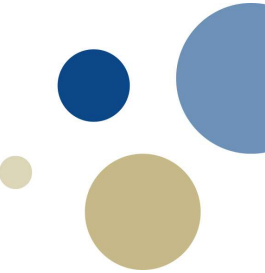# State of Norwegian Projects

Concept research programme

Reykjavik, 20. February 2025
Professor Ole Jonny Klakegg, NTNU

The Headlines

- Concept Research Programme – its role and main tasks

- Background and development of Project Governance from 1990 up till today

- Project performance achieved

- Potential for further development

- Conclusion: Suggested takeaways

Concept research programme

Learning from projects over 20+ years

The Concept Programme

- Funded by the Ministry of Finance since 2002
- Follows projects under the State Project Model
  - 300+ projects since year 2000
- The perspective of the financing party; **project governance**
- Trailing research

- Placed at the Norwegian University of Science and Technology in Trondheim
- More info: https://www.ntnu.edu/concept

Two main objectives

1. **Improve the Norwegian State Project Model (practical)**

   We share lessons learned among projects and government agencies. We help the Ministry of Finance ensure that the scheme is in line with best practice.
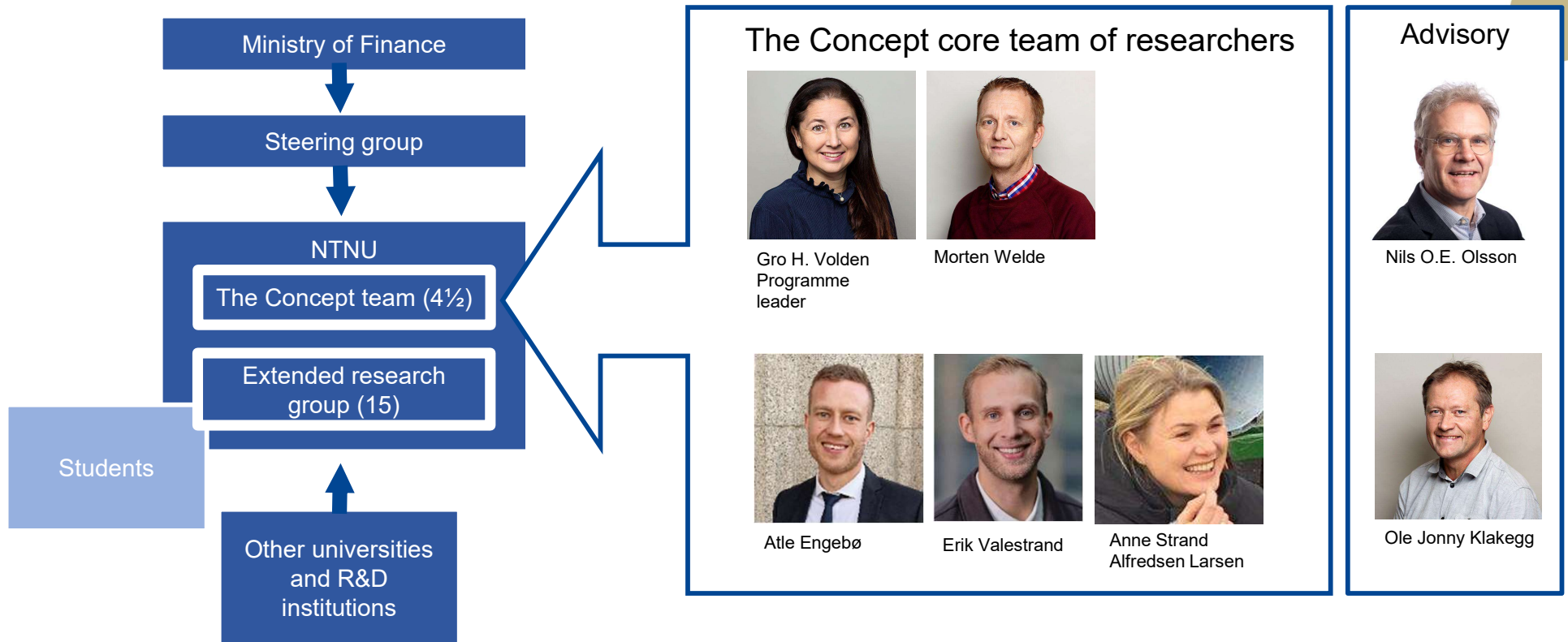
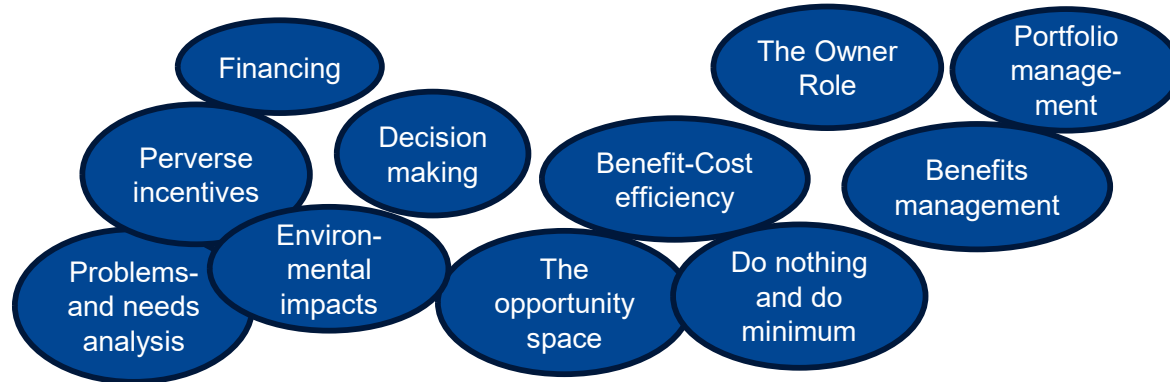2. **Contribute to the knowledge base (theoretical)**

   We manage a database of all projects under the QA scheme. We publish high-quality research through peer reviewed journals and conferences.

The Concept Research Programme

Ministry of Finance

↓

Steering group

↓

NTNU

The Concept team (4½)

Extended research group (15)

Students

Other universities and R&D institutions

↑

The Concept core team of researchers

Gro H. Volden
Programme leader

Morten Welde

Atle Engebø

Erik Valestrand

Anne Strand Alfredsen Larsen

Advisory

Nils O.E. Olsson

Ole Jonny Klakegg
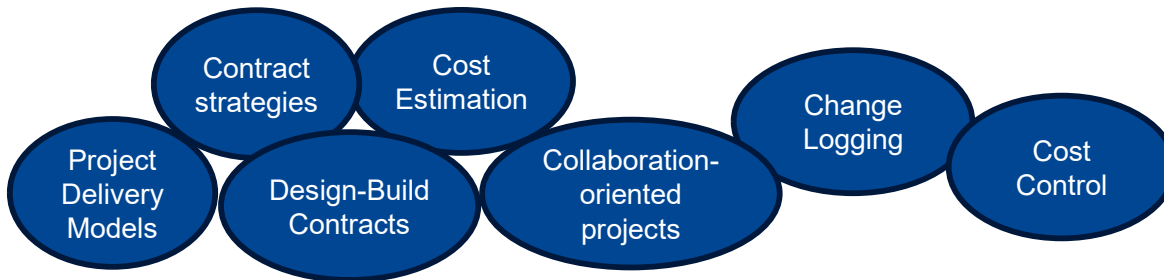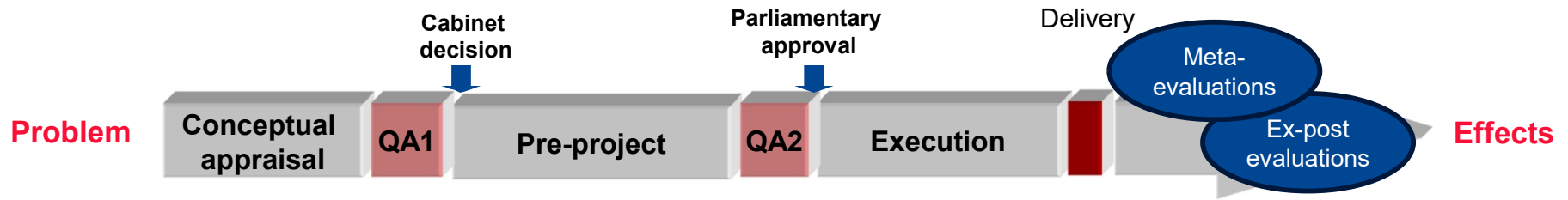
Research Topics (examples)

Science fields:
- Engineering
- Economics
- Management science
- Social sciences
- Political science

Types of research:
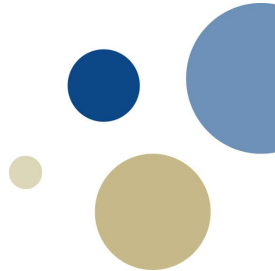- Empirical studies
- Conceptual studies

Sectors/projects:
- Transport
- Defence
- Buildings
- Digitalization

Financing

Perverse incentives

Decision making

The Owner Role

Portfolio manage-ment

Benefit-Cost efficiency

Benefits management

Problems- and needs analysis

Environ-mental impacts

The opportunity space

Do nothing and do minimum

Cabinet decision

Parliamentary approval

Delivery

Problem

Conceptual appraisal

QA1

Pre-project

QA2

Execution

Meta-evaluations

Ex-post evaluations

Effects

Contract strategies

Cost Estimation

Project Delivery Models

Design-Build Contracts

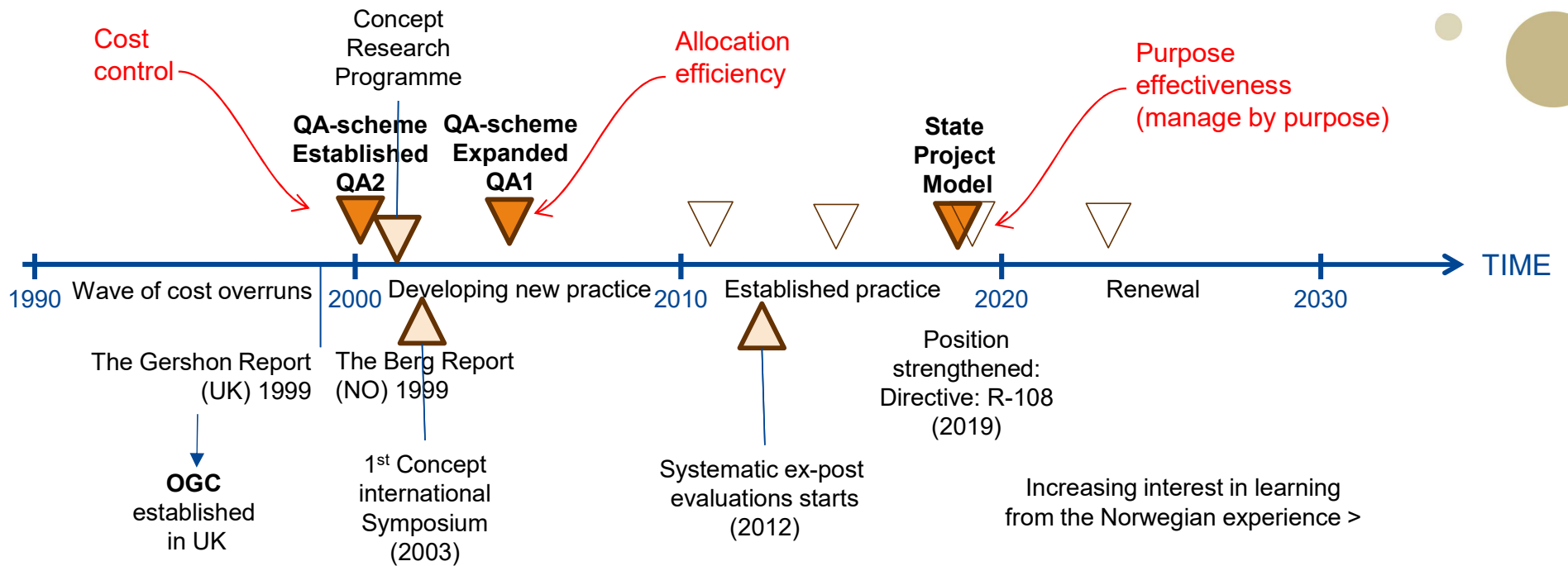Collaboration-oriented projects

Change Logging

Cost Control

How it came to be
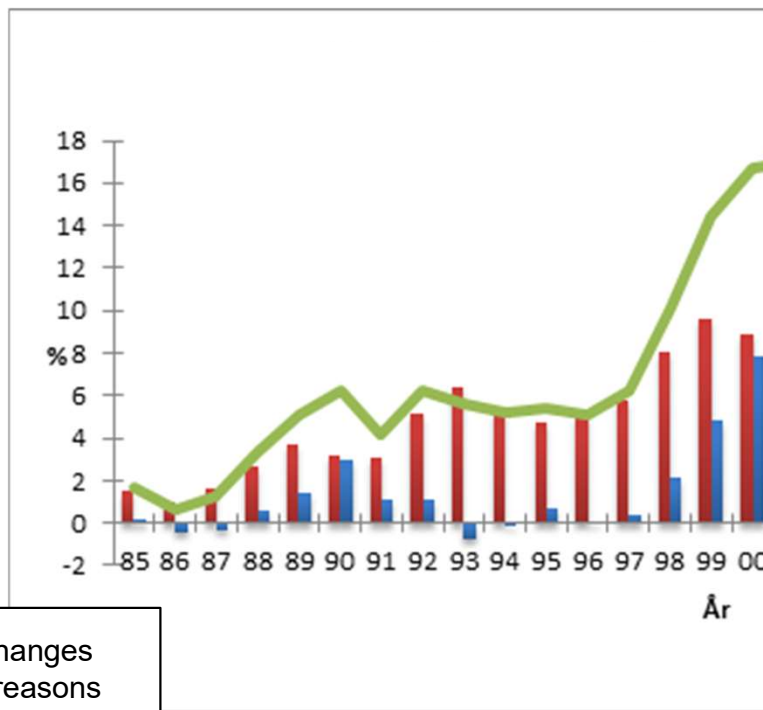# – and the current state of things

Research in Norway on project management

The timeline – main events
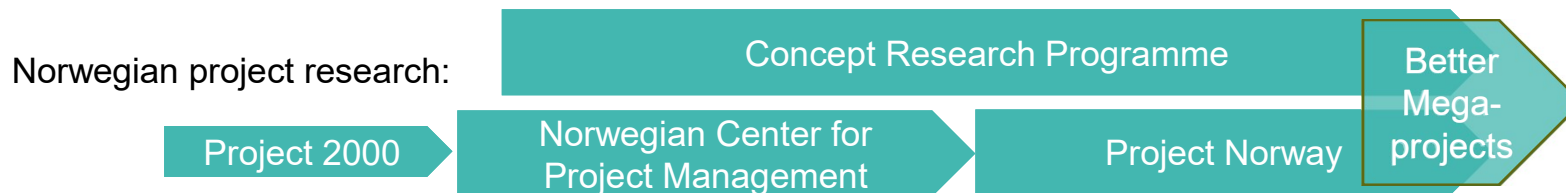
# Cost overrun in Norwegian road projects 1985-2000

Why the Norwegian initiative came

Plan changes was primarily due to lack of planning, local political pressure, decisions based on immature concepts.
Other reasons were primarily due to lack of competence and adequate systems.

Source: Norwegian Public Road Administration

Legend:
- Plan changes
- Other reasons
- Total overrun

Cost overrun in Norwegian road projects 1985-2013
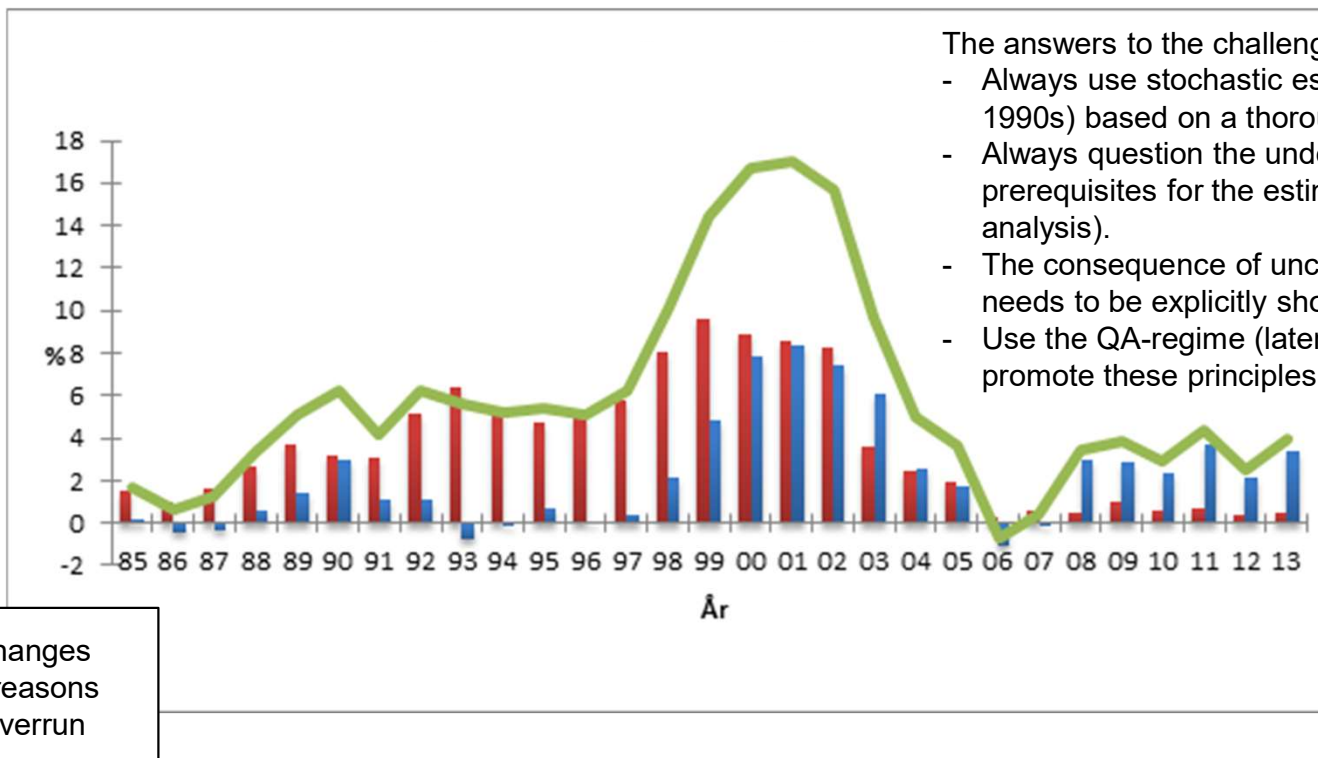
The answers to the challenge for NPRA was:
- Always use stochastic estimation (this started mid 1990s) based on a thorough uncertainty analysis.
- Always question the underlying assumptions and prerequisites for the estimation (through uncertainty analysis).
- The consequence of uncertainty in cost estimates needs to be explicitly shown.
- Use the QA-regime (later State Project Model) to promote these principles.

Legend:
- Plan changes
- Other reasons
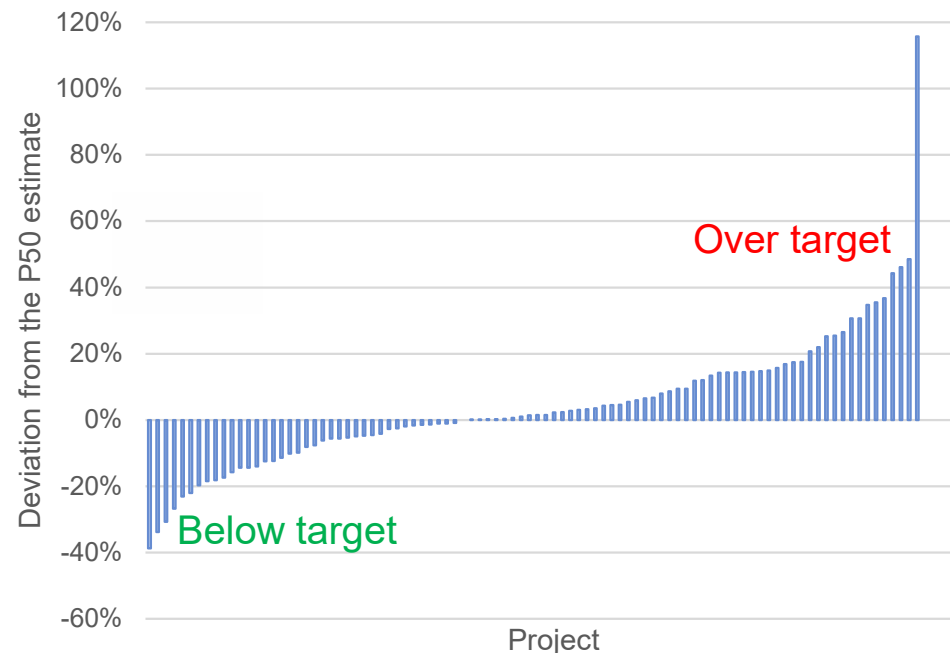- Total overrun

Source: Norwegian Public Road Administration

13
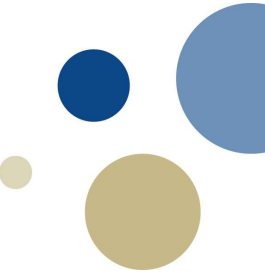
Insights from Concept studies

Exemplary results indicating project performance

# Good results in operational terms («doing the project right»)

- On average 4,4% overrun of the target cost (P50)

- 41 % of projects below the set target

- An undesirable skewness

Deviance from target cost (P50), N=94. See, e.g., Welde and Klakegg (2022) "Avoiding Cost Overrun Through Stochastic Cost Estimation and External Quality Assurance", TEM, doi: 10.1109/TEM.2022.3173175

Most projects are completed within budget (including contingency)

- Average underrun *minus* 4,8% against the budget (≈ P85)

- 74% of projects below budget

- In contrast to the «established truth» that «all» public projects are over budget
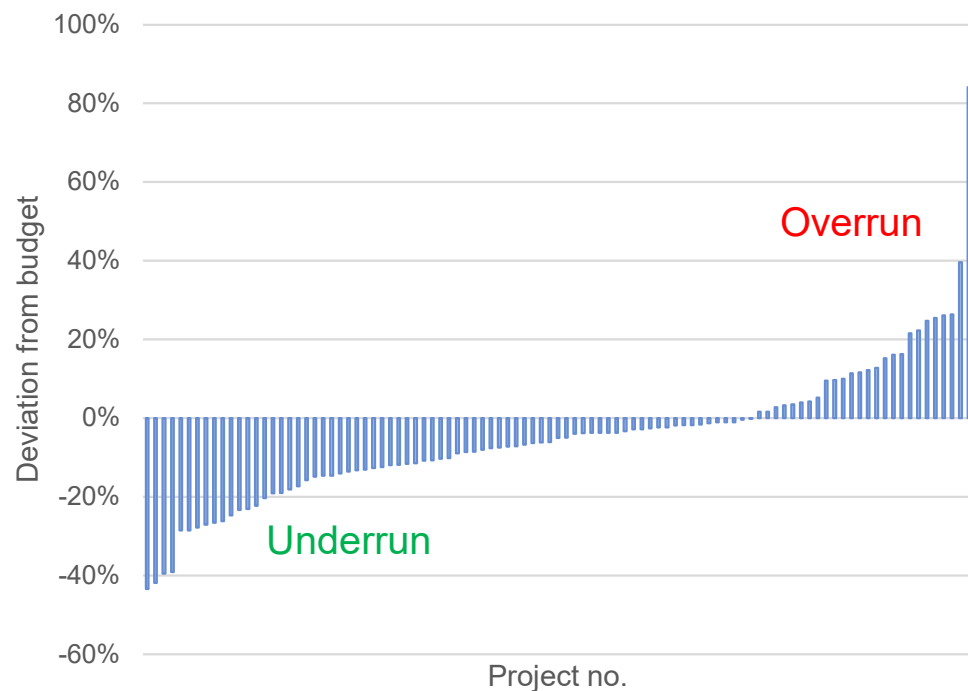
Welde and Klakegg (2022)

Evaluating after the fact
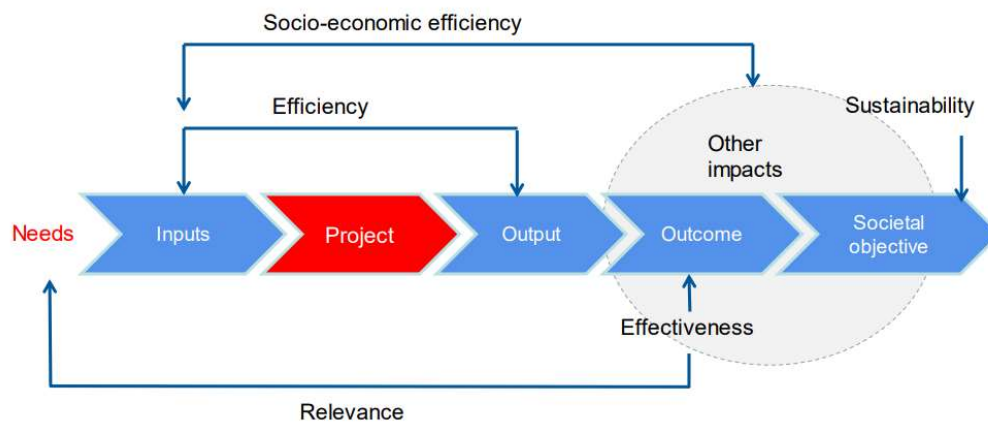
The Concept evaluation model

Result for one example project

Concept report no. 52 (2017) Projects approximately 5 years into operation. Score: 1 = complete failure, 6 = complete success

The over-all picture

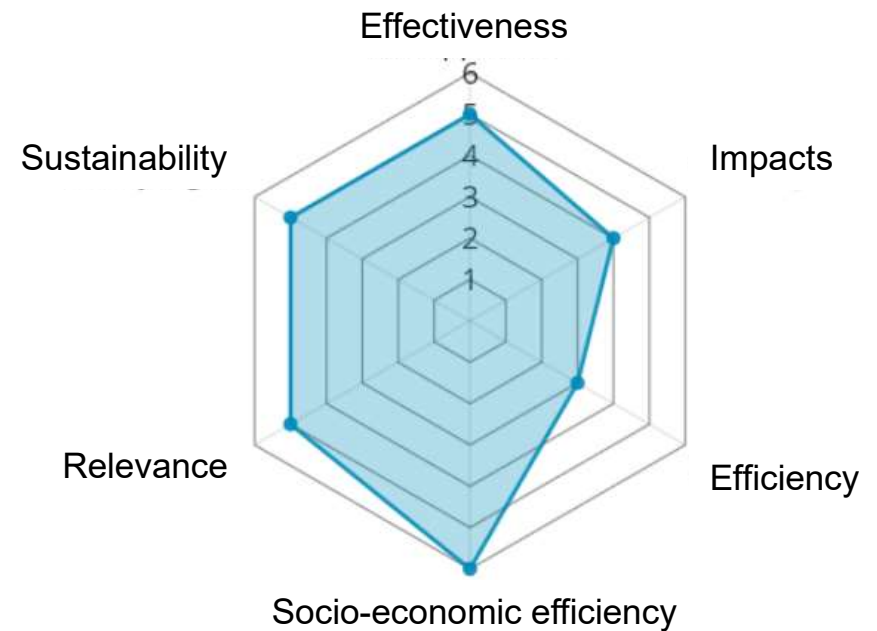| Sector	Projects	Efficiency	Effective-ness	Other impacts	Relevance	Sustain-ability	Socioec. efficiency
Construction	5	5,4	4,2	4,6	4,6	4,8	3,8
Defense	2	4,5	4,5	4,5	4,5	3,5	3,5
ICT	2	5,0	5,5	4,5	4,0	5,5	4,0
Railway	3	4,3	3,3	4,0	4,7	4,7	2,7
Roads	8	4,4	5,3	4,3	4,6	4,5	5,3
Average		4,7	4,7	4,4	4,6	4,6	4,2

Concept report no. 52 (2017) Projects evaluated after been through QA1, QA2 and approx. 5 years into operation. N = 20

More detailed

Road — Railway — Defence — Building — ICT
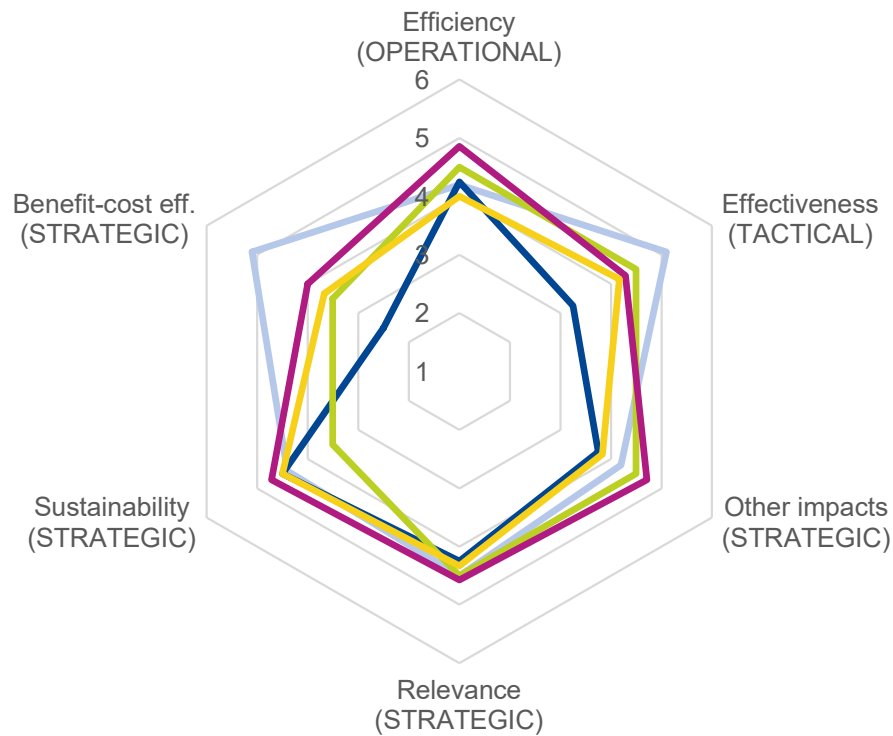
Klakegg and Volden (2023)   N=29

| Project	Sector	Evaluation criterion (level of success)					
		Efficiency (OPERATIONAL)	Effectiveness (TACTICAL)	Other impacts (STRATEGIC)	Relevance (STRATEGIC)	Sustainability (STRATEGIC)	Benefit-cost eff. (STRATEGIC)
4	Building	6	4	4	5	5	4
9	Building	6	4	5	5	5	3
14	Building	5	4	3	4	5	4
16	Building	5	5	6	5	4	4
17	Building	5	4	5	4	5	4
22	Building	2	5	5	5	3	4
29	Building	5	4	5	4	6	5
3	Defence	4	4	4	3	2	2
13	Defence	5	5	5	6	5	5
8	ICT	5	6	4	3	5	3
11	ICT	5	5	5	5	6	5
25	ICT	4	4	4	5	5	6
26	ICT	5	4	3	5	4	4
27	ICT	1	2	2	3	2	1
28	ICT	4	4	5	5	5	3
2	Railway	5	3	4	5	5	3
10	Railway	4	4	4	5	5	3
20	Railway	4	3	4	4	4	2
21	Railway	4	3	3	3	4	2
1	Road	3	5	4	5	5	6
5	Road	4	5	4	3	4	3
6	Road	5	6	5	5	5	6
7	Road	5	6	5	4	5	5
12	Road	4	5	3	5	4	4
15	Road	5	5	5	5	5	6
18	Road	4	5	4	5	4	6
19	Road	5	5	4	5	4	6
23	Road	4	4	3	3	3	3
24	Road	3	5	5	5	5	6
Average	score	4,3	4,4	4,3	4,5	4,5	4,1
Median	score	5	4	4	5	4	4
No of projects that scored		25	25	23	23	25	18
No of projects that scored		15	14	12	18	17	11

Missing Out on Learning Opportunities
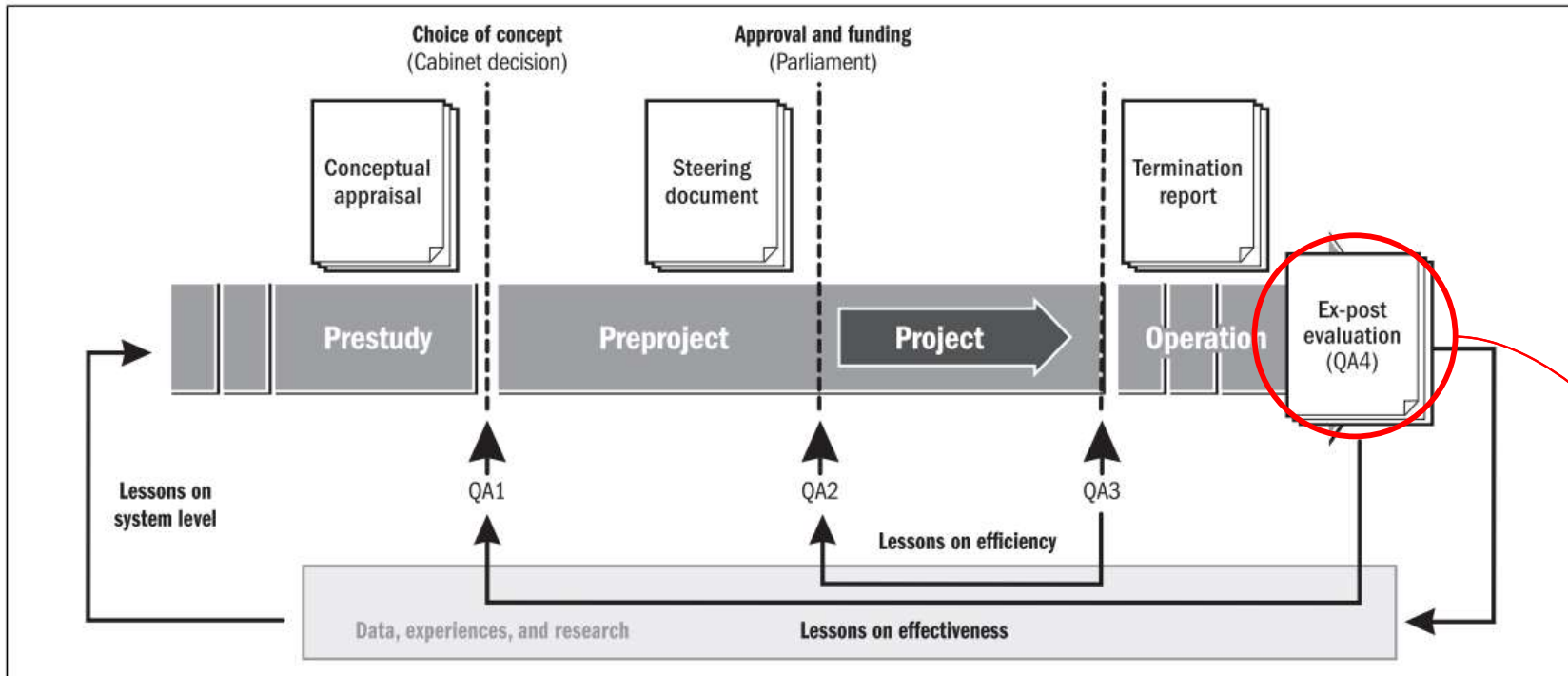
Figure 2. Extended project governance framework that focuses on quality-at-entry and quality-at-exit.

Include systematic external assessment after delivery to secure learning!

Volden and Klakegg (2024)
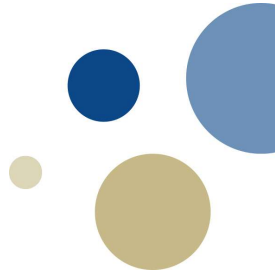
Concluding part

Norwegian experiences from project research,
Suggested takeaways

Why all this project research?

- The implementation of a (State) project model represents a (potential) opportunity for learning and improvement. It requires:

  – Transparency, availability of data (plans, assessments, reports)

- We see a significant trickle-down effect from the major projects

  – Given its strong position – the private sector (industry) cannot afford to lag behind due to low performance, regional and municipal level follow

- Every project is a learning opportunity for those involved

  – A research program lifts the learning to system level

  – Research documents the positive effects and the challenges we still have to face

Thank you for listening

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