

Megaproject Delivery

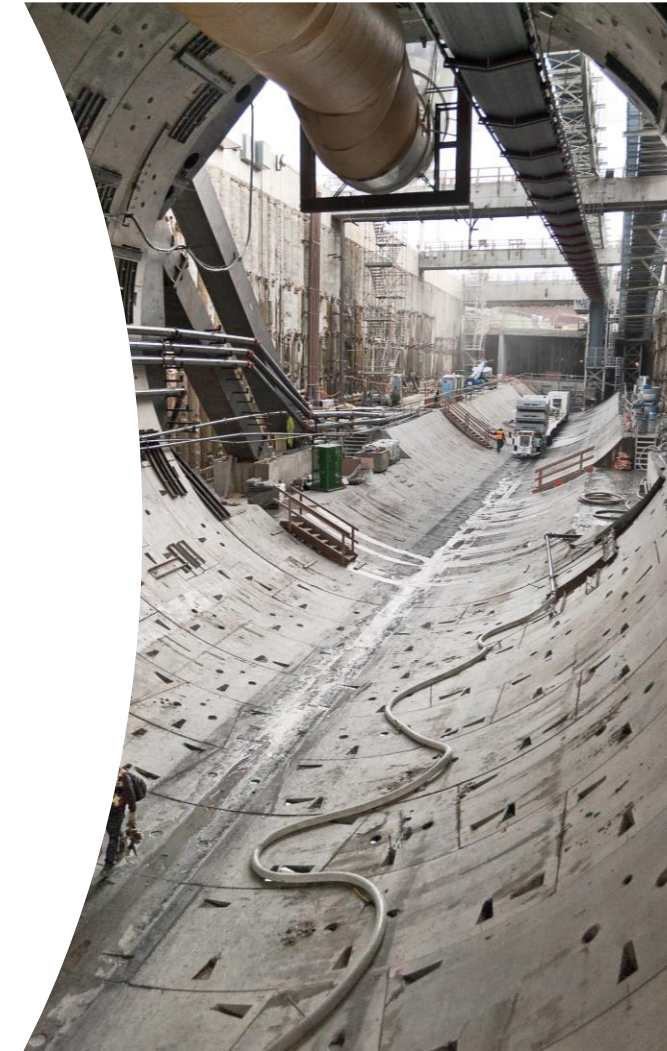
Learning from the UK

Dr Juliano Denicol – MBA Programme Director

Director Megaproject Delivery Centre

✉ juliano.denicol@ucl.ac.uk

🐦 [@Juliano_Denicol](https://twitter.com/Juliano_Denicol)



Introduction



Dr Juliano Denicol

Associate Professor in Megaproject Management

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

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Megaproject Delivery Centre

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



Centre: [Transforming Infrastructure Performance](#)

- **Ranked 8th in the world**
- **30 Nobel Prize laureates**
- **The Bartlett is ranked global #1 in 2023**

The Bartlett is ranked global #1 in 2023

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: [UCL + OECD](#)

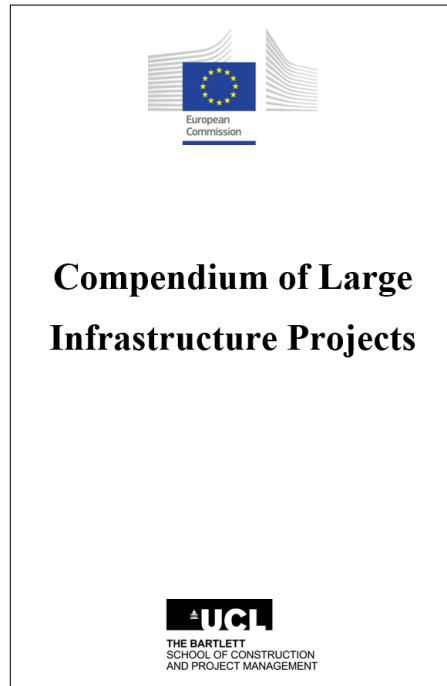
UCL and IPMA launch The Megaproject CEO Global Keynotes



News story: [UCL + IPMA](#)

Scientific projects

European Commission



News story: [UCL + European Commission](#)

Report: [Compendium](#)



International Journal of Project Management

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



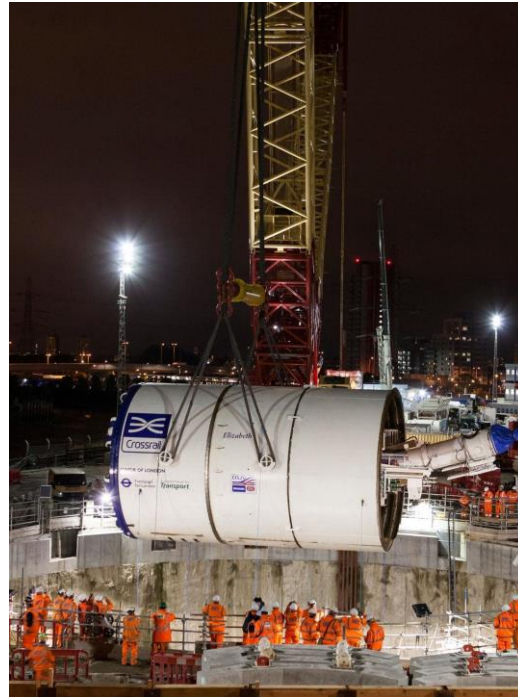
The dynamics of systems integration: Balancing stability and change on London's Crossrail project



Paper: [Systems Integration – Crossrail](#)

MBA Major Infrastructure Delivery

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



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

Daily Mail

- 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

New Civil Engineer



Management Today



The Trouble with Megaprojects



EL ESPECTADOR

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



Colapso del puente de Chirajara en la vía al Llano, Colombia. / El Espectador

TRIBUNE

Why do megaprojects fail?



PHOTO: AFP

Megaprojects

AND

Success

AND

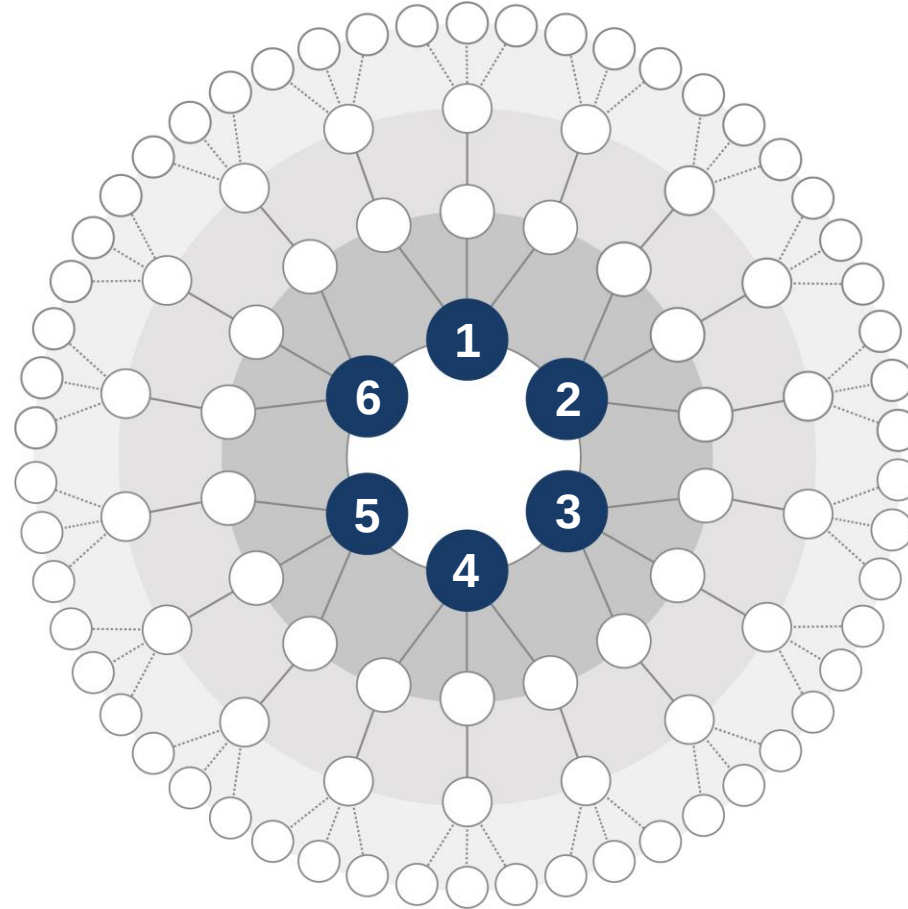
Failure

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

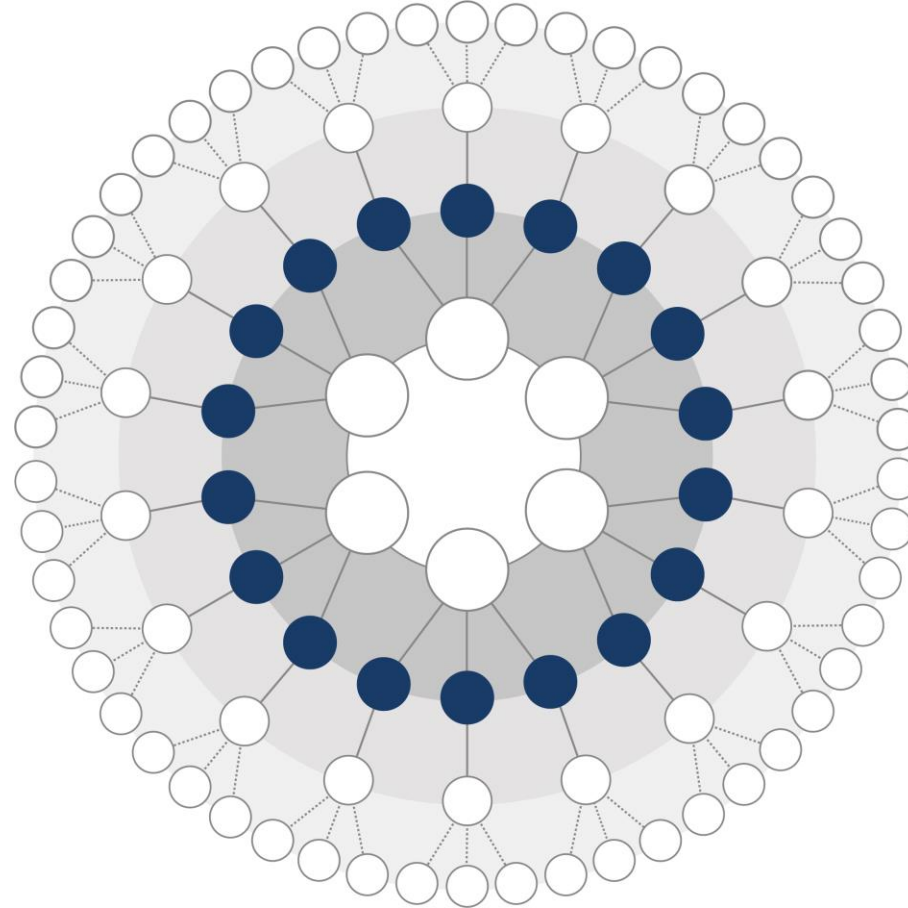
Success Synonyms: Benefit, success, output, outcome, value, legacy, achievement, accomplishment, attainment, delight, complete, punctual, efficiency, effective

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

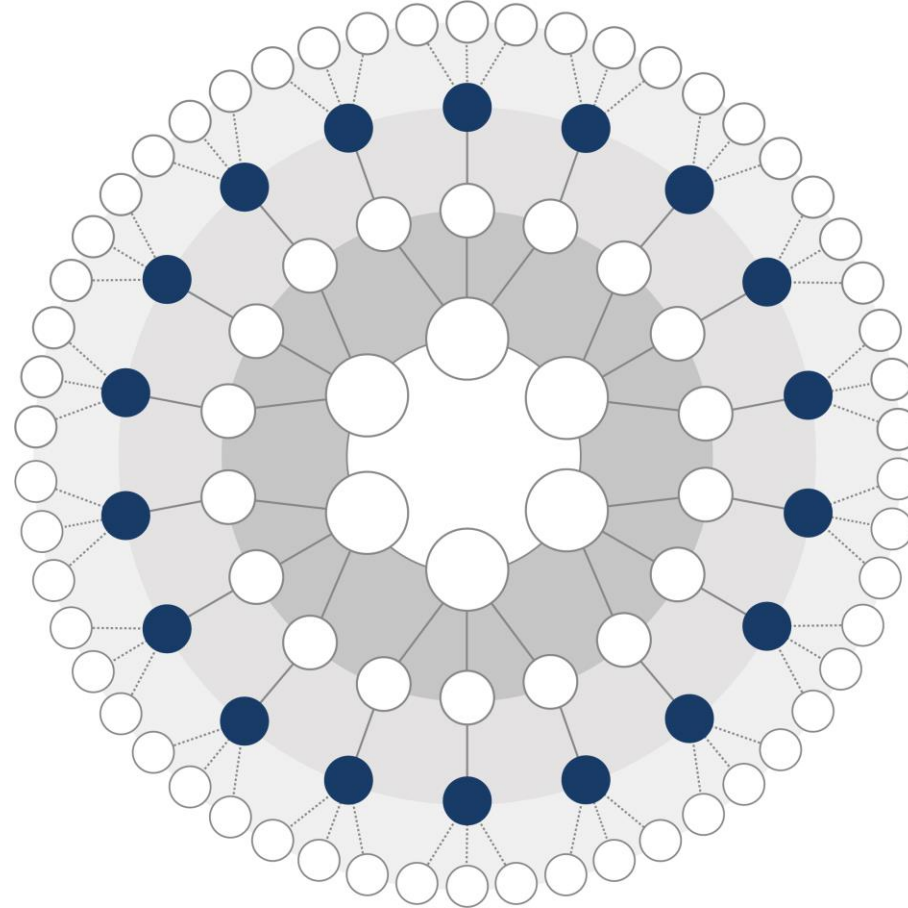
Structure of findings – Themes ⁶



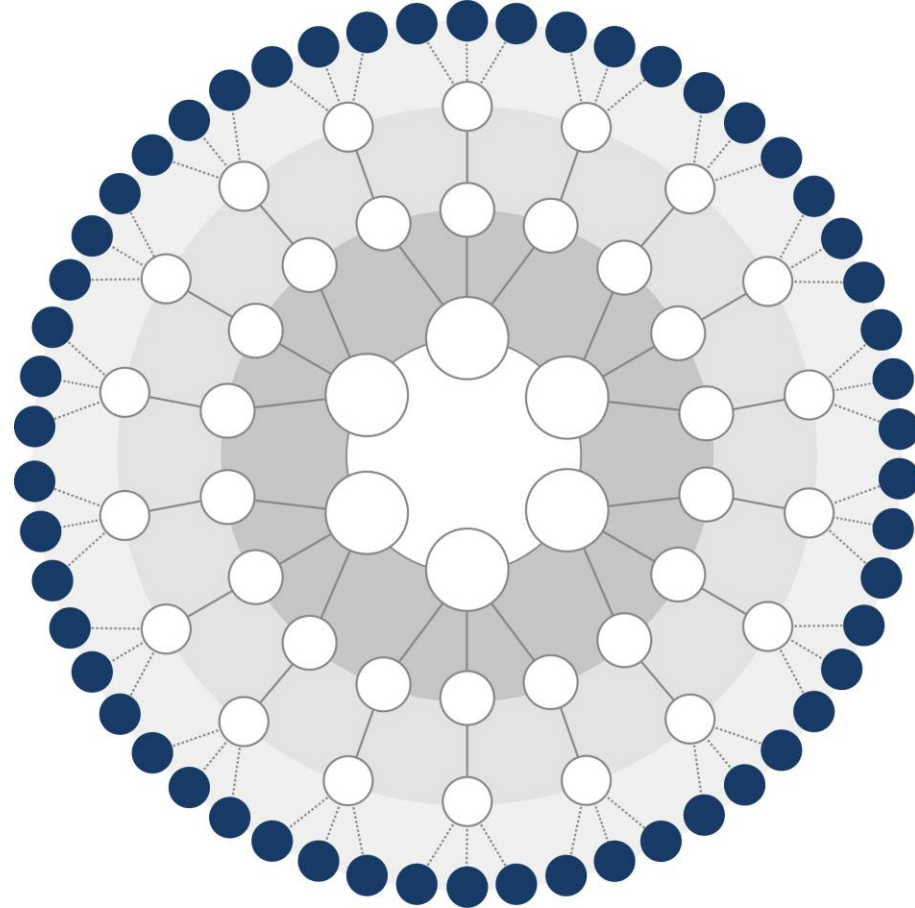
Structure of findings – Concepts ¹⁸



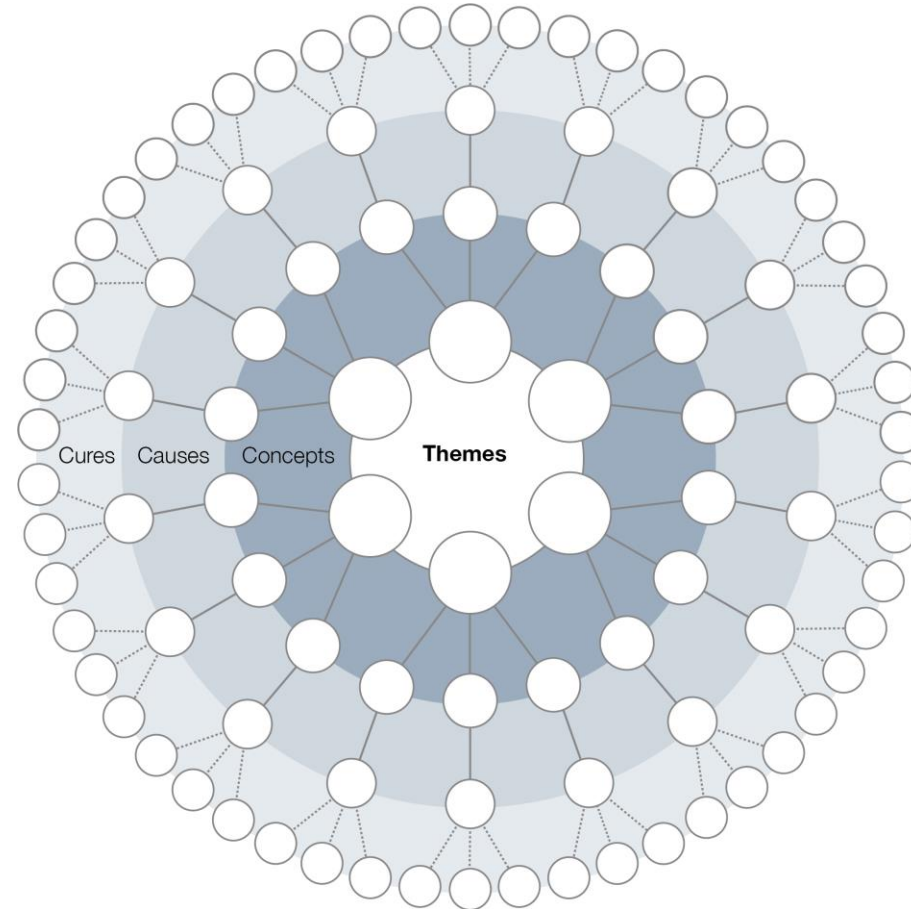
Structure of findings – Causes ¹⁸



Structure of findings – Cures ⁵⁴



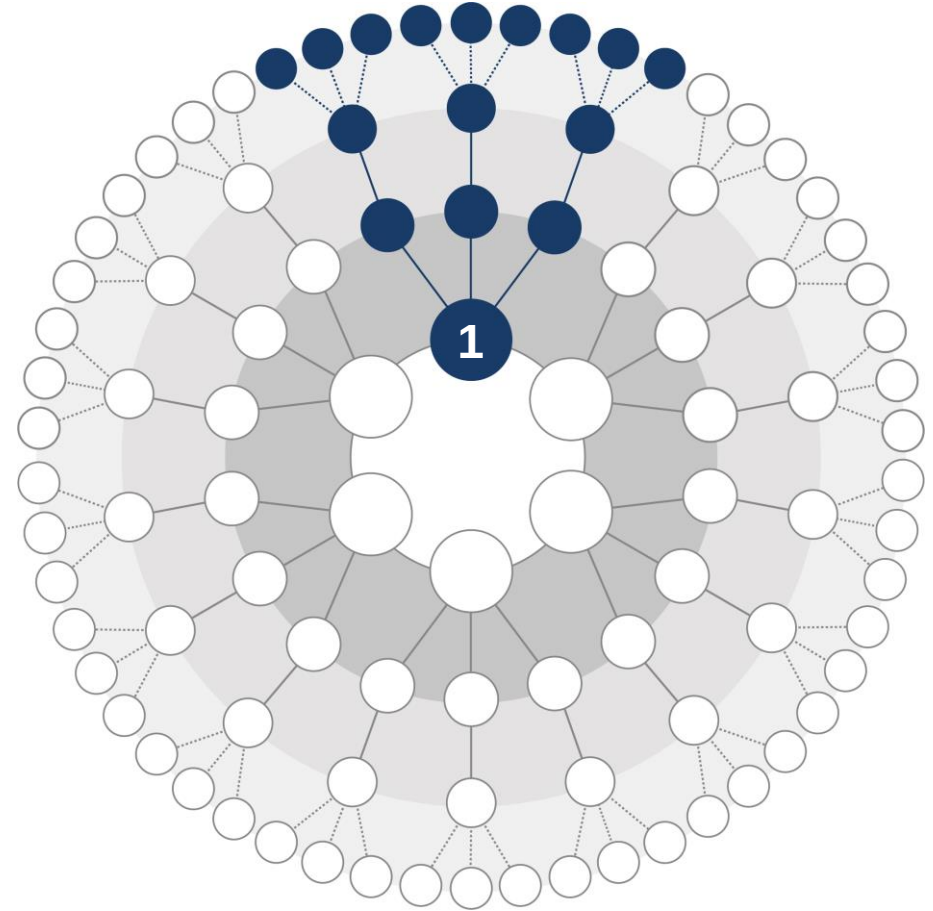
Structure of findings



Six Themes

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



Six Themes

1. Decision-making behaviour

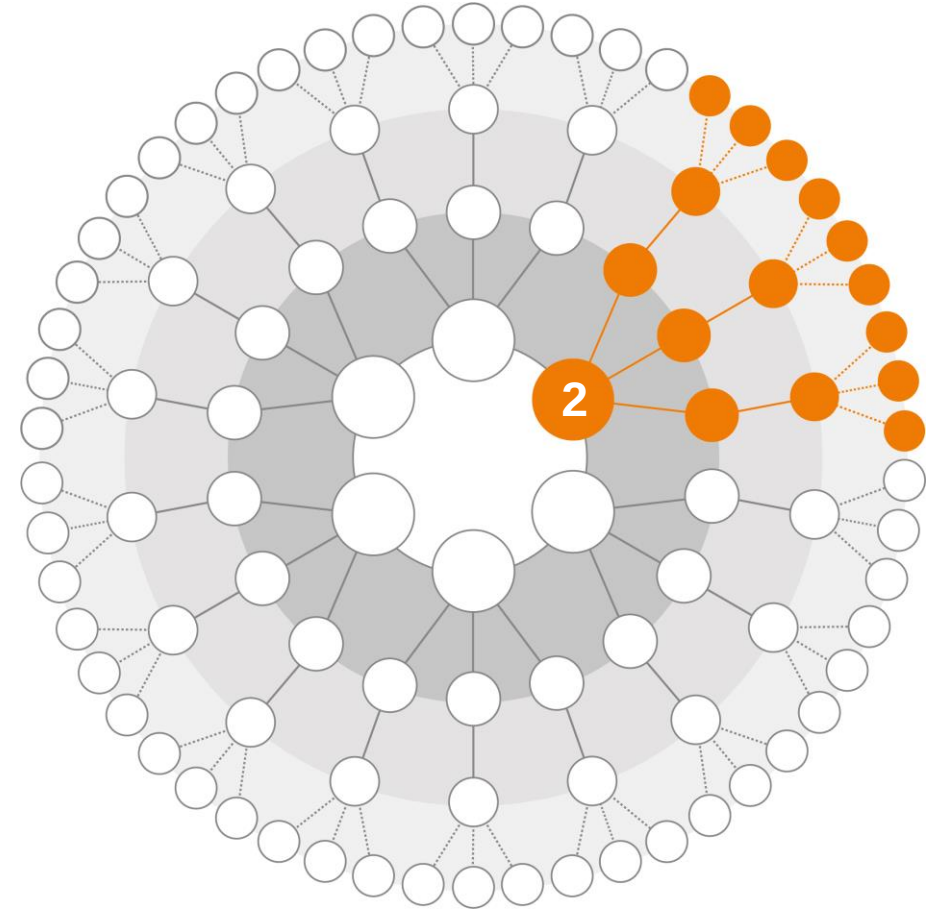
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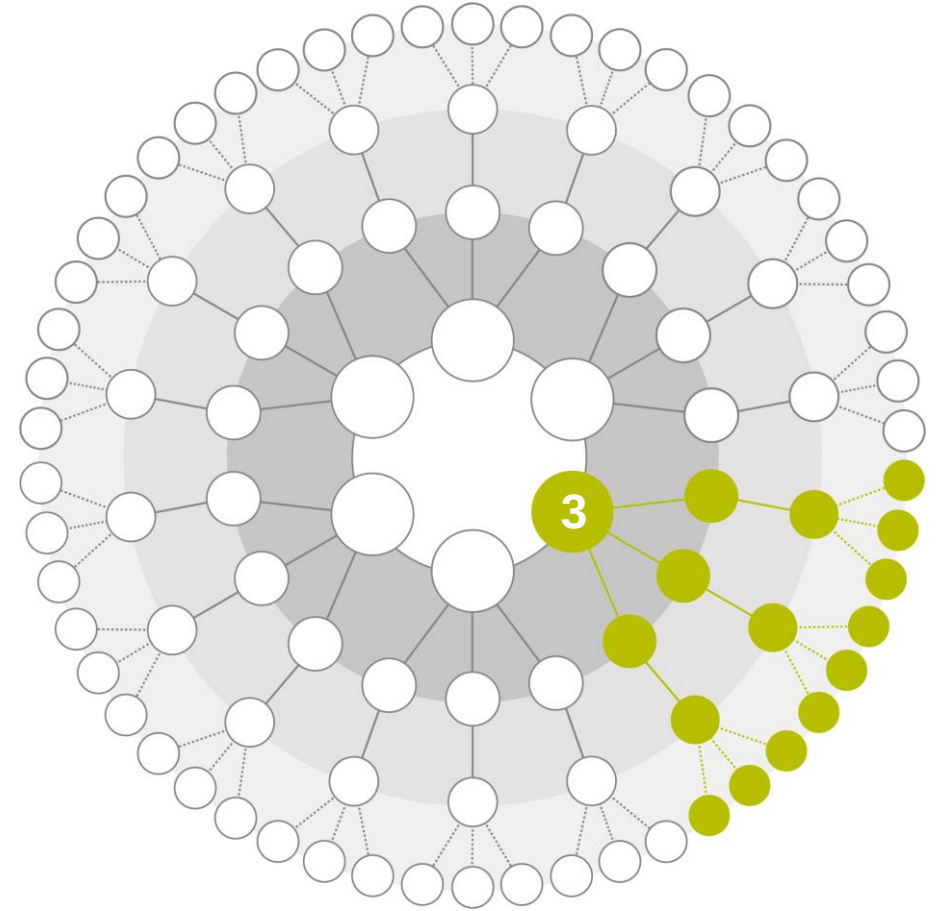
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4. Leadership and capable teams

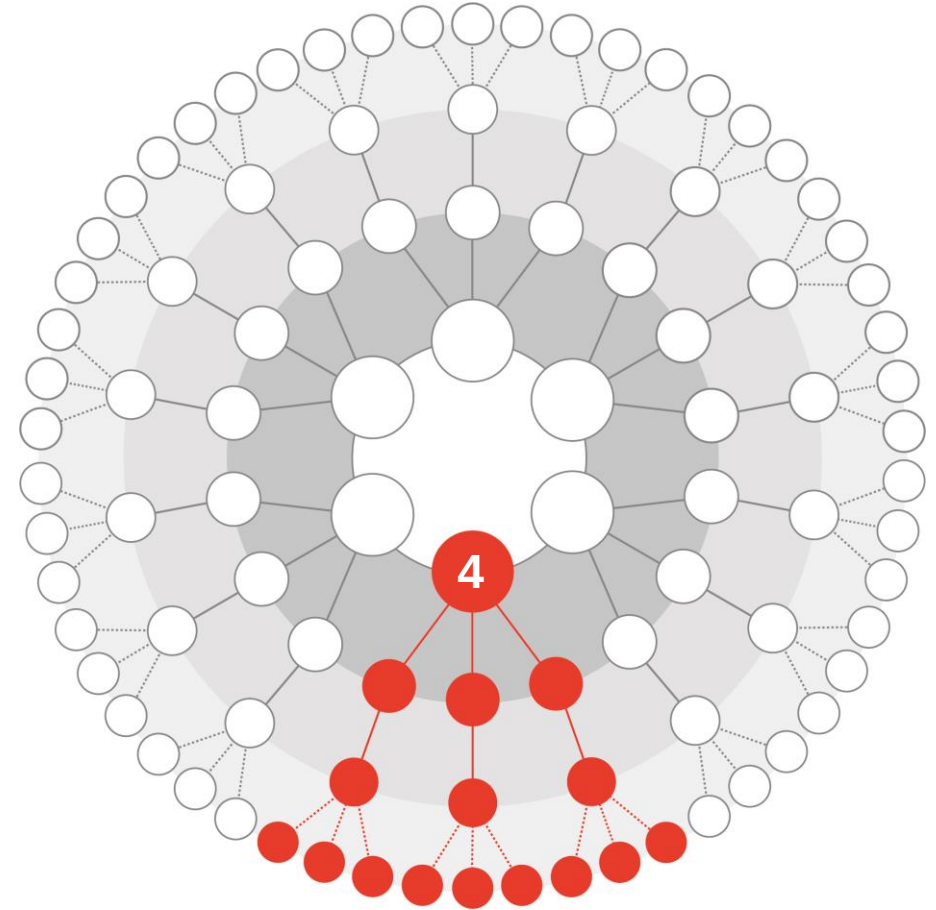
5. Stakeholder engagement and management

6. Supply chain integration and coordination



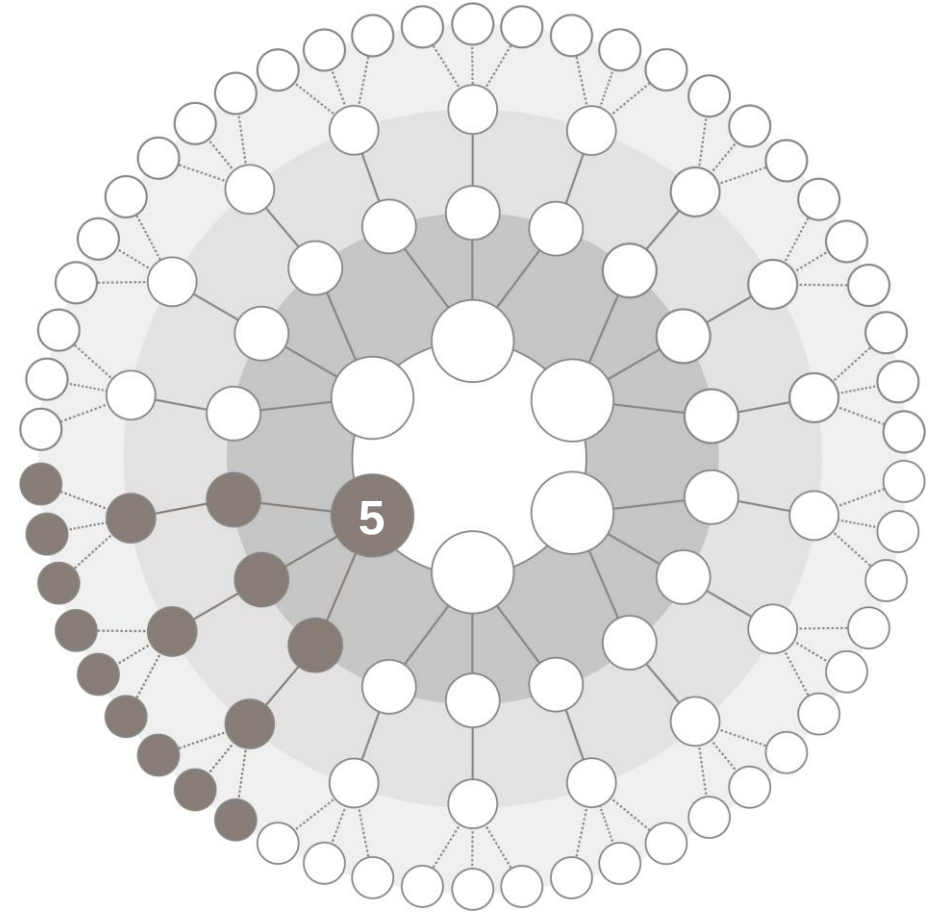
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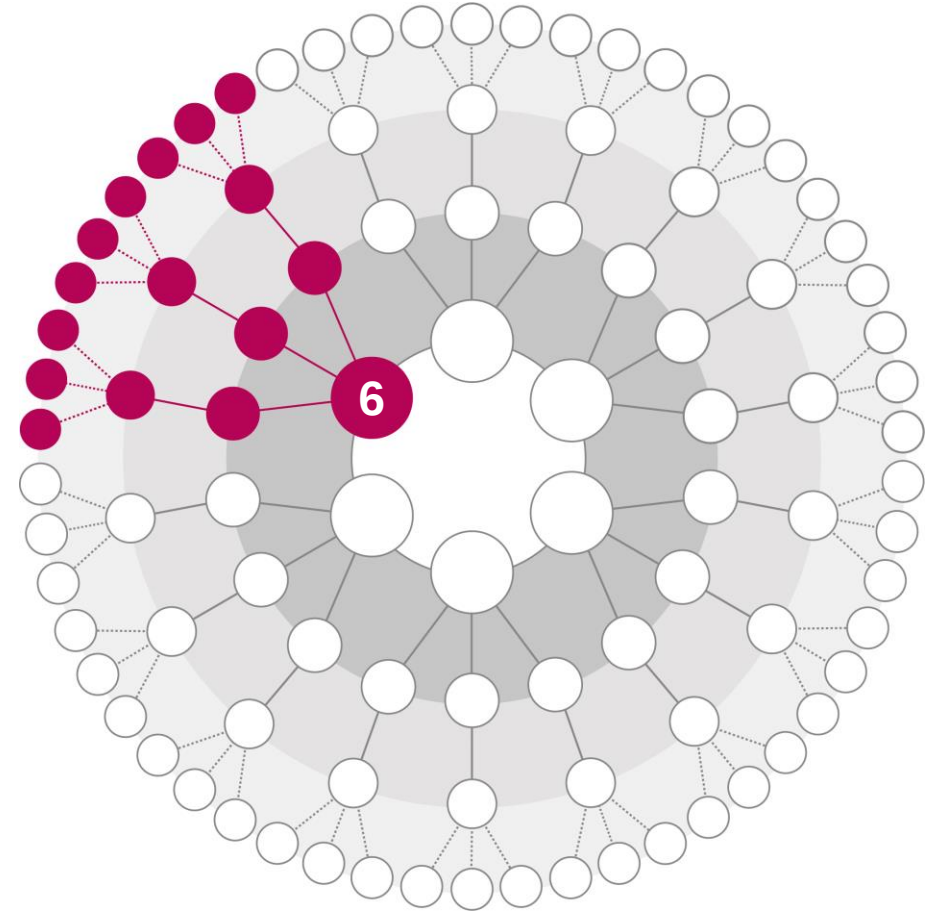
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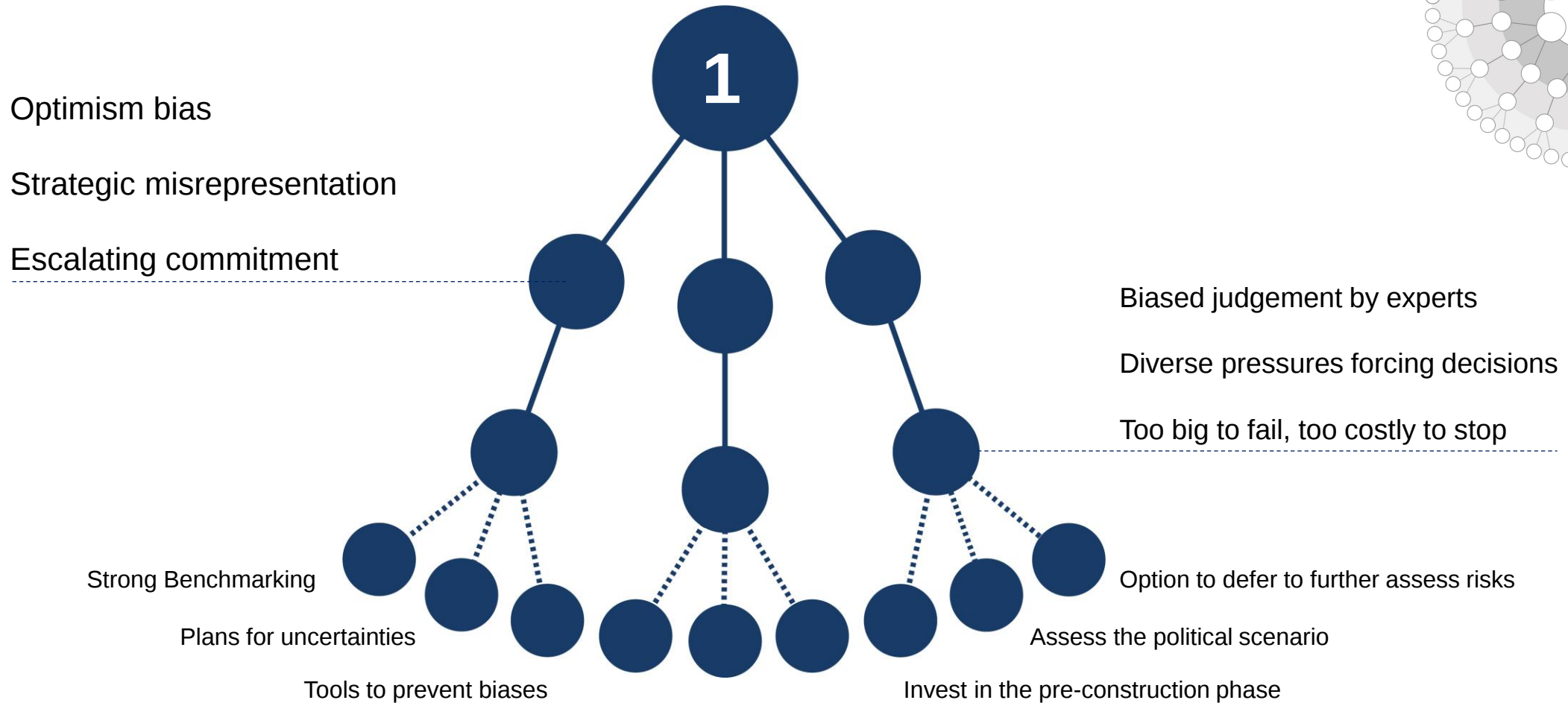
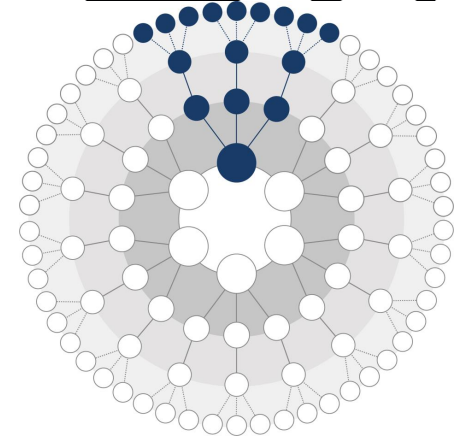


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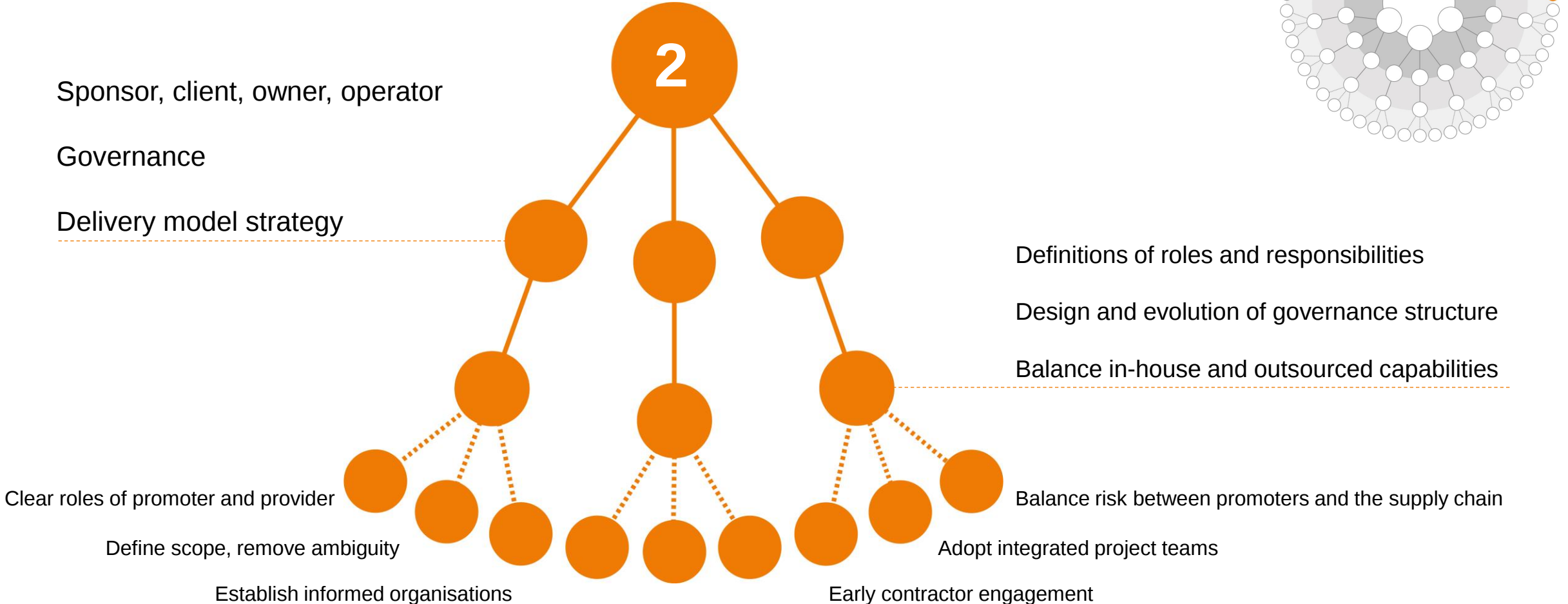
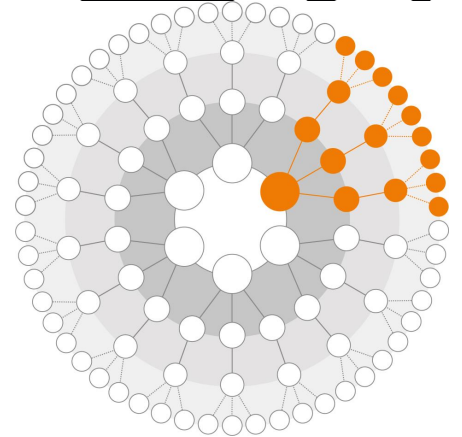
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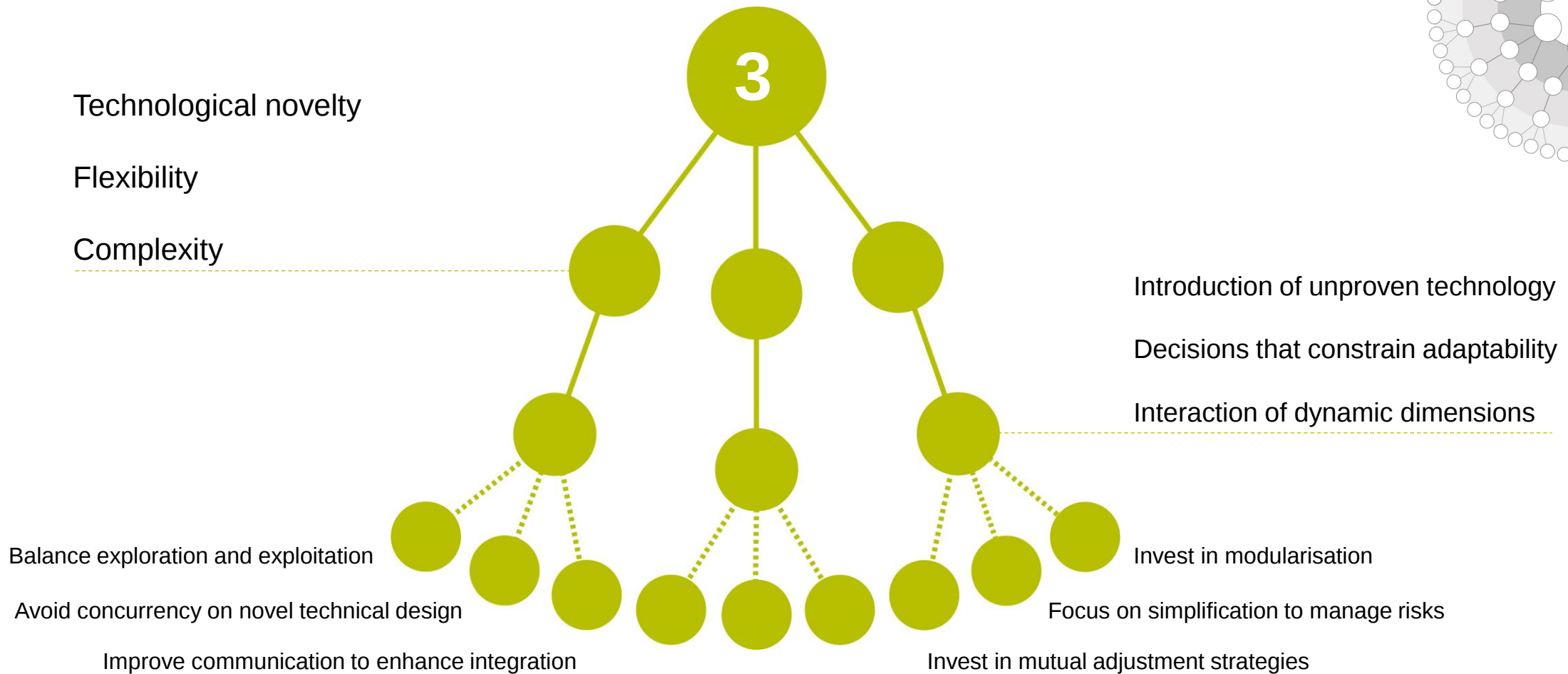
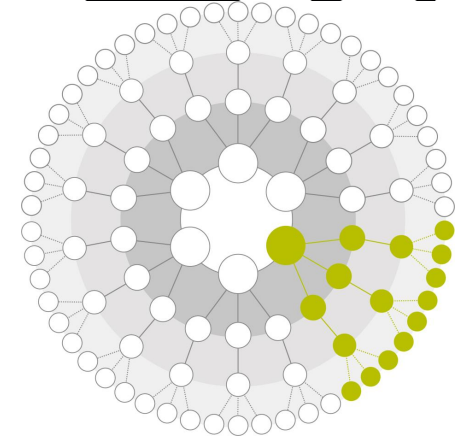
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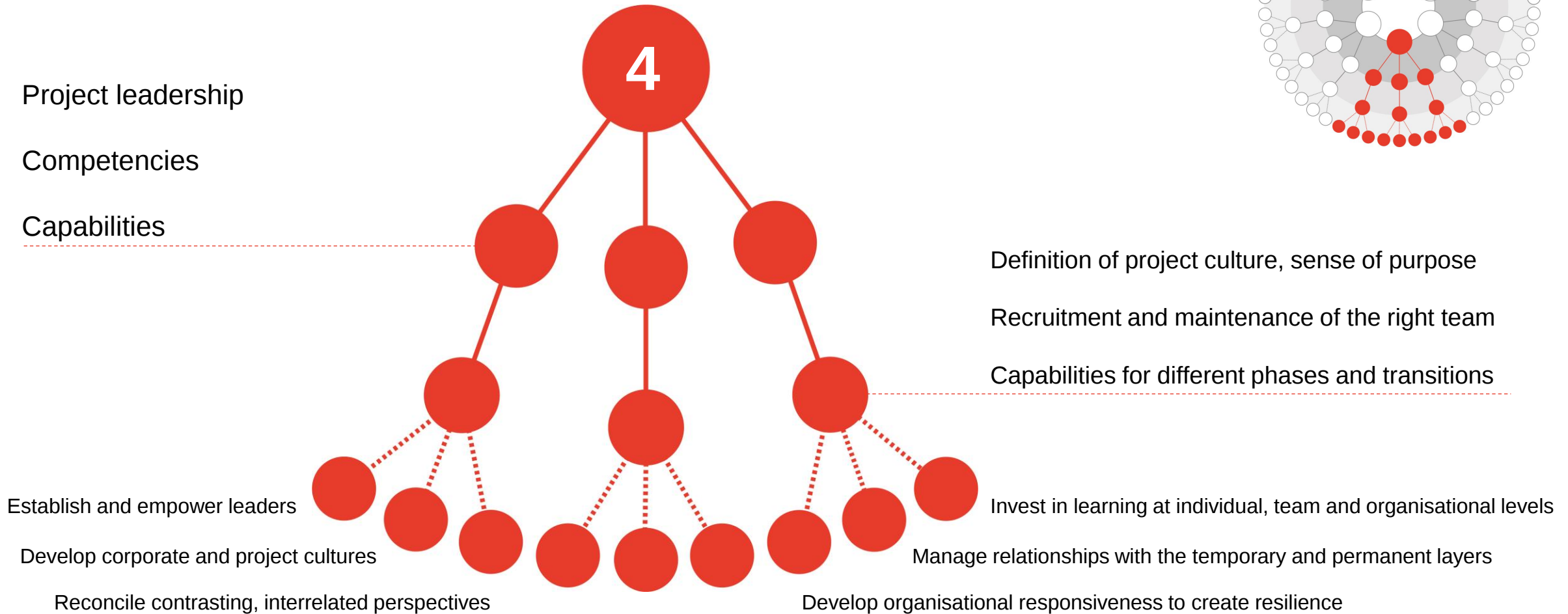
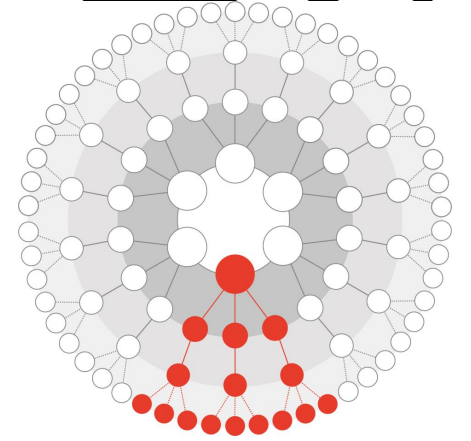
2. Strategy, governance and procurement



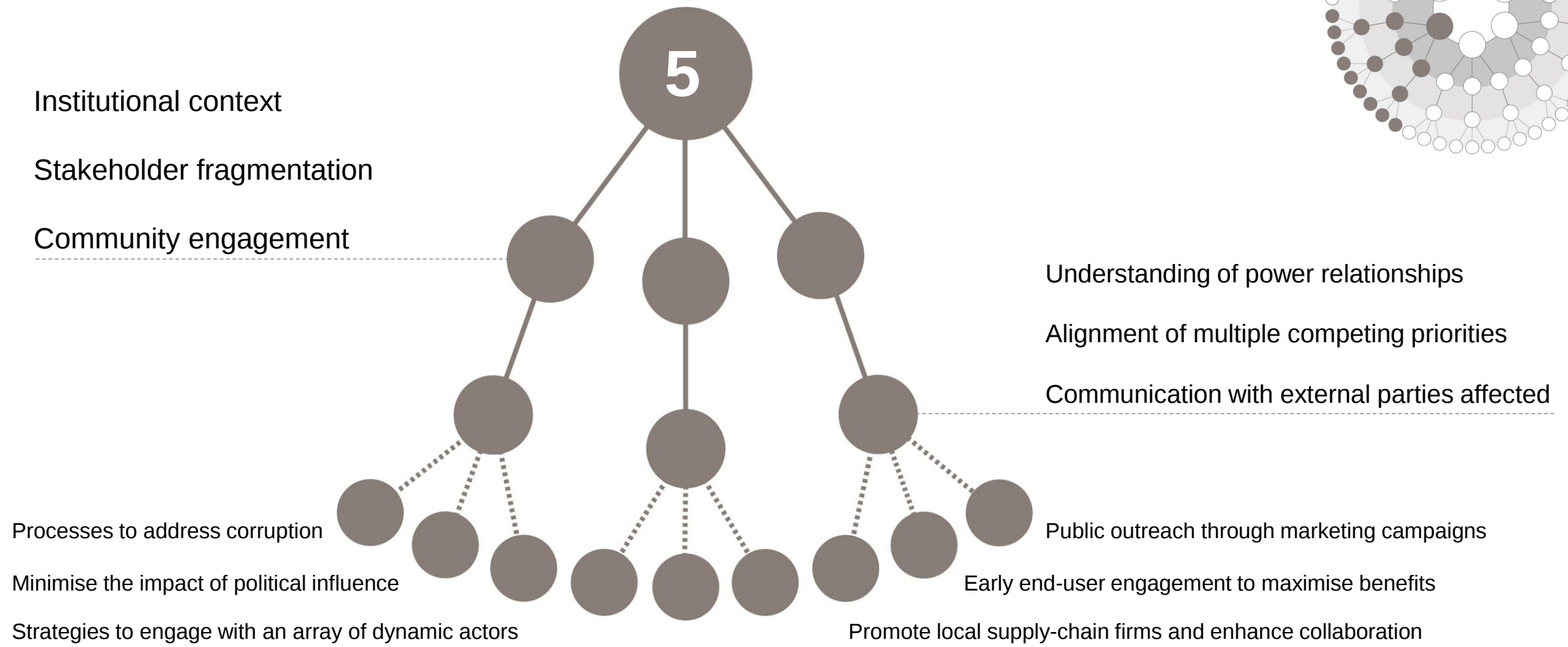
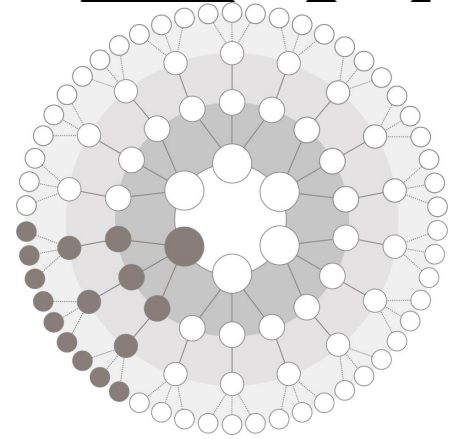
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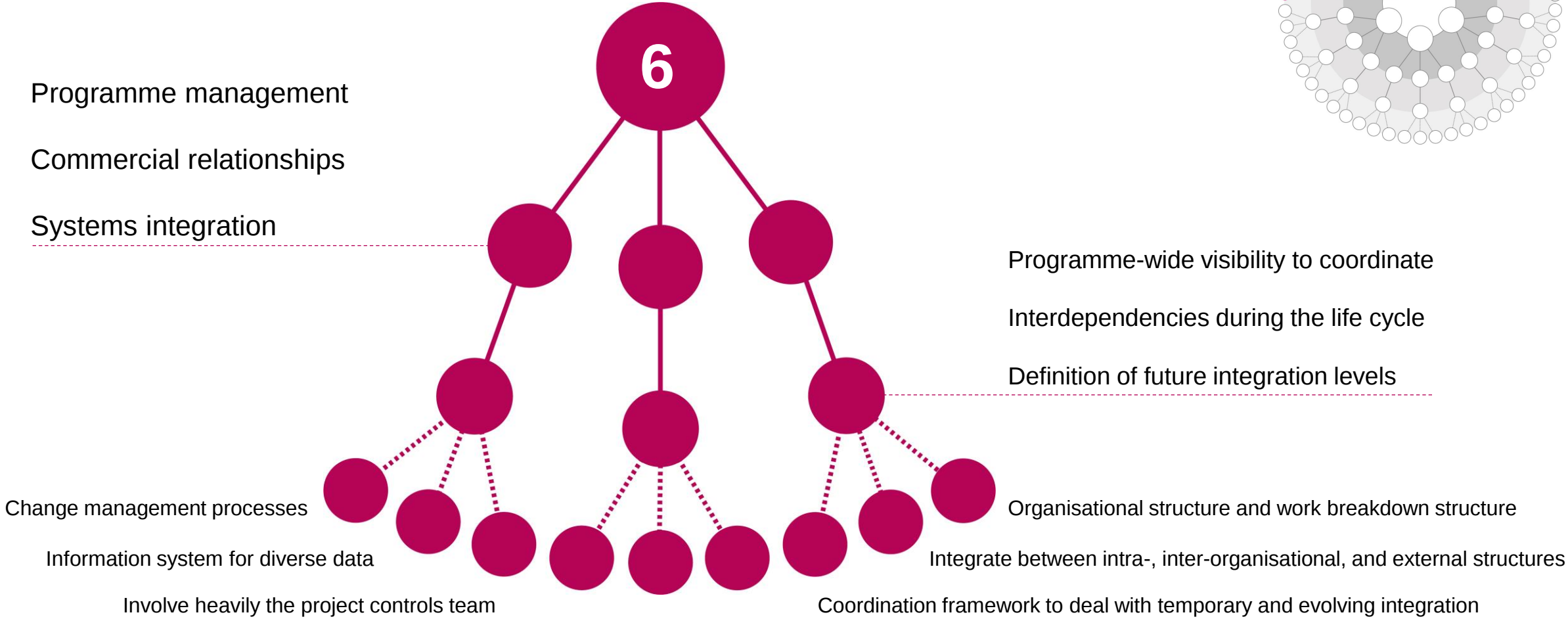
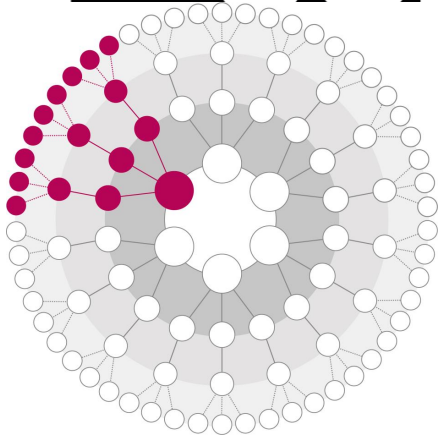
4. Leadership and capable teams



5. Stakeholder engagement and management



6. Supply chain integration and coordination



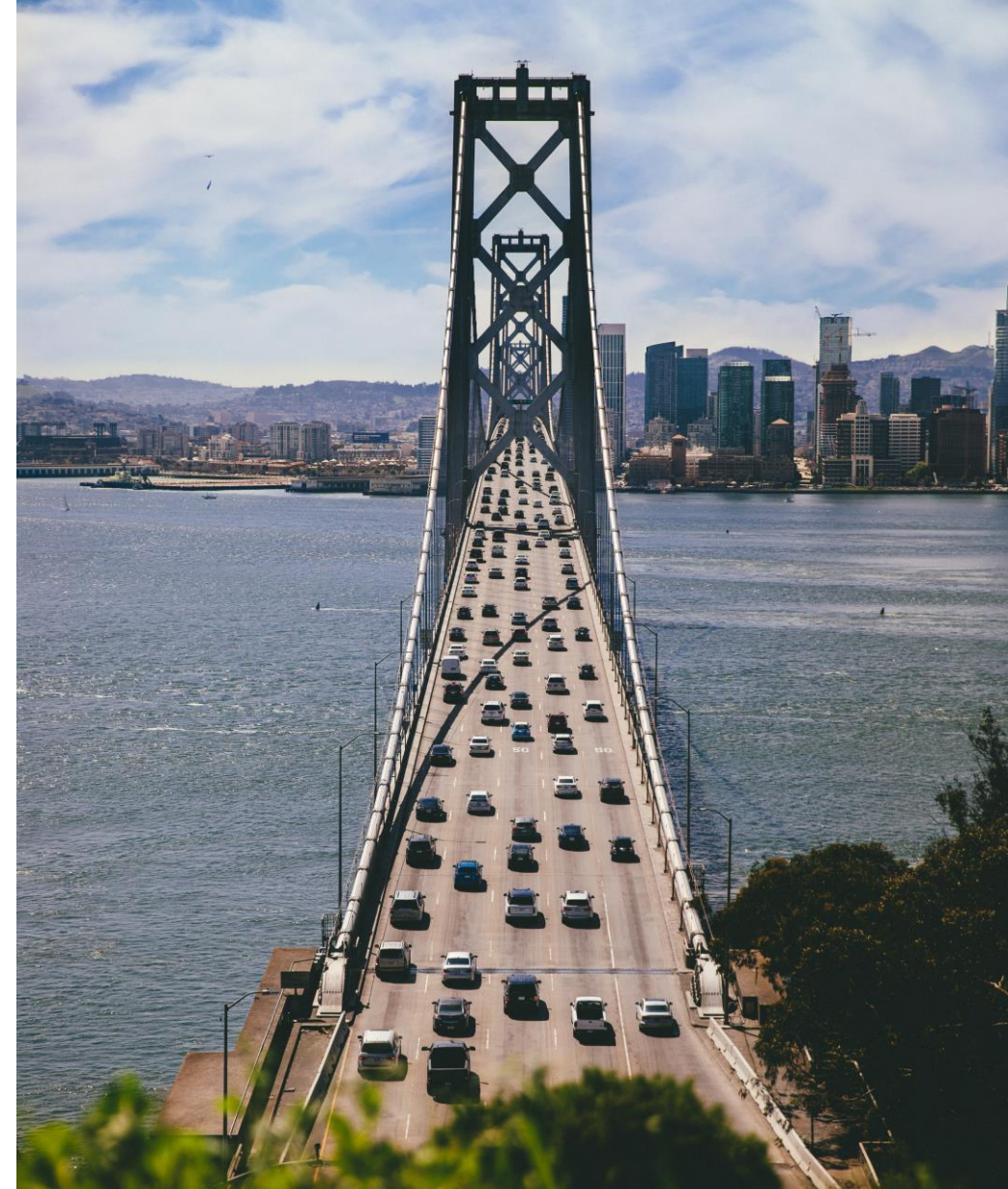
Conclusions

- 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

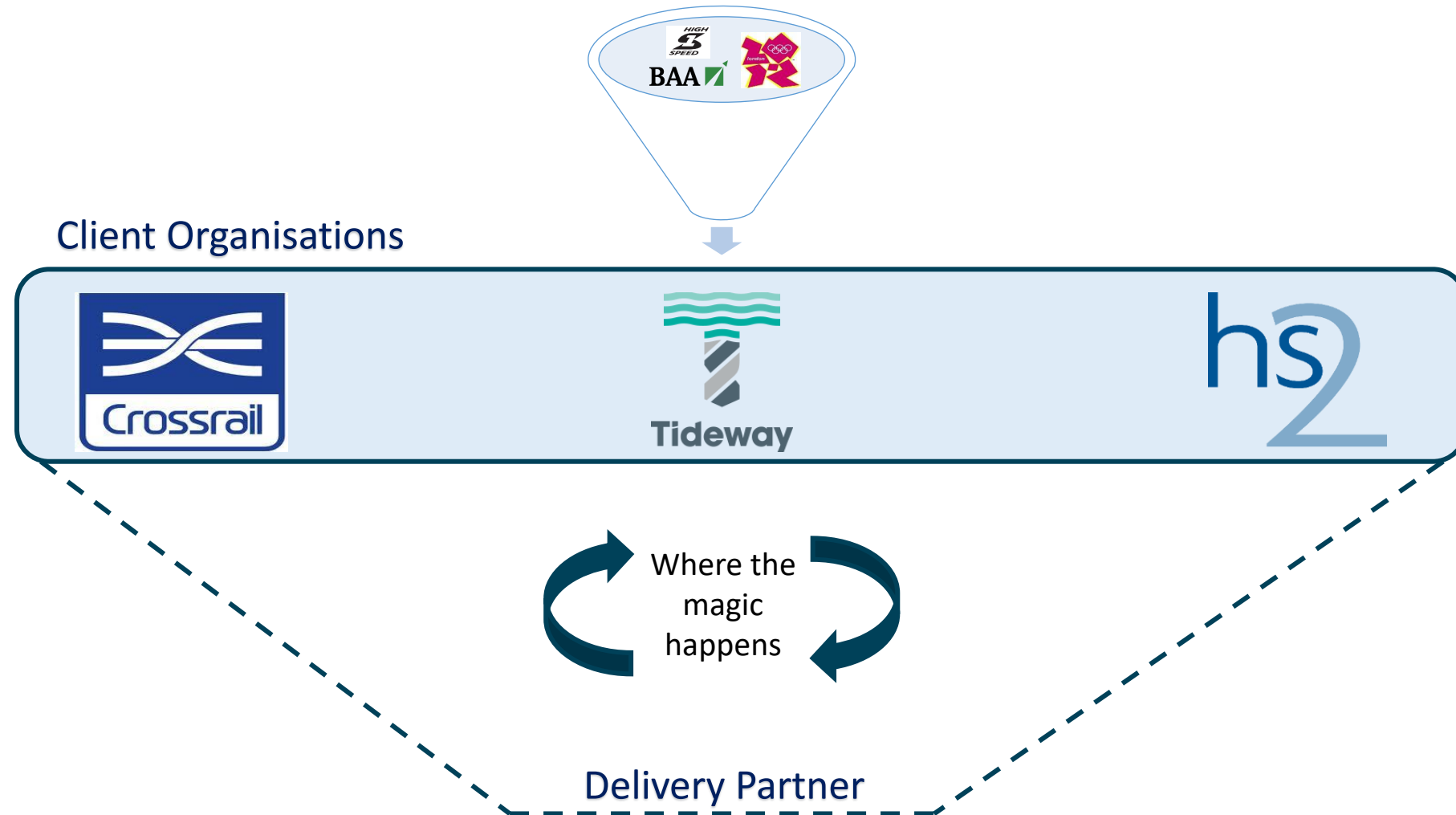


The Organisational Architecture

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



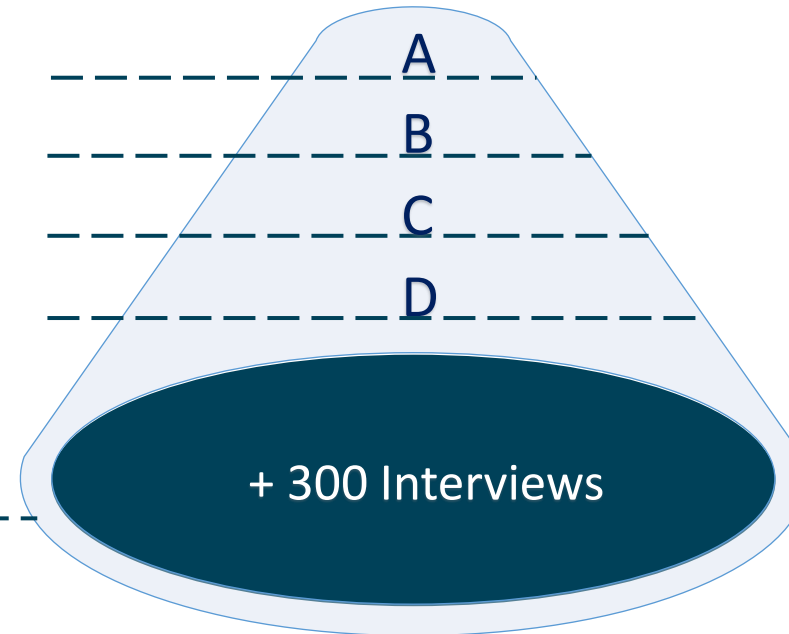
Dataset



Client Organisations

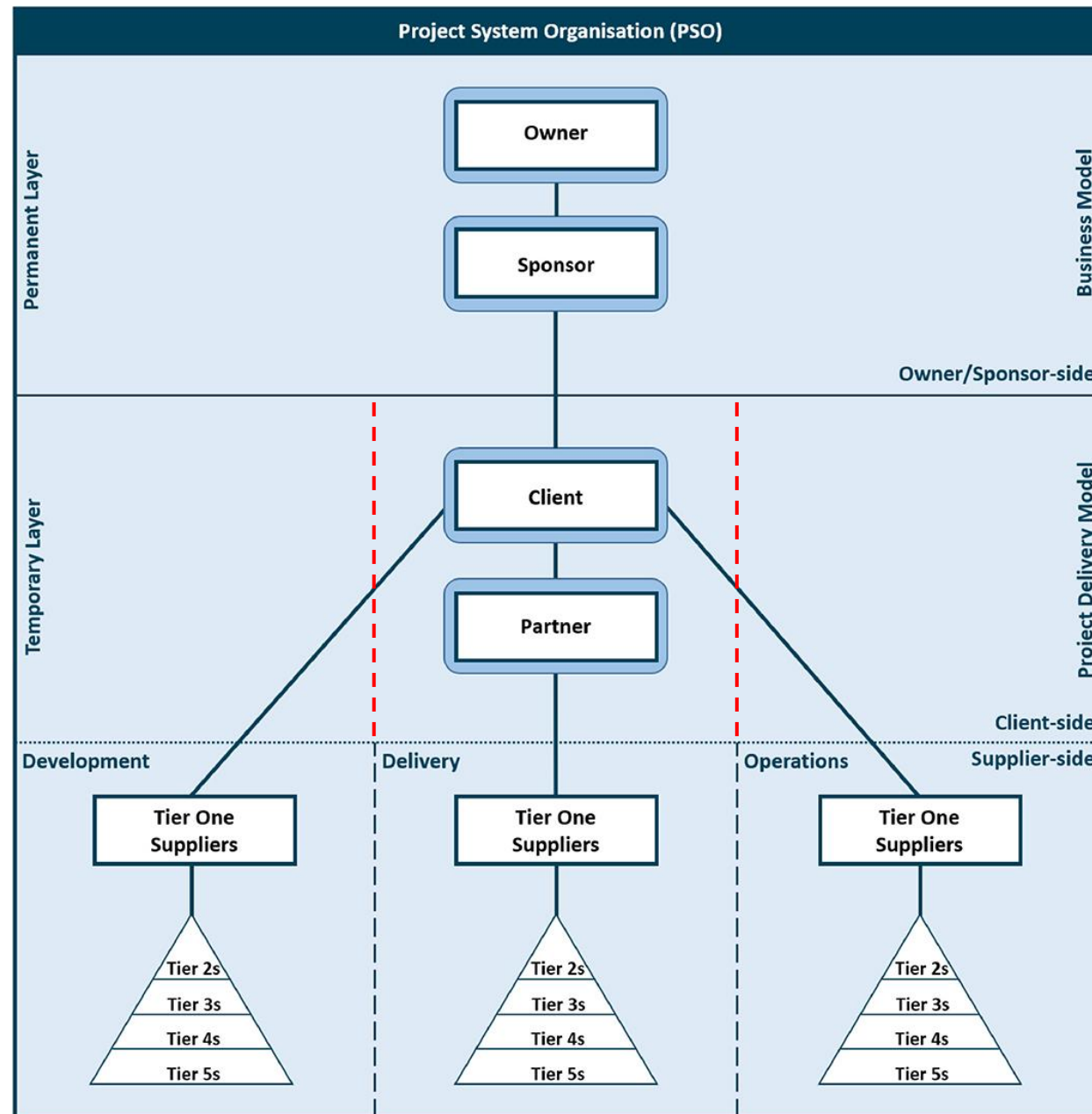
Board members
Policy Advisors
Strategists
Directors

CRL, TTT, HS2

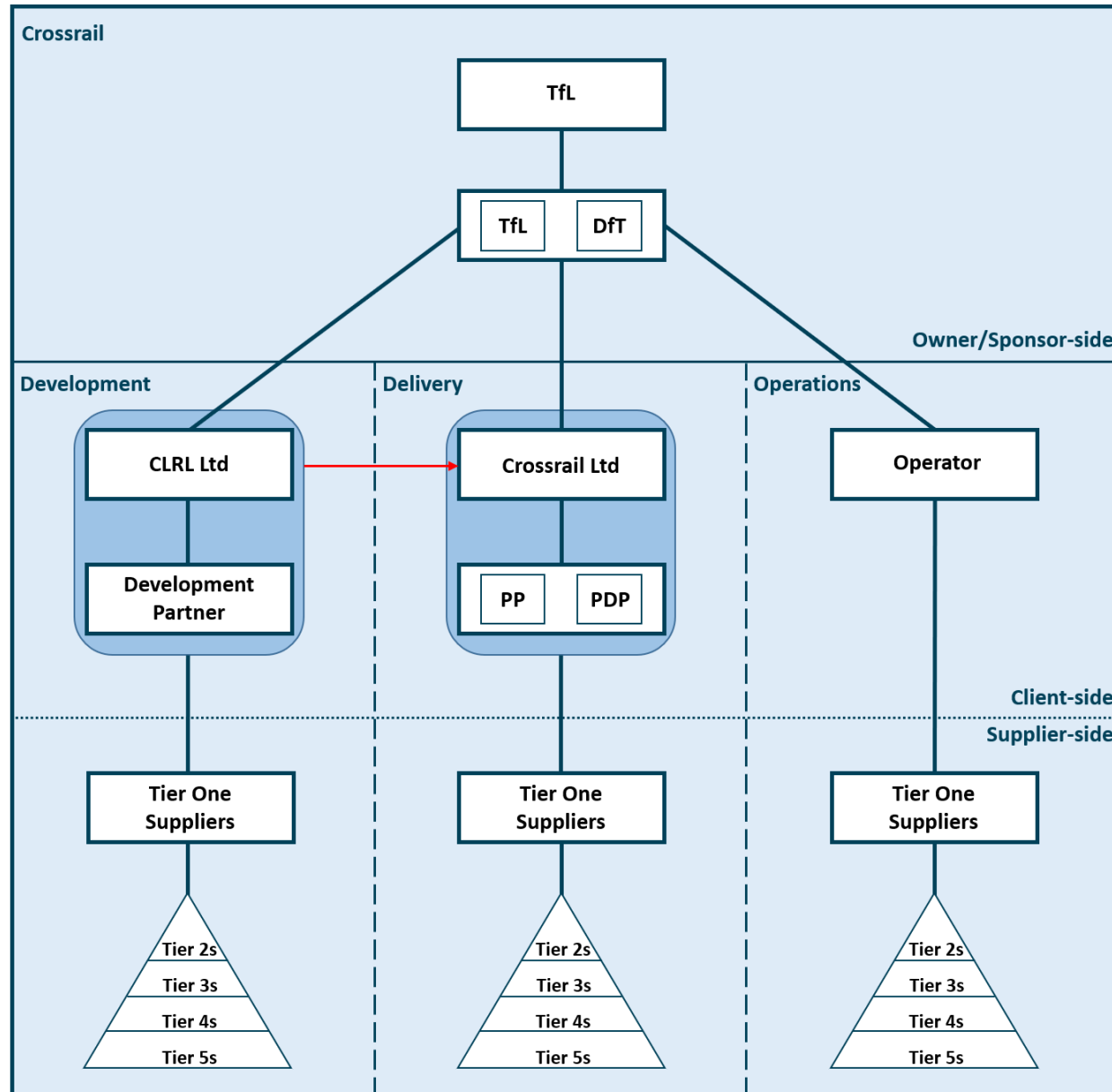


PSO

Project
System
Organisation

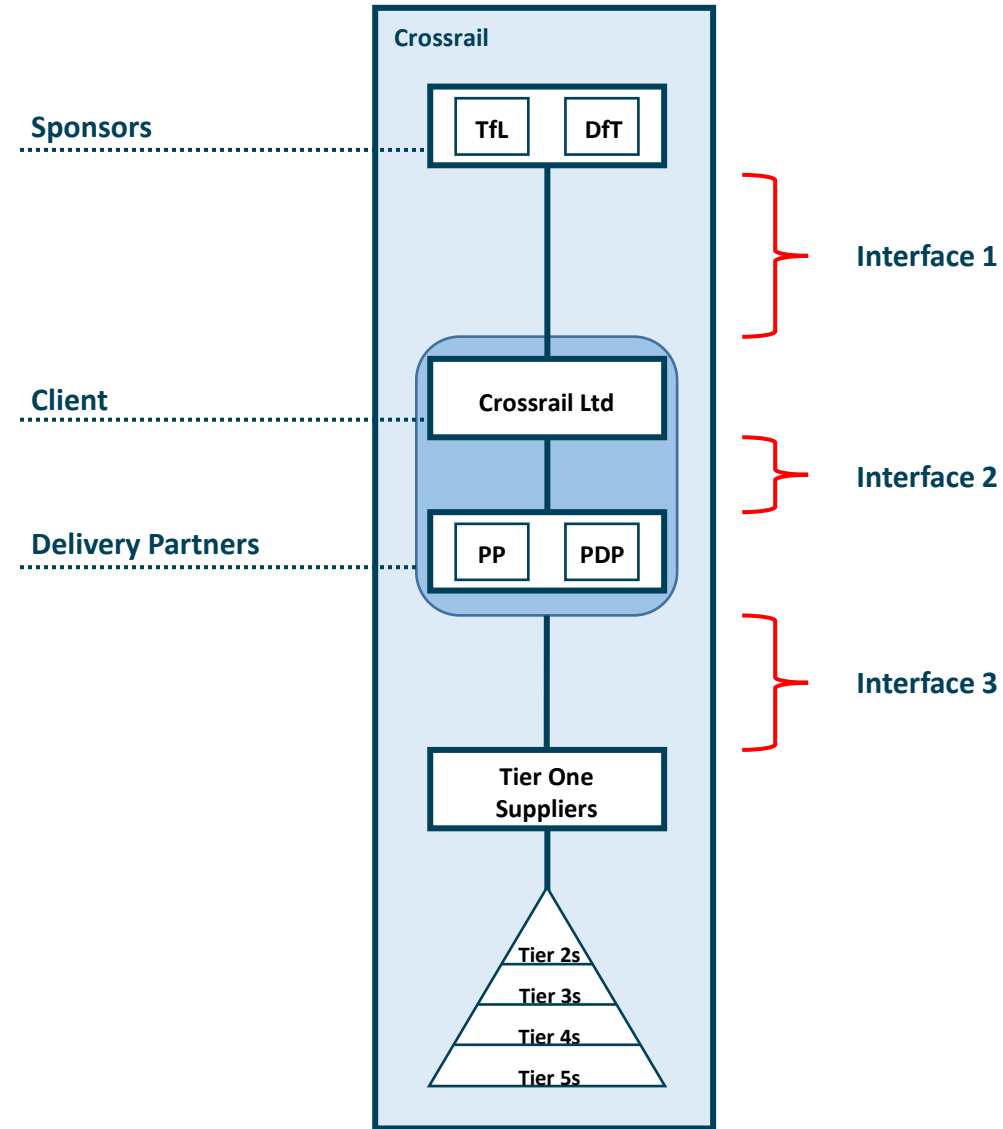


Canvas (1/6)



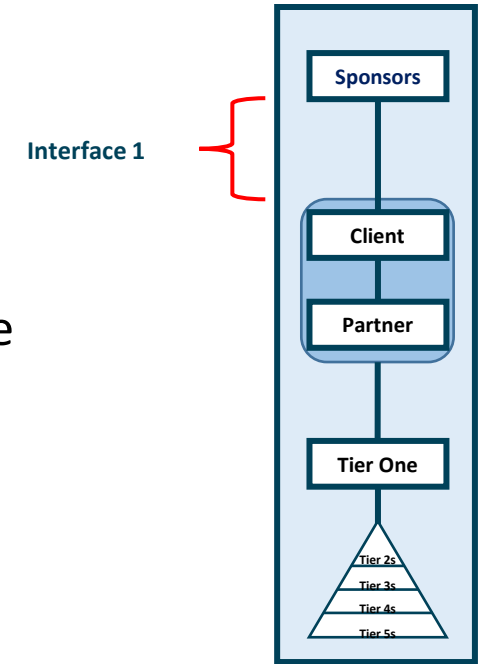
- The sponsor has an initial influence in the architecture of the system (capable?)
- There is a shift of responsibilities to the client organisation (too soon/late?)
- Building capabilities of the system through different integration models with the supply chain (exponential)
- The intra-org. decisions of partners might affect the inter-organisational configuration – lock-in situations by using **mainly** with the intra- lens

Interfaces



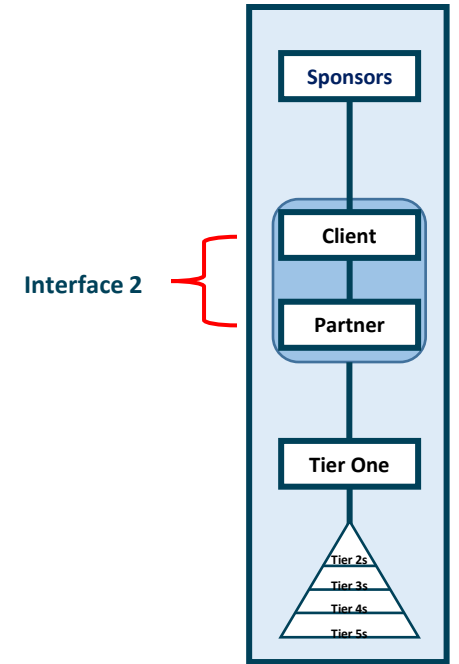
Sponsor – Client

- 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



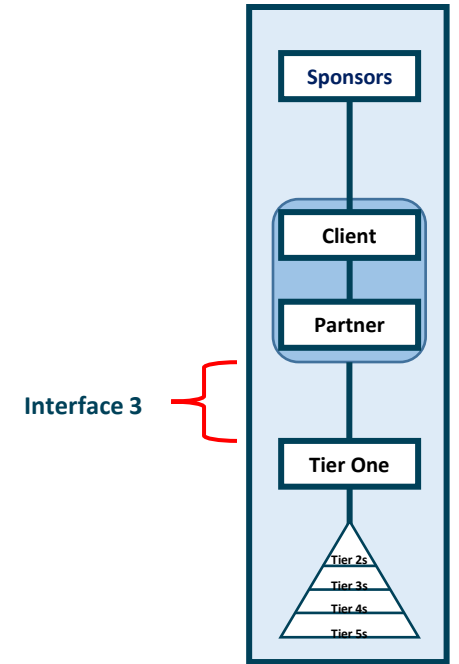
Client – Partner

- 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

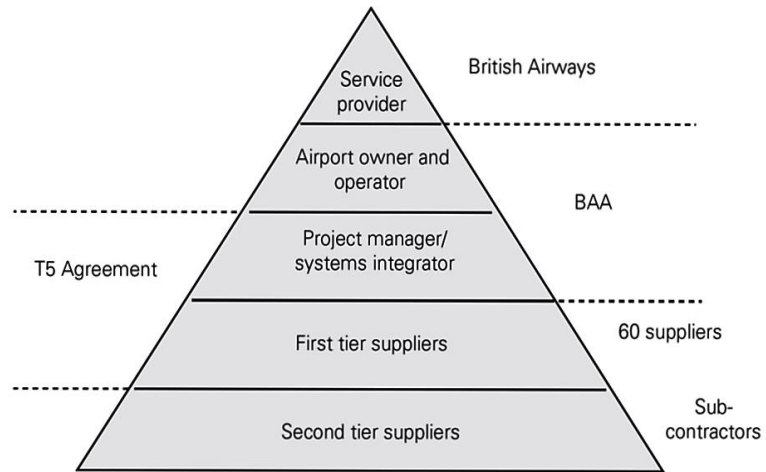


Client – Supply Chain

- Engage with the market and communicate the strategy
 - The market will react and organise partnerships (JVs, tier 2 integration)
- Consider carefully the challenges of decomposition and integration
 - Structure the client organisation to integrate interfaces and manage interdependencies
- Clarify who is managing the supply chain (client vs delivery partner)
 - Shield the supply chain from external disturbances, continuous focus on production

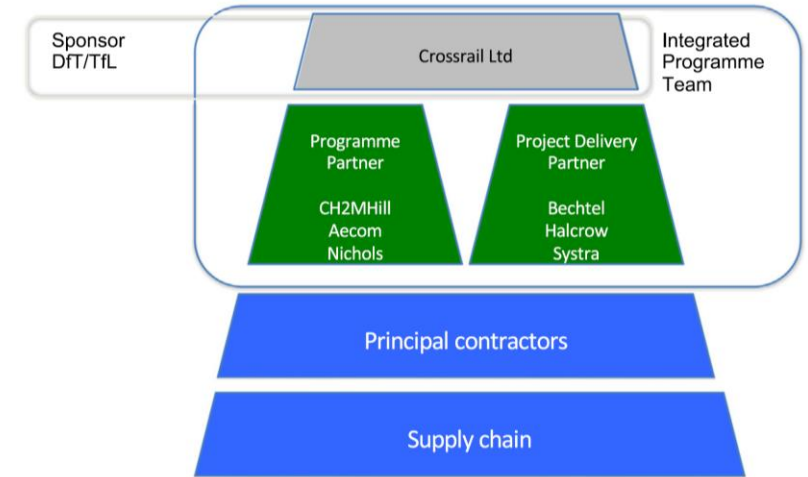


Cases



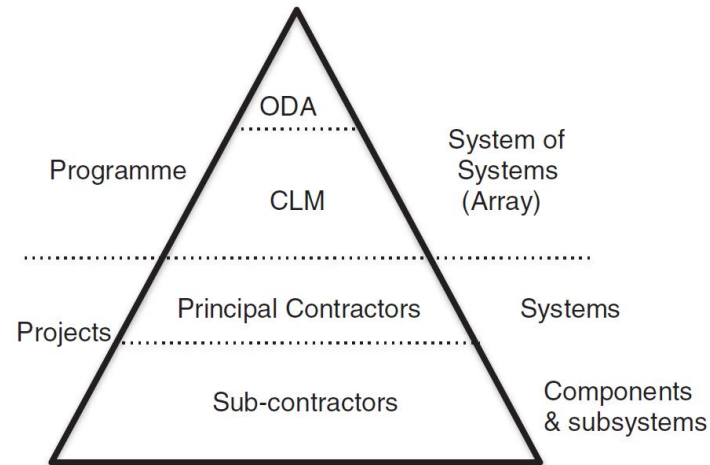
Heathrow Terminal 5

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



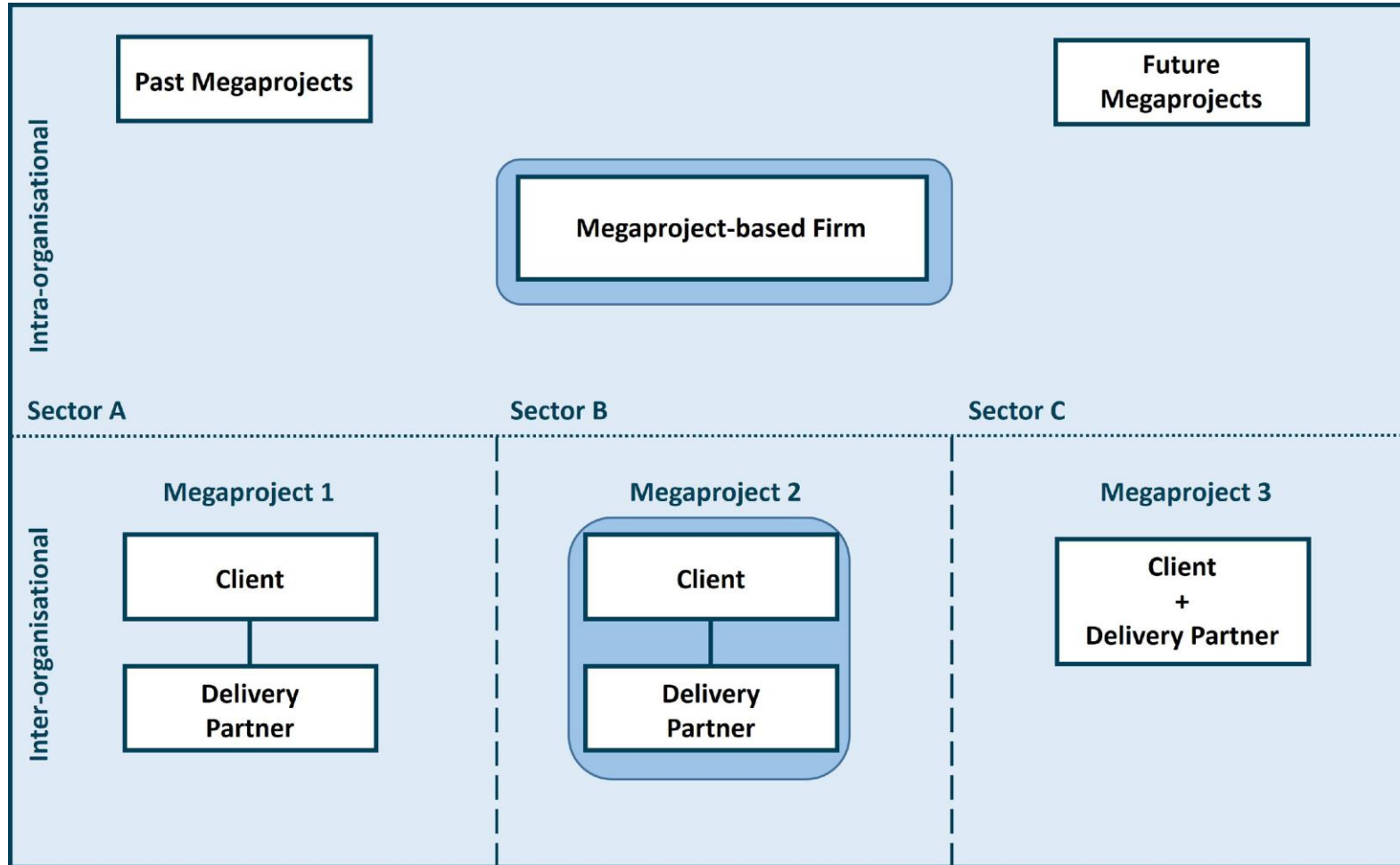
Crossrail

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



London 2012 Olympics

Source: <https://doi.org/10.1016/j.ijproman.2013.10.004>



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