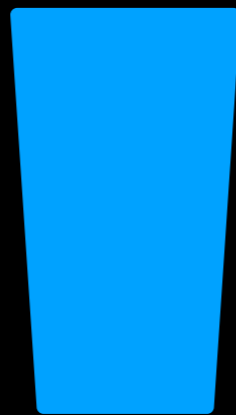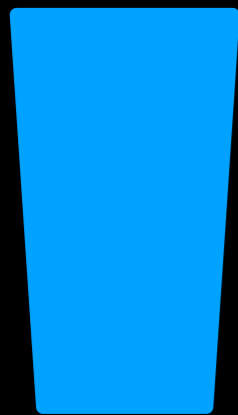
Overcome Perception Of Reality As Complex
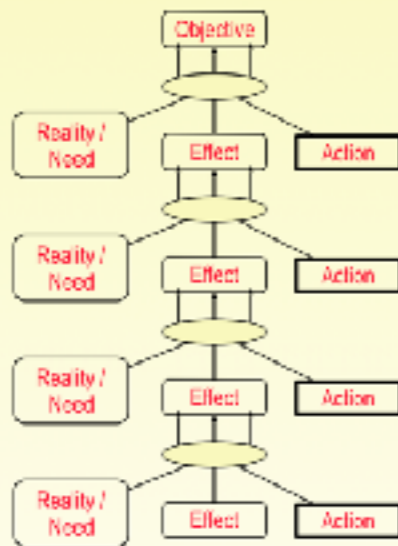
Don't Accept Conflict

Avoid Blaming

Never Say "I Know"

Derivatives

Three cloud approach
Chronic conflict
Layers of resistance

- **Current Reality Tree (CRT)**
- **Evaporating Cloud (EC)**
- **Negative Branch Reservation (NBR)**
- **Future Reality Tree (FRT)**

- **Prerequisite Tree (PRT)**
- **Transition Tree (TrT)**
- **Intermediate Objectives Map (IO)**
- **Strategy & Tactics Tree (SnT)**

Transition Tree