THIEF OF TIME

TIME AS AN EQUIVALENT TO VARIETY TO MANIPULATE POWER AND CONTROL IN COMPLEX SOCIO-TECHNICAL POLITICAL SITUATIONS

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CONTRIBUTIONS OVERVIEW

1. NEW powerful systems methodology based on **variety management**
2. NEW **Dynamic Law of Requisite Variety**
3. NEW **Law of Requisite Time**
4. NEW explanations resolving key problems of military theories of warfare (e.g Von Clauswitz maneuver warfare)
5. NEW strategies for asymmetric warfare
6. NEW guidance for using covert techniques to manipulate and acquire power from stronger adversaries
7. NEW body of methods of crime and tools to break security systems
8. FORMAL definition of simple, complicated and complex systems
9. Identification of critical weaknesses in a variety of systems methods (SSM, VSM, SoS…

LAW OF REQUISITE VARIETY

Law of Requisite Variety :

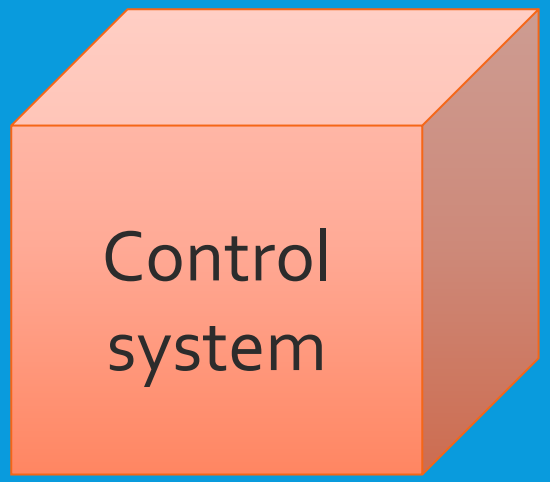
For a system to be stable,
the number of states that its control mechanism is capable of attaining (its variety)
must be greater than or equal to the number of states (the variety) in the system being controlled.

(W. Ross Ashby (1956): An Introduction to Cybernetics, Chapman & Hall, London.)

LoRV is one of the few laws that applies across most disciplines

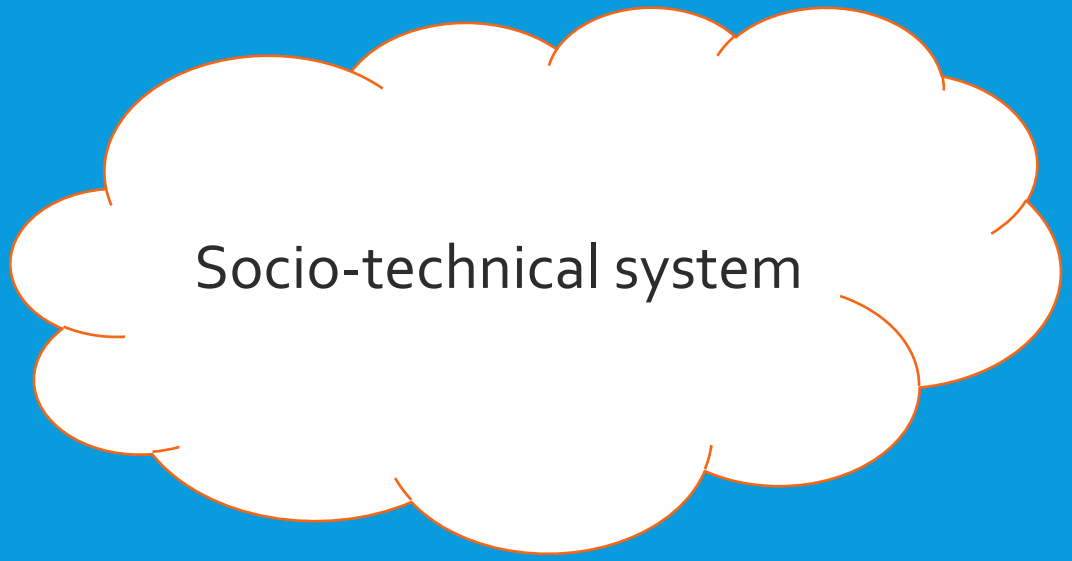
SYSTEM AND CONTROL VARIETY

Control system variety



Control

Controlled system variety



Variety of control system must be bigger than Variety of controlled system

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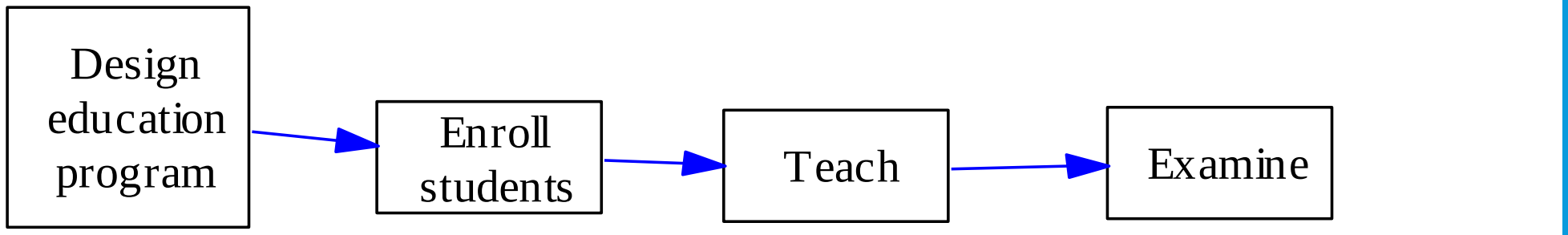
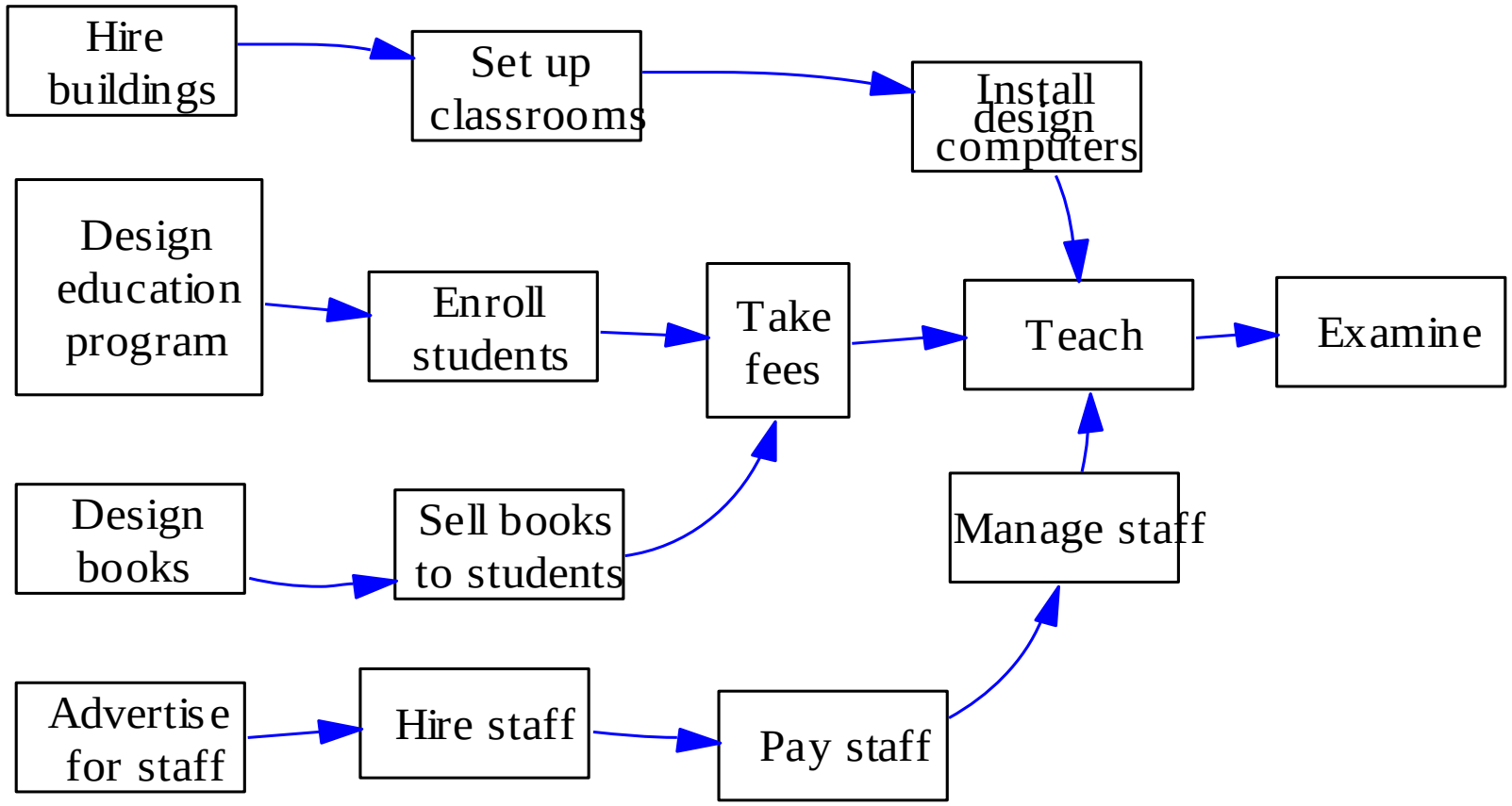
SIMPLE SYSTEM

SIMPLE SYSTEM – SMALL NUMBER OF ELEMENTS AND LINKS, LESS THAN 2 FEEDBACK LOOPS



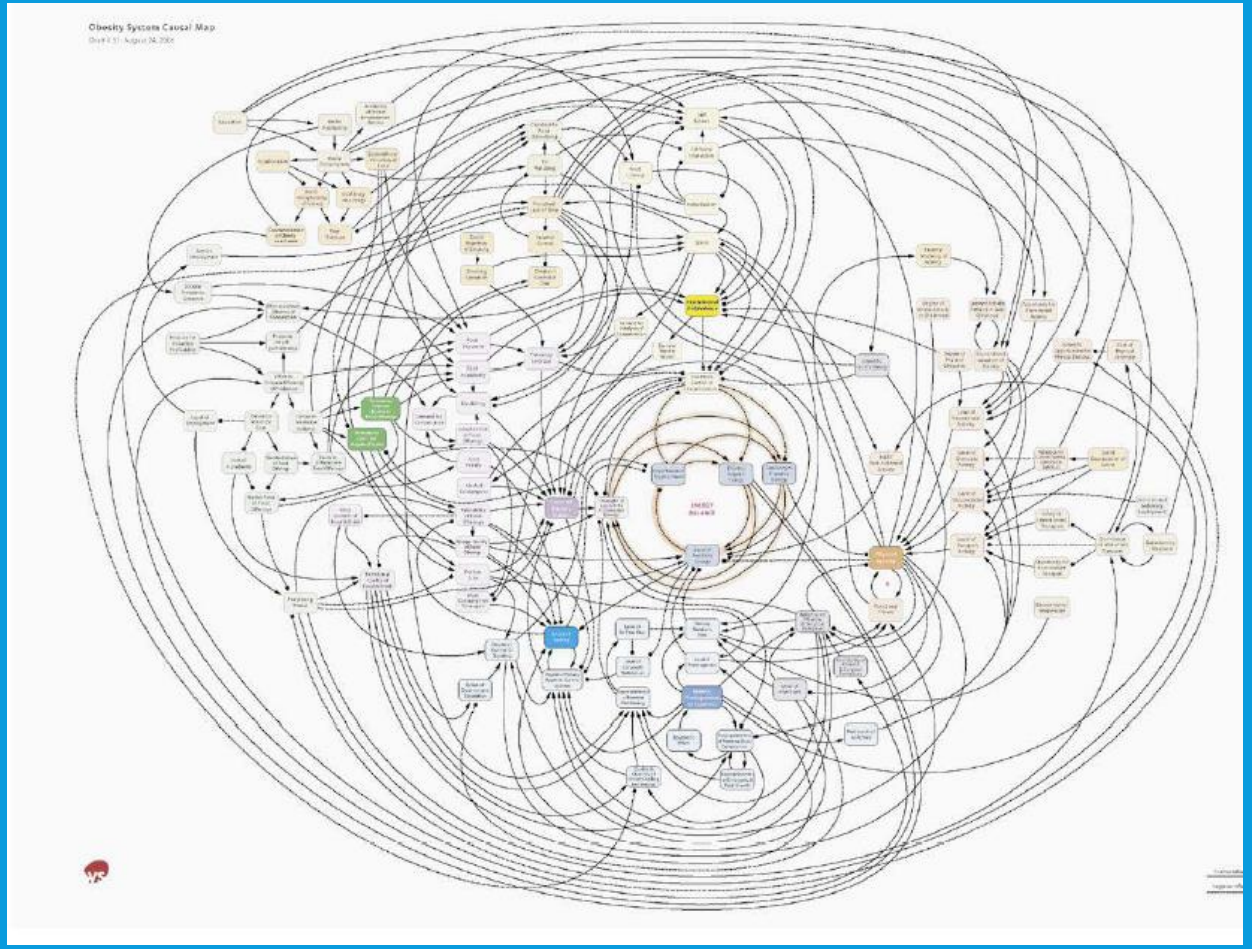
COMPLICATED SYSTEM

COMPLICATED SYSTEM – LARGE NUMBER OF ELEMENTS AND LINKS, LESS THAN 2 FEEDBACK LOOPS



COMPLEX SYSTEM

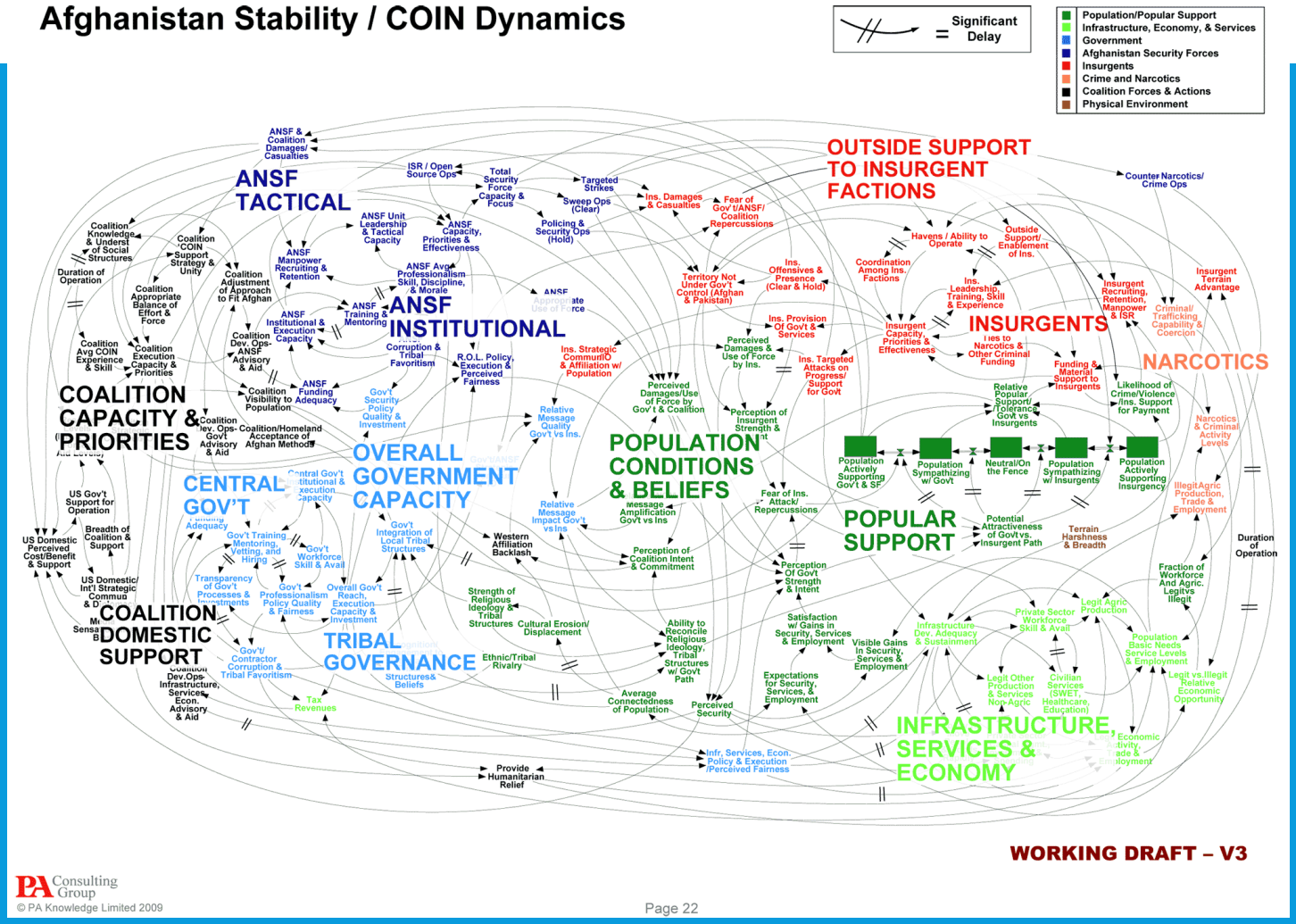
COMPLEX SYSTEM – ANY NUMBER OF ELEMENTS AND LINKS, AND 2 OR MORE FEEDBACK LOOPS



Obesity causal loop

More than 2 feedback loops

COMPLEX SYSTEM & CONTROL SYSTEM



http://www.oss.net/dynamaster/file_archive/091222/9649ad18a0d538dc213e13af676e3aa8/Afghanistan_Dynamic_Planning.pdf

2 FEEDBACK LOOP AXIOM (LOVE 2008)

- Two feedback loops is the human cognitive limit of understanding and prediction
- 2 feedback loops is the defining point at which individuals cannot predict the outcomes from system activity
- Data from individuals about the behaviours and outcomes of situations involving more than 2 feedback loops is typically incorrect and deluded.
- This has serious implications for the validity of many systems methods

DYNAMIC COMPLEX SYSTEMS

We define DYNAMIC complex systems as systems:

- With more than 2 FEEDBACK LOOPS
- Whose ARCHITECTURE changes DYNAMICALlY
- Whose SYSTEM and SUBSYSTEM OWNERSHIPS change dynamically

VARIETY

- The number of different possible states of any element of a system or of the system itself at any moment

VARIETY AS DYNAMIC AND DISTRIBUTED

- Complex socio-technical systems change continuously – they are dynamic!
- Variety is distributed in complex and dynamic ways across each system and subsystem element
- The variety is both distributed and dynamic and the distributions of variety continuously change

INFLUENCING VARIETY FLOW IS POWER

- Influencing the flows of variety = creating change to the distribution and ownership of power and control.

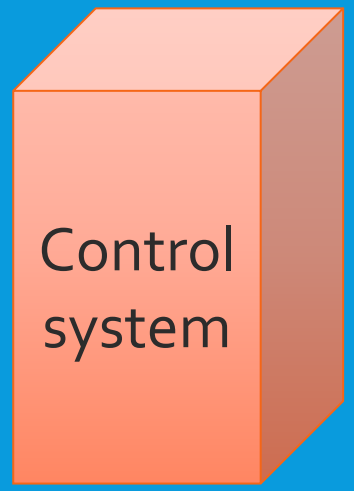
- Examples:
- 1. Teaching
- 2. Unions
- 3. Vehicle pollution standards

- We have developed 13 axioms guiding the use of variety to change the ownership and distribution of power.

VARIETY AS A RESOURCE

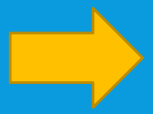
Stakeholders who can influence variety (and hence power) have a quantity of variety RESOURCE.

Extra variety resource



Control system

Control



Socio-technical system

TIME AND VARIETY DYNAMICS

- The ability to generate variety in complex systems is relatively UNLIMITED.
- Influencing variety in a dynamic systems, however, requires TIME.
- TIME (as a resource) is required to use variety resources to influence power distribution and ownership.

NEW LAW OF DYNAMIC REQUISITE VARIETY

We propose a new **DYNAMIC Law of Requisite Variety** for dynamic complex systems with distributed variety:

For a dynamic complex system to be controlled at system and or subsystem levels at a single point in time,

requires that the number of states that its control system(s) are capable of attaining (their variety) in any part of the system at that instant

must be greater than or equal to the number of states (the variety) at the same instant in the parts of the system being controlled .

NEW LAW OF REQUISITE TIME

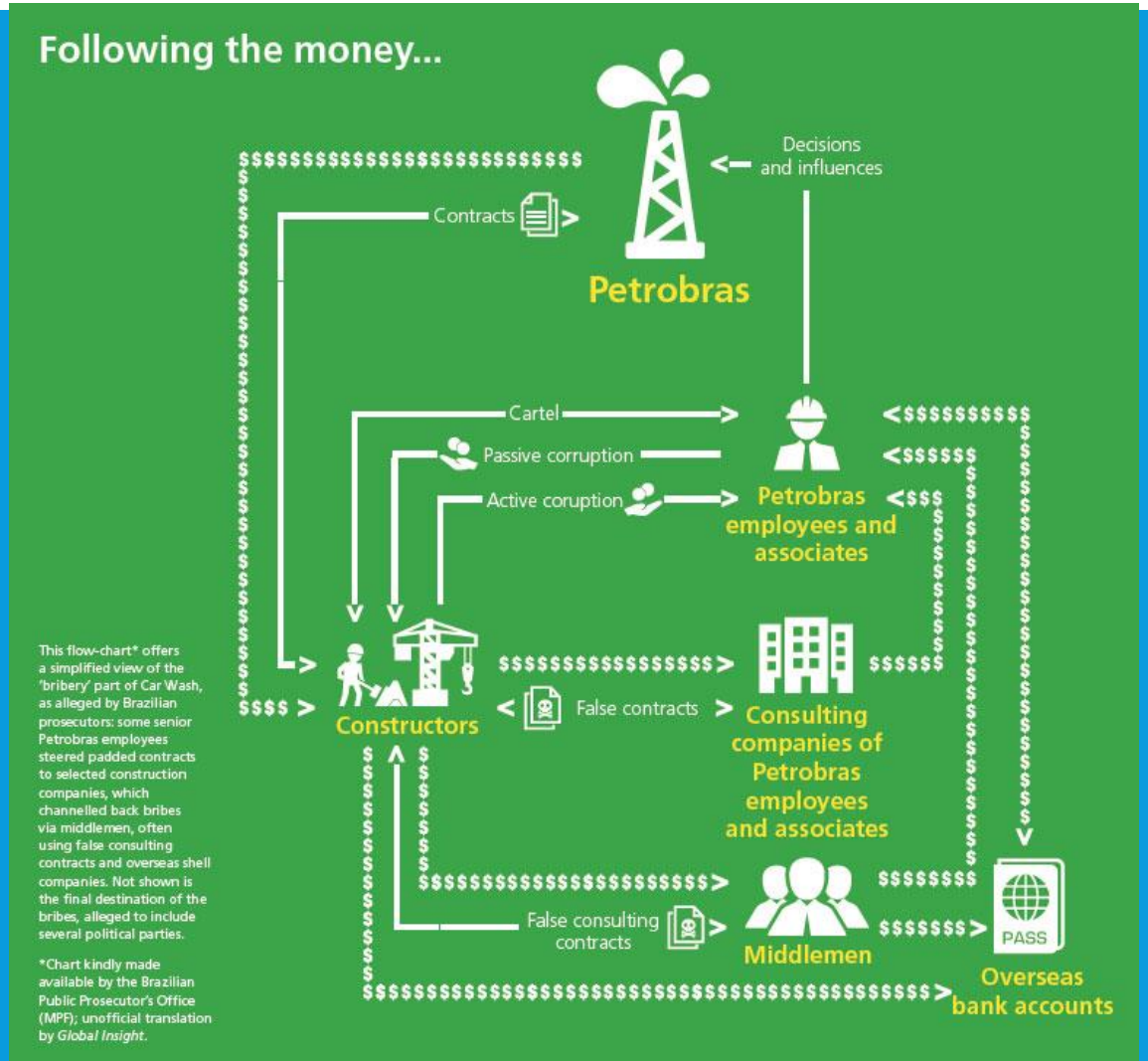
We propose a new DYNAMIC Law of Requisite TIME for dynamic complex systems with distributed variety:

For a dynamic complex system to be controlled at subsystem levels at a single point in time,

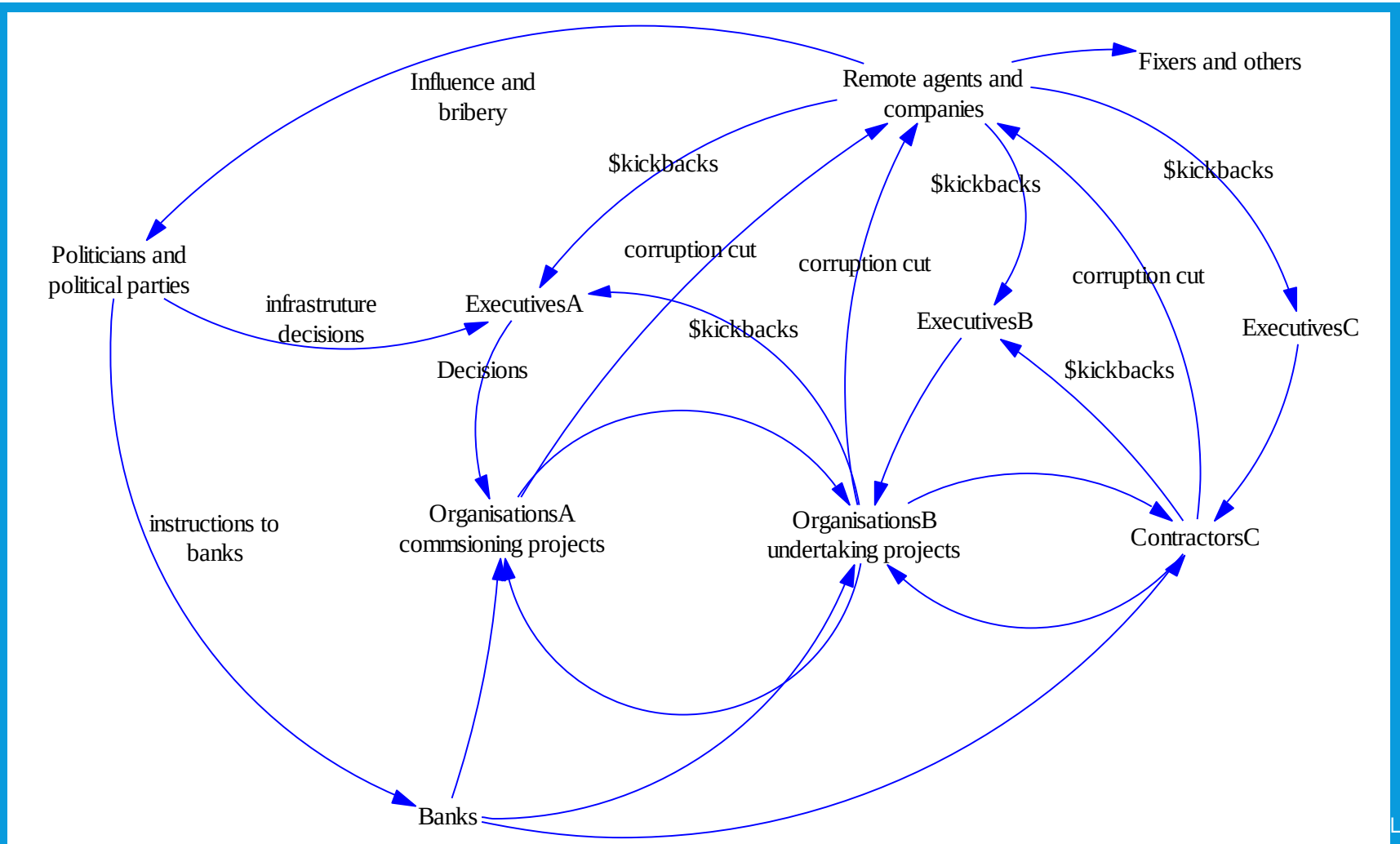
requires time to increase the number of states that its control system(s) are capable of attaining (their variety) in the part of the system under consideration to be greater than or equal to the number of states (the variety) at any instant in the same parts is less than the time the controlled system uses to increase its variety .

(In other words, the local d(variety)/dt for the control system is <= the local d(variety)/dt for the controlled system)

EXAMPLE MONEY FLOW PETROBRAS



CORRUPTION MODEL



ANY QUESTIONS?

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