International Transport Forum

Reducing the cost of major infrastructure procurement in publicly and privately financed projects

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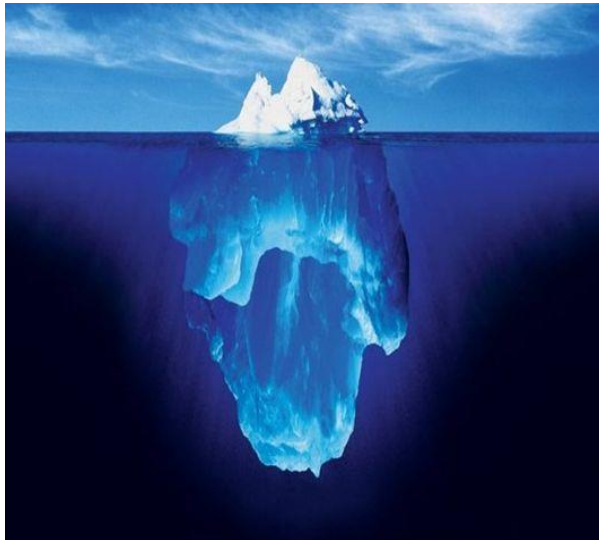
Acknowledgments

- ITF/OECD for convening and supporting the Working Group "Private Investment in Transport Infrastructure".

- Authors/Co-Authors of discussion papers
  - "Risk pricing in infrastructure delivery – What can be done to make major infrastructure projects less costly"
  - "Risk allocation in Danish mega-projects"
  - "Efficiency and innovation in infrastructure projects – Four types of collaborative procurement strategies in Sweden and the Netherlands"

Disclaimer

- This presentation is merely a summary and not the full story



What was the objective?

- **Identify how cost of major infrastructure projects can be reduced**
  - Understand the impact of uncertainty on risk pricing for infrastructure projects
  - Highlight the impact of risk allocation on project delivery
  - Explore the impact of collaboration on project efficiency and innovation

What we did

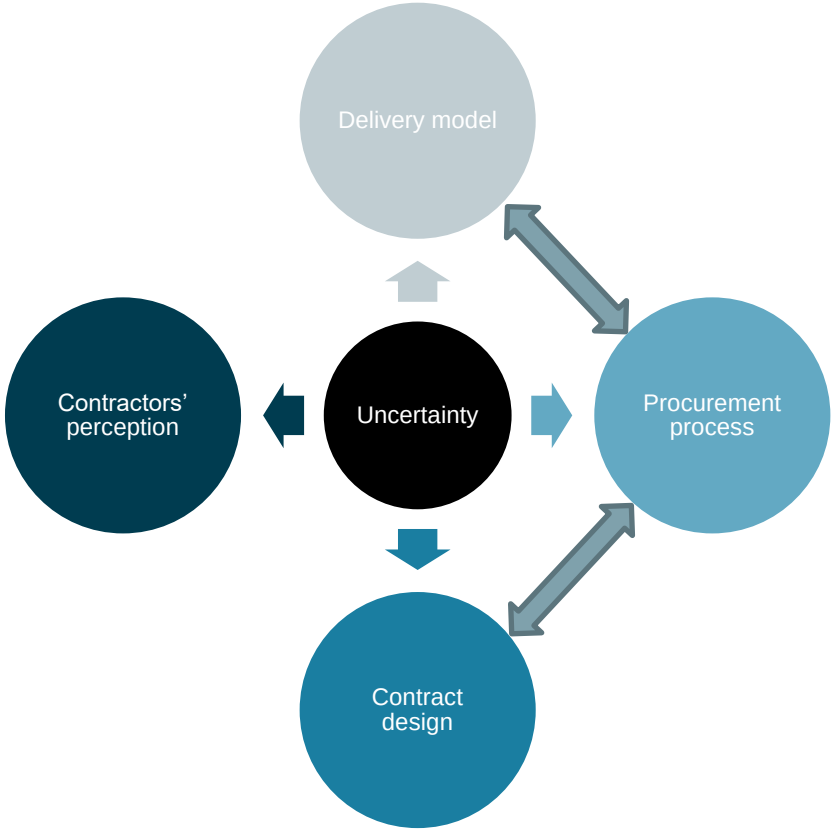
- We investigated:
  - Risk and uncertainty
  - Risk allocation
  - Collaboration, efficiency and innovation
- We considered different delivery models
  - Dominant (e.g. DBB, DB, EPC) and collaborative (e.g. ECI, Alliancing)
- We studied the scientific literature as well as 16 project cases
  - UK (2), Denmark (3), Sweden (7), Netherlands (3) and Germany (1)

What we found (1)

- Risk pricing in infrastructure is difficult: projects are unique, industry is opaque, data is not collected or is not shared
  - Not enough information available for benchmarking

- Uncertainty in risk pricing is affected by four elements

Uncertainty in infrastructure delivery



Contractor risk pricing challenges:

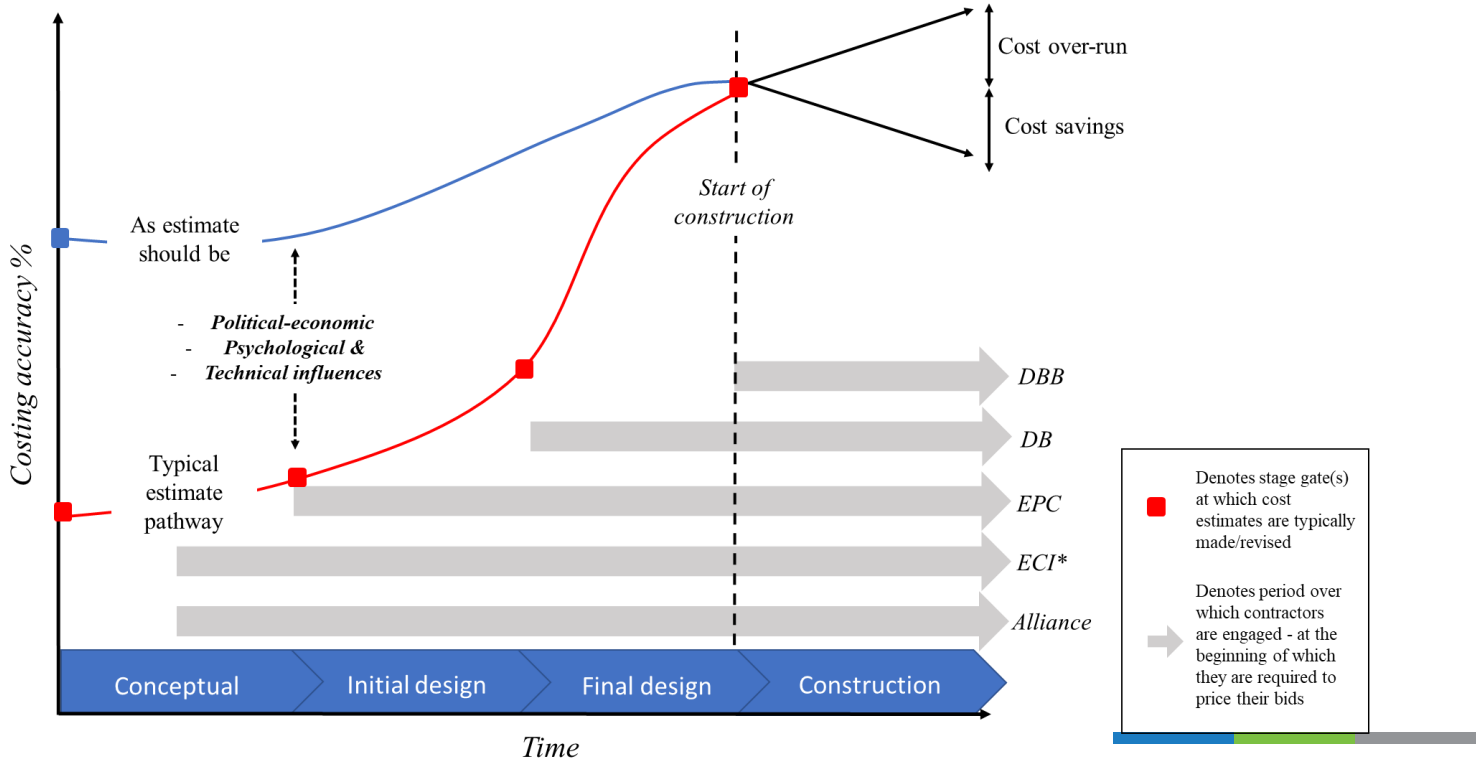
- Delivery models
- Financing requirements
- Information provision
- Timing constraints
- Methodological issues

What we found (2)

- Interrelationship between design and construction is a key concept; especially how design clarity and flexibility relates to the underlying delivery model.

- Infrastructure delivery has not kept pace with changing nature of projects. Existing “set” solutions not necessarily efficient and customisation may be necessary.

Impact of delivery model on cost estimation



Source: Adapted by authors from Samset (2008); Samset & Volden (2016)

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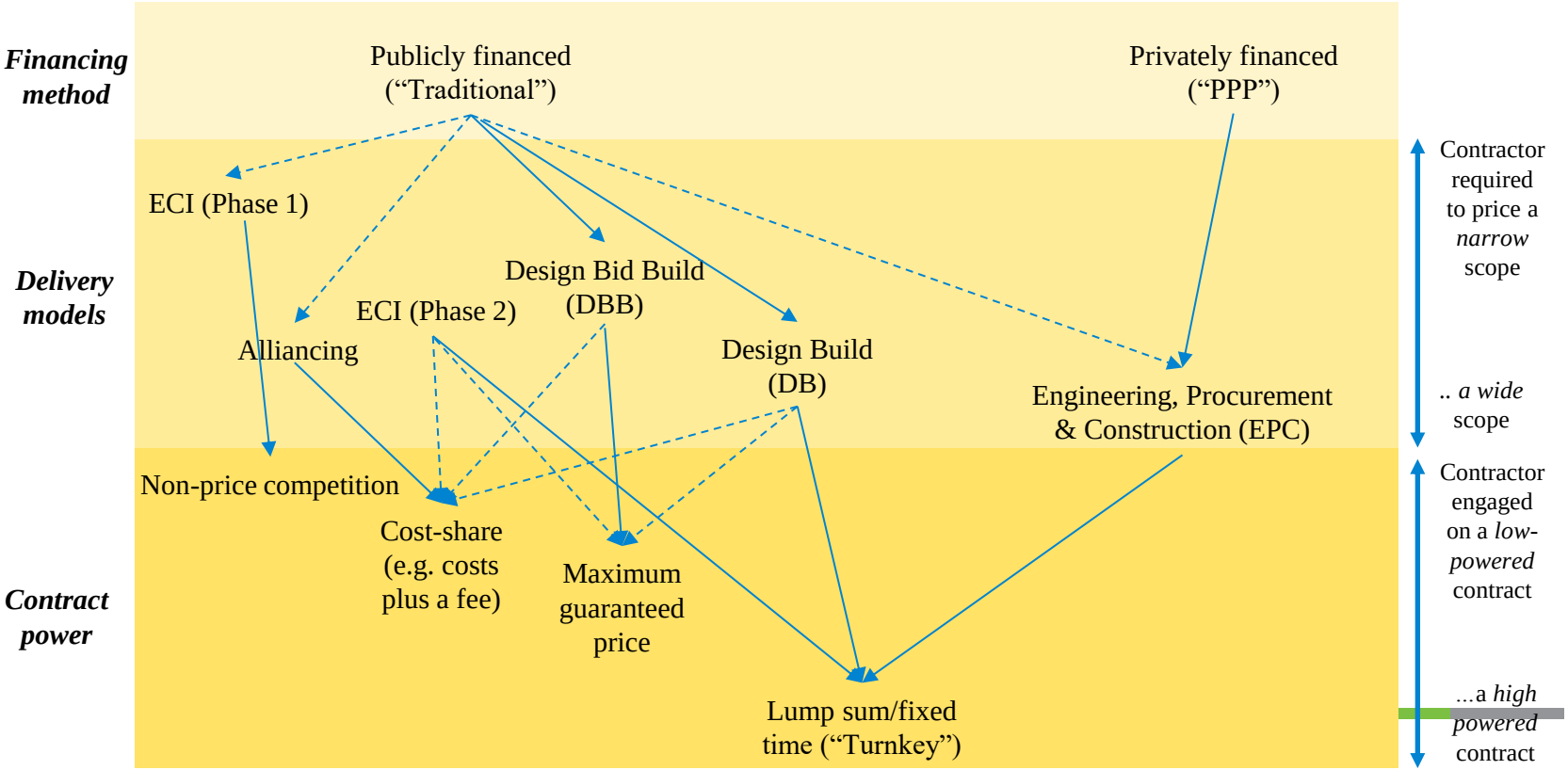
Delivery model interrelations



What we found (3)

- Risks must first be well understood in order to be efficiently allocated

- Risk allocation affected by fundamental choices made during procurement

What we found (4)

- Collaboration can be described by four dimensions:
  - Scope
  - Depth
  - Duration
  - Intensity

- Each dimension can have a different impact on project efficiency and innovation depending on the underlying delivery model and contract design used

What we propose (1)

- Matching design clarity and flexibility to the delivery model used and the characteristics of the project. Pricing efficiency, flexibility and innovation need not be mutually exclusive.

- Early and continuous focus on risk management. Identifying and understanding risk is a prerequisite for efficient allocation and mitigation.

What we propose (2)

- Facilitation of information provision through data collection and sharing. Communication is key.

- Careful selection of delivery models. Adopting and managing more advanced or more collaborative models requires knowledge and skills which should not be underestimated.

- Well-prepared procurement processes in terms of scope, clarity and duration. They will affect bid pricing but also bid quality.

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Thank you!

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