

Megaproject Delivery Learning from the UK

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Introduction





Dr Juliano Denicol

Associate Professor in Megaproject Management

- Director Megaproject Delivery Centre
- Director MBA Major Infrastructure Delivery
- Global Head IPMA Megaprojects SIG

Megaproject Delivery Centre

The Megaproject Delivery Centre captures the best international practices to improve the performance of major and megaprojects.



Centre: <u>Transforming Infrastructure Performance</u>









UCL + The Bartlett



Ranked 8th in the world

30 Nobel Prize laureates

The Bartlett is ranked global #1 in 2023

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22 March 2023

The Bartlett is ranked #1 in the world for Architecture and the Built Environment, and remains #1 in the UK for the ninth year in a row, in the QS World University Subject Rankings 2023.



Policy Impact



UCL partners with OECD to tackle global challenges through infrastructure delivery



News story: <u>UCL + OECD</u>

UCL and IPMA launch The Megaproject CEO Global Keynotes

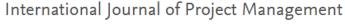


News story: <u>UCL + IPMA</u>

Scientific projects







Volume 40, Issue 6, August 2022, Pages 608-623



European Commission



Compendium of Large Infrastructure Projects



News story: <u>UCL + European Commission</u>

Report: Compendium

The dynamics of systems integration: Balancing stability and change on London's Crossrail project



Paper: <u>Systems Integration – Crossrail</u>

MBA Major Infrastructure Delivery



- Transform the performance of major infrastructure projects
- Develop the next generation of global infrastructure leaders











Research

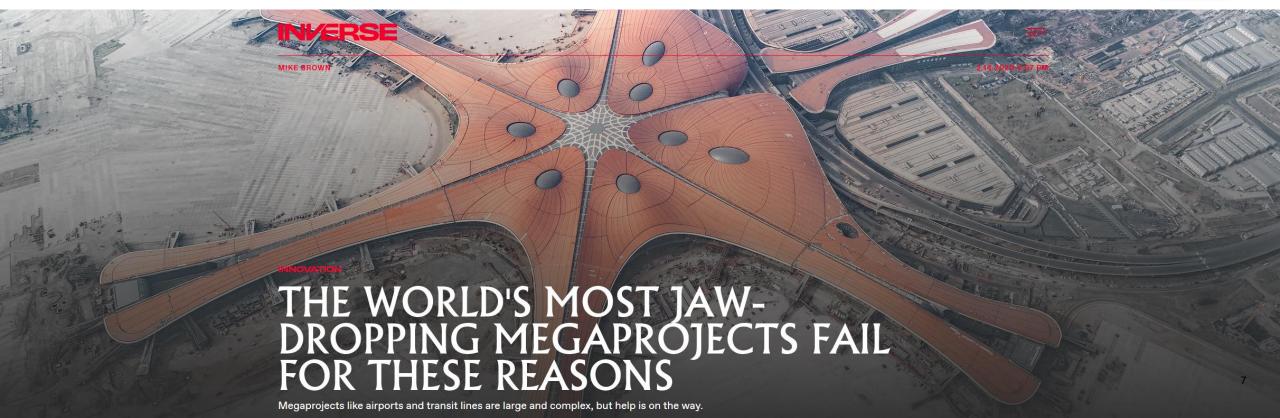


What Are the Causes and Cures of Poor Megaproject Performance? A Systematic Literature Review and Research Agenda

What Are the Causes and Cures of Poor Megaproject Performance?







Megaproject Performance



SCIENCE BULLETIN

BUSINESS

Academics identify 18 reasons why megaprojects often fail, as well as 54 preventative solutions

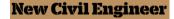


- Researchers reviewed 6,000 studies into the performance of megaprojects
- They found that there is no single cause that brings such efforts to their knees
- · Instead, they identified six major areas under which megaprojects struggle
- The team hope the findings will help to improve such endeavours in the future





Medium









Management Today



The Trouble with Megaprojects



EL ESPECTADOR

Se identifican las razones por las que fracasan los megaproyectos en el mundo



TRIBUNE

Why do megaprojects fail?



Methodology



Megaprojects

AND

Success

AND

Failure

Methodology



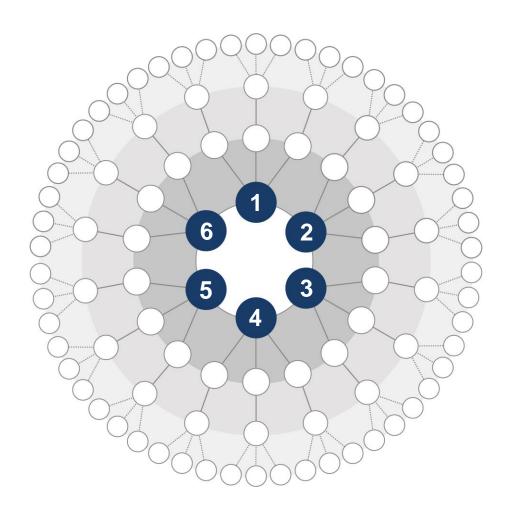
Megaproject Synonyms: megaproject, major project, large-scale project, large-scale construction project, large-scale urban development project, large engineering project, large construction project, large project, large technical system, large construction program, large program, system of systems, grand scale project, unique project, complex products and systems, global project, mega capital project, high rise project, high rise construction project, transformational project, complex project, complex program, teraproject, tera project, teraprogram, tera program, gigaproject, giga project, gigaprogram, giga program, giant project, giant program, public works project, macro engineering project, infrastructure project, infrastructure program, complex infrastructure project, monumental project

Success Synonyms: Benefit, success, output, outcome, value, legacy, achievement, accomplishment, attainment, delight, complete, punctual, efficiency, effective

Failure Synonyms: Failure, breakdown, break, collapse, decline, deficiency, deterioration, disruption, overrun, delay, late, shortfall, shortage, insufficient, incomplete

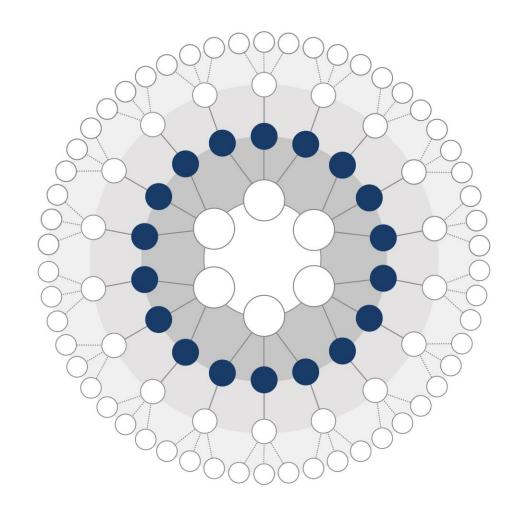
Structure of findings – Themes 6





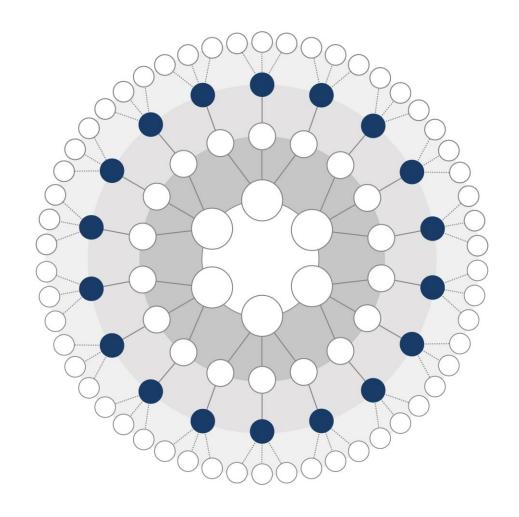
Structure of findings – Concepts 18





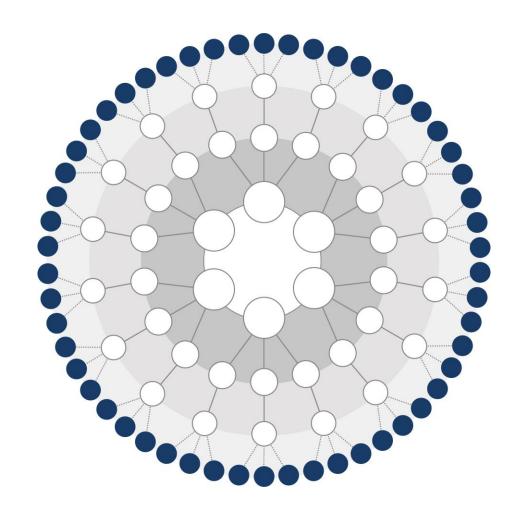
Structure of findings – Causes 18





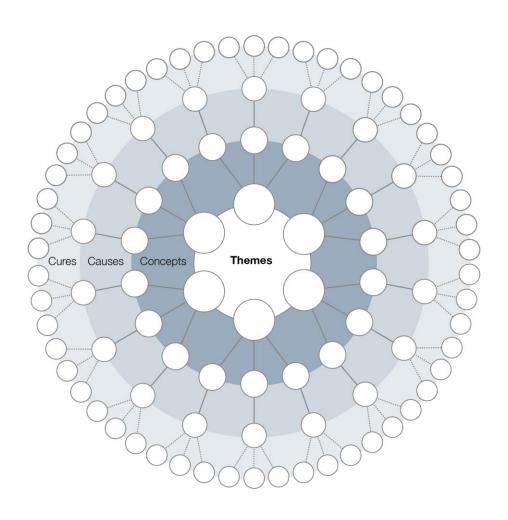
Structure of findings – Cures 54





Structure of findings

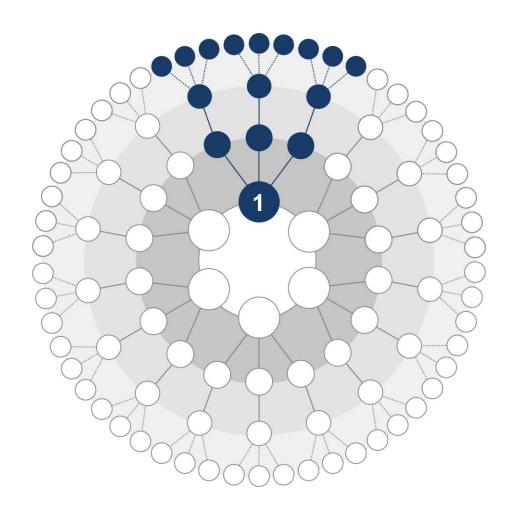






1. Decision-making behaviour

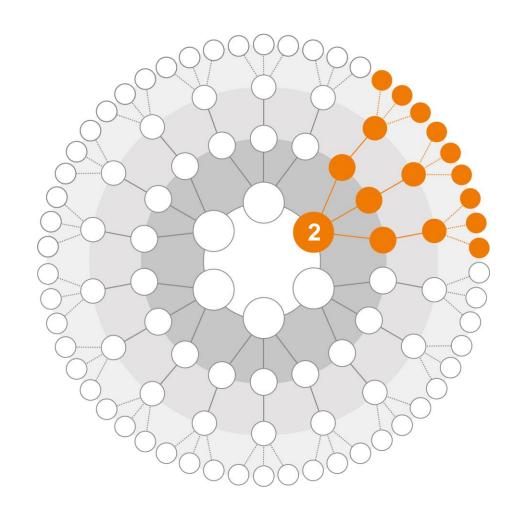
- 2. Strategy, governance and procurement
- 3. Risk and uncertainty
- 4. Leadership and capable teams
- 5. Stakeholder engagement and management
- 6. Supply chain integration and coordination





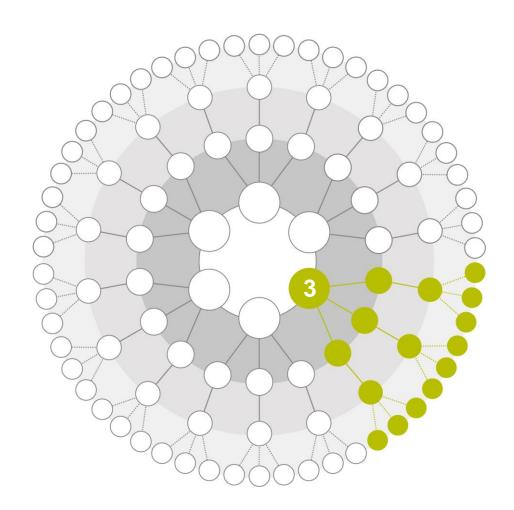
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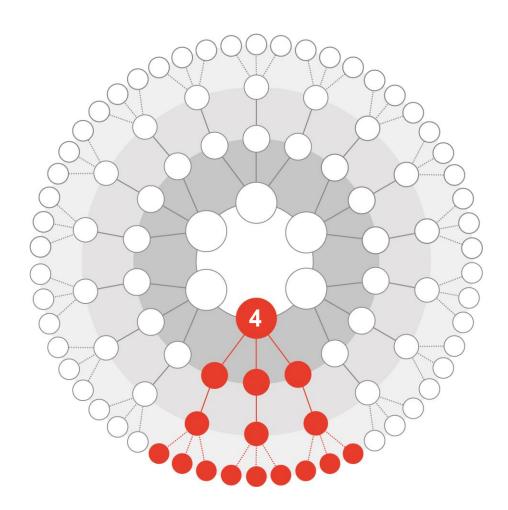


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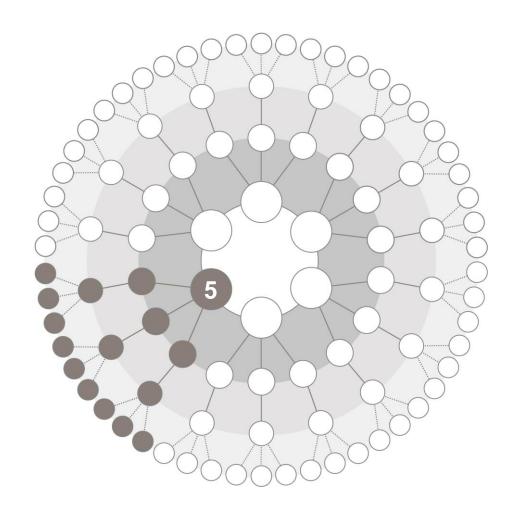


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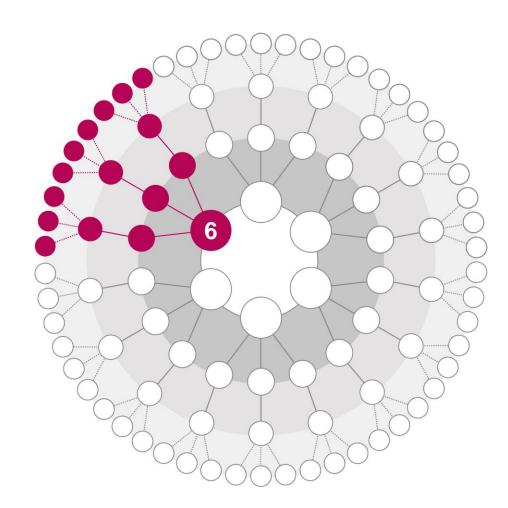


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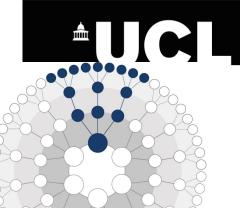


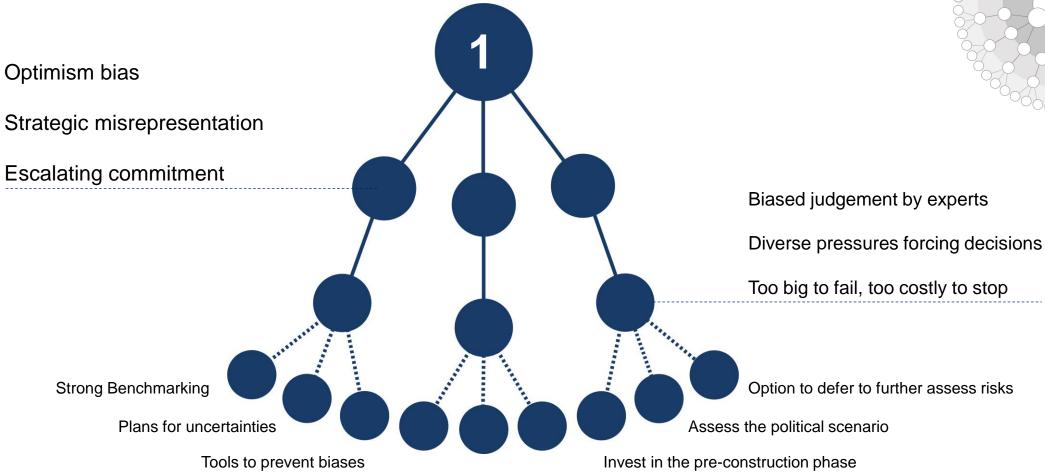


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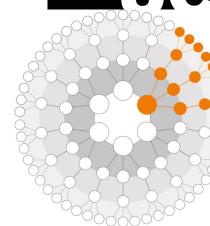
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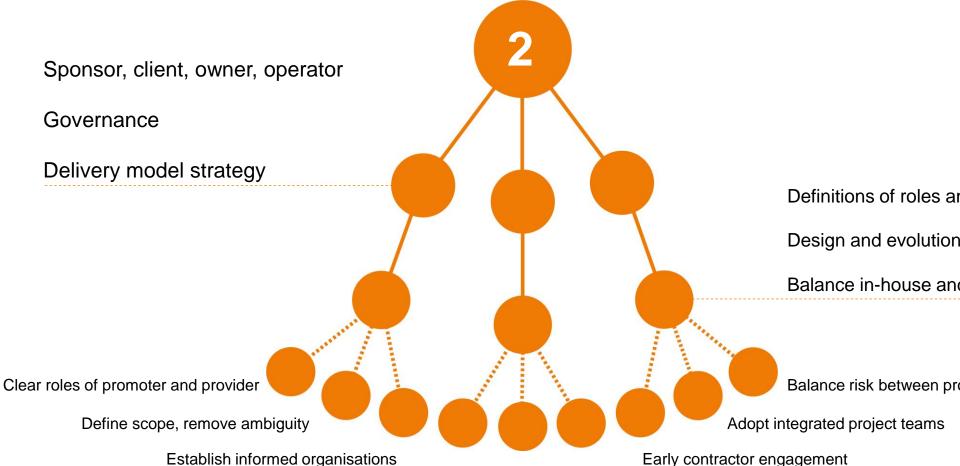




2. Strategy, governance and procurement







Definitions of roles and responsibilities

Design and evolution of governance structure

Balance in-house and outsourced capabilities

Balance risk between promoters and the supply chain

Early contractor engagement

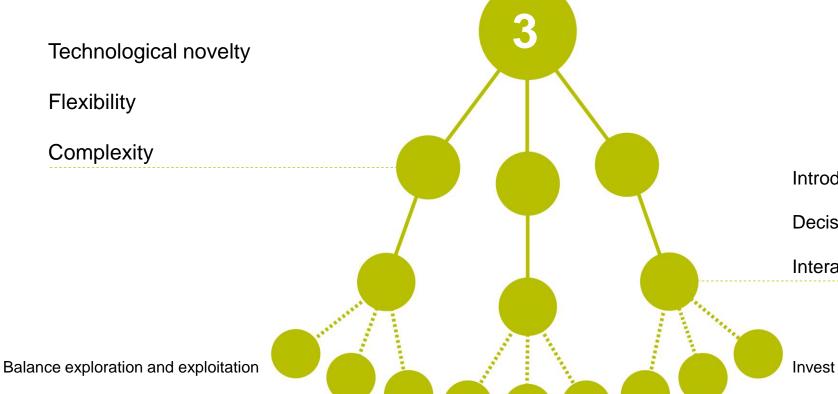
3. Risk and uncertainty

Avoid concurrency on novel technical design

Improve communication to enhance integration







Introduction of unproven technology

Decisions that constrain adaptability

Interaction of dynamic dimensions

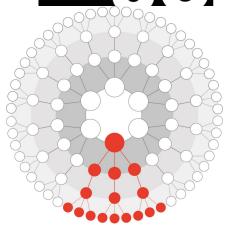
Invest in modularisation

Focus on simplification to manage risks

Invest in mutual adjustment strategies

4. Leadership and capable teams





Project leadership

Competencies

Capabilities

Definition of project culture, sense of purpose

Recruitment and maintenance of the right team

Capabilities for different phases and transitions

Establish and empower leaders

Develop corporate and project cultures

Reconcile contrasting, interrelated perspectives

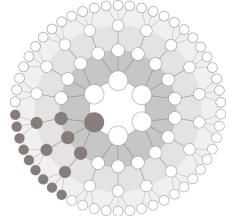
Invest in learning at individual, team and organisational levels

Manage relationships with the temporary and permanent layers

Develop organisational responsiveness to create resilience

5. Stakeholder engagement and management





Institutional context

Stakeholder fragmentation

Community engagement

Understanding of power relationships

Alignment of multiple competing priorities

Communication with external parties affected

Processes to address corruption

Minimise the impact of political influence

Strategies to engage with an array of dynamic actors

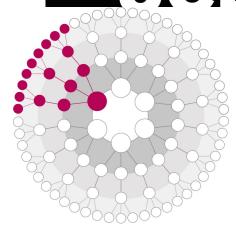
Public outreach through marketing campaigns

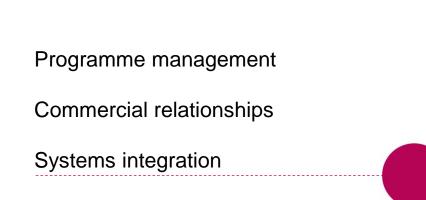
Early end-user engagement to maximise benefits

Promote local supply-chain firms and enhance collaboration

6. Supply chain integration and coordination







Programme-wide visibility to coordinate
Interdependencies during the life cycle
Definition of future integration levels

Change management processes

Organisational structure and work breakdown structure

Information system for diverse data

Integrate between intra-, inter-organisational, and external structures

Involve heavily the project controls team

Coordination framework to deal with temporary and evolving integration

Conclusions

Megaproject performance beyond final cost

Megaprojects as dynamic production systems

 Performance of several dimensions during the life-cycle and how they work together

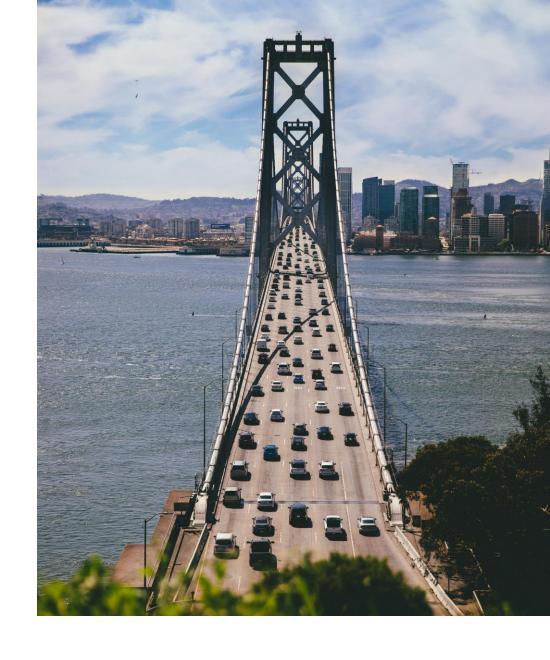
Document the practices and context in detail



Five Avenues for Future Research

1. Designing the system architecture

- 2. Bridging the gap with manufacturing
- 3. Building and leading collaborations
- 4. Engaging institutions and communities
- 5. Decomposing and integrating the supply chain



The Organisational Architecture



Megaprojects as a system of organisations that need to be designed at multiple levels



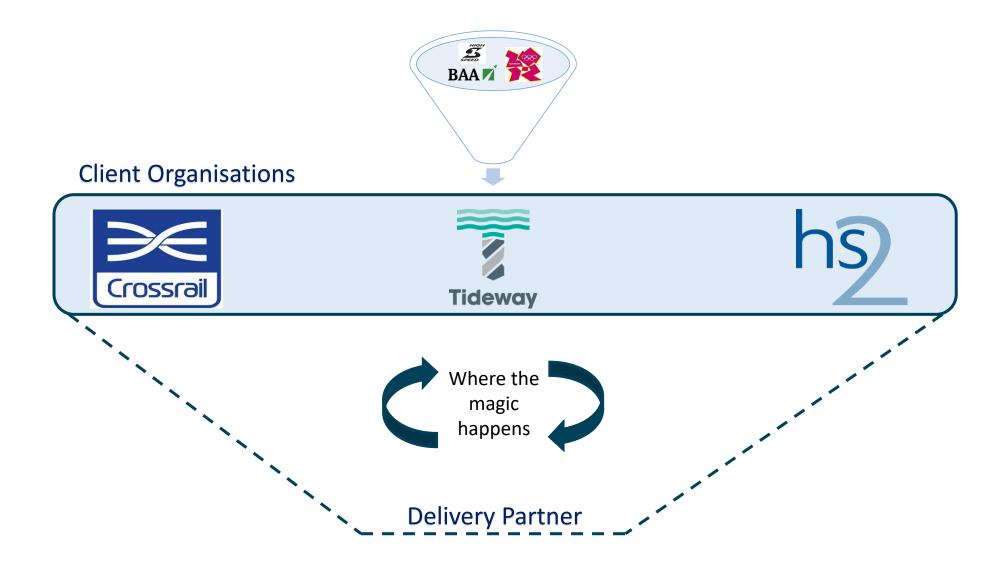
The control of the co

- How are the inter-organisational structures of megaprojects evolving over time?
 - Who can and should design the inter-organisational structures?

 Insights about the role of inter-organisational architects and the dynamics between temporary and permanent actors

Case studies





Dataset











Client Organisations

Board members
Policy Advisors
Strategists
Directors

CRL, TTT, HS2

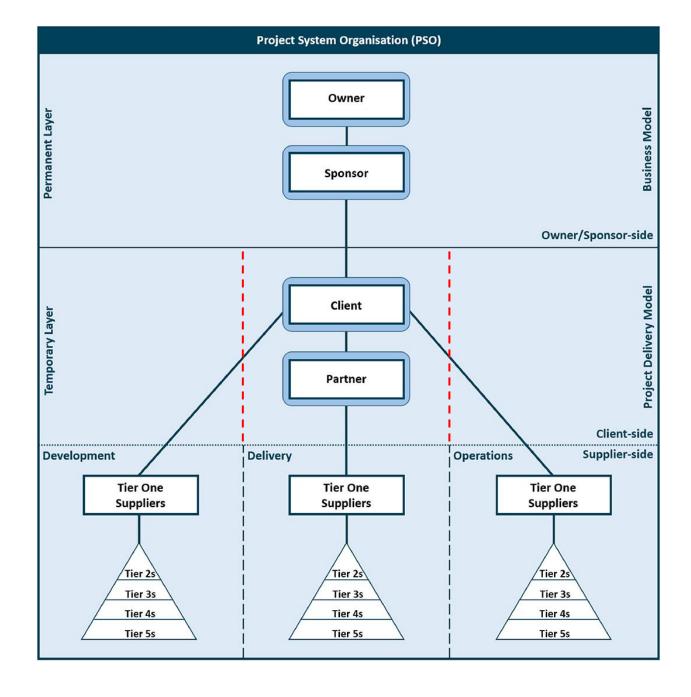
A

B

+ 300 Interviews

PSO

Project System Organisation





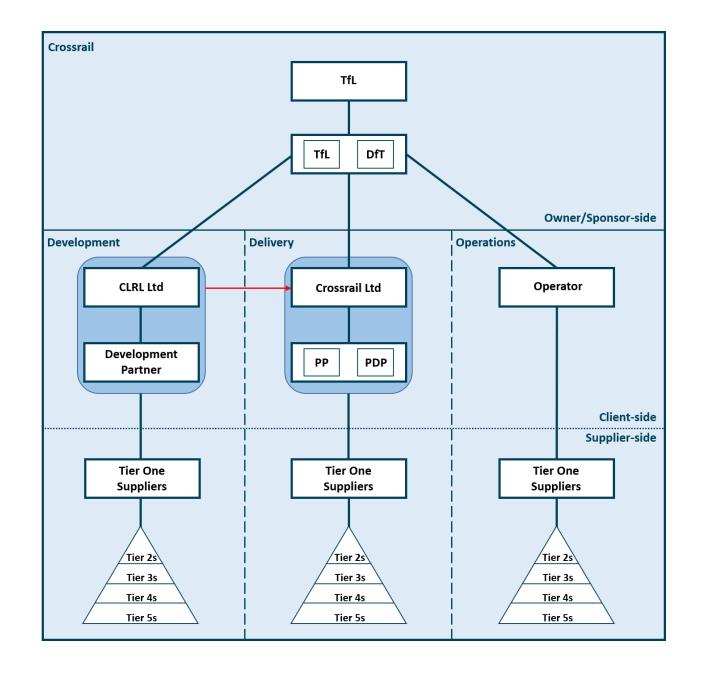




The organisational architecture of megaprojects. International Journal of Project Management, 39(4), 339–350. https://doi.org/10.1016/j.ijproman.2021.02.002

Canvas (1/6)





Discussion



• The sponsor has an initial influence in the architecture of the system (capable?)

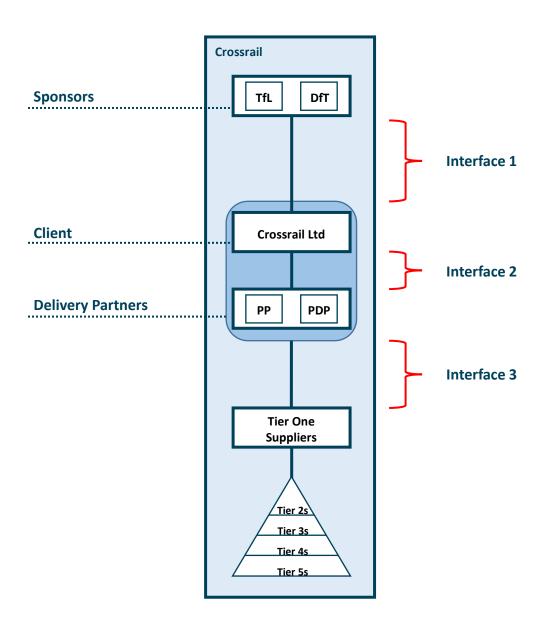
• There is a shift of responsibilities to the client organisation (too soon/late?)

• Building capabilities of the system through different integration models with the supply chain (exponential)

• The intra-org. decisions of partners might affect the inter-organisational configuration – lock-in situations by using **mainly** with the intra-lens

Interfaces



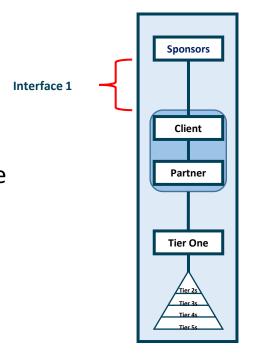


Sponsor – Client

- Two sponsors worked well controlling each other
 - Constant changes from the sponsor one of the most common causes of failure

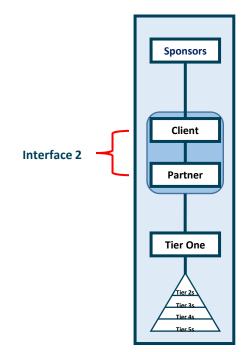
- Public to public arm's length organisation
 - Analyse previous models around the world increasing popularity
 - During development, the client organisation is strongly affected by the Hybrid Bill

- Involve the operator as early as possible
 - Create/incorporate the operations team from the start



Client - Partner

- Appoint recognised partners (development and delivery)
 - Consider the creation of joint ventures, evaluate the internal dynamics



- Manage the transition between development and delivery
 - The handover between the development and the delivery partner (clarify outputs)

- Prepare the client organisation to absorb capacity and capability
 - Define clear accountabilities to manage degrees of client integration

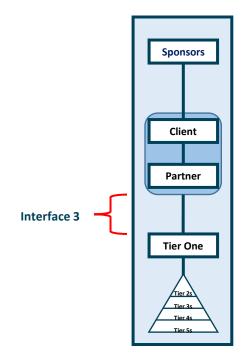
Client - Supply Chain

- Engage with the market and communicate the strategy
 - The market will react and organise partnerships (JVs, tier 2 integration)





- Clarify who is managing the supply chain (client vs delivery partner)
 - Shield the supply chain from external disturbances, continuous focus on production



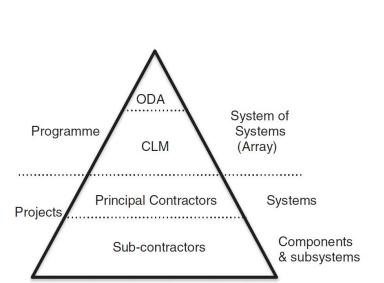
Cases





Heathrow Terminal 5

Source: https://doi.org/10.2307/41166482



Sponsor DfT/TfL Integrated Crossrail Ltd Programme Team Programme **Project Delivery** Partner Partner CH2MHill Bechtel Halcrow Aecom **Nichols** Systra **Principal contractors** Supply chain

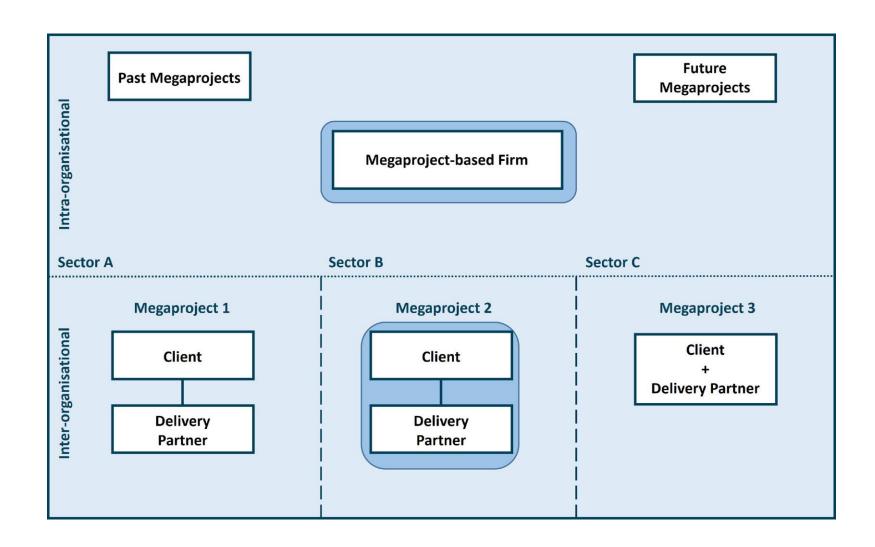
Crossrail

Source: https://doi.org/10.1016/j.tra.2015.04.019

London 2012 Olympics













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