Machiavelli:
Using Distribution and Dynamics of Variety to Change the Locus of Control of Complex Socio-Technical-Political Systems

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Imagine…

Imagine there exists a set of tools that can change power relations unobtrusively, unseen and without a fight…

Imagine…

- You and your work are being unhelpfully micro-controlled by managers
- You are being pressured to do things in a domineering relationship
- You manage an organisation that is dominated by stronger collaborators
- You are trying to change environmental laws against powerful industry bodies
- You are a union trying to operate under punitive union laws
- You are a parent or teacher with difficult kids
- You are a country conducting asymmetric warfare
- You are a smaller political party facing domination

Our axioms of variety change power relations unobtrusively and often unseen

Law of Requisite Variety

Ashby's 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.)

This presentation describes:

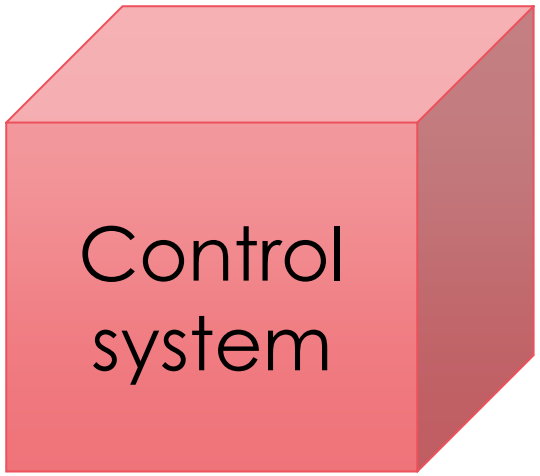
- How to use variety as a powerful tool to change power relationships in a variety of complex socio-technical contexts in: business, research, education, personal, political, environmental, organisational, governance, business competition, corruption, information warfare and asymmetric warfare.
- Pointers to 14 variety axioms.
- How this can change Systems thinking and Operation research practices and theory

Variety

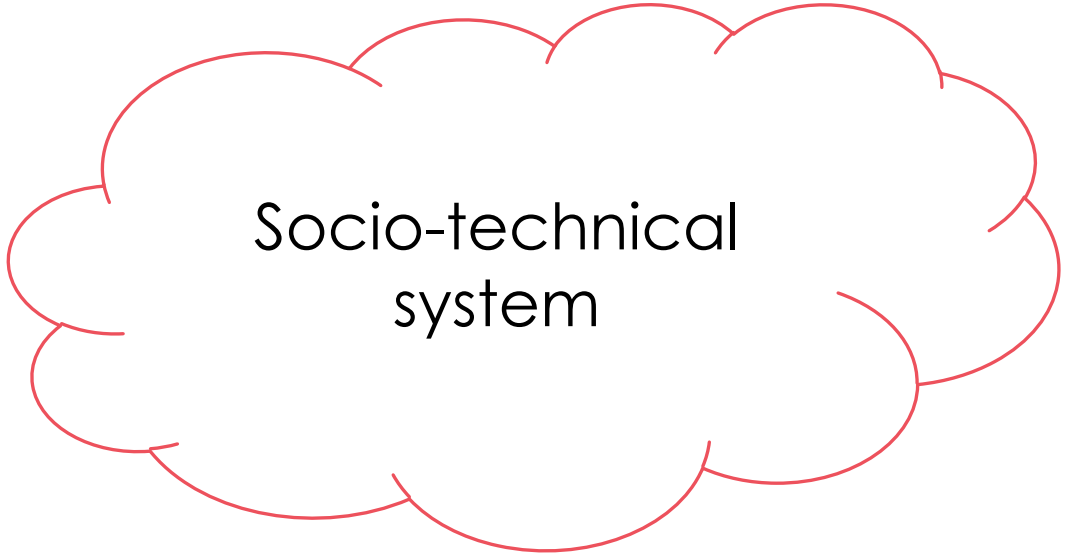
- Variety is the number of different states possible for each variable in the system and control system.

Simple system and variety

Variety in control system



Variety in system being controlled

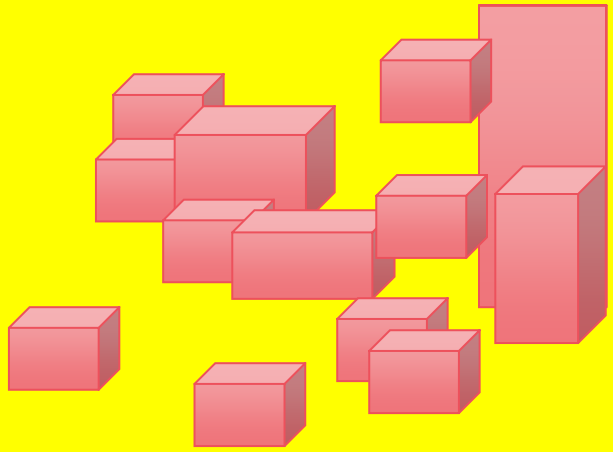


Variety of the Control system must be bigger than Variety of Socio-technical system

School teacher and children

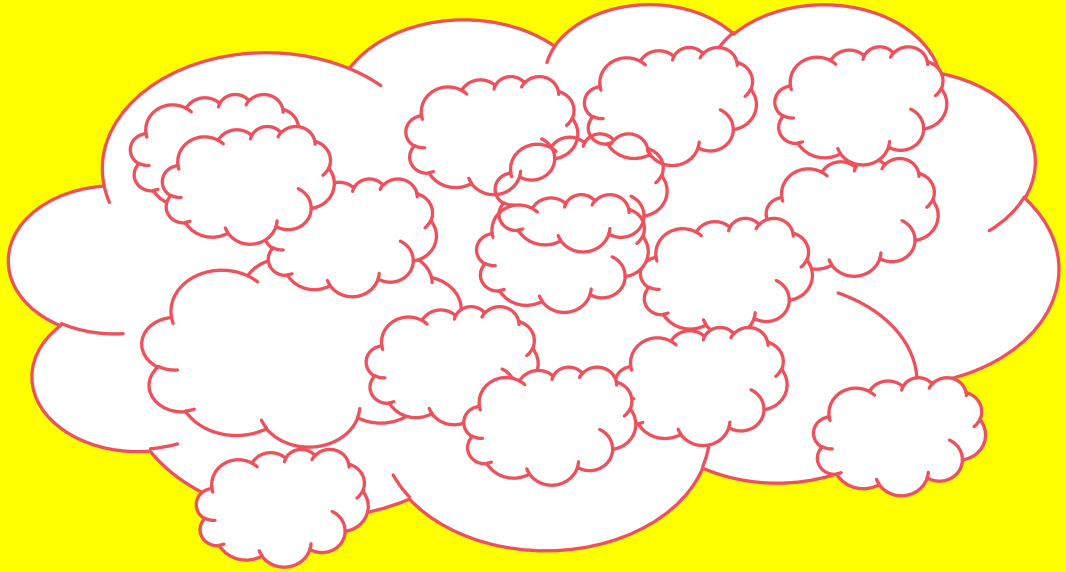
Complex Socio-technical systems

Dynamically changing control systems



Control

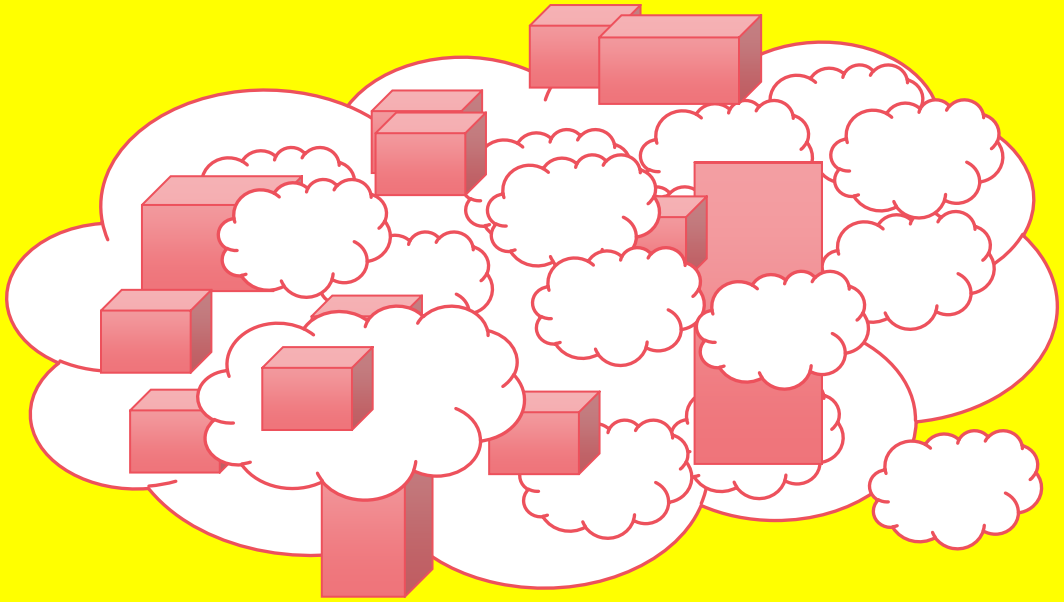
Dynamically changing systems and subsystems



Variety of the Control system must be bigger than Variety of Socio-technical system

Complex socio-technical systems

Variety is dynamically distributed through the control system and the system being controlled



Dynamically changing systems, control systems, subsystem ownerships and variety

Variety and Time Axioms

- We have developed 14 variety axioms to guide the use of variety to manipulate power in complex socio-technical systems.
- Recently, we have identified a Law of Requisite Time and an associated set of 14 time axioms to manipulate power.

Open Source vs Proprietary Software

Union control of management

Environmental legislation

Variety Axioms and Systems Thinking

Systems Thinking:

- Adds several new dimensions to systems thinking about management, conflict and power
- Introduces **variety resources** and **variety-based time resources** into stocks and flows
- Requires inclusion of **dynamics of change** of system architecture, system boundaries and subsystem and system ownerships.
- Breaks or adds significant extension to the Soft Systems model, critical system heuristics and related system thinking approaches
- Adds additional pathways to Beer's Viable Systems Model

Variety Axioms and Operations Research

Operation Research:

- Adds several new dimensions to OR in areas of management, conflict and power dynamics
- Introduces **variety resources** and **variety-based time resources as variables** in operations and operations management modelling
- Requires inclusion of **dynamics of change** of operations and management architectures, operation system boundaries and subsystem and system management and control . This essentially makes most OR models layered non-linear multivariable control systems in this area
- Breaks or adds significant extensions to analysis for OR systems aimed at supporting decisionmaking.
- Breaks or adds significant extensions to analysis for OR systems aimed at supporting decisionmaking in military, policing and other asymmetric force operations.
- It provides a foundational explanation for success and failures involving *maneuver warfare* strategies.