Governance and Controls in Complex Projects

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'Take home' messages

1. *"We cannot solve problems at the same level of thinking that we were at when we created those problems."*

    (Albert Einstein)

2. *"The 21st century is the century of complexity."*

    (Stephen Hawking)

3. *"A good governance structure does not guarantee good outcomes, but a bad structure will most likely diminish project success!"*

    (Project Governance, Victorian Government, page 7)

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Governance considerations: traditional vs complex projects (the 'What' and 'Why')

Considerations	Traditional Projects	Complex Projects
Project Environment	Stable and predictable	Uncertain and dynamic
Decision Making	Centralised decision making based on predefined processes	Decentralised decision-making, adaptability and flexibility
Stakeholder Engagement	Fewer stakeholders with well-define roles and responsibilities	Diverse stakeholders with varying interests and perspectives
Planning and Control	Emphasis on detailed upfront planning and strict control	Iterative planning, adaptive control, and ongoing adjustments
Risk Management	Focused on identifying and mitigating known risks	Emphasis on identifying and managing uncertainties and emerging risks
Project Leadership	Directive leadership style	Adaptive leadership style
Communication	Formal and structured communication channels	Open and transparent communication, fostering collaboration
Performance Measurement	Traditional metrics and performance indicators	Emphasis on measuring project outcomes and adaptive performance metrics
Project Success Criteria	Meeting predefined objectives and deliverables	Value creation, innovation, and achieving desired outcomes
Project Governance	Clearly defined roles and responsibilities	Agile and adaptive governance structures and processes

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Rethinking project governance
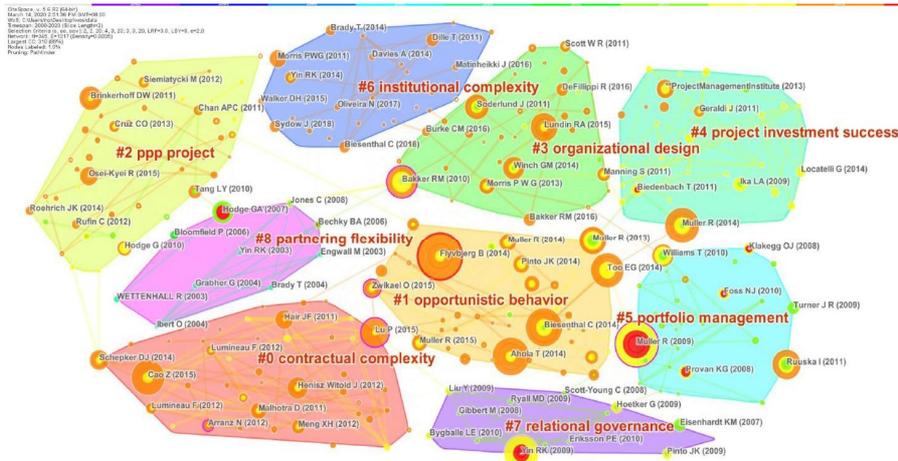

A visualisation of the document co-citation network

Source: Song, J, Song, L, Liu, H, Feng, Z & Müller, R (2022), 'Rethinking project governance: Incorporating contextual and practice-based views', International Journal of Project Management, vol. 40, no. 4, pp. 332–346.

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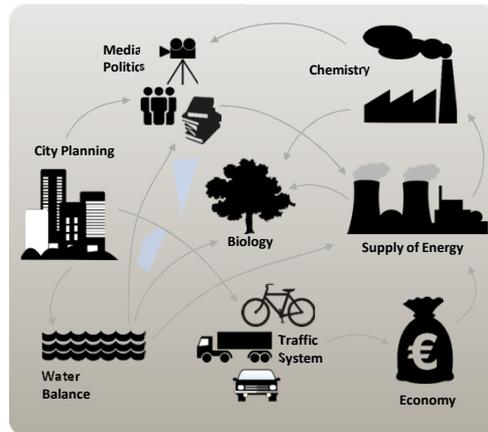
How: Systems Thinking in Project Governance

Overview of systems thinking

› The six blind men and an elephant

› A partial **truth**

› The moral of the story: having a **'holistic' view**

› *"The behaviour of a system cannot be known just by knowing the elements of the system"*
(Meadows, 2008)

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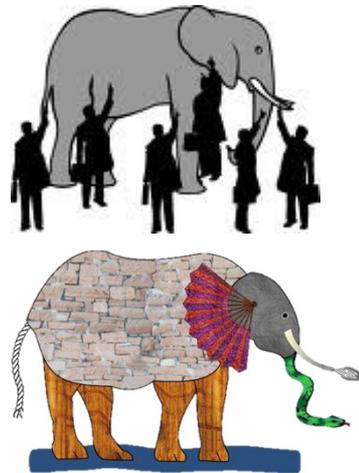
The torn net

A coherent net torn apart

- **We live and work in a society which consists of a network in which everything is connected**, but in reality we make decisions in a **torn net**.

- Examples are everywhere – in governments we have different departments; in companies we have divisions; and **in projects we have different teams**, and so on. This is obviously because we need these structures to be able to have order in our societies.

- The problem, however, is that we have built **'thick walls'** around these entities that has led to a lack of communication and cross-sectoral collaboration. This is one of the major **stumbling blocks** in addressing complex problems, delivering projects & programs successfully.

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Definition of Systems Thinking

› *Systems thinking* is a *'new way of thinking'* to **understand** and **manage complex problems**, **deliver projects & programs successfully** (Cabrera et al., 2008; Bosch et al., 2019).

› *It is very important to apply a **systems thinking approach** to **project governance & controls**. Consider **the project** as a **whole system** with interconnected components, rather than **focusing solely** on **individual tasks** or **processes**. Understand how changes in one part of the project can impact the **overall system** and identify **leverage points** for effective **governance** and **intervention**.*
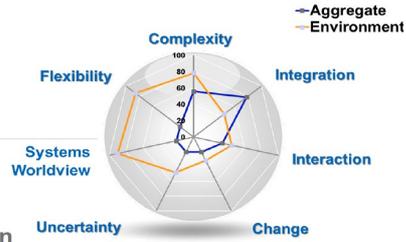
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Gaps between Systems Thinking Capacity and ST Environment Demand (Keating and Katina, 2019)

1 Workforce Capacity for Systems Thinking

SCENARIO: Workforce is continually behind in responding to environment shifts -- resulting in crises, surprises, and performance shortfalls.

CSG RESPONSE: Identify the gaps between Systems Thinking Capacity of the workforce and that demanded by the environment
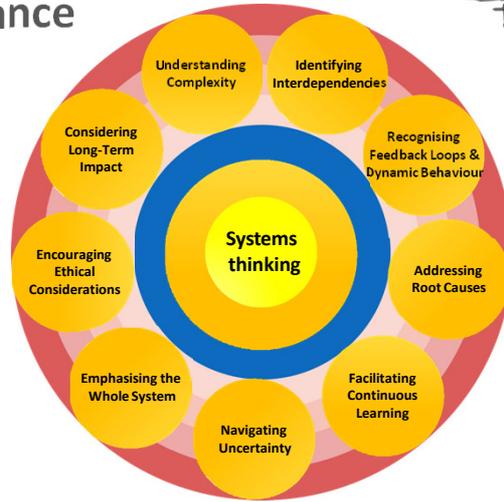
Gaps across 7 dimensions of systems

- Aggregate
- Environment

Complexity
Integration
Interaction
Change
Uncertainty
Systems Worldview
Flexibility

Systems Thinking Capacity **Must be** $\geq$ Systems Thinking Environment Demand

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"Variety absorbs variety."
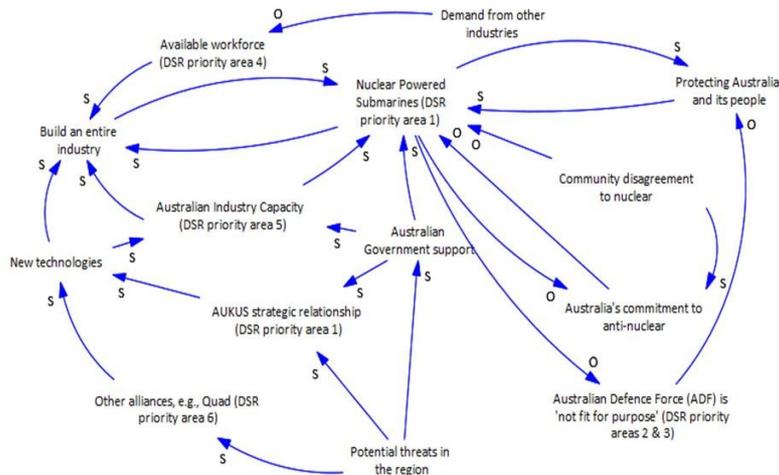
Ashby's Law of Requisite Variety

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Systems Thinking's relevance in project governance

Systems thinking: having an holistic or **'aeroplane' view** on **project governance**

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Nuclear Powered Submarine Program: Causal Loop Diagram (systems map)

A preliminary high-level CLD of Nuclear Powered Submarine Program ('s': same direction; 'o': opposite direction)

Source: ICCPM, 2023 'A Necessary Paradigm Shift: Positioning Australia to Respond to an Increasingly Complex Strategic Environment'

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Nuclear Powered Submarine Program: Sources of Complexity
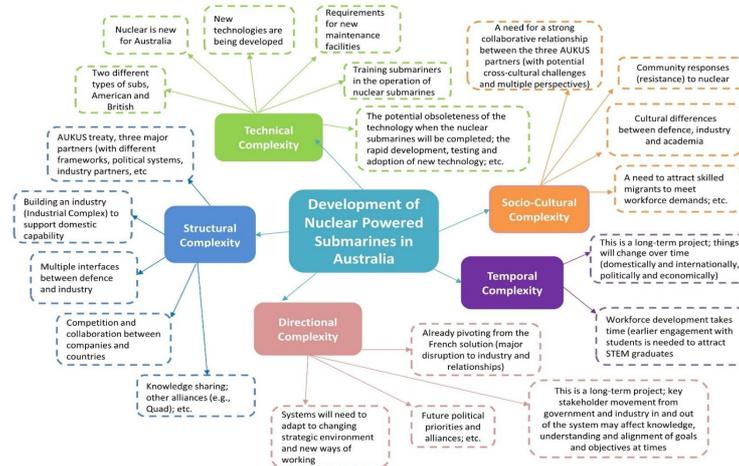
Mapping potential sources of complexity in the Australian Nuclear Powered Submarine Program (a preliminary version)   13

Source: ICCPM, 2023 'A Necessary Paradigm Shift: Positioning Australia to Respond to an Increasingly Complex Strategic Environment'

Apply system governance and delivery assurance (ICCPM CPL Competency Standards – CPL05)

✓ Uses a systems-based approach to support the project governance function

✓ Pursues an appropriate delivery assurance approach

✓ Promotes a whole-of-life approach (attitude) to procurement

✓ Follows an adaptive procurement and acquisition approach

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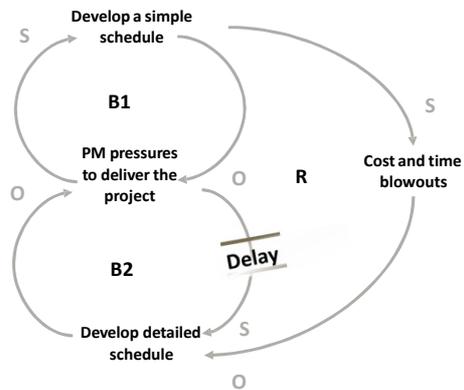# Reframing Project Success: Outcomes vs. Time and Cost

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Time focus and its limitations

Source: soldevelo.com

- **Time**: The project's ability to meet scheduled deadlines and milestones.
- **Importance**: Timely delivery is crucial for stakeholder satisfaction and overall project success.
- **Limitation**: Ignores the quality of the deliverables, focusing solely on meeting deadlines.
- **Limitation**: Can lead to rushed work and compromised outcomes to meet time constraints.

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PM time pressure: "Shifting the Burden"

Develop a simple schedule

S

B1

PM pressures to deliver the project

O   O   **R**   Cost and time blowouts

S

B2   Delay

Develop detailed schedule   S

O

Source: Kerr, T. (2023)

- This is a common situation in PM with time pressure.

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Cost focus and its limitations

Source: soldevelo.com

- **Cost**: The project's adherence to budgetary constraints and financial resources.
- **Importance**: Keeping costs under control is essential for financial sustainability.
- **Limitation**: Doesn't consider the value or long-term impact of project outcomes.
- **Limitation:** Overemphasis on cost reduction may compromise the project's quality and innovation.
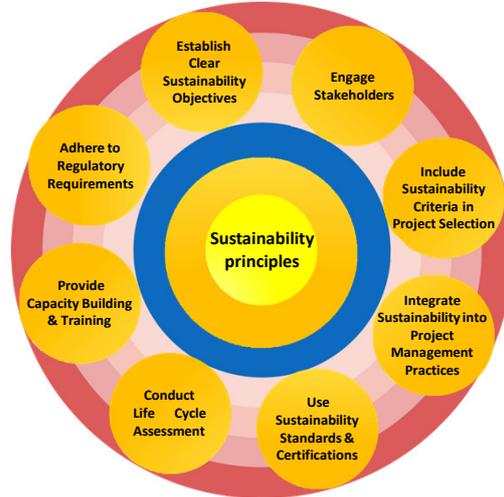
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Example: Sydney Opera House Case

- 'Iron triangle' failure: 14 instead of 4 years, AUD$102M instead of AUD$7M.

- However, it has become a global icon and a source of immense national pride for Australia.

- It stands as a **compelling case study** of a **project** that **redefined success** based on **outcomes** rather than being **limited by cost** and **time** constraints.

Source: *https://www.sydneybuildexpo.com/*

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Systems Governance for Sustainability

Sustainability principles: project governance

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Example: Tesla's Gigafactory

Source: https://au.pcmag.com/cars-auto/90028/

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Case Study: Deepwater Horizon oil spill

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Source: https://www.britannica.com/event/Deepwater-Horizon-oil-spill

Deepwater Horizon – implications for project governance and risk management

➢ Non-linear Dynamics

➢ Emergence of Unforeseen Behaviour

➢ Interconnectedness and Interdependence

➢ Adaptive Capacity and Resilience

➢ Feedback Loops and Delays

➢ Uncertainty and Complexity

➢ System Boundaries and External Influences

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Understanding Emergent Risk and Opportunity

Differentiating between traditional and emergent risks

Aspect	Traditional Risks	Emergent Risks
Definition	Known, anticipated, and historical risks	Unpredictable, novel, and rapidly evolving risks
Characteristics	Familiar, often well-managed	Uncertain, complex, and difficult to quantify
Predictability	Generally predictable	Often unpredictable
Response Time	Standard response procedures	May require adaptive response measures
Impact Scope	Usually localised	Can have global impact
Examples	Natural disasters (earthquakes, floods)	Cybersecurity breaches
	Market fluctuations	AI and automation-related risks
	Supply chain disruptions	Climate change-related impacts
Management Approach	Risk assessment and mitigation strategies	Adaptive strategies and agility

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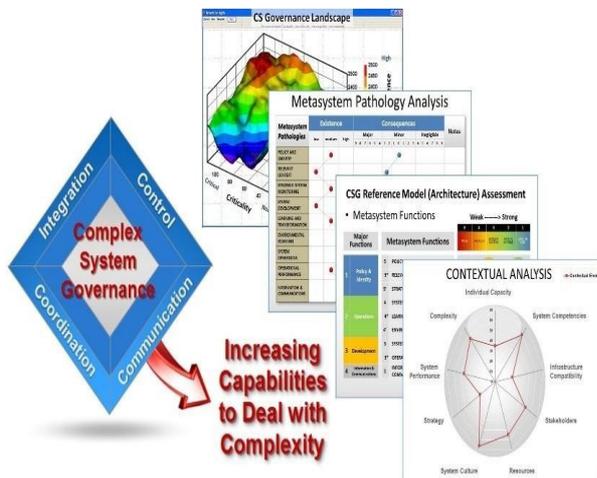Capabilities Required for Harnessing Emergence in Complex Projects
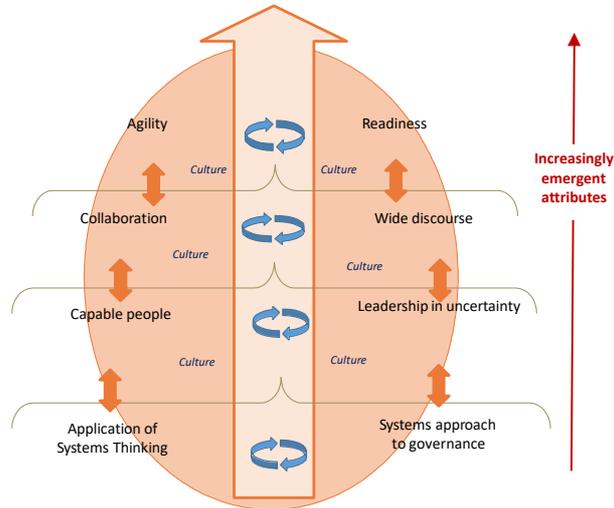
Source: Bensley, J., Smith, C. & Barber, R. (2021). *Harnessing Emergence in Complex Projects: Rethinking Risk, Opportunity & Resilience*. International Roundtable Series; Canberra: ICCPM

Governance Frameworks for Complex Projects

Complex System Governance (CSG)

- CSG emphasises the need for a holistic understanding of the system's interdependencies, diverse stakeholders, and evolving environmental factors.
- It advocates for continuous learning to navigate the evolving challenges of complex systems.

Source: Engineering Management & Systems Engineering & Old Dominion University, USA

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Viable System Model (VSM)
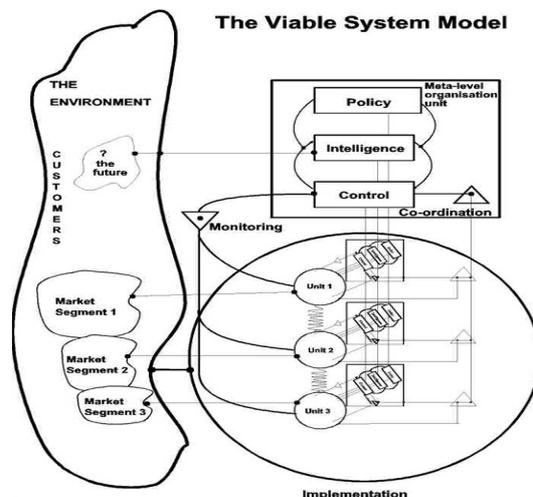
- VSM seeks to identify the fundamental principles and structures that allow organisations to adapt and survive in dynamic environments.
- Applications in various fields, e.g., organisational design, systems thinking, and complex project governance.

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Thank you very much for your time!

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