INTERNATIONAL CENTRE FOR COMPLEX PROJECT MANAGEMENT

Managing Speed and Complexity

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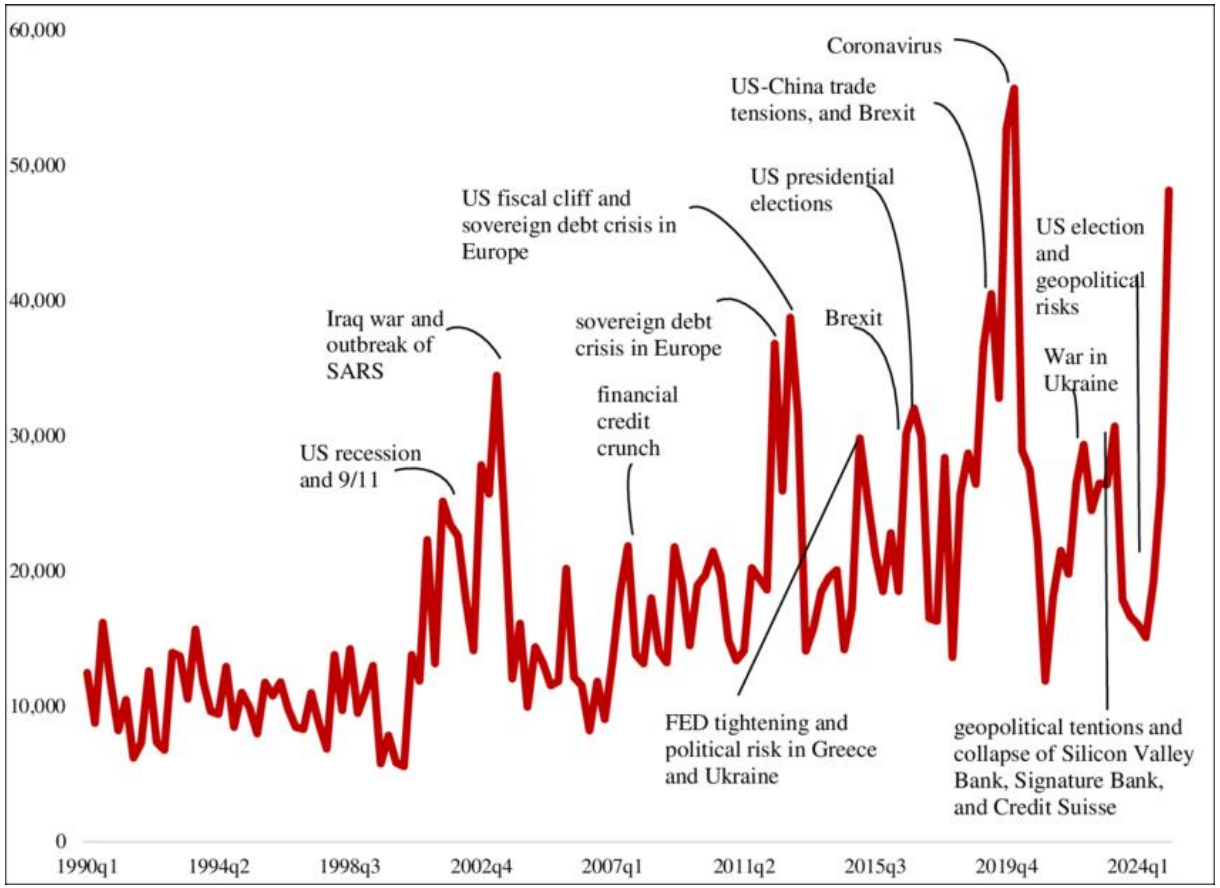
International Centre for Complex Project Management

- Established in 2007 by the Australian Government (in collaboration with the UK and Canadian Governments) as the peak body for complex project management
- Not-for-profit member-based organisation
- Custodian of the Complex Project Leadership Competency Standards on behalf of the Commonwealth of Australia
- Supporting the APS Complex Project Management Profession
- **Building organisational capability to improve the outcome of complex projects**

Operating in Uncertainty



World Uncertainty Index, GDP weighted average (1990 – 2025). Data drawn from www.worlduncertaintyindex.com

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Attributes of Complex Projects

Connectivity
(Interconnectedness)

There are many diverse interconnected people and /or factors that influence on another, in ways that are challenging to model projects confidently

Interdependence

There is a mutual reliance between two or more factors, groups, individuals, activities, or business processes. Each depends on the other to achieve their goals, fulfill their needs, or maintain stability.

Emergence

New work processess, activity, events, and other patterns of behaviours evolve dynamically (arise unplanned) or become visible unexpectedly. Including new facts or new knowledge of a fact being revealed.

Nonlinearity

The relationship between variables is not sequential, one thing does not clearly or directly follow from another, nor are outputs always directly proportional and /or proximal to inputs.

Ambiguity

Conflicting, noisy or insufficient data makes it difficult to assess what's really going on.

Volatility

Key aspects of your work are subject to major, and sometimes unpredictable, peaks and troughs and /or frequent change.

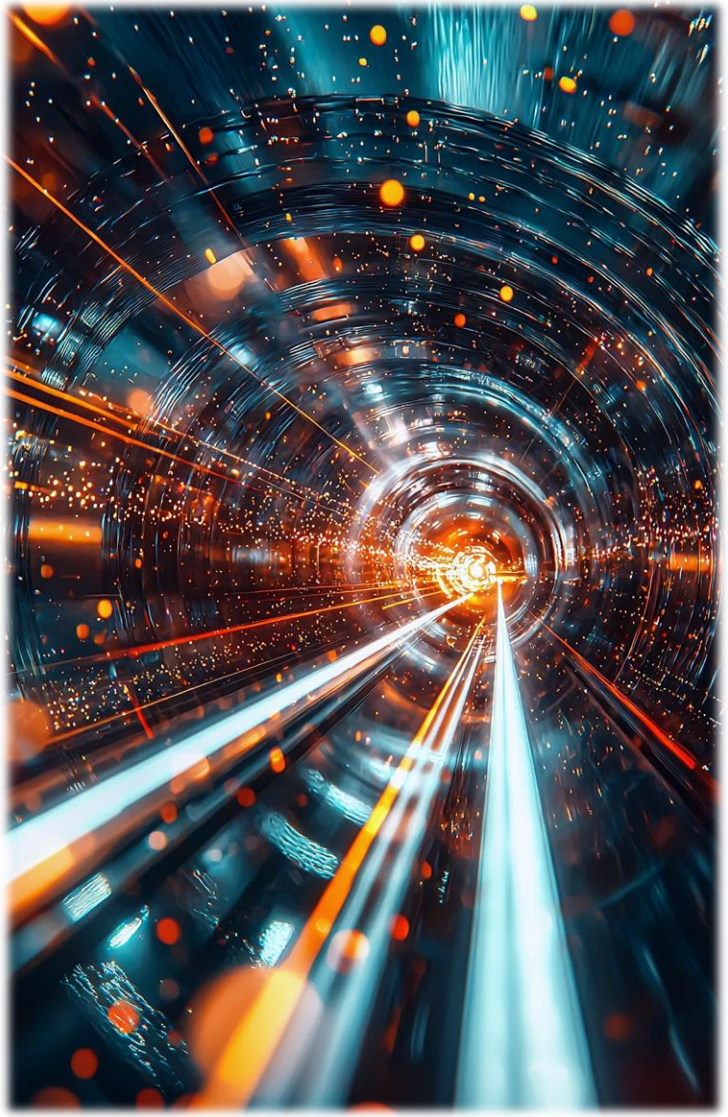
Uncertainty

The future is unknown, but internal /external events are likely to be impactful.

Whilst not all projects are complex, most projects will experience a period of complexity during their lifetime.

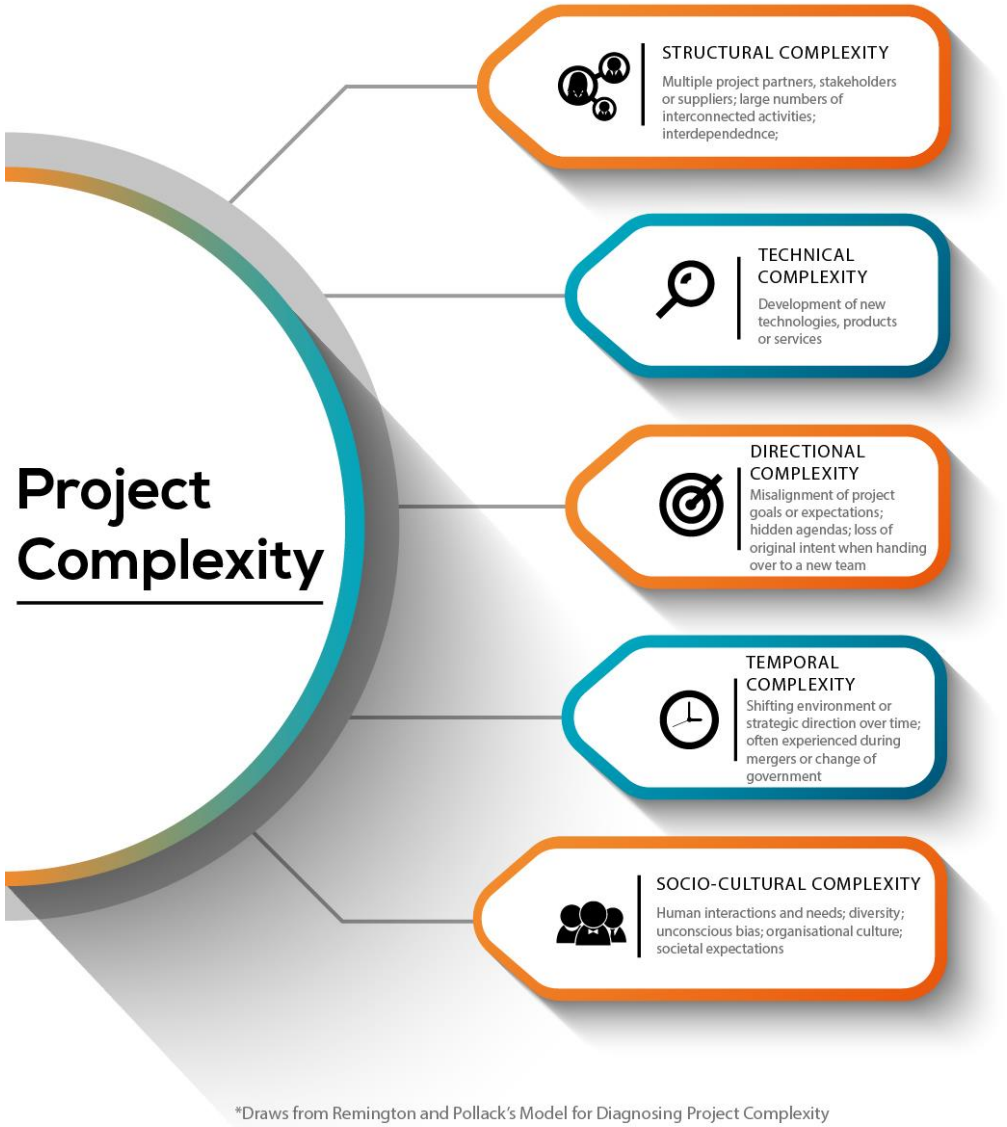
Speed to Capability

- Keep pace with operational needs
- Increase responsiveness to changes in the environment
- Accelerate the adoption of innovation



Not just doing the same thing faster

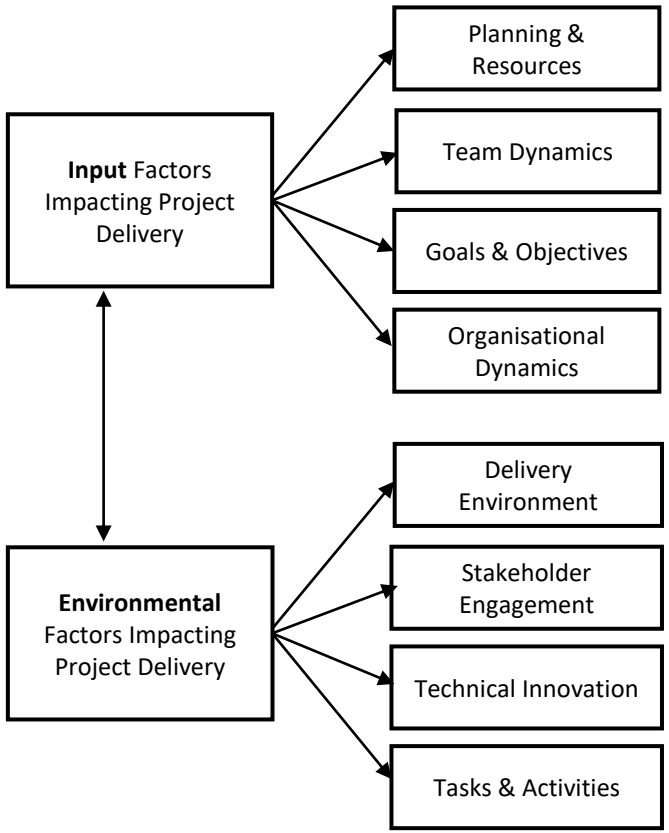
Speed to Capability is a response to complexity but can introduce complexity if the system, governance and culture aren’t fit for purpose.



*Draws from Remington and Pollack's Model for Diagnosing Project Complexity

ICCPM Project Complexity Diagnostic Tool (P-CDT)© - The Basics

Self Assessment Survey based on Project Factors Impacting Delivery



Project Complexity Assessment Framework

CATEGORY 4
Very High Complexity

CATEGORY 3
- 3(a) High Complexity
- 3(b) High Complexity- Input Factors
- 3(c) High Complexity- Environmental Factors

CATEGORY 2
- 2(a) Moderate Complexity
- 2(b) Moderate Complexity- Input Factors
- 2(c) Moderate Complexity- Environmental Factors

CATEGORY 1
Low Complexity

Guiding Attributes

Guiding attributes based on defining aspects:

- Assumptions
- Methodology/ Approach
- Variations
- Purpose
- Planning
- Risk Appetite
- Stakeholder Alignment
- Communication & Engagement Style
- Cross-Cultural Considerations
- Behavioural Traits
- Leadership Style
- Skills Diversity
- Work Culture
- Performance Management
- Supply Chain Relationships

Speed as a Design / Acquisition Constraint

Interconnected Structural Constraints

Speed, complexity, and budget are structurally coupled constraints shaping project outcomes.

Complexity from Variety

Complexity arises from managing diverse threats, environments, stakeholders, and technologies.

Fixed Budget Constraints

A rigid budget limits flexibility, forcing adaptive design and scope trade-offs.

Variety and Complexity

Variety Defines Complexity

Variety in threat actors, environments, and systems is the true source of complexity in defence projects. Managing it is crucial for success.

Ashby's Law of Requisite Variety

Only sufficient internal variety can manage external variety; programs must reduce or absorb variety to avoid failures and overruns.

Visibility and Management of Variety

Mapping and distinguishing mission-critical from discretionary varieties enables conscious management and targeted design choices.

Designing Against Variety

Active design against variety through modular architectures and incremental delivery improves speed, safety, and effectiveness.

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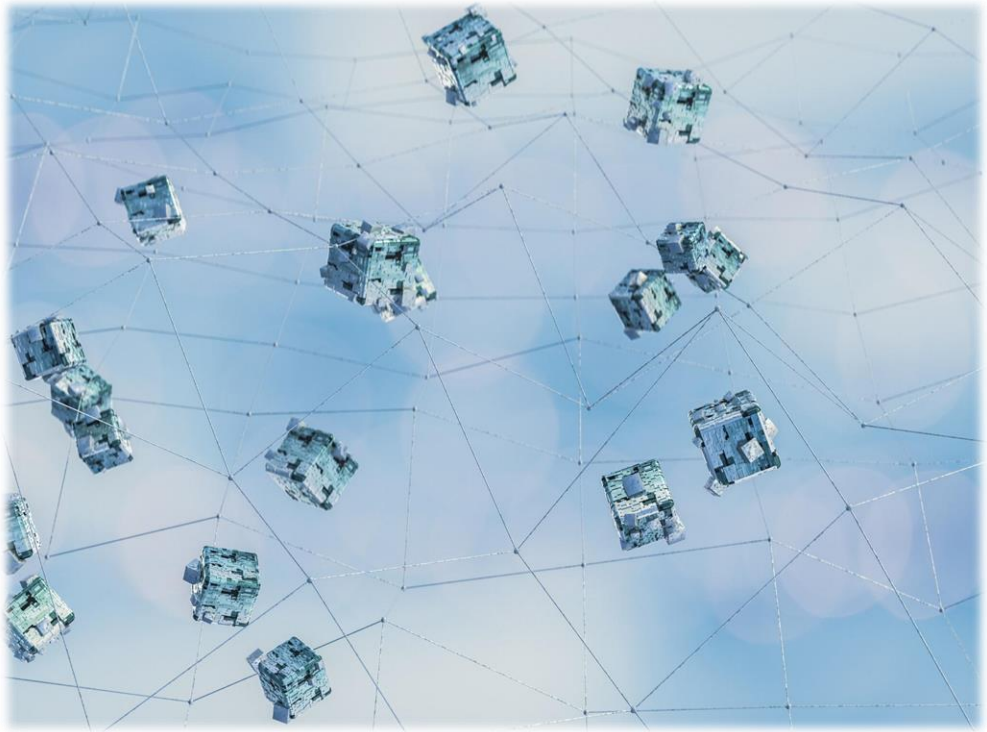
What to Standardise and What to Modularise



Reducing Variety Through Standardisation

Standardisation reduces variety by using common platforms and shared services to avoid unnecessary bespoke solutions.

Absorbing Variety via Modularisation

Modular open systems, stable interfaces, and plug-and-play components absorb variety to enable operational flexibility. This allow different elements to evolve independently without destabilising the whole system.

Importance of Clear Communication

Explicit communication of variety management choices avoids mismatched expectations and guides program governance and creates a basis for constructive trade-offs.

Balancing Speed and Resilience

Clear strategic choices help prevent oscillation between over-standardisation and uncontrolled bespoke development.

Designing for Speed

Concurrency through Modular Design

Modular architectures with stable interfaces enable parallel development and integration, speeding up capability delivery.

Set-Based Design Approach

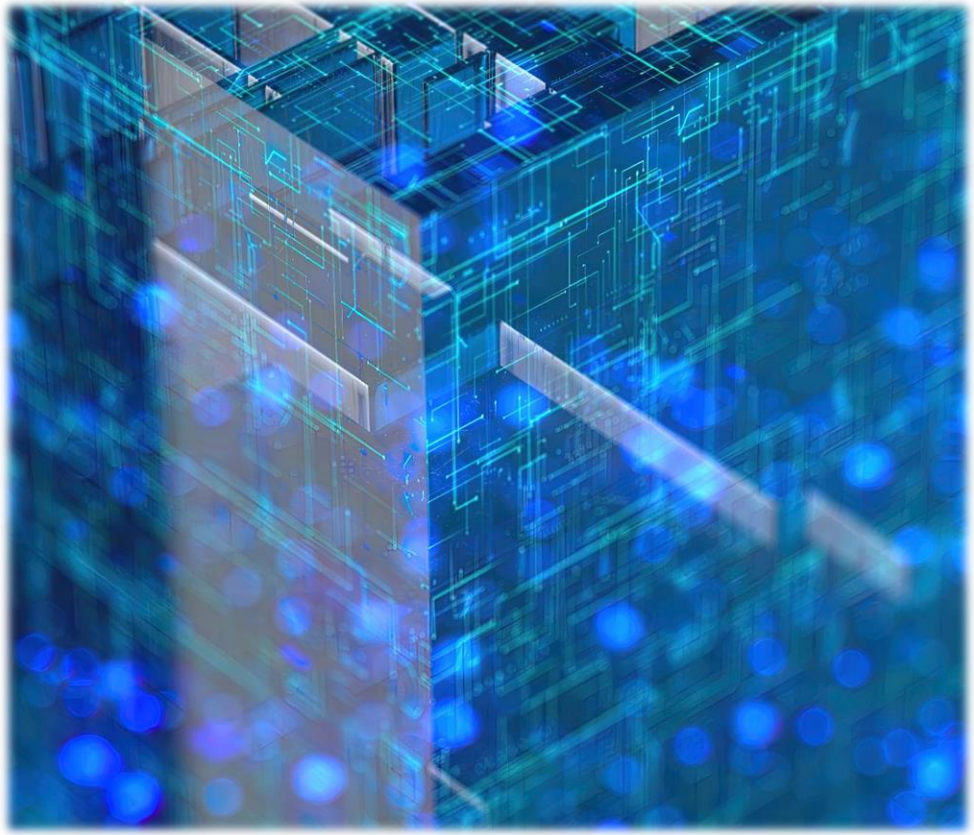
Exploring multiple design options concurrently and narrowing them based on evidence reduces risk in uncertain environments.

Model-Based Systems Engineering

Shared digital threads and authoritative system models support concurrency by aligning system intent, interfaces, and constraints.

Incremental Certification and Assurance

Continuous accumulation of evidence through incremental certification ensures safety and risk control during concurrent development.



Decision Cadence, Evidence, and Risk Ownership

Shift to Cadenced Decisions

Adopt regular, smaller decisions based on clear evidence to improve adaptability and reduce inertia in projects.

Explicit Risk Ownership

Align risk acceptance accountability with delivery cadence rather than abstract lifecycle phases for clarity and speed.

Transparency and Continuous Rigour

Ensure visibility of integration status and performance with continuous governance rigour across organizational boundaries.

Enabling Faster Decisions

Use slim governance charters, escalation paths, and kill switches to accelerate decisions without losing oversight.

Budgeting Under Speed Constraints

Challenges of Fixed Budgets

Fixed budgets often precede resolution of key uncertainties, making fixed scope and schedule enforcement flawed.

Adaptable Scope and Sequencing

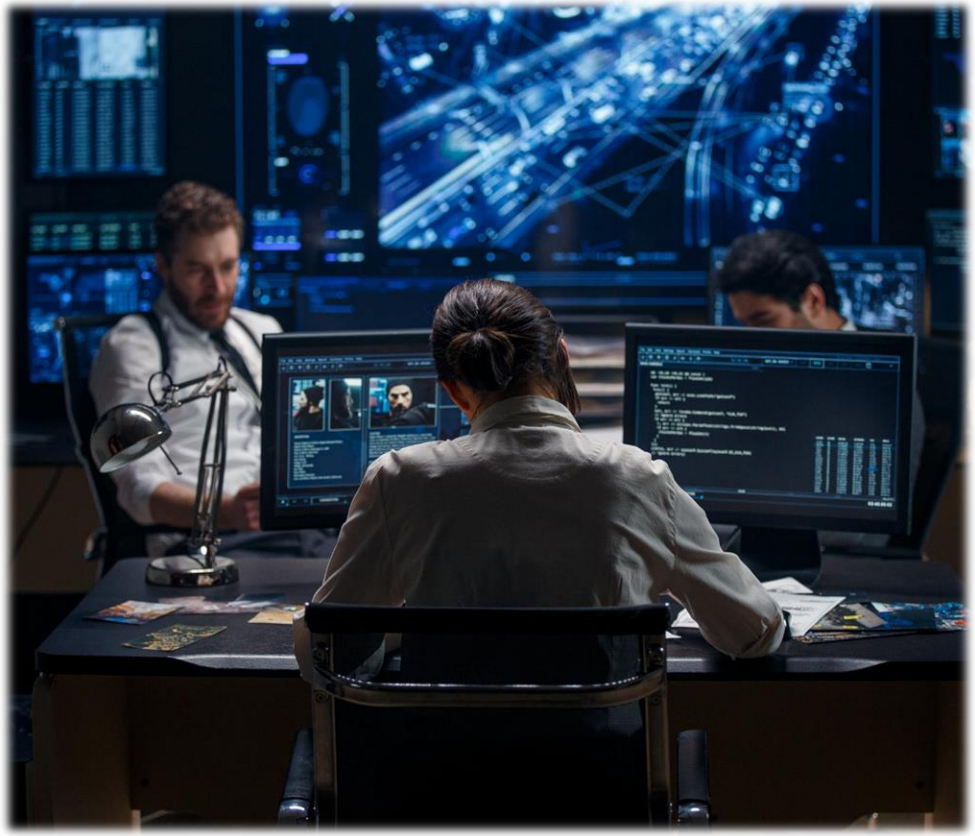
Maintaining flexible scope and sequencing allows delivery of baseline capabilities and incremental improvements.

Funding Learning and Experimentation

Explicit funding for prototypes and early experimentation reduces risk and avoids costly rework downstream.

Outcome-focused Incentives

Contract incentives should reward outcomes like performance and cycle-time reduction, not just deliverable completion.



Evidence-Based Progress

Definition and Purpose

Mission threads provide a representative end-to-end capability demonstration in operational scenarios, even if partially implemented.

Early Evidence of Integration

Running mission threads frequently creates tangible proof of system integration, performance, and usability early in development.

Boundary Object Role

Mission threads serve as shared reference points, aligning program offices, operators, engineers, and assurance authorities around operational priorities.

Test-As-You-Go Approach

Combining mission threads with continuous integration and cyber testing enables iterative validation, reducing late surprises and improving confidence.

Re-Thinking Boundaries in Complex Projects

Boundaries as Design Choices

Boundaries shape flows of information, authority, and accountability in complex projects and are deliberate design decisions.

Types of Boundaries

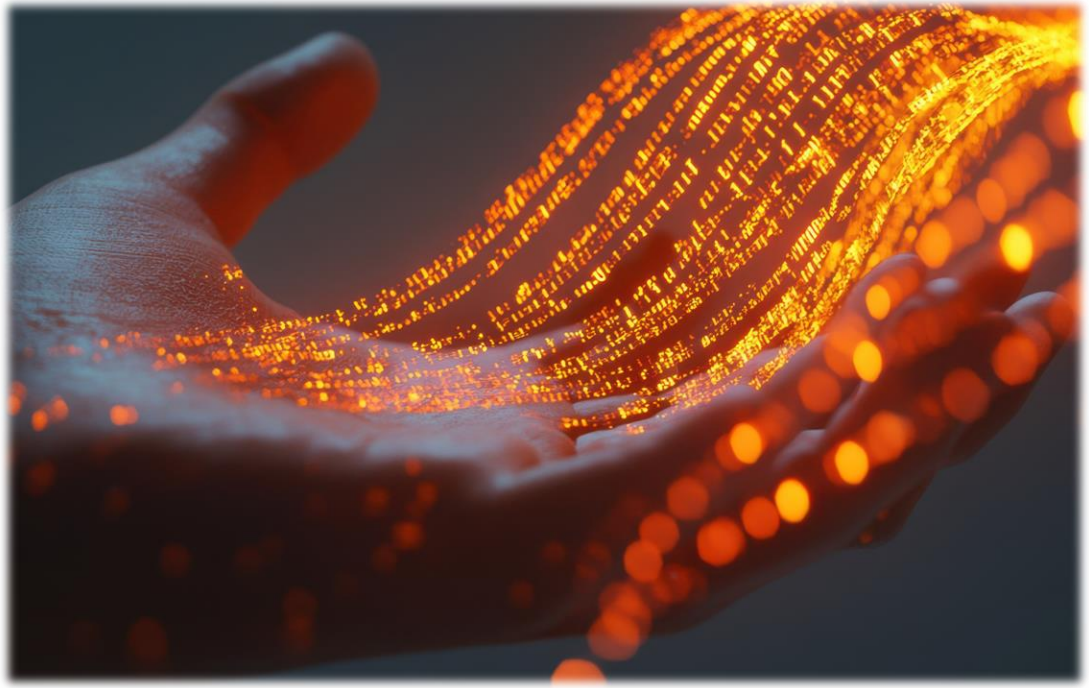
Organisational, contractual, technical temporal and discipline boundaries each define interaction limits and control mechanisms.

Impact of Poor Boundaries

Poorly designed boundaries restrict information, slow decision-making, and increase coordination costs in projects.

Enabling Flow Through Boundaries

Thoughtful boundary design enables timely interactions using shared models, open interfaces, and transparent dashboards.



From Ego-System to Eco-System

Adaptive Boundaries Concept

Boundaries are seen as evolving interfaces enabling negotiation and innovation, not fixed constraints.

Systems Thinking and Co-Design

Emphasis is on systems thinking, stakeholder co-design, and cross-disciplinary leadership for project success.

Integration and Governance Models

Successful projects require integration across technical, functional, and human domains with adaptable governance.

Outcome-Oriented Strategies

Shift focus from output delivery to creating enduring value and resilience in project ecosystems (outcomes).

Measuring What Matters

Limitations of Traditional Metrics

Traditional metrics like cost and schedule variance are lagging indicators revealing issues only after problems worsen.

Leading Indicators on Boundaries

Leading indicators focus on decision latency, interface health, and mission visibility across governance and technical boundaries.

Temporal Flow Metrics

Metrics like percentage of work integrated per cadence reveal if the system is learning and adapting effectively.

Benefits of Boundary Metrics

Measuring boundaries offers early warnings of constraints and promotes desired behaviours through transparent dashboards

Speed and Complexity

Map Variety and Boundaries

Identify sources of variety and key boundaries, then decide what to reduce or absorb for clarity.

Establish Shared Mission Environment

Create a shared mission-thread environment as a boundary object to aid learning and decision-making.

Appoint Boundary Spanners

Assign boundary spanners with authority to tackle cross-organisational challenges and align governance forums.

Review Contracts and Indicators

Revise contracts to include incentives and monitor leading indicators publicly for accountability and progress.

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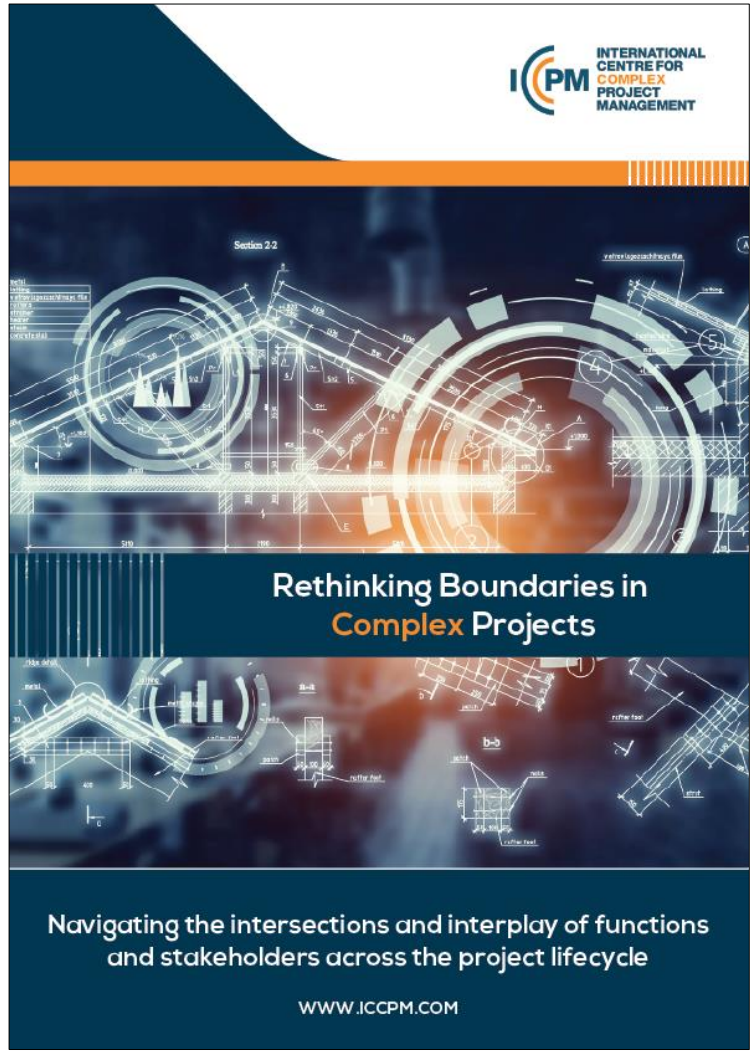

People who can Work in this Way – Complex Project Leadership Competency Standards

Unit CPL01 **Drive Systemic Thinking and Action**	• *This unit defines the core elements required for leaders to address the complexity, ambiguity, and emergence that characterise projects as complex adaptive systems.*
Unit CPL02 **Focus Strategically on Delivering Project Outcomes**	• *This unit defines the elements required to lead the planning and execution of complex projects: setting a clear purpose for the project; maintaining a clear focus on outcomes delivery; whilst adapting plans and execution to changing circumstances; and being mindful of sustaining a viable supply chain for the whole of life of the system delivered.*
Unit CPL03 **Engage Collaboratively with Stakeholders**	• *This unit defines the elements required to successfully understand and engage with stakeholders, communicate effectively, and foster a constructive culture and trust within the project team and stakeholders. The leadership of complex projects requires the ability to conceive of projects as strategic conversations, and this unit captures key leadership capabilities essential to success.*
Unit CPL04 **Exercise Contextual Leadership Awareness**	• *This unit defines the elements required for effective leadership in complexity. Successfully leading through complexity requires leaders to be self-aware and understand how to adapt their style to context, culture, and values, striving to develop their own capabilities and those of their teams.*
Unit CPL05 **Apply System Governance and Delivery Assurance**	• *This unit defines the elements required to establish and evolve as appropriate the governance and delivery assurance of the complex project as a system*

ICCPM is the review, update and authorisation authority for the CPL Competency Standards on behalf of the Commonwealth of Australia. Download https://iccpm.com/complex-project-leadership-competency-standards/

Questions?