Outside view from a Scholar

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Purpose of the Presentation

Purpose

• Outside View
• Relevant Literature in Project Management for Rail Baltica Project

Key Messages:

• Benchmark projects, and common governance challenges
• Governance remedies
• Megaproject performance
Benchmark 1
Mid stream Oil and Gas

Pipeline Infrastructures provides a benchmark to the Rail Baltica Project
- Pipelines are large Engineering Projects
- Pipelines are cross boundary infrastructures
- Pipelines involves different national interests
- Pipelines employ governance structures similar to Rail Baltica

One critical problem of this structure was the scope change

Benchmark 2
Project Finance Structure

Why does the Financial Institution led to the SPV?
Remedy 1: Strict control of Lenders

3 Sponsor is an Ideal scenario

Independent Audit

Arms Length Transaction

Sponsor

Equity

Debt

Board of Director

Contractor

Critical Supplier

Operator

Sub Contractor

Sub Contractor

Sub Contractor

Financial Institution

Lead Arranger

Financial Institution

Watchdog

Sponsor

Sponsor

Sponsor
Remedies for conflict of Interests

Example: Negotiation EPC Contract

Sponsor

Board of Director

Equity

Debt

Contractor

Critical Supplier

Operator

Financial Institution

Lead Arranger

Financial Institution
The MEGAPROJECT COST Action

Analysis of 50 European Megaprojects

Statistically, Megaprojects employing SPVs are more likely to be:

- Front End: delayed
- Construction phase: on time, on budget

www.mega-project.eu
Megaprojects Performance: Transportation infrastructure

- Inaccuracy in cost forecasts in constant prices is on average 44.7% for rail, 33.8% for bridges and tunnels, and 20.4% for roads.
- For the 70-year period accuracy has not improved.
- Average inaccuracy for rail passenger forecasts is −51.4%, with 84% of all rail projects being wrong by more than ±20%.
- For roads, average inaccuracy in traffic forecasts is 9.5%, with half of all road forecasts being wrong by more than ±20%.
- For the 30-year period accuracy has not improved.

Database encompasses 245 large dams, built between 1934 and 2007, on five continents, in 65 different countries

Considering their cost overrun

- 3 out of 4 large dams suffered a cost overrun.
- Actual costs were on average 96% higher than estimated costs; the median was 27%.
- Differences among regions are not significant.
- The typical forecasted benefit-to-cost ratio was 1.4. In other words, planners expected the net present benefits to exceed the net present costs by about 40%.
- Project type (e.g., hydropower, irrigation, or multipurpose dam) or wall type (earthfill, rockfill, concrete arch, etc.) does not influence cost overrun.
- Irrespective of the year or decade in which a dam is built there are no significant differences in forecasting errors. There is little learning from past mistakes.
- The rate of cost overrun outliers increases with increase in dam size measured either in installed hydropower generation or wall height.

Regarding schedule overrun

- 8 out of every 10 large dams suffered a schedule overrun.
- Actual implementation schedule was on average 44% (or 2.3 years) higher than the estimate with a median of 27% (or 1.7 years). Like cost overruns, the evidence is overwhelming that implementation schedules are systematically biased towards underestimation.
- There is less variation in schedule overruns across regions than cost overruns.
- Large dams built everywhere take significantly longer than planners forecast.
- There is no evidence for schedule estimates to have improved over time.

The 35% of the projects succeeded.

By contrast, the failures are truly miserable projects:

- 40% constant currency overrun
- very expensive in absolute terms.
- Delay by 28 %
- 15% slower than a competitive schedule.
- they averaged only 60% of planned production in the first year.

The oil and gas production sector fares the worst; 78% of megaprojects in this industrial sector are classified as failures.

Megaproject Performance

• Usually, Megaproject are late and overbudget

• In Megaprojects, the traditional project management performance criteria (Time, Cost, Quality) are secondary to other factors:
  • The **impact that megaproject has on context**: economy, society and environment. The infrastructure benefits (e.g. operations) might be far more important than the project management performance
  • **Symbolic Nature** of megaprojects

Conclusions

Organisational Benchmark:
• Pipeline projects
• Project Finance infrastructure projects

Performance Benchmark
• Megaprojects

“projects seem to fall naturally into exceptionally good projects and exceptionally poor projects, with only a very few in the middle” [1]

That’s all Folks!
Transition period

Delicate and Critical Transition for the project

The “Megaprojects Cost Action”
Selected Results

<table>
<thead>
<tr>
<th></th>
<th>Over budget</th>
<th>Delay construction</th>
<th>Delay planning</th>
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<tbody>
<tr>
<td>The project has national public acceptability</td>
<td>😛</td>
<td></td>
<td>---</td>
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<tr>
<td>Environmental groups have been engaged ex-ante, not ex post</td>
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<td>The project has a strong regulation system</td>
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<td>+++</td>
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<td>There is planned a long term stability in usage and value</td>
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<td>-</td>
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<td>Financial Support from national government</td>
<td>😛</td>
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<td></td>
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<td>The majority of the national population trust the national authority</td>
<td>😛</td>
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<td>There was a formal litigation procedure during the contract between Client and EPC</td>
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<td>The megaproject is composed of more than 1 identical independent unit</td>
<td>😞</td>
<td>++</td>
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<tr>
<td>a) The project is modular + dependent modules</td>
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<td>Offshore project</td>
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<tr>
<td>The project has an SPE/SPV</td>
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<td>-</td>
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+++ Strongly Supportive, ++ Supportive, + Weakly Supportive, --- Strongly Opponent, -- Opponent, - Weakly Opponent.

www.mega-project.eu
A megaproject is an extremely large-scale investment project costing hundreds millions of euro and having considerable impacts on communities, environment and shareholder’s value.

There are several types of megaprojects, including:

- Civil infrastructural projects:
  - Rail and rapid transit projects
  - Bridge and tunnel projects
  - …
- Oil and gas projects, e.g. refineries, long pipelines, or large LNG regasification plants.
- Power plants:
  - Nuclear power
  - Large wind firms (e.g. Great Gabbard in UK),
  - Large solar plants (e.g. Andasol in Spain).
- Airport projects
- Aerospace projects
- …
What do we mean by “project success”? Thames Barrier Example
What do we mean by “project success”?
Thames Barrier Example

London flood of 1928
• 14 people were drowned in London and thousands were made homeless

Thames Valley flood of 1947
• the peak flow was 61.7 billion litres of water per day and the damage cost a total of £12 million to repair

Canvey Island flood of 1953
• 58 people died, and led to the temporary evacuation of the 13,000 residents

What do we mean by “project success”? Thames Barrier Example

Scope
mitigate the impact of storm surges in the Thames estuary
protect the low lying areas adjacent to the Thames
address the steady rise in water levels.

Cost
priced at £110.7 million in October 1973
ultimately delivered at a cost of £440 million.

£1.6 billion in today money

Schedule
The initial plan called for four years of work,
construction actually took almost twice as long.
Luckily no floods occurred during that period.

What do we mean by “project success”? Thames Barrier Example

The barrier currently protects 125sq km (48sq miles) of London, including an estimated 1.25 million people, £200 billion worth of property and infrastructure, a large proportion of the London tube network and many historic buildings, power supplies, hospitals and schools.

Thames Barrier has paid for itself many times over in the 31 years it has been operating.

**Project Management success:**
- Es. Depuration plant, China: Not connected to the sewage system
- Es. Thames barriers and dams, UK: Saved London from flooding

**Project success:**
- Es. Depuration plant, China: Delivered in time, under budget, and potentially operative
- Es. Thames barriers and dams, UK: Delivered over budget, and in the double the forecasted time

Project management success | Project success