Concept Symposium 2018
Governing Megaprojects – Why, What and How

Updates on Governance Research in Norway

The Concept research program was established in 2002, to develop knowledge and expertise to ensure efficient use of resources and enhance the benefits of major public investments. The focus is on project governance, and the long term benefits of investments, as seen from the financing party's perspective. It is also essentially restricted to the front-end before the commitment to finance, since this is the period when the most essential decisions are made. This is a time of urgency, since the possibility to make major changes decreases as projects enter into their planning and implementation phases. What is required is interdisciplinary research, where the social sciences merge with project management and engineering.

Current research is on environmental impact and sustainability, financing mechanisms, governance schemes, investment practices, technological change, ex ante and ex post evaluation, productivity and flexibility.

Knut Samset
Program Director, Professor
Concept Research Program, NTNU
Norway

Gro Holst Volden
Research Director
Concept Research Program, NTNU
Norway

The Concept Symposia on Project Governance

The Norwegian Ministry of Finance and the Concept Research Program hosts every second year a symposium on project Governance. Project governance, in brief, is concerned about investments and their outcome and long-term effects. In view of the problem at hand, the aim is to ensure that the best conceptual solution is chosen, that resources are used efficiently and anticipated effects realized. Resource persons from ministries, governmental agencies, academia, international organizations, and industry are invited. In order to facilitate professional exchange and direct communication between participants, the number of individuals is restricted. The aim is to initiate further international cooperation and research on important issues related to project governance.

https://www.ntnu.edu/concept/concept-symposium

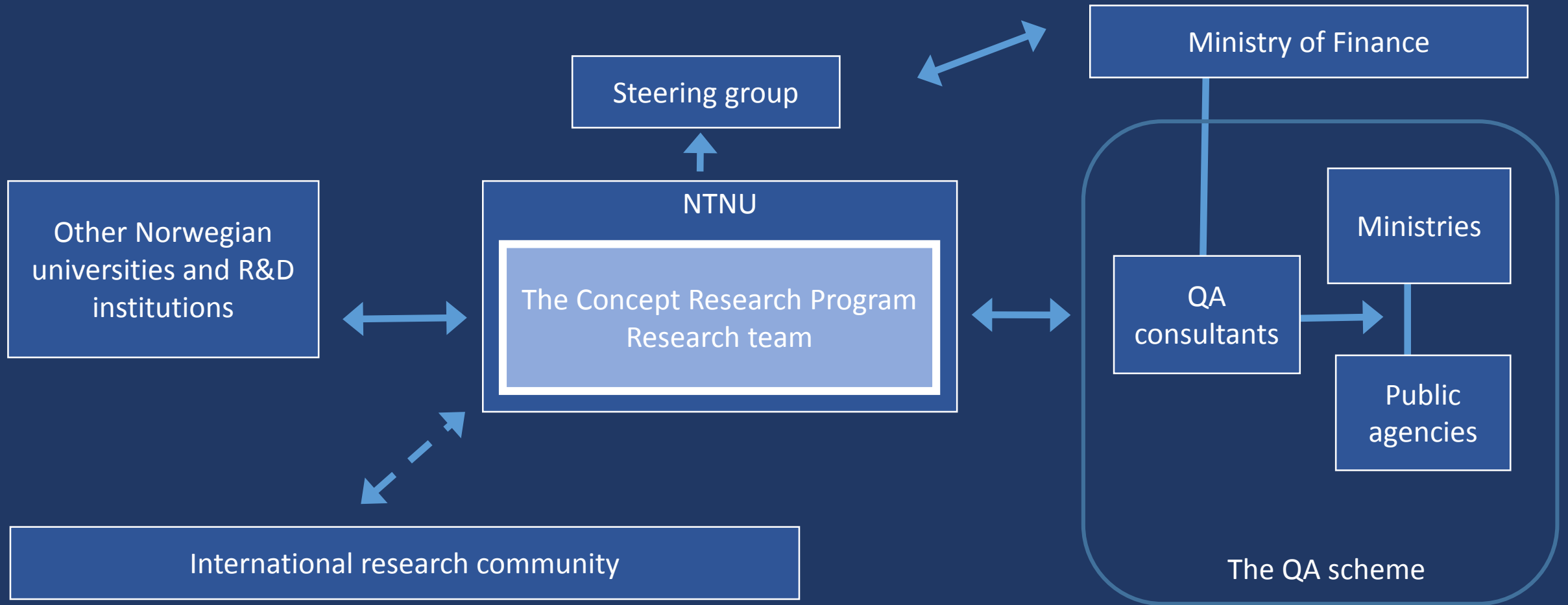
Updates on Project Governance Research

Eighteen years of research by the Concept Research Program

Gro Holst Volden, Research Director, Concept

Knut Samset, Program Director, Concept

The Concept Research Program



Research on governance of major investment projects

- Pre-project Governance (26)
- Environmental impact (48)
- Political control/decisions (3, 26, 43)

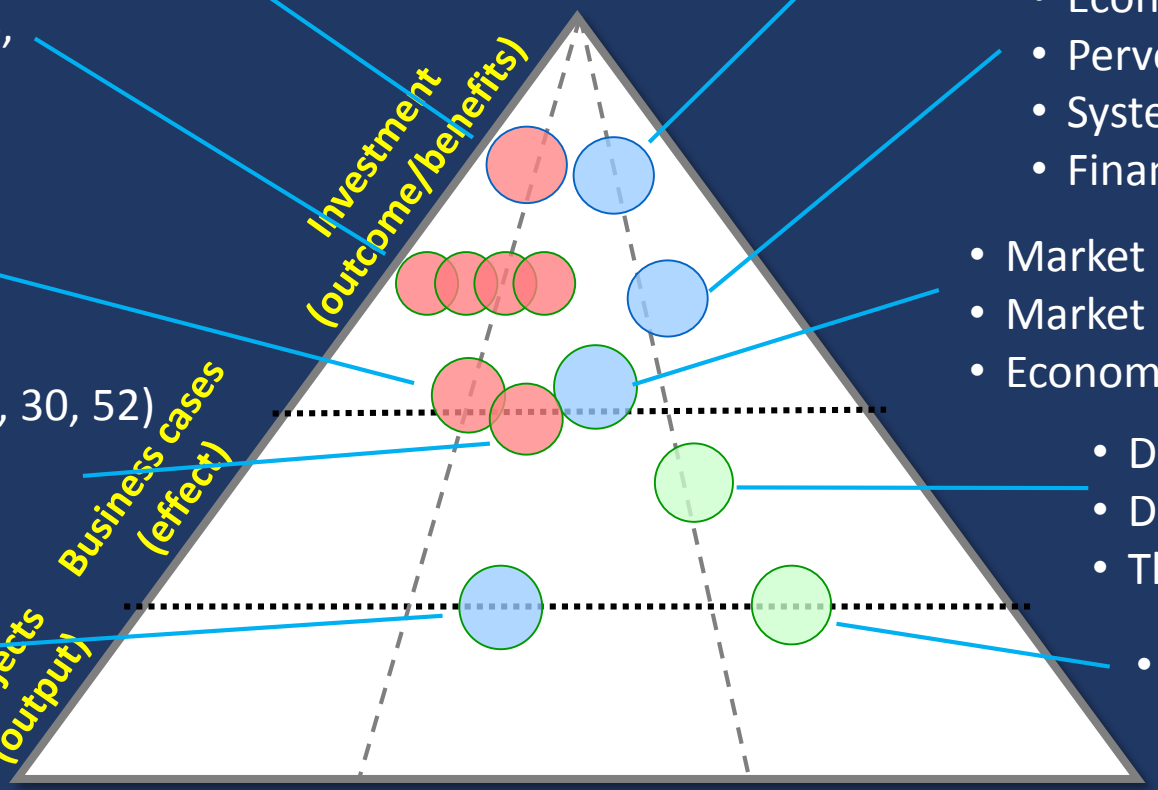
- Governance and governance frameworks (23, 25, 33, 35, 36, 45, 46, 47, 50)

Strategic alignment (6, 21)

- Ex post evaluation (4, 7, 19, 28, 30, 52)
- Sustainability (29)
- Negative impacts (54)

- Costs (51)
- Cost estimation (15)

Thematic focus on project governance



- Economic analysis (37, 38, 39, 41)
- Valuing the Future (27)
- Foresight methods (53)
- Ex ante evaluation (5, 8, 9, 20, 16)
- Alternatives analysis (18)

- Economic incentives (2)
- Perverse incentives (40)
- Systematic uncertainty (32)
- Financing mechanisms (42, 44, 49)

- Market competition (31)
- Market and environmental policy (24)
- Economic viability (22, 48)

- Design and Decision (26)
- Decisions based on scant info. (17)
- The opportunity space (34)

- Uncertainty (1, 10, 11, 12, 13, 14)

Front-end governance – Quality at Entry to ensure project success

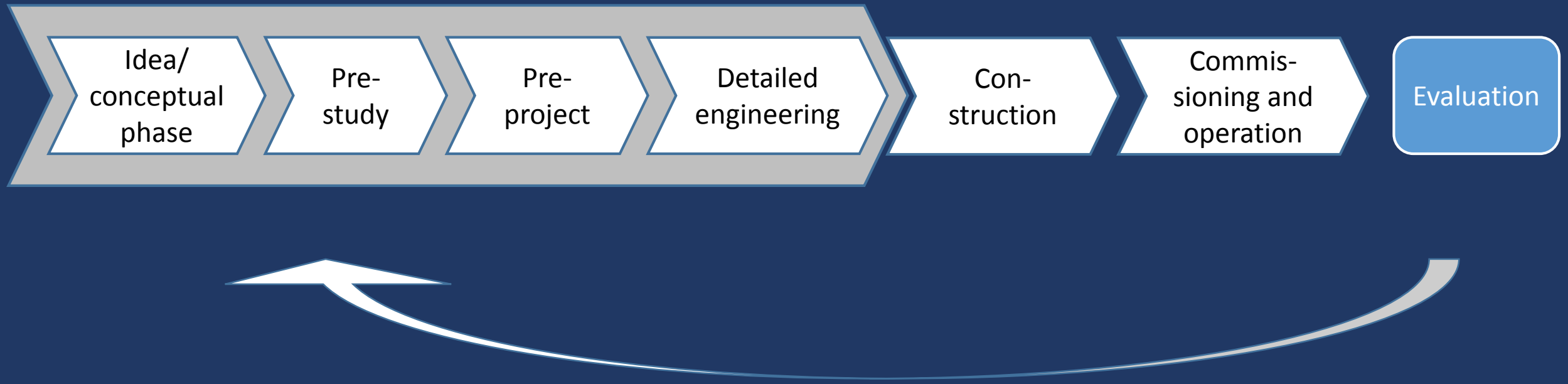
Relevance
Commitment
Interests
Cost
Incentives
Obligations

Objectives
Strategy
Opportunity space
Concepts
Alternatives analysis
Estimation
Real options

Cost
Timing
Scope
Contracts
Responsibilities

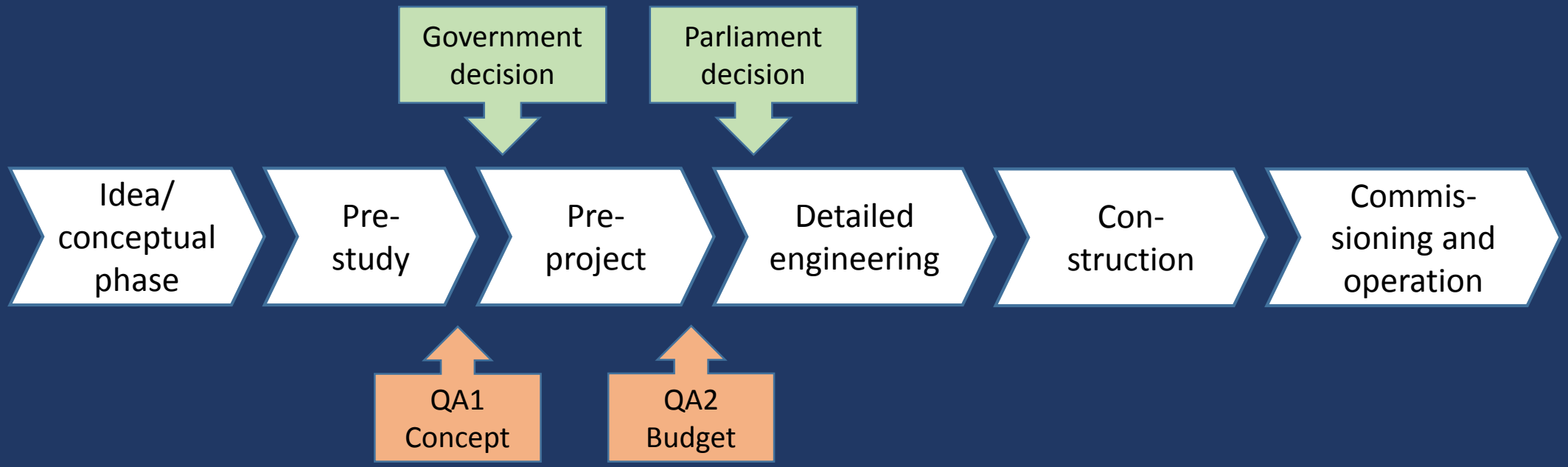
Budget
Timing

Relevance
Benefit/cost
Output
Outcome
Impact
Sustainablilty



The Norwegian «State Project Model»

A simple two-gateway procedure



Political appraisal or decision

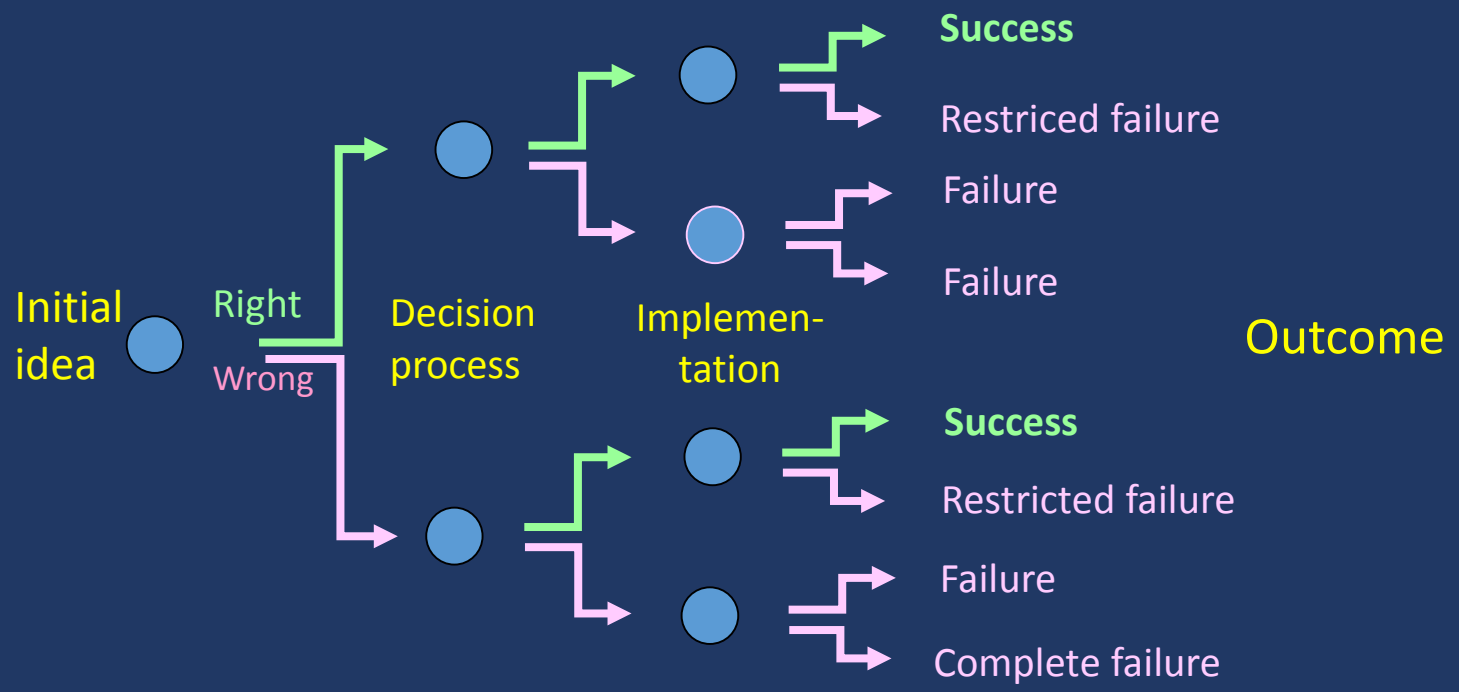
Technical assessement or Quality assurance

Analysis and decision – the road to success

Our main concern is the quality of analysis. But the final outcome depends as much or more on political decisions

- The road to success is paved with stumbling stones
- The chance of success is reduced accordingly:

Per cent right/wrong	>	Chance of success
20/80		4
50/50		25
80/20		64



Results from the Norwegian scheme so far

"Over budget, over time, over and over again."

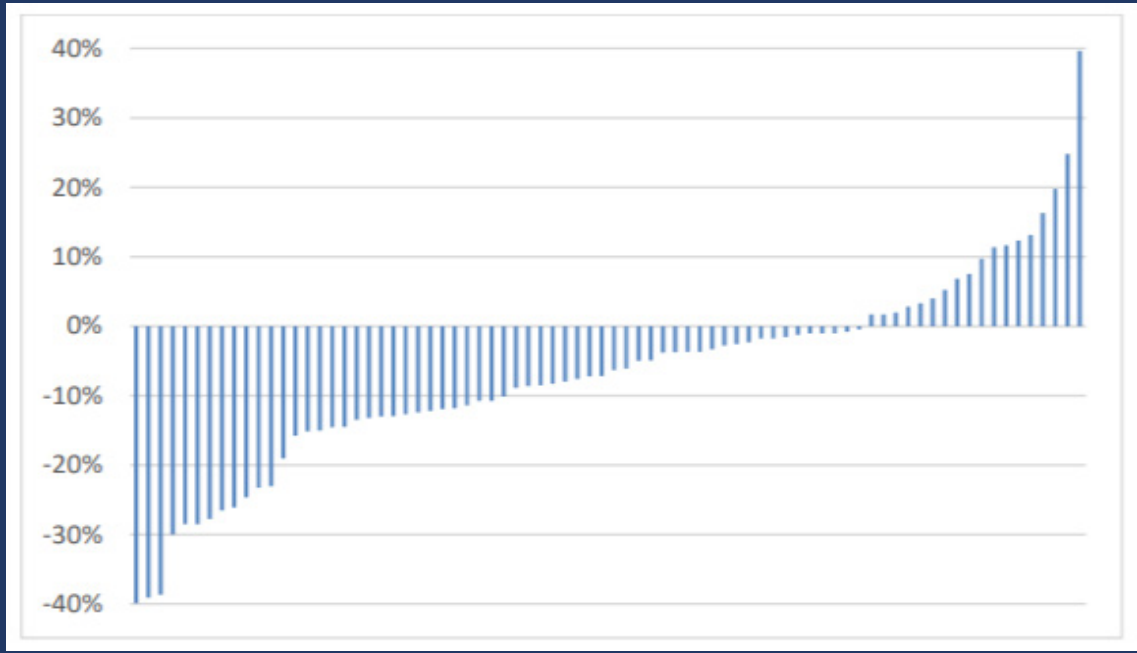
The "iron law of megaprojects" (Flyvbjerg)

The "established" truth:

70 per cent above budget

Norwegian QA projects:

70 per cent under budget



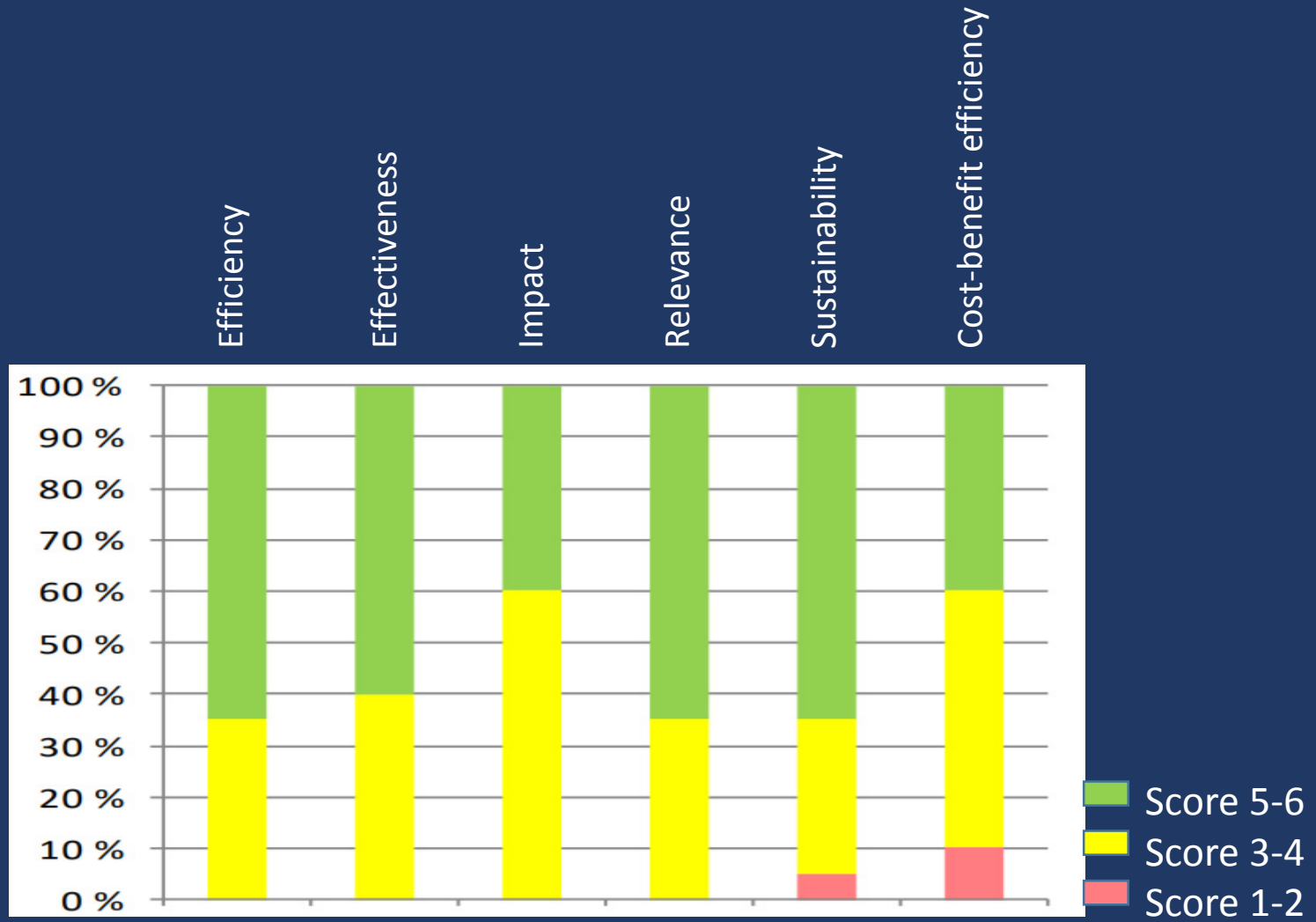
N = 84

Concept report no. 51

Results from the Norwegian scheme so far

Ex post evaluation average score:

- Operational success 4.7
- Tactical success 4.7
- Startegic success 4.5
- Benefit/cost 4.2

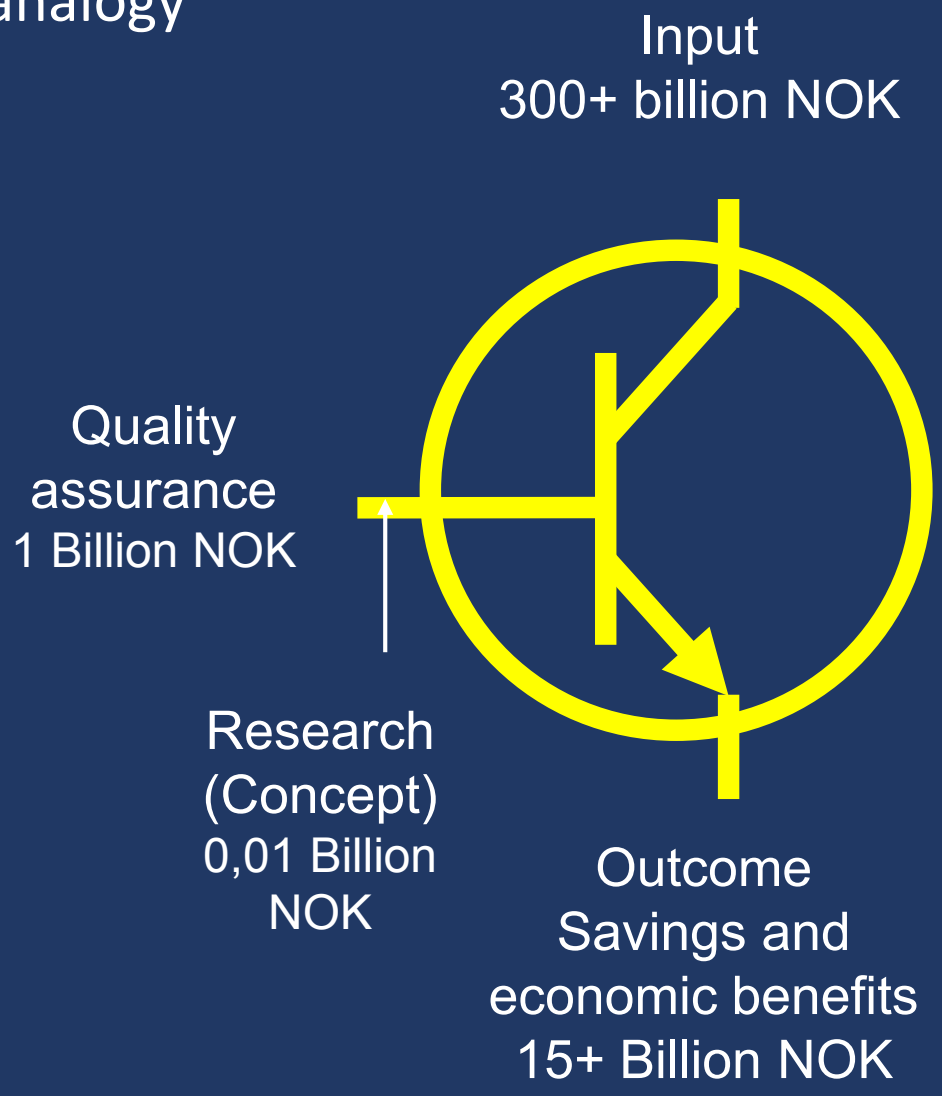


N = 20

Concept report no. 52

Quality at Entry (QaE) and Front-end Research

The transistor analogy



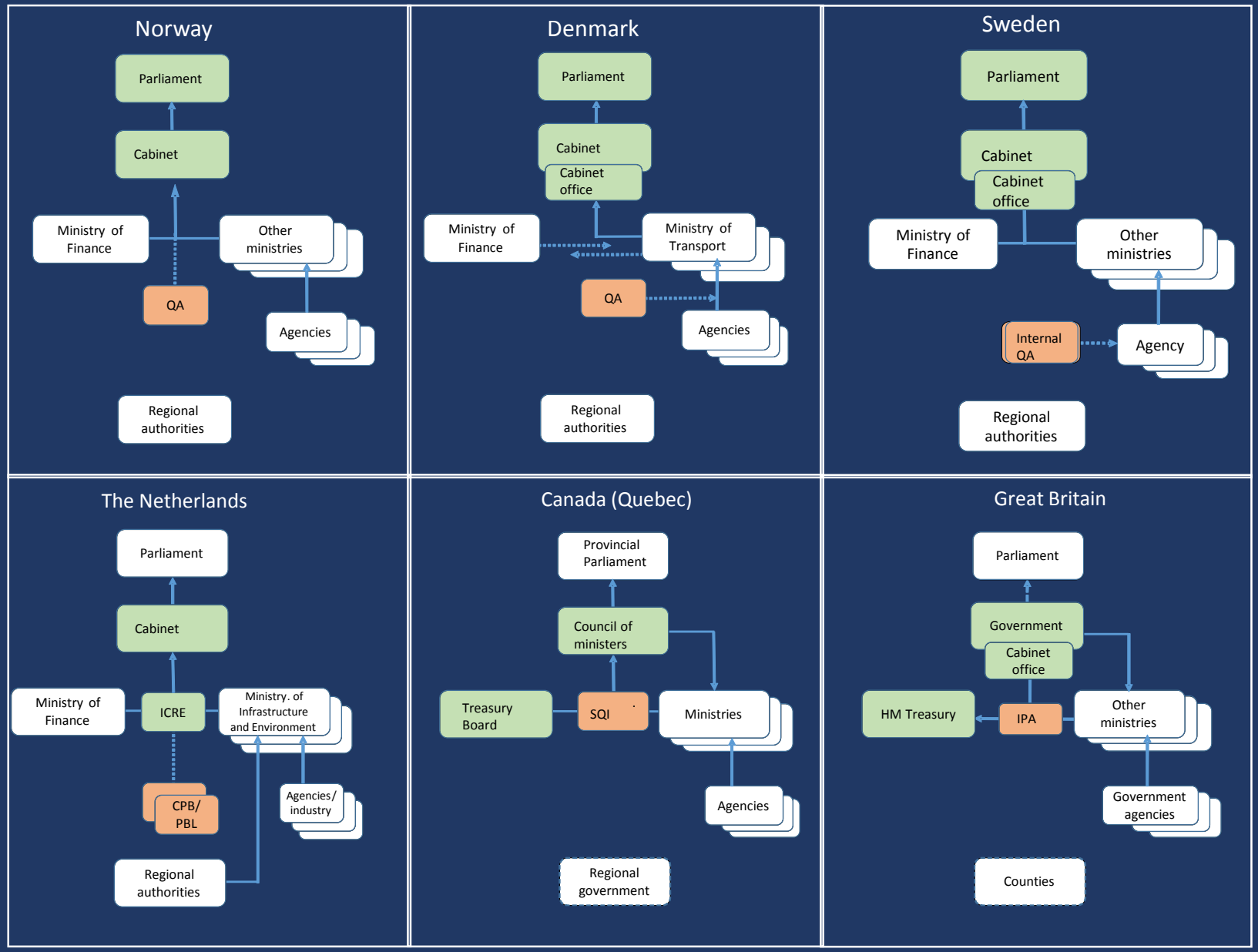
Benefit/cost ratio:

Quality assurance	15Bn/1Bn = 15
Research	15/0.01= 1500

Research topics

Governance schemes in different countries

Similarities and differences

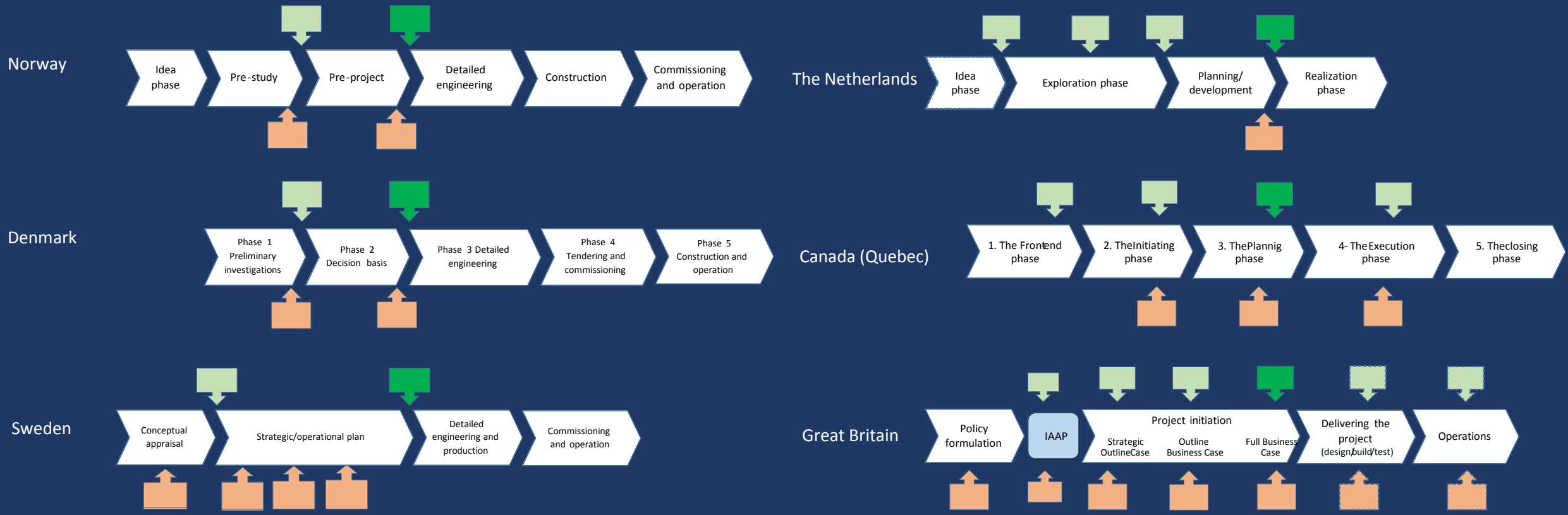


Political appraisal or decision

Technical assessement or Quality assurance

Concept report no. 47

Governance schemes in different countries

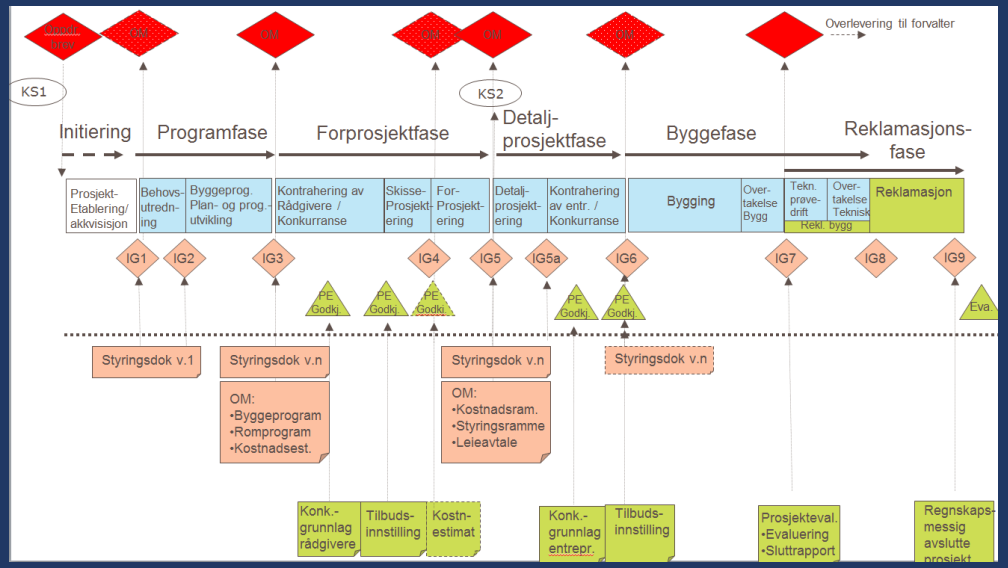


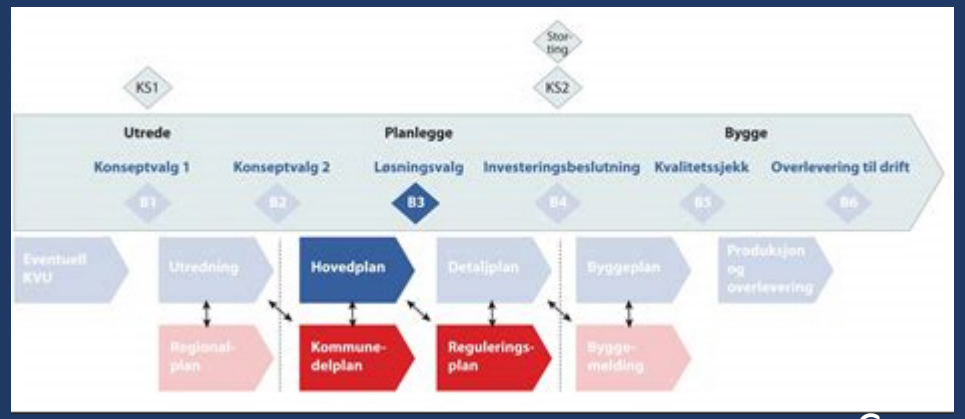
Concept report no. 47

Dispersion of the QA scheme

Improved governance measures at lower levels in public administration

- Agencies have introduced their own project models
  - Clearly defined phases, decision points, roles, responsibilities, and quality assurance
  - Consistent with the State Project Model
- Ministries follow up projects in subordinate agencies “as needed”, often informally





Concept report no. 50

Expanse of the QA scheme

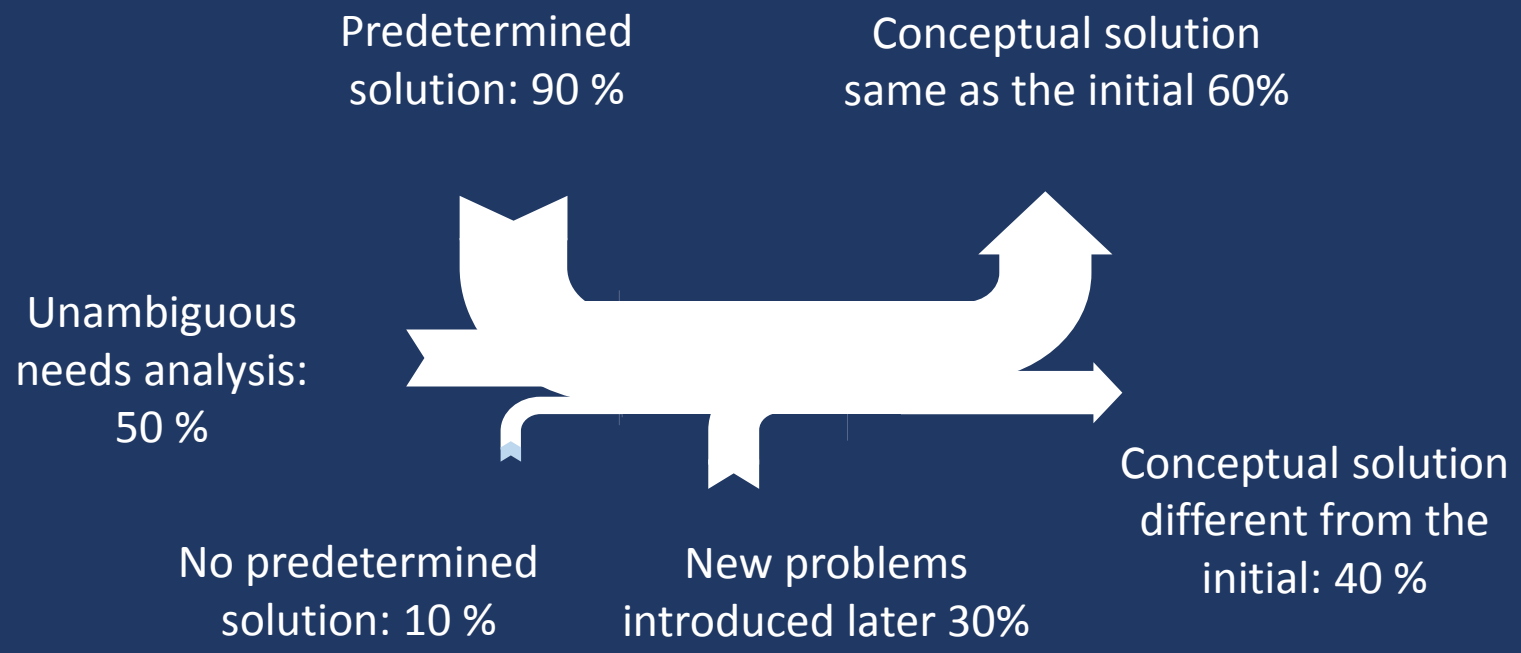
Improved governance measures at lower levels in public administration

- QA schemes are also introduced at the municipal level in Norway.
- Also for smaller and more standardized projects, but where cost overrun is are common.
- Considerable variation in terms of terminology, roles, focus areas etc.

Concept report no. 45

Analysis and decision

The problem of path dependency

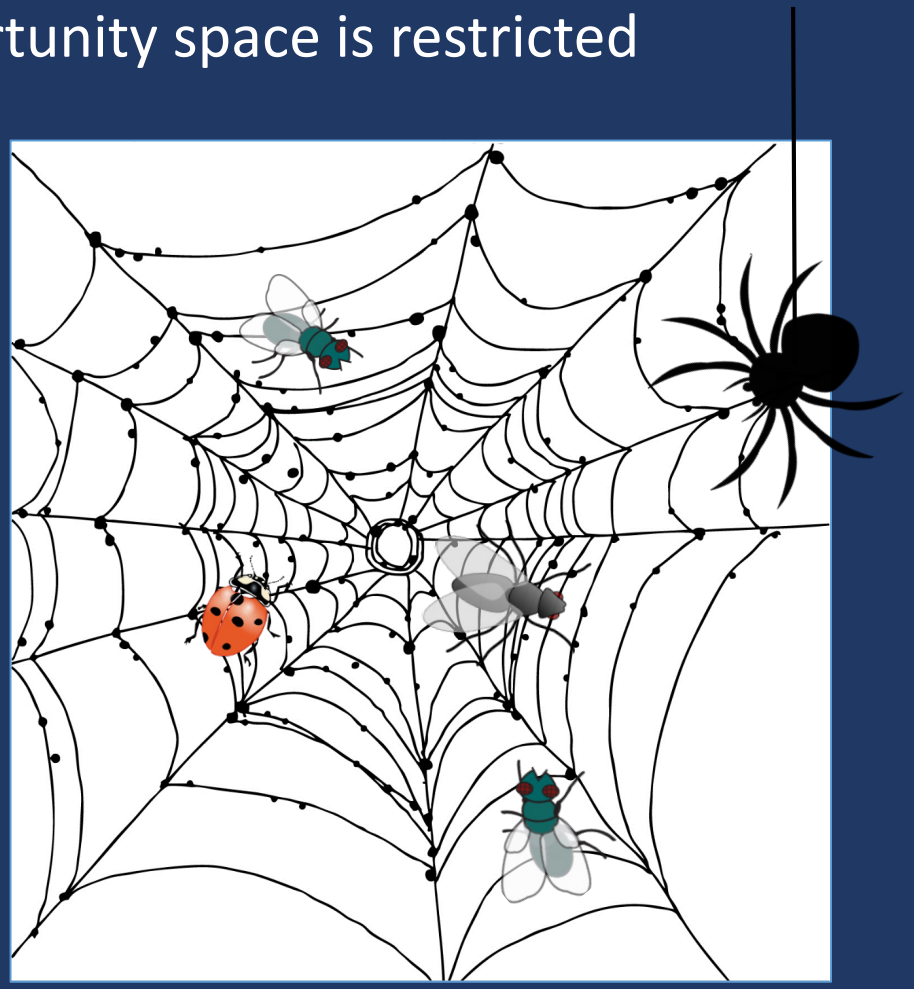


- The term “opportunity space” rarely used
- Lack of balance between the overall societal and the detailed project-specific
- Path dependency in more than half of the projects

Concept report no. 26

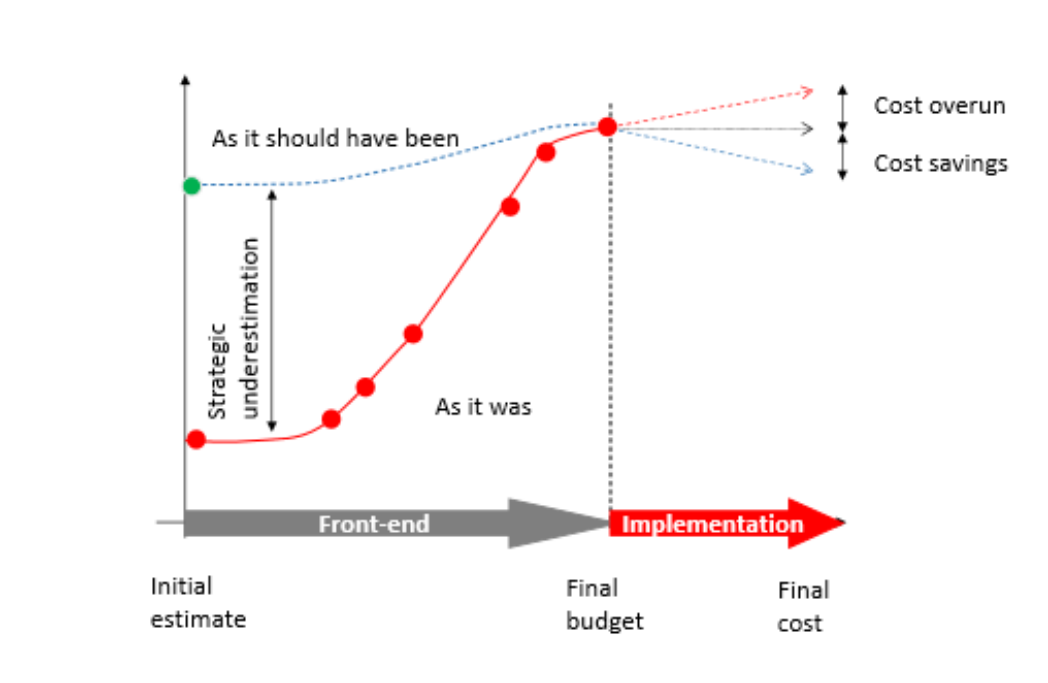
Analysis and decision

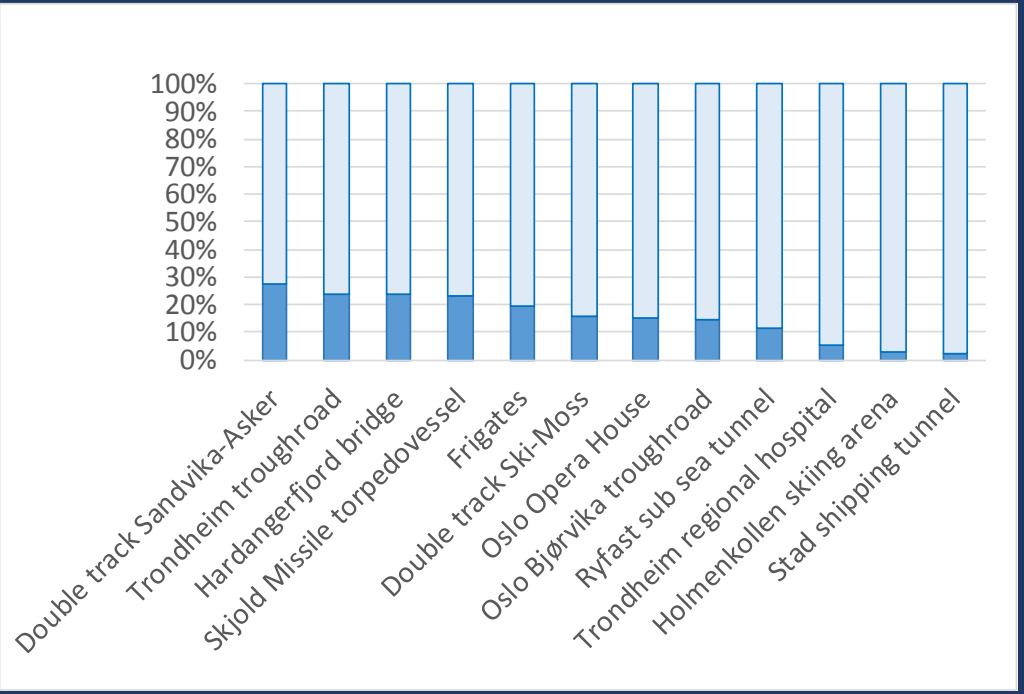
The opportunity space is restricted



- There is considerable room for improvement, even in projects that have undergone QA1
- The challenge is to keep the opportunity space open
- External QA helps to weed out the worst conceptual alternatives
- Sound analyses may be overruled by political priorities

Front-end cost escalation





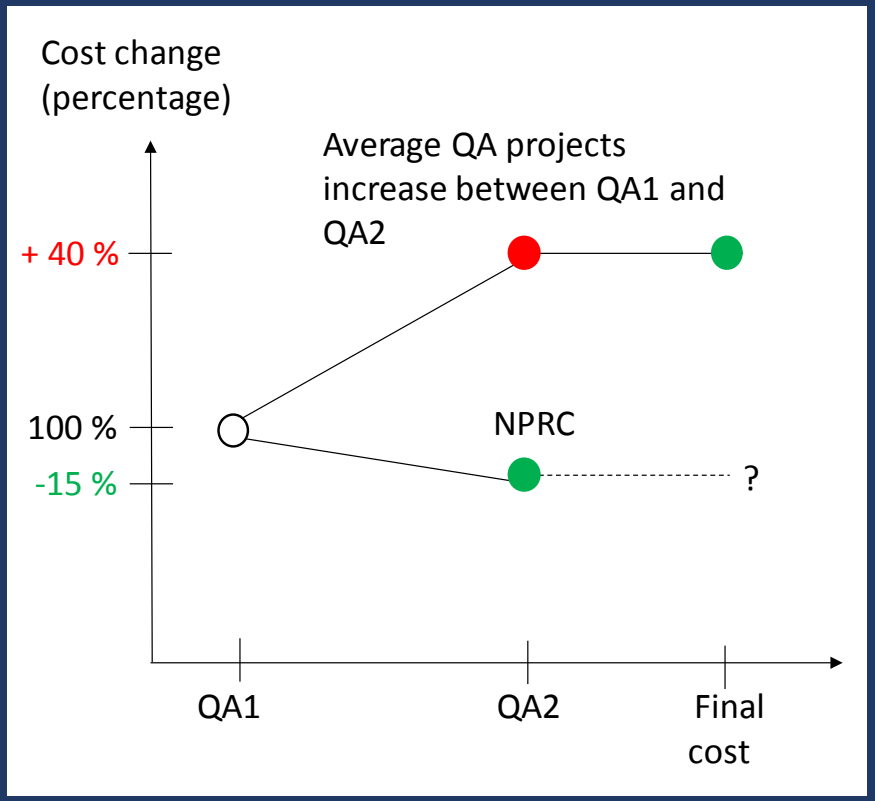
- Final budgets are now largely realistic.
- The earliest cost estimate may be severely underestimated

- This may allow for inferior project ideas
- Which are subsequently approved and implemented

Concept report no. 39

Front-end cost escalation

Test case: The design-to-cost approach has been applied with success.

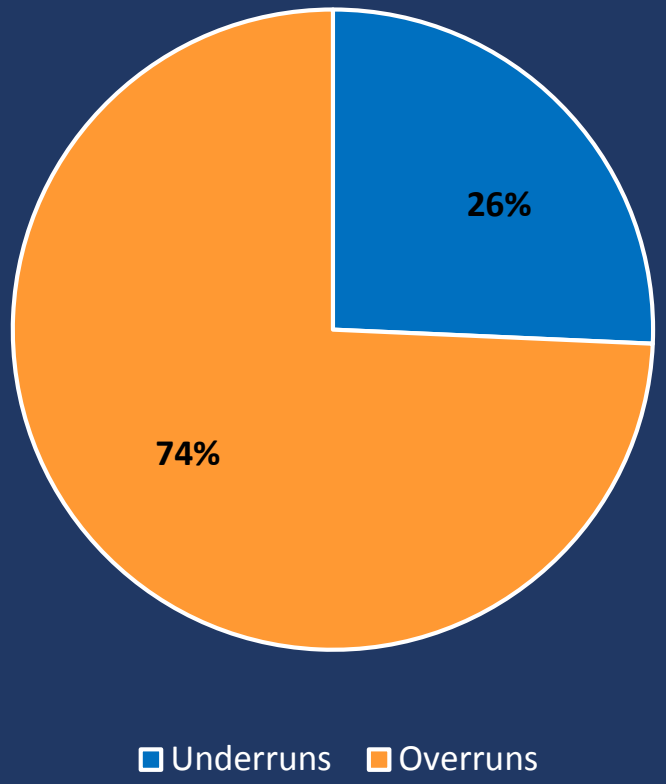


The National Police Response Centre project

Working paper 2018

Cost management in construction contracts

- Cost performance in Norwegian QA projects is acceptable on project level
- More variation on contract level.
- Expensive change orders is not uncommon.
- A source of conflicts and delays.
- Ongoing study tries to explain what causes cost overruns on contract level

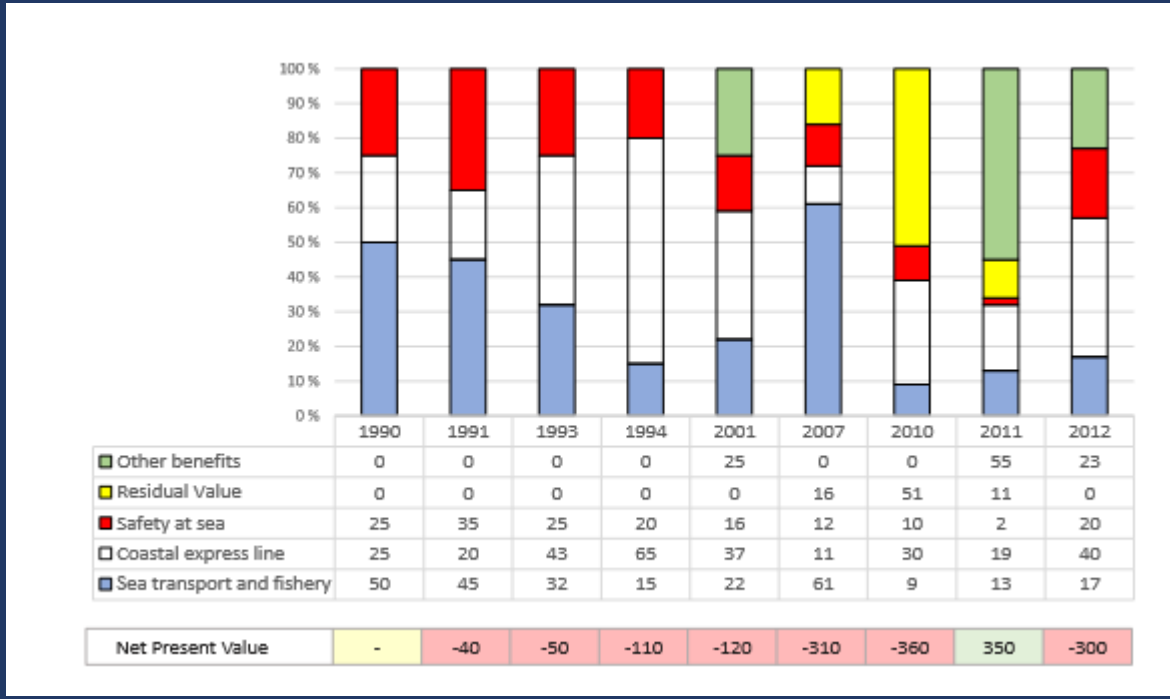


Ongoing study

The cost-benefit analysis

Some challenges and weaknesses

- The conclusions from CBA is not being used (not trusted?)
- Black box analyses / lack of transparency
- Susceptible to optimism bias -> Could be avoided by quality assurance
- Inadequate treatment of non-monetary impacts



	1990	1991	1993	1994	2001	2007	2010	2011	2012
Other benefits	0	0	0	0	25	0	0	55	23
Residual Value	0	0	0	0	0	16	51	11	0
Safety at sea	25	35	25	20	16	12	10	2	20
Coastal express line	25	20	43	65	37	11	30	19	40
Sea transport and fishery	50	45	32	15	22	61	9	13	17
Net Present Value	-	-40	-50	-110	-120	-310	-360	350	-300

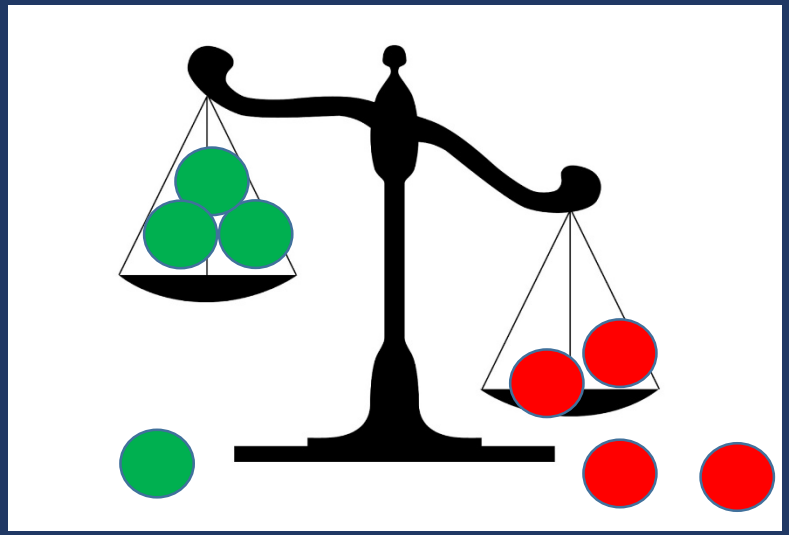
Stad shipping tunnel – an extreme case of inconsistent analyses

Concept report no. 33, 37, 38, 40

The cost-benefit analysis

Neglected and underestimated impacts of transport projects

- Wider economic benefits
- Non-financial costs during construction
- Induced traffic and urban sprawl
- Underpricing of the environment

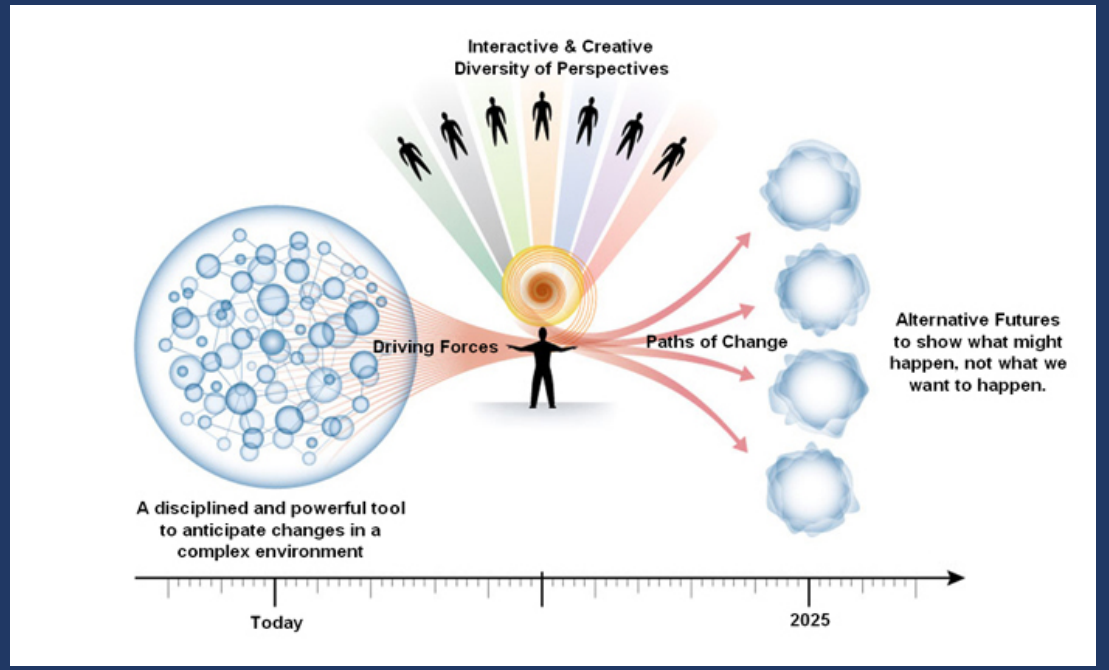


Concept report no. 54

Trends and paradigm shifts in the age of disruption

Conceptual solutions in forthcoming long-term projects

- Essential underlying principles and trends in technology and societal change
- Market and user responses
- The use of simulation models to predict “extreme scenarios”
- Foresight methods that may supplement quantitative prediction methods.
- Uncertainties and risk to be incorporated in such analyses.



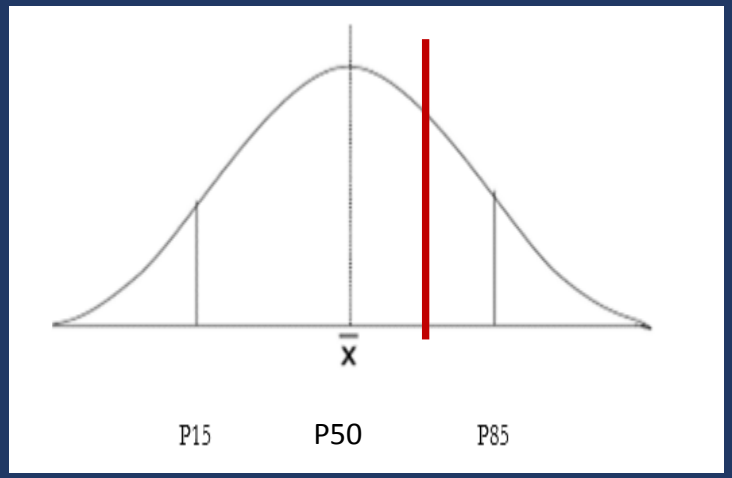
Concept report no. 41, 53

Expert assessment about probabilities

The extent to which they are understood by decision-makers and non-experts?

- Probability distributions and uncertainty intervals are clearly defined, but understood?
- Further about non-experts' understanding of probability: principles, terminology and distributions.
- Accuracy in use quantitative and qualitative measures of probability
  - The risk of misunderstandings is substantial
  - Highly affected by the words that accompany the figures.

True cost, or misconception?

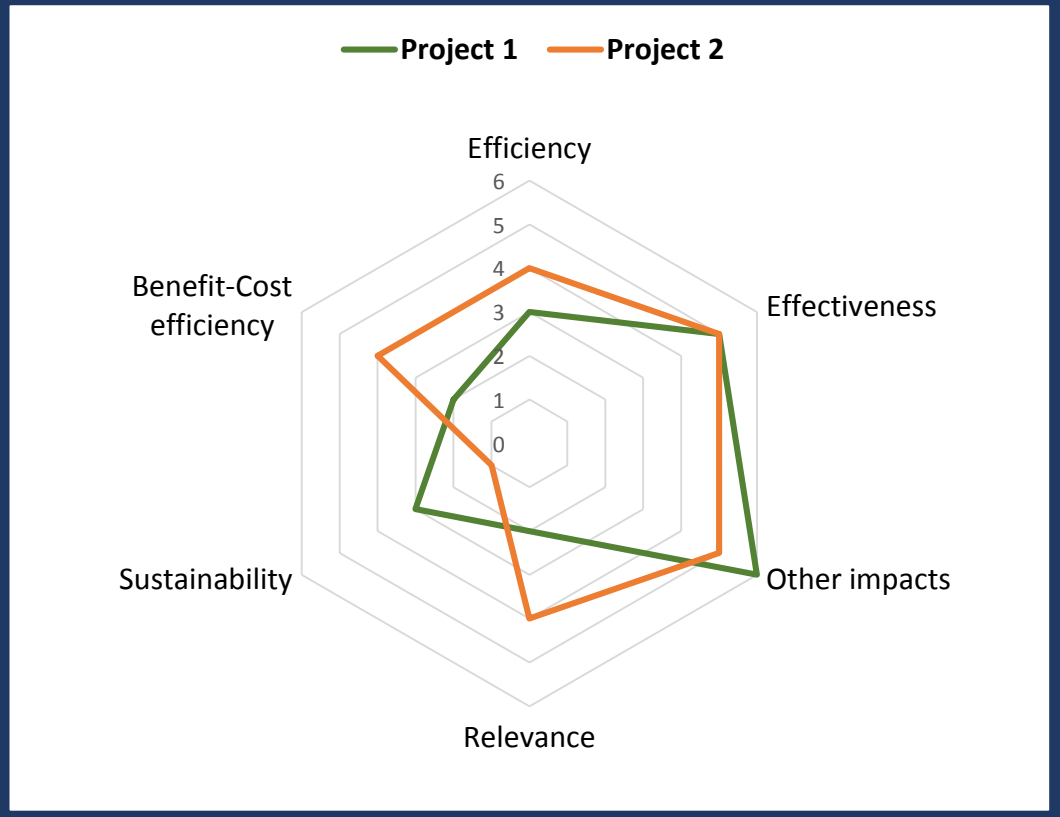


Possible
Deviance
Expected
Maximum
Likely
Probable

Concept working paper 2018

Ex-post evaluation of projects

- A minimum evaluation procedure has been developed and applied
- So far on 20 completed projects.
- Six criteria that in combination assess their strategic, tactical and operational success.
- The approach provides
  - sufficiently detailed information at the individual project level
  - A comprehensive overview at portfolio level.



Concept report no. 30, 52

Some research findings

Ten paradoxes regarding project governance and practices

1. The success paradox: Success is measured in terms of tactical performance rather than strategic performance.
2. The paradox of managing uncertainty and risk: Resources are used during implementation, much less up-front.
3. The paradox of early information overflow: Expensive, time consuming and obscuring rather than clarifying
4. The paradox of the unexplored opportunity space: Path dependency rather that innovative thinking
5. The paradox of strategic alignment: Commonly erroneous internal and external logic, and probabilistic assessment

Some research findings

Ten paradoxes regarding project governance and practices

6. The paradox of cost estimation: Focus is on the detailed budget, must less on realistic estimation up-front.
7. The paradox of decision-makers' disregard of the CBA: conclusions are commonly overruled by other concerns.
8. The paradox of "predict and provide": the tendency is to prefer a "predict and provide" strategy rather than exploring alternative solutions.
9. The paradox of perverse incentives: No financial obligations for the beneficiaries cause perverse incentives an tend to result in counterproductive projects.
10. The paradox of myopic decisions: – long-term viability is the intention, but the planning horizon is short, resulting in choices that will prove inferior in the long run.

The research team

www.ntnu.edu/concept