The Wicked Problem

or problems with no solutions

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Agenda

AM

- Wicked Problems
- Carbon Taxes

LUNCH

PM

- Fuel Taxes

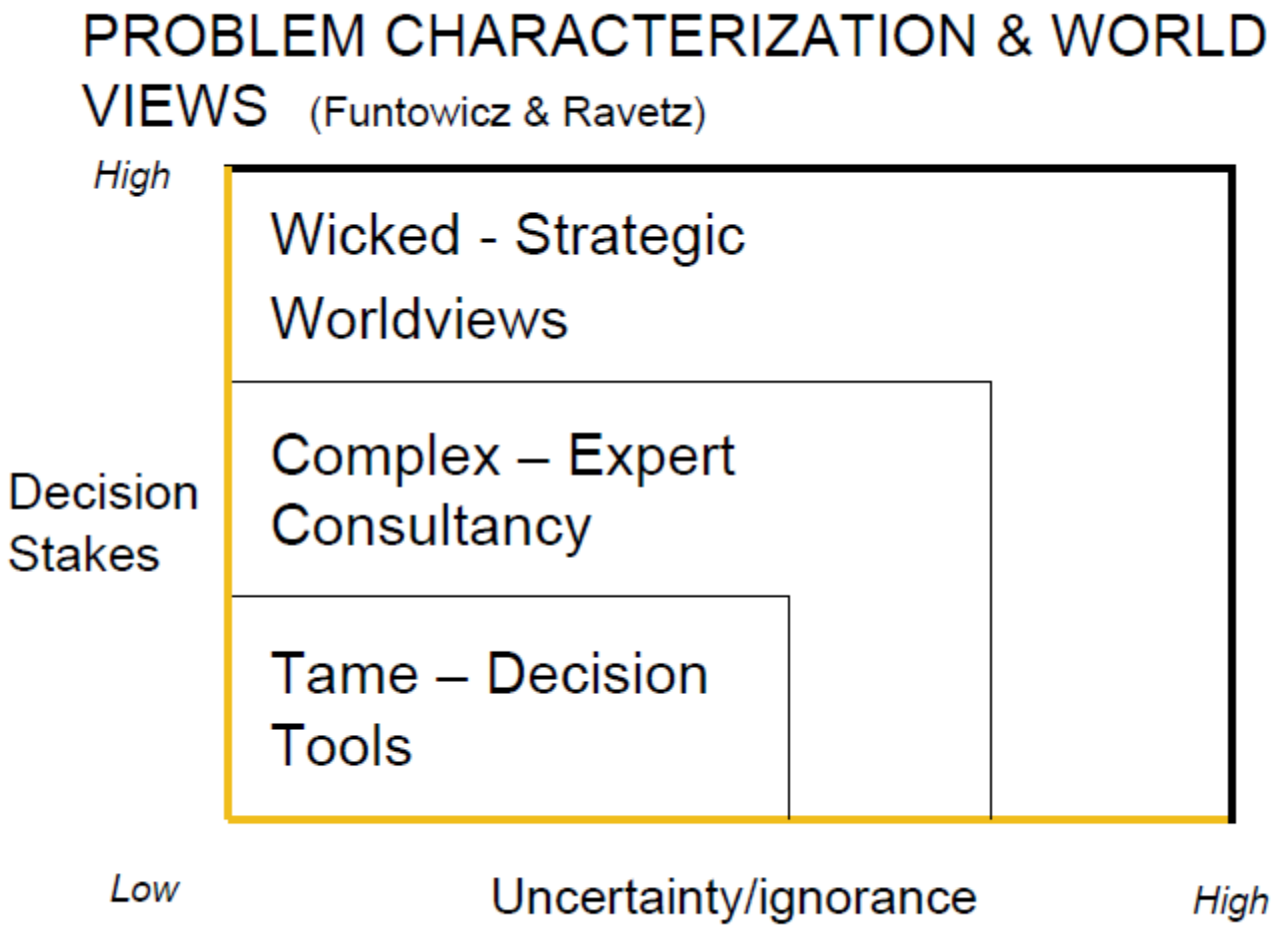
The Wicked Problem

Coined by Prof. Horst Rittel and Melvin Webber in 1973*

- ‘Wicked’ meant to be opposite of ‘Tame’
- Tame – Solvable, ie math, chess, puzzles
- Wicked – Problems that lack simplistic or straightforward planning responses

*Rittel H, and Webber, M. *Dilemmas in a General Theory of Planning* Policy Sciences 4 1973]

Wicked as compared to Tame



The 10 Characteristics

1. There is ***no definition*** of a wicked problem (defining wicked problems is itself a wicked problem).
2. Wicked problems ***do not 'stop'*** being problems.
3. Solutions to wicked problems are not true-or-false, but ***better-or-worse***.
4. There is ***no test of a solution*** to a wicked problem.
5. There is no opportunity to learn by trial and error.

   Every solution changes the problem.

The 10 Characteristics

6. Wicked problems do not have a describable set of potential solutions nor describable set of actions.
7. ***Every wicked problem is essentially unique***.
8. ***Every wicked problem is a symptom of another problem***.
9. The description of the problem is through a ***frame of reference***. Any proposed solution only meets the ***need of that frame***.
10. Planners are liable for the consequences of the actions they generate

Property 10: Planners are liable for the consequences of the actions they generate

Can you prevent unintended consequences?

1. There will always be unintended consequences.

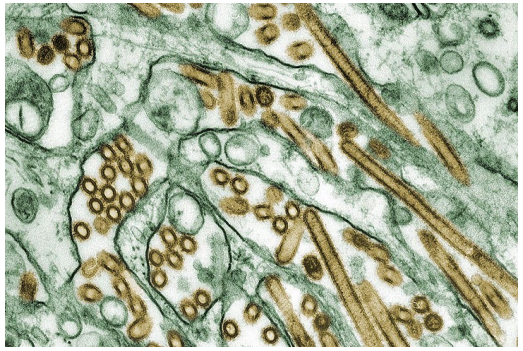
2. ***Delaying an action*** or ***choosing to take no action*** is a decision itself.

3. Therefore, not taking action will have unintended consequences.

How should one approach unintended consequences?

Examples

Poverty – lowest 1% or less than $1 per day?



Healthcare – invest in prevention or in treatments?

Gun Control – Give everyone a gun and training or eliminate all uses?

Most problems we face are wicked problems

- **Ambiguity** of the definition of the problem

The Problem: NYC had 100,000 horses, generating 2.5 million pounds of manure per day.

How would you solve this public health crisis?

Most problems we face are wicked problems

- **Ambiguity** of the definition of the problem
- **Temporary** as the problem keeps shifting

The Problem: “Pollution” is now considered to be Smog, causing cancer and asthma.

How would you solve this public health crisis?

Most problems we face are wicked problems

- **Ambiguity** of the definition of the problem
- **Temporary** as the problem keeps shifting
- **Fluidity** of timescales, attention, etc.

What's the transportation problem?

Reduce time in congestion?

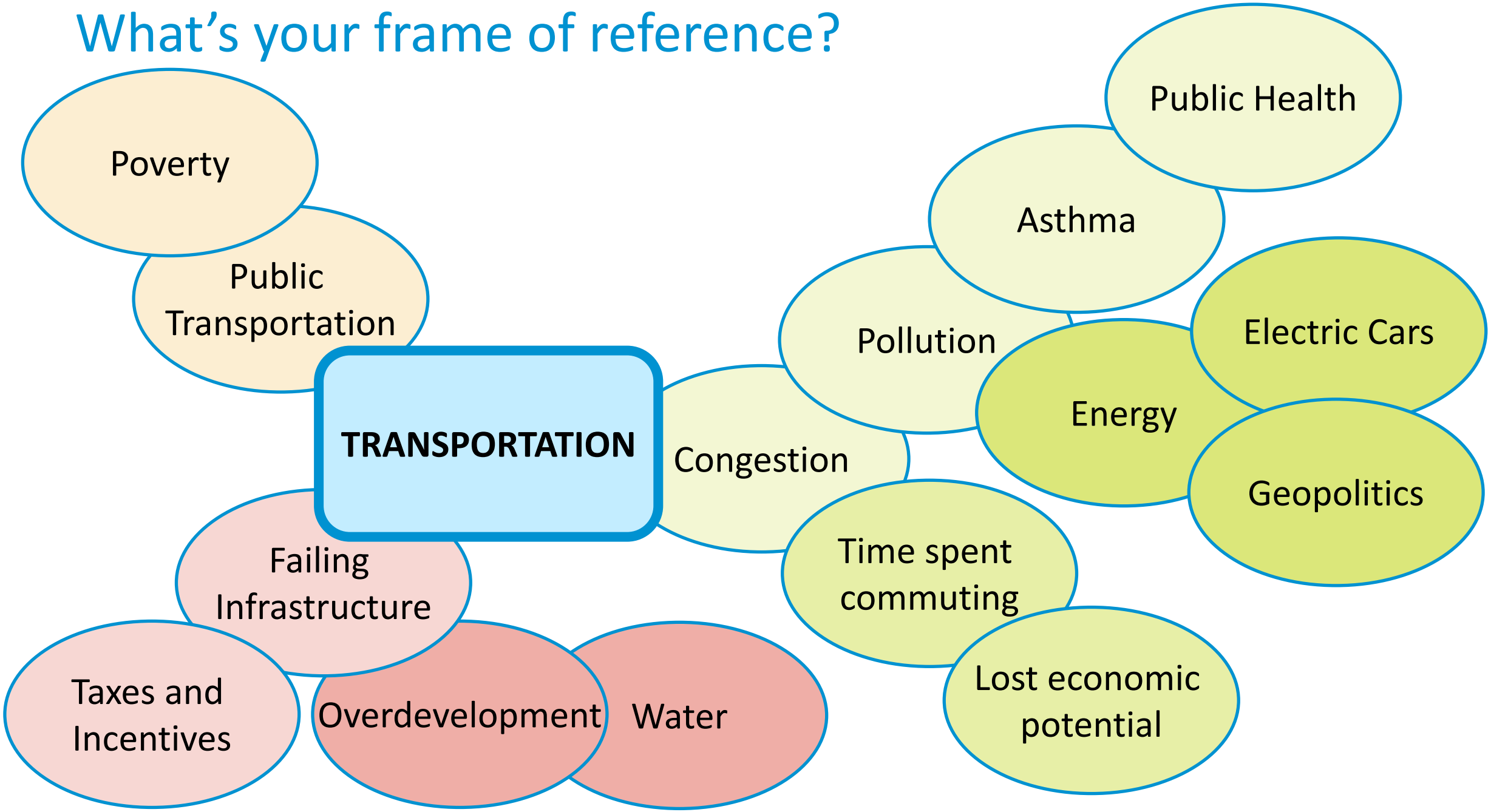
Limit urban sprawl?

Ensure freedom to get away?

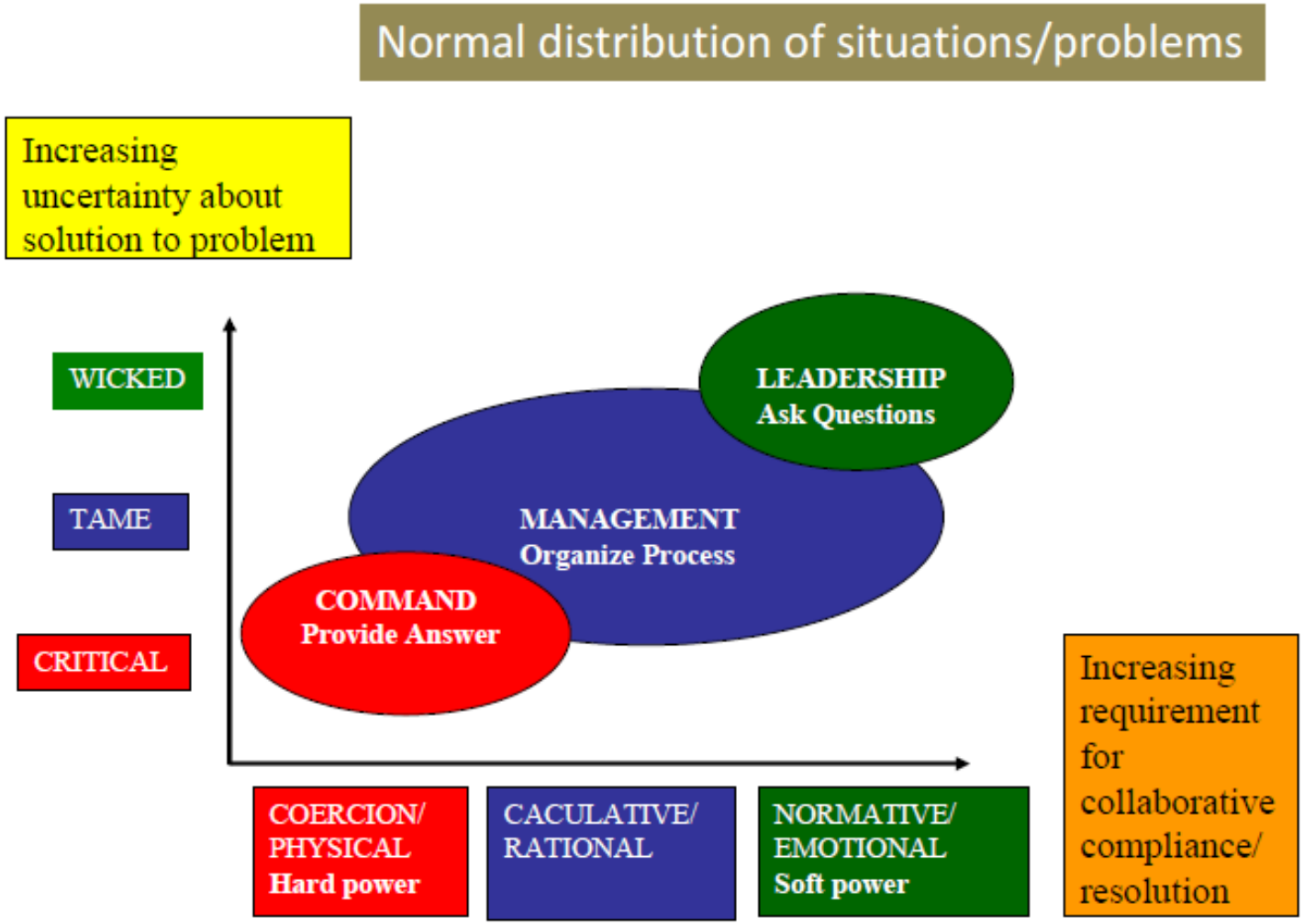
Fix bridges that are falling apart?

Are some solutions in opposition to other possible goals?

What's your frame of reference?



Types of Leaders



The Bystander Problem, or lack of leadership

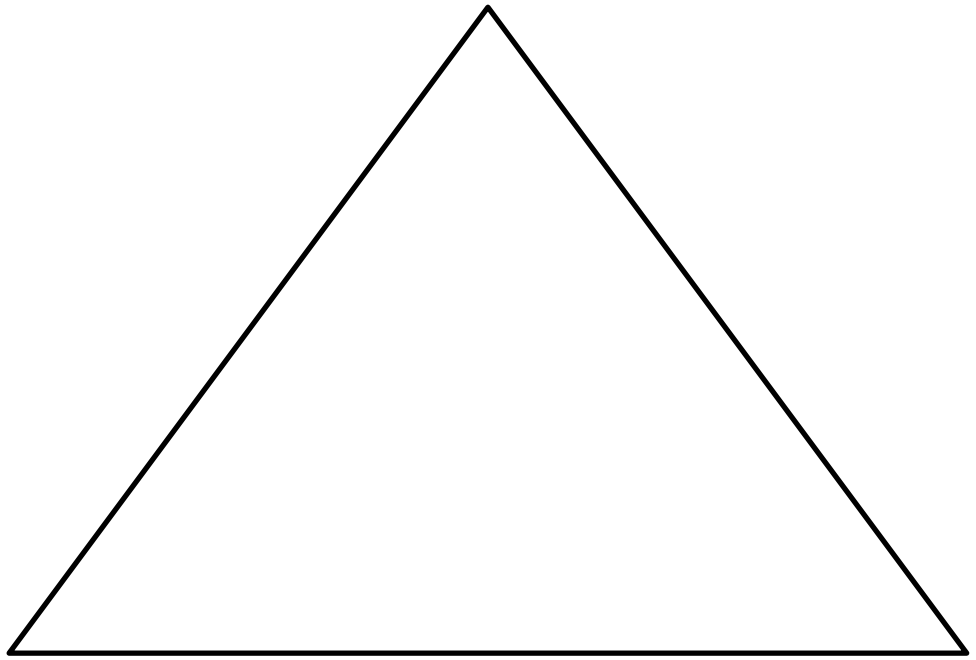
Latane and Darley: The Bystander Problem (1968)

Room 1 has an individual staging an epileptic fit
Adjoining room has:
1 person = helps 85% of the time
5 people + = help only 31% of the time

Smoke emerging from room reported
75% of the time by lone passers by
38% of the time by groups passing by
Groups diffuse responsibility

Framework – The Clumsy Solution

Hierarchical
(eg. Government)



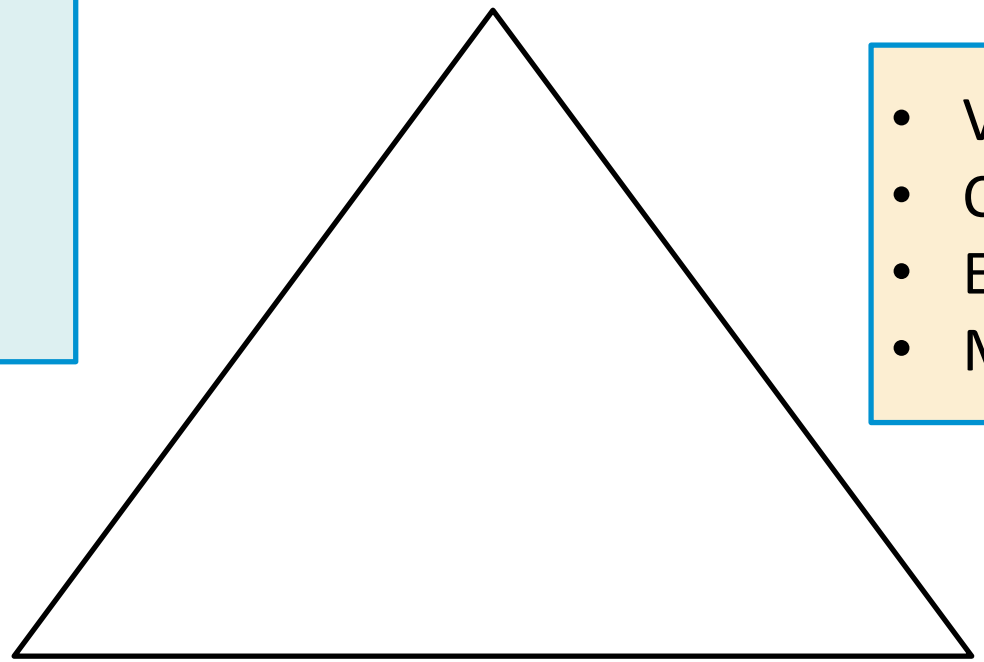
Competitive
(eg. Business)

Egalitarian
(eg. Public Interest Groups)

Framework – The Clumsy Solution

- Process Driven
- Rules oriented
- A structure to reach a solution.
- Indifferent to the actual outcomes.

Hierarchical
(eg. Government)



- "The Best" wins
- Solves the problem at hand
- Encourages constructive criticism
- Driven by ego and individualism

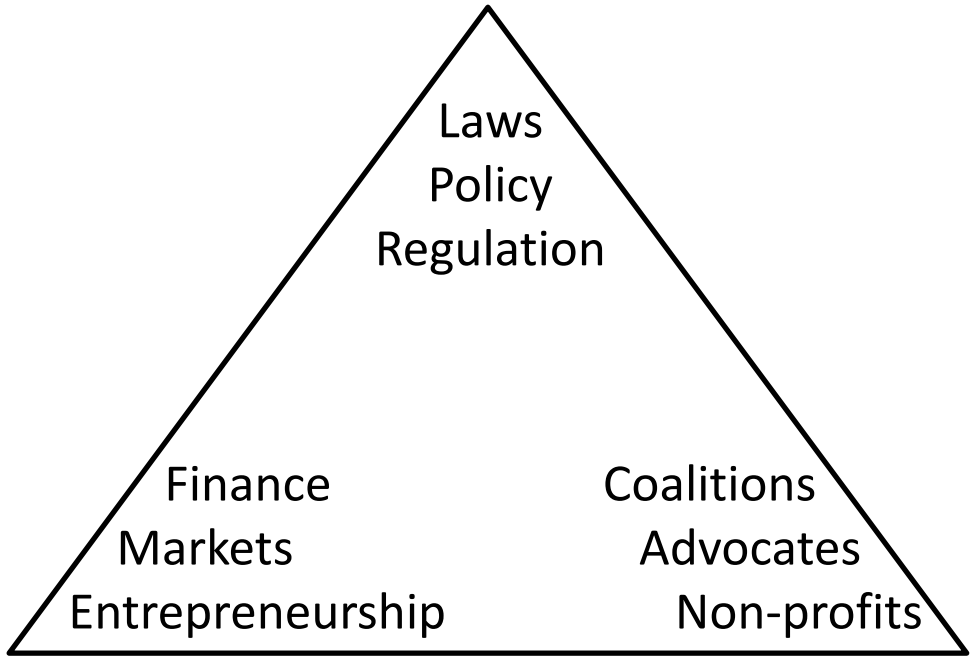
Competitive
(eg. Business)

- Values- and outcome-driven
- Collective-based concerns
- Empathy and community
- May have impractical ideals

Egalitarian
(eg. Public Interest Groups)

Can you list some other clumsy solution approaches?

Hierarchical
(eg. Government)



Competitive
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Egalitarian
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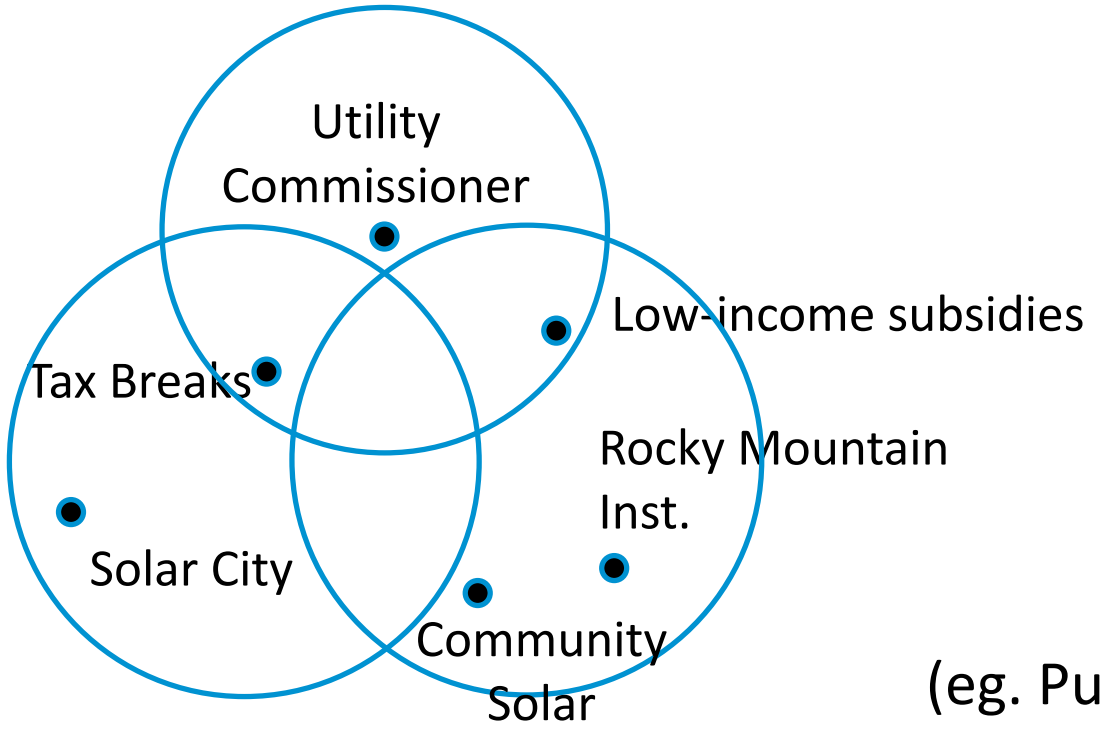
Solutions are usually a combination of all three voices

Hierarchical
(eg. Government)



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Egalitarian
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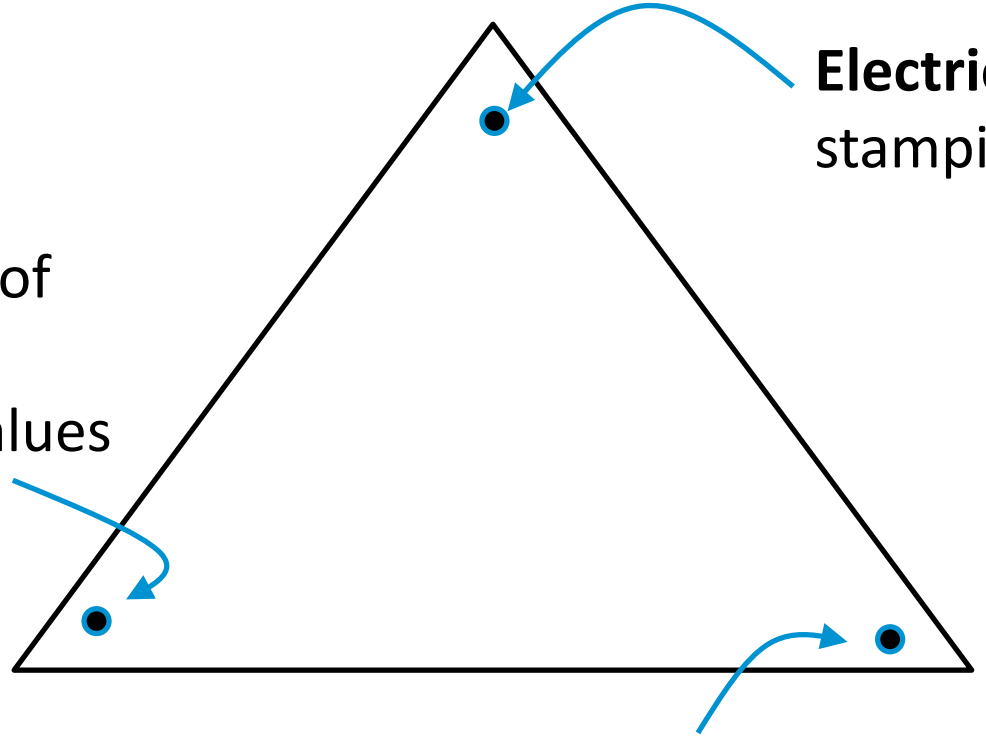
When governed by extremes we get ***distortions***…

Hierarchical
(eg. Government)

Electric Utilities – accused of stamping out innovation

Wall Street – accused of making money at the expense of all other values



Competitive
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Egalitarian
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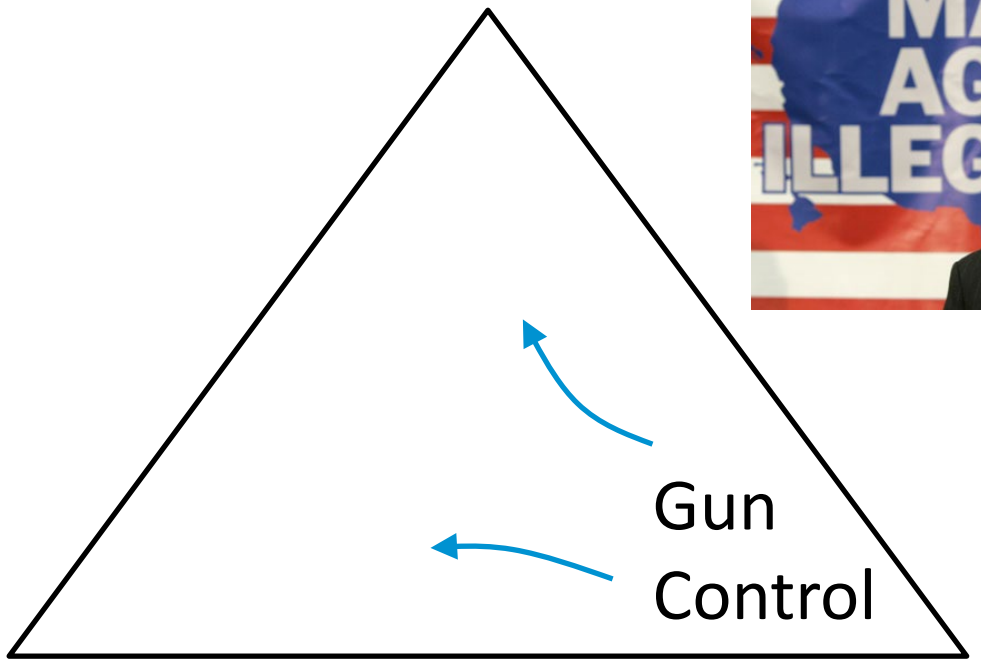
NRA – accused of valuing gun ownership over gun deaths

The response is to find solutions opposite triangle

Hierarchical
(eg. Government)

Trigger-lock guns

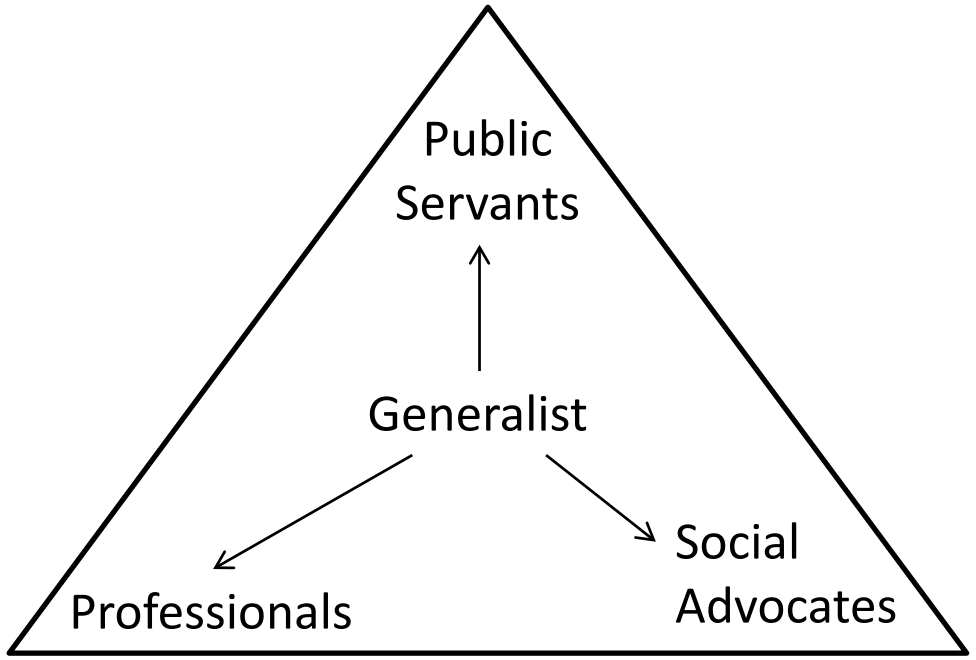


Competitive
(eg. Business)

Egalitarian
(eg. Public Interest Groups)

Your Role

Hierarchical
(eg. Government)



Competitive
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Egalitarian
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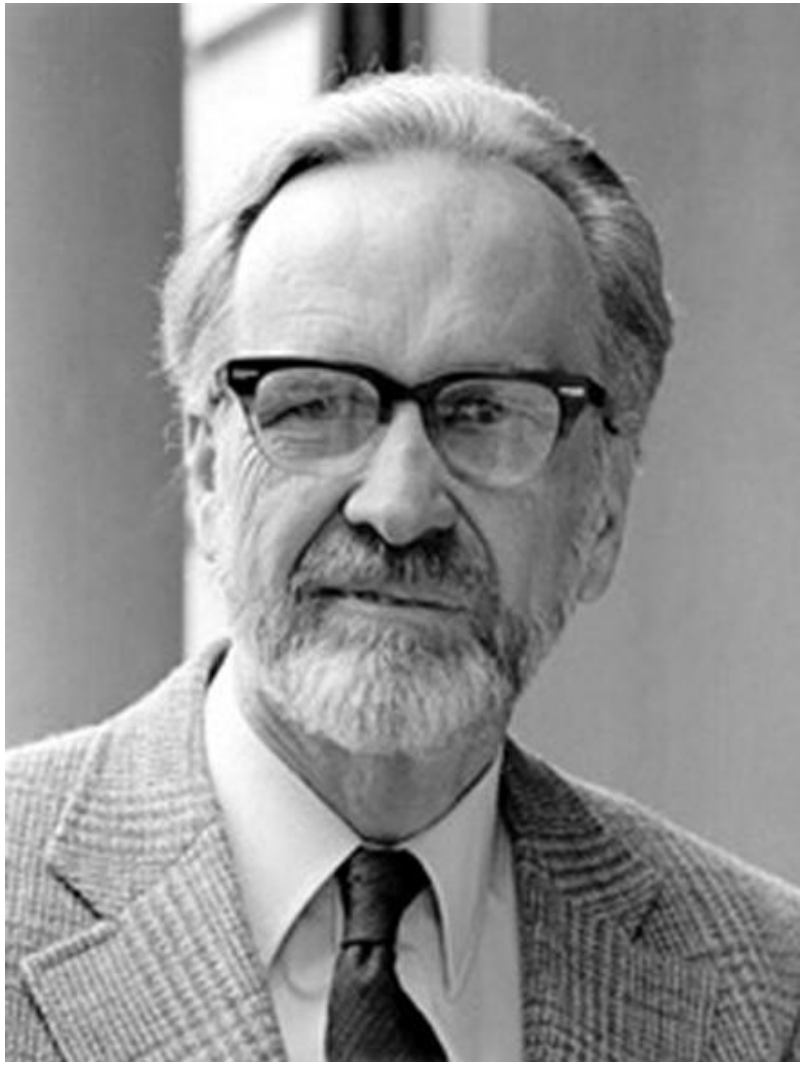
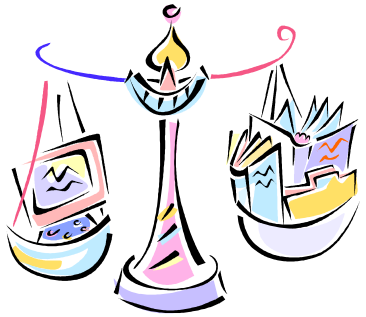
Technique: The Art of Muddling Through

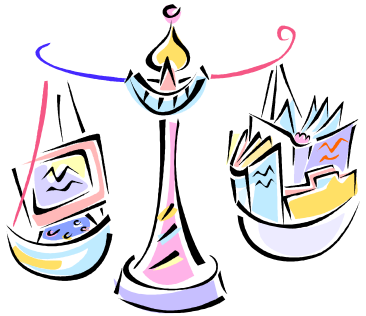




Why do policy makers mean well yet seemingly make poor decisions?

Incrementalism – making small changes instead of few, large jumps.

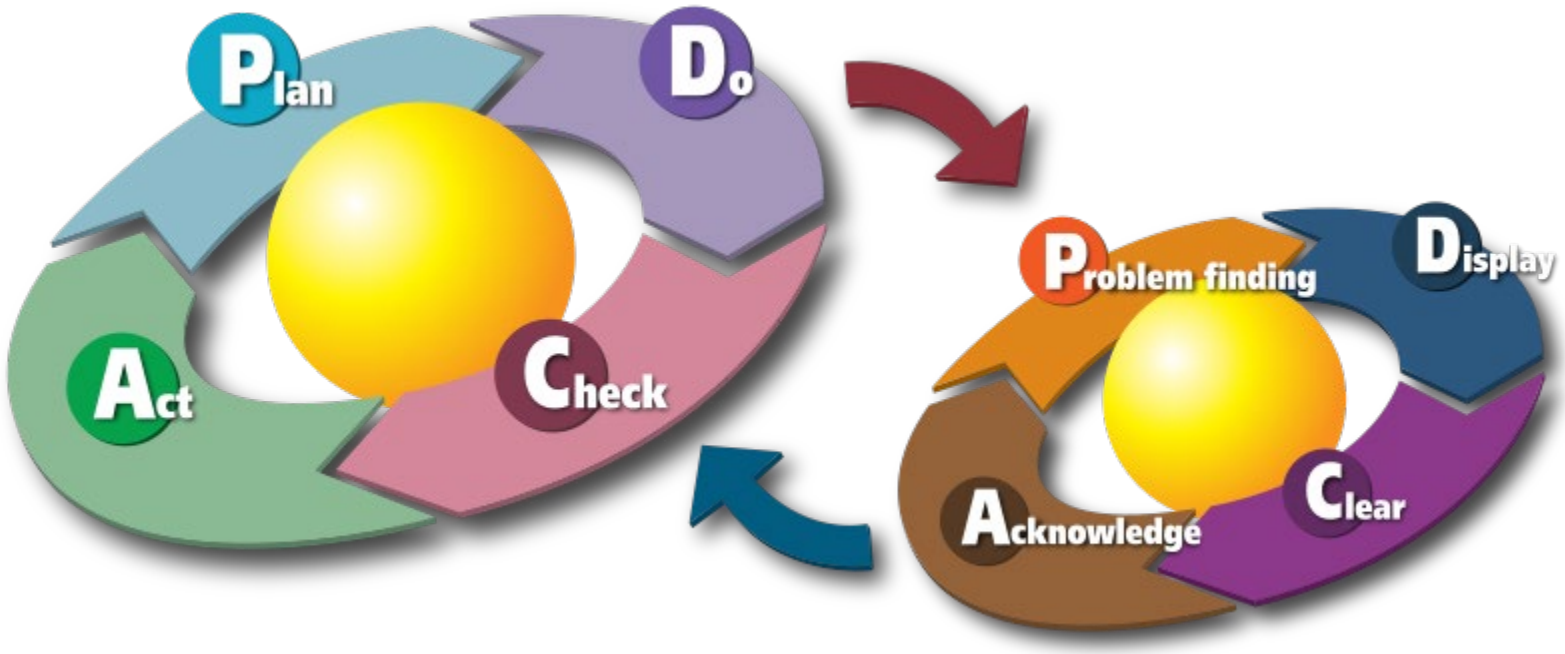
Technique: The Art of Muddling Through



1. Select Goal
2. Create a path based on information
3. "Good" is based on most appropriate means to achieve ends
4. Overcoming fear and making decisions with best available information
5. Re-examine results and process

Lindblom, Charles., *The Science Of 'Muddling Through'*, Public Administration Review, Vol. 19, pp. 79–88, 1959

Technique: Kaizen – Continuous Improvement

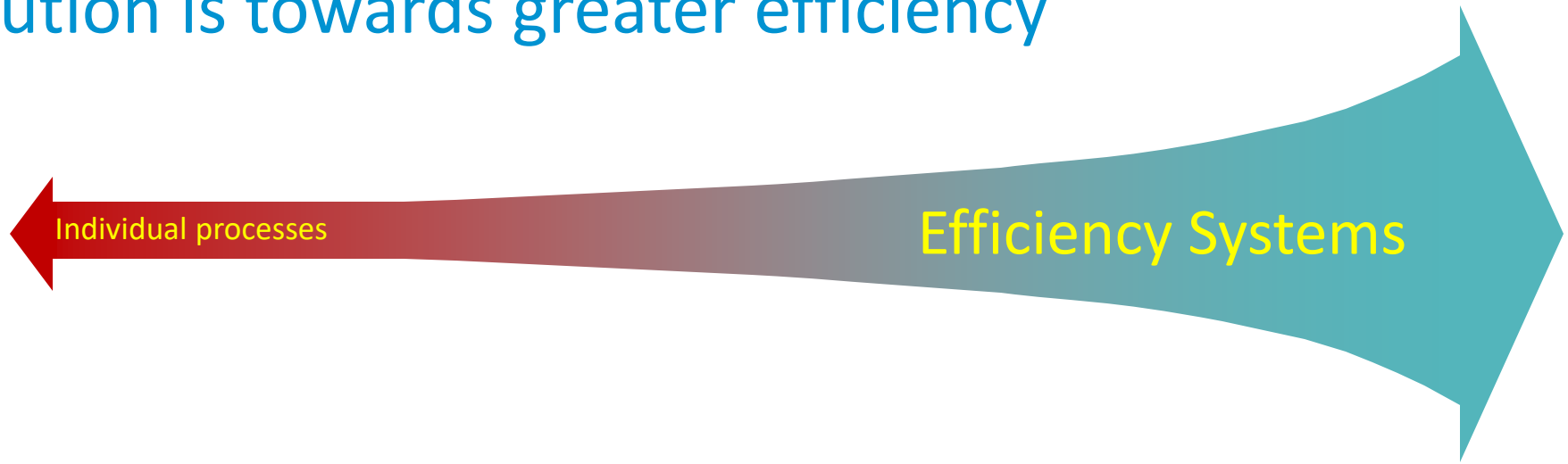


Goal: To make operations more efficient

Properties of Efficiency

Individual Process	Efficient System
Robust	Fragile
Many network connections	Few network connections
Localized System	Centralized Systems
Higher costs to operate	***Lower costs to operate***
Lower costs to implement	Higher costs to implement

The evolution is towards greater efficiency

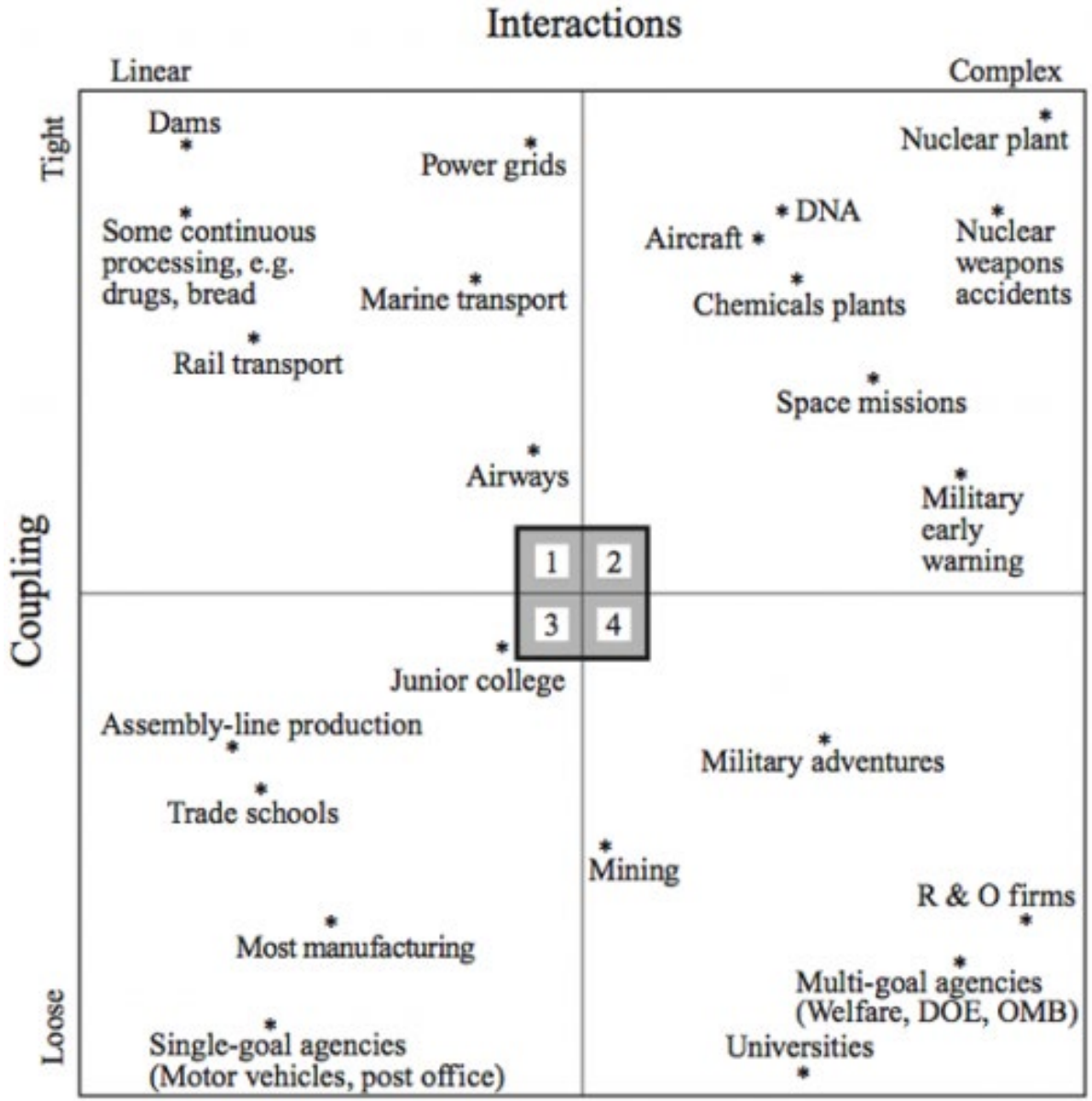


Organized Energy Infrastructure: Cascading failures of access results in blackouts

Organized Fiscal Markets: Failures of individual companies affect entire economy

Efficiency is the opposite of Resiliency!!!

Perrow's Four Quadrant Taxonomy



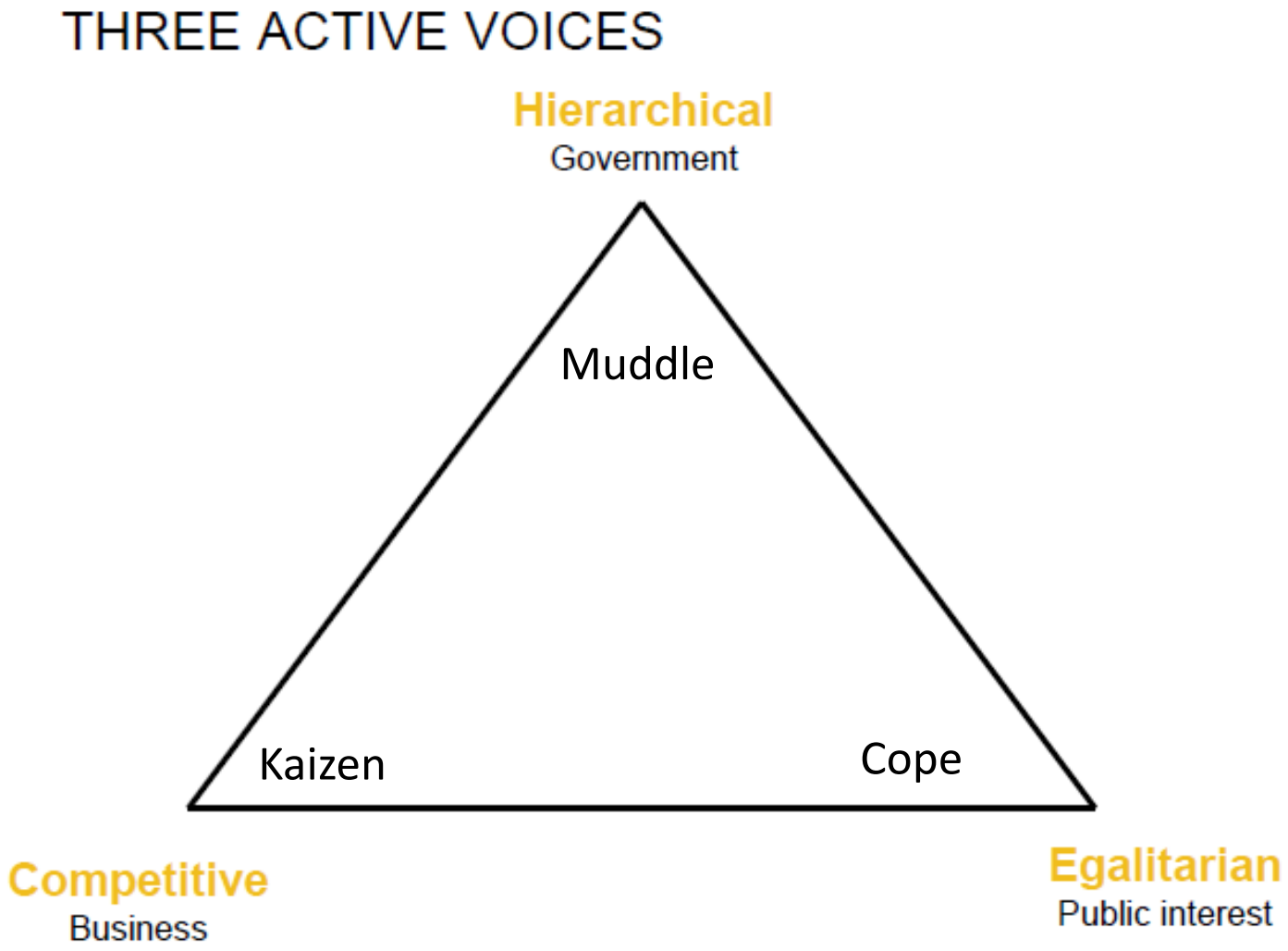
http://www.fogbanking.com/2013/10/ http://www.dodccrp.org/html4/bibliography/copch7.htm

Technique: How to Cope

- Dispersion of dangerous substances
- Dispersion of vulnerable populations
- Modularization of large organization
- Decentralization of critical components

C. Perrow, *Normal accidents, living with high-risk technologies*, Princeton University Press, Princeton, NJ, 1999

Techniques


THREE ACTIVE VOICES
Hierarchical
Government
Muddle
Kaizen
Cope
Competitive
Business
Egalitarian
Public interest

Is the energy problem its scarcity or its abundance?

The existence of an efficiency industry implies that there is waste.

- Otherwise, how does one profit from cutting waste?

Waste exists only when there is abundance of a resource.

- One is careful to use resources that are precious

Thus we live in a world where there is too much energy.

- Is it feasible to use less?

The Efficiency Paradox

Jevons Parodox: increases the efficiency with which a resource is used tends to increase the rate of consumption of that resource

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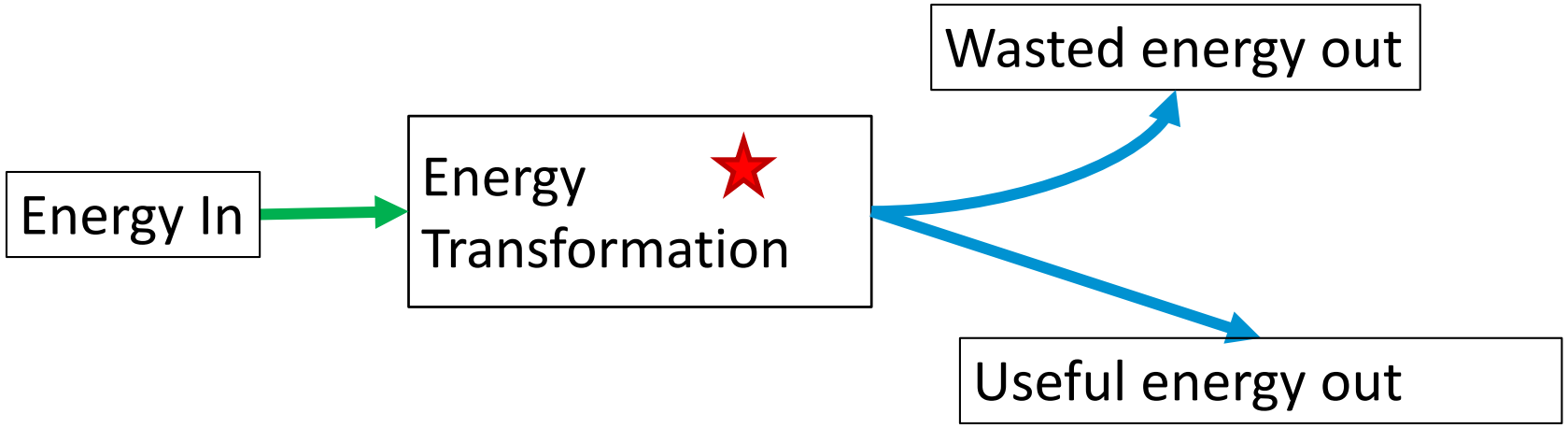
What does ***efficiency*** mean?

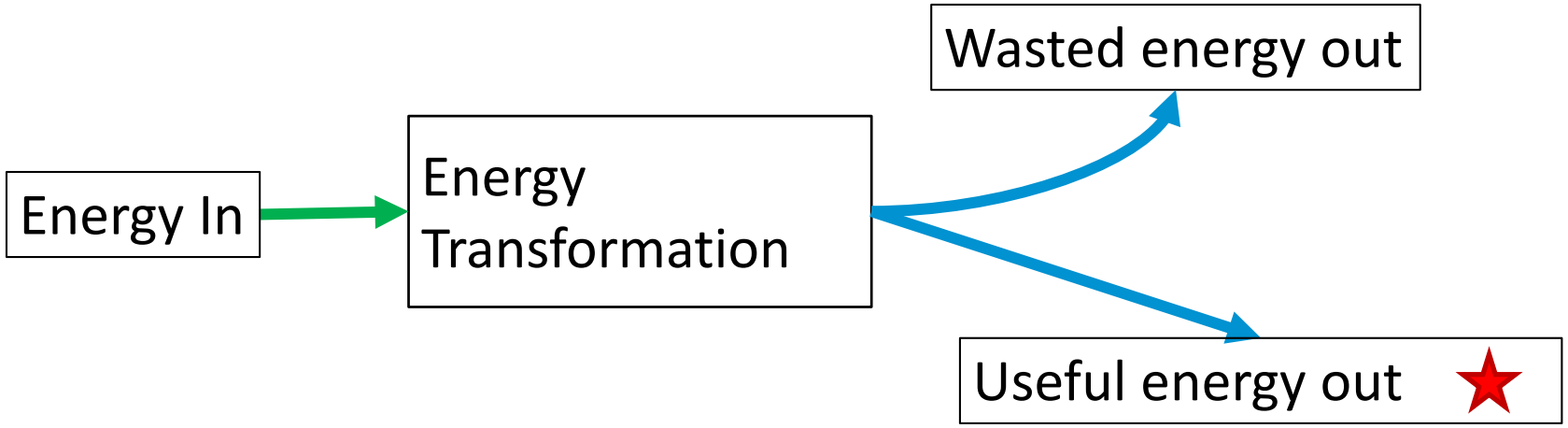


★ *ie, "Let us do more with less"*

The Efficiency Paradox

Jevons Parodox: increases the efficiency with which a resource is used tends to increase the rate of consumption of that resource

What problem ***should*** we focus on?



★ *ie, "Let us need less"*

Your frame of reference matters!

- The frame of reference defines the problem you're solving.
- Furthermore, it actually defines the solution you're proposing.

- Frequently, we define the frame of reference based on our favorite solution, ***NOT*** based on the facts of the situation.

In summary

Energy is a wicked problem due to ambiguity, temporality and fluidity

Clumsy solutions are needed with strong focus on leadership

Approaches include coping, muddling, and scenario contingency planning

Just because “it’s complex” doesn’t mean it’s someone else’s responsibility.

Questions?