



Norwegian University of
Science and Technology

Governance frameworks

The Norwegian State Project Model and other schemes.
Preconditions and effective elements – suggestions for
Newfoundland and Labrador

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This presentations is prepared by the author for the **Commission of Inquiry Respecting the Muskrat Falls Project.**

It is based on scientific and public material. Interpretations, translations and opinions stated in this document is the responsibility of the author.

Mandate

Scope of Work and Term, dated 20190408


- And rephrased 20190522

Scope of Work and Term

Scope of Work

Professor Ole Jonny Klakegg ("Consultant") will provide a testimony presentation covering the following:

1. An overview of the broad principles and elements of governance schemes for major public investment projects in other jurisdictions, specifically Norway, UK, and the Netherlands;
2. Commentary on the preconditions and implementation of the governance schemes in other jurisdictions, and how these schemes developed over time;
3. Commentary on elements of governance schemes in other jurisdictions that could be implemented in Newfoundland and Labrador.

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This has been my basis for planning the presentation.



Books and reports:

Samset, Knut; Volden, Gro Holst; Olsson, Nils and Kvalheim, Eirik Vårdal (2016) *Governance Schemes for public Investment Projects. A comparative study of principles and practices in six countries. Concept report no. 47.* Available at:
<https://www.ntnu.edu/web/concept/concept-report-series>

Samset, Knut; and Volden, Gro Holst; (2013) *Investing for Impact Lessons with the Norwegian State Project Model and the first investment projects that have been subjected to external quality assurance. Concept report no. 36.* Available at:
<https://www.ntnu.edu/web/concept/concept-report-series>

Klakegg, Ole Jonny; Williams, Terry and Magnussen, Ole Morten (2009) *Governance Frameworks for Public Project Development and Estimation.* Project Management Institute. Newton Square, PA, USA. Mai 2009. ISBN13: 9781933890784. Available from PMI (Free for PMI members).

Klakegg, Ole Jonny, Williams, Terry; Walker, Derek; Andersen, Bjørn and Magnussen, Ole Morten (2010) *Early Warning Signs in Complex Projects.* Project Management Institute. Newton Square, PA, USA. October 2010. ISBN: 9781935589181. Available from PMI (Free

for PMI members).

Müller, Ralf (2009) *Project Governance (Fundamentals of Project Management)*. Routledge. ISBN-13: 978-0566088667

Müller, Ralf (Ed) (2017) *Governance and Governability for Projects. Enablers, Practices and Consequences*. Rutledge studies in corporate governance. Rutledge 2017. Specifically: Klakegg, Ole Jonny and Volden, Gro Holst. *Governance in Public Projects: The Norwegian Case*. Chapter 9, Pp129-156.

Williams, Terry; Samset, Knut and Sunnevåg, Kjell J. (eds) (2009) *Making Essential Choices with Scant Information. Front-End Decision Making in Major Projects*. Palgrave Macmillan.

Samset, Knut (2010) *Early Project Appraisal: Making the Initial Choices*. Palgrave Macmillan.

Scientific articles:

Klakegg, Ole Jonny, Williams, Terry and Schiferaw, Asmamaw Tadege (2016) Taming the ‘trolls’: Major public projects in the making. *International Journal of Project Management*. Volume 34, Issue 2, February 2016, Pages 282–296; <http://dx.doi.org/10.1016/j.ijproman.2015.03.008>.

Samset, Knut and Volden, Gro Holst (2016) Front-end definition of projects: Ten paradoxes and some reflections regarding project management and project governance. *International Journal of Project Management*. 34 (2016) 297–313. <https://doi.org/10.1016/j.ijproman.2015.01.014>

Heeres, Niels; Tillema, Taede and Arts, Jos (2012) Integration in Dutch planning of motorways: From “line” towards “area-oriented” approaches. *Transport Policy*. Volume 24, November 2012, Pages 148-158. <https://doi.org/10.1016/j.tranpol.2012.08.002>

There are numerous articles on specific aspects of governance in general, project governance frameworks and project assessments/assurance. A complete list would not fit here.

Doctoral theses at NTNU Department of Civil and Environmental Engineering:

Klakegg, Ole Jonny (2010) *Governance of Major Public Investment Projects. In pursuit of Relevance and Sustainability*. Doctoral thesis at NTNU, 2010;15. ISBN 978-82-471-1985-3 (printed) ISBN 978-82-471-1986-0 (electronic). Available online: <http://hdl.handle.net/11250/231410>

Magnussen, Ole Morten (2010) *Up-Front Assessment and Quality Assurance of Major Investment Projects*. Doctoral theses at NTNU, 2010:114. ISBN 978-82-471-2194-8 (printed) ISBN 978-82-471-2195-5 (electronic)

Schiferaw, Asmamaw Tadege (2013) *Front-End Project Governance. Choice of Project Concept and Decision-Making – An International Perspective*. Doctoral theses at NTNU, 2013:249. ISBN 978-82-471-4621-7 (printed) ISBN 978-82-471-4622-4 (electronic)

In addition some aspects from doctoral works and research by

Knut Samset

Agnar Johansen

Hallgrim Hjelmbrække

Definitions 1

Governance is often defined as **the means by which organizations are directed and their managers are held accountable for conduct and performance** (OECD, 2001).

Governance differs from management in that management runs the business, while governance makes sure that it runs efficiently and in the right direction (Tricker, 2012).

Definitions referred to in:

Müller, Ralf; Zhai, Li; Wang, Anyu and Shao, Jingting (2016) A framework for governance of projects: Governmentality, governance structure and projectification. *International Journal of Project Management*. 34 (2016) 957–969

Definitions 2

Corporate governance framework comprise the “*value system, responsibilities, processes and policies that allow projects to achieve organizational objectives and foster implementation that is in the best interest of all the stakeholders, internal and external, and the corporation itself.*” (Müller, 2009, p.4).

Governmentality sets the tone for the interaction between governing and governed individuals (*the human side of governance*). (Müller et al. 2016, p 958)

Definitions referred to in:

Müller, Ralf; Zhai, Li; Wang, Anyu and Shao, Jingting (2016) A framework for governance of projects: Governmentality, governance structure and projectification. *International Journal of Project Management*. 34 (2016) 957–969

Original source:

Müller, Ralf (2009) *Project Governance (Fundamentals of Project Management)*. Routledge. ISBN-13: 978-0566088667

Definitions 3

- Zeithaml (1988) revealed four different understandings of **value**: (1) *Value is low price*, (2) *value is whatever I want in a product*, (3) *value is the quality I get for the price that I pay*, (4) *value is what I get for what I give*.
- Drevland et al. (2017) in essence conclude that “*value is the result of an evaluative judgment of what you get and what you give*”. This is the understanding used here.

Zeithaml, V. A. (1988). “Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence.” *Journal of Marketing*, 52(3), 2–22.

Drevland, F., Lohne, J., Klakegg, O.J., 2017. Ethical Dilemmas in Value Delivery: Theoretical Conditions, in: 25th Annual Conference of the International Group for Lean Construction. Presented at the 25th Annual Conference of the International Group for Lean Construction, Heraklion, Greece, pp. 145–152. <https://doi.org/10.24928/2017/0276>

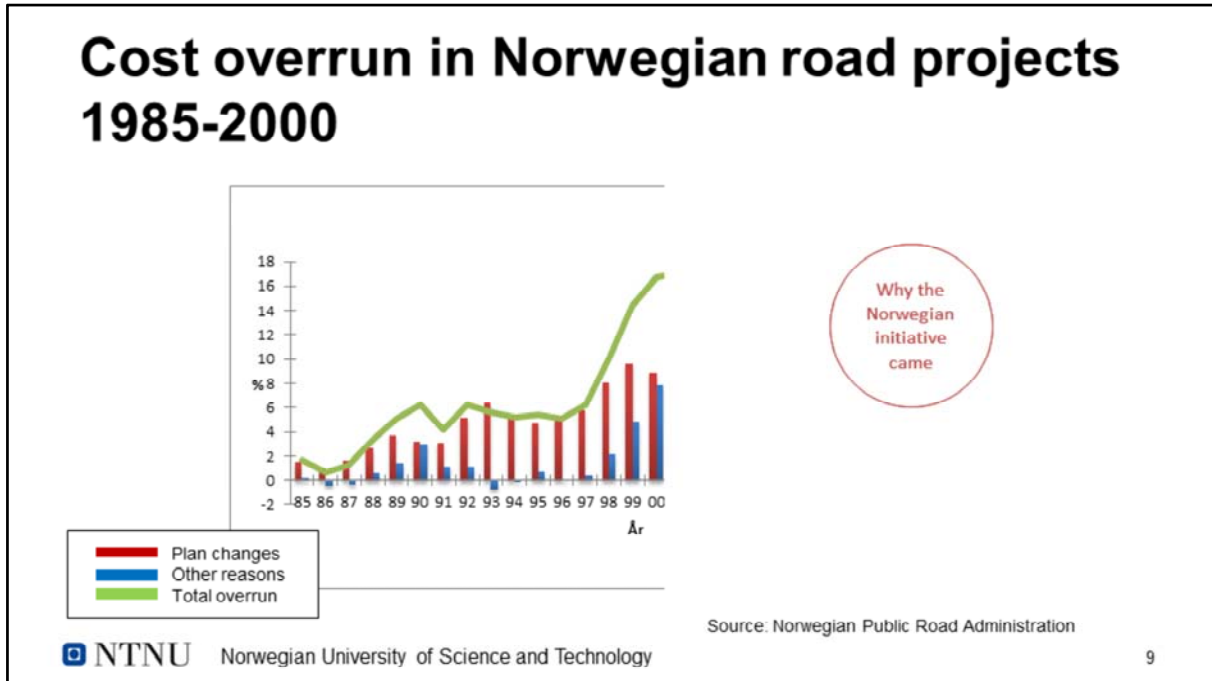
Agenda

1. The Norwegian State Project Model
 - Structure, elements and preconditions
 - Effects and experiences
 - Latest improvements and direction of development
2. Selected other Governance Schemes
 - Comparisons - similarities and differences
3. Context Dependency and Development
 - How governance frameworks develop
 - Current trends and their consequences
4. Conclusions
 - Critical comments and suggestions for NL

1

Norwegian State Project Model

- Its structure and embedded principles
- Experience and consequences



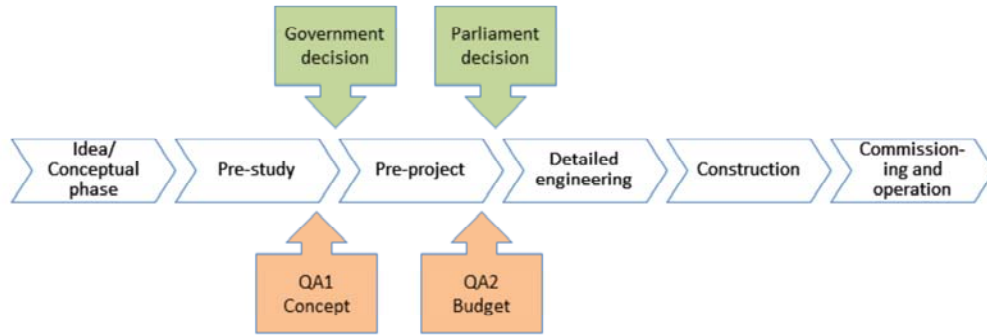
Cost overrun in Norwegian road projects from 1985 – 2000:

The problem was increasing during the 1990's. There was a complex system of inter-dependant problems behind this development. The situation included, but was not limited to:

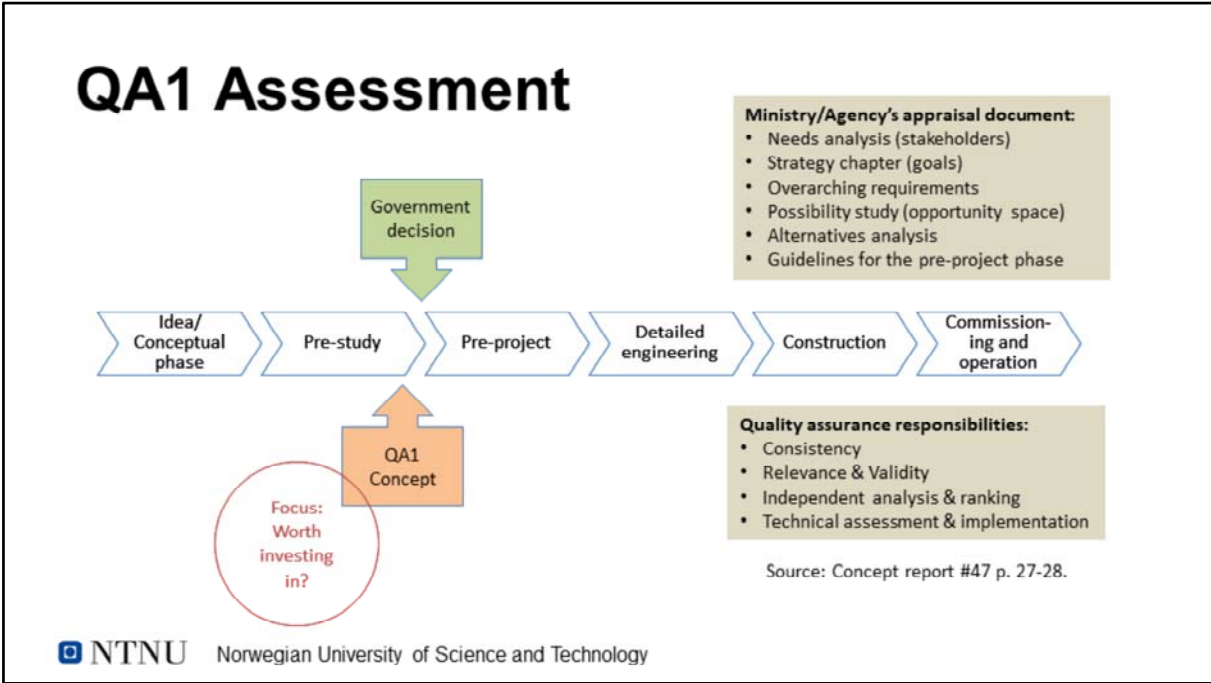
- Political processes were local interests promoted projects with strongly negative benefit/cost factors (unclear acceptance criteria)
- Political processes where hasty decisions were pushed through, before the project concept were mature enough (lack of planning)
- The road authorities was organized with owner functions mixed with execution functions (unclear roles)
- The road authorities had inadequate systems for cost estimation and cost control (including cost data)
- Project management was immature (lack of project management competence).

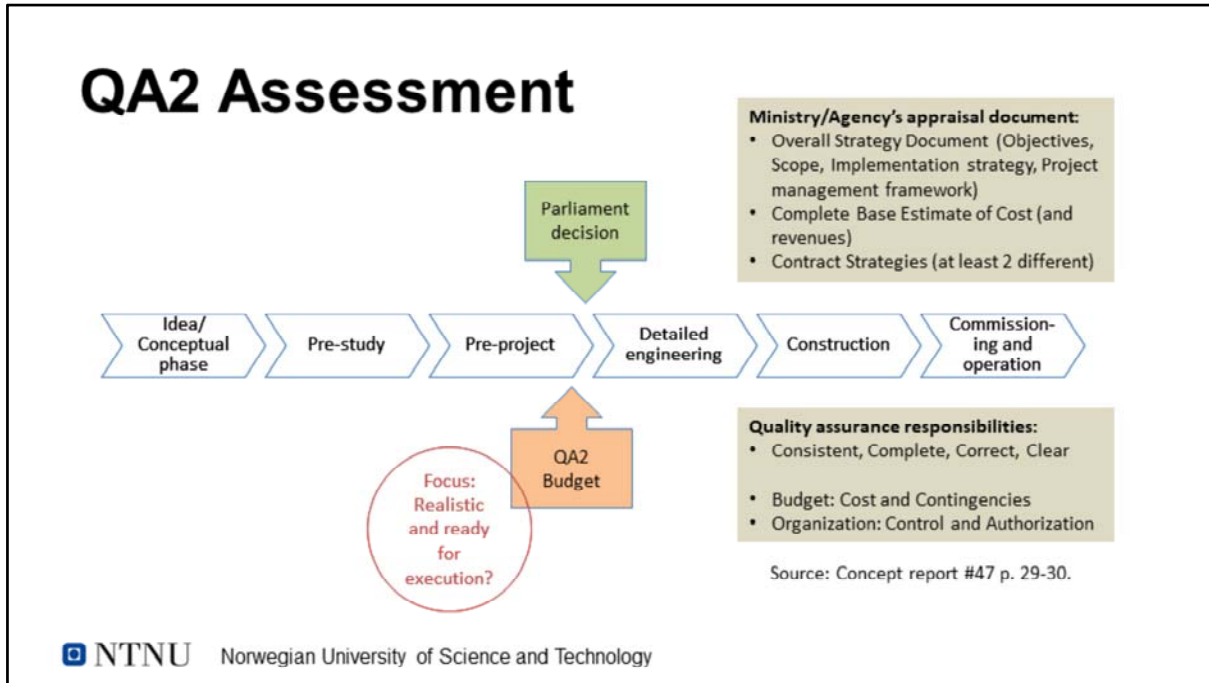
Plan changes was primarily due to lack of planning, local political pressure, decisions based on immature concepts. Other reasons were primarily due to lack of competence and adequate systems.

Norwegian State Project Model

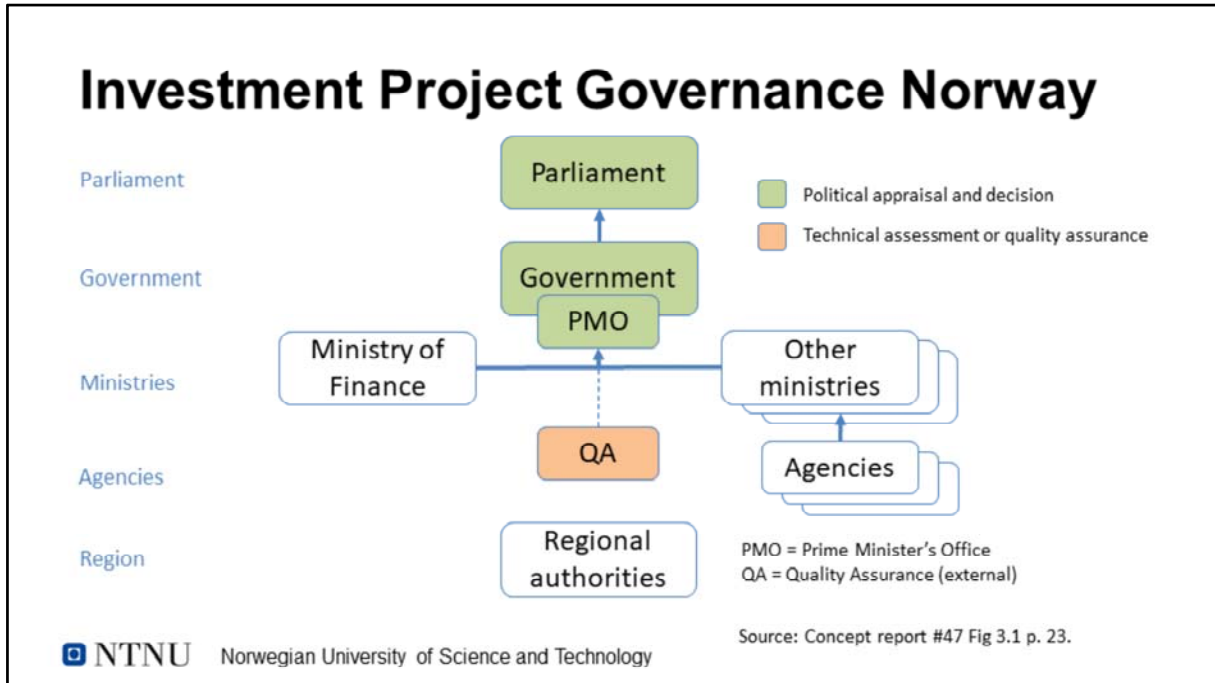


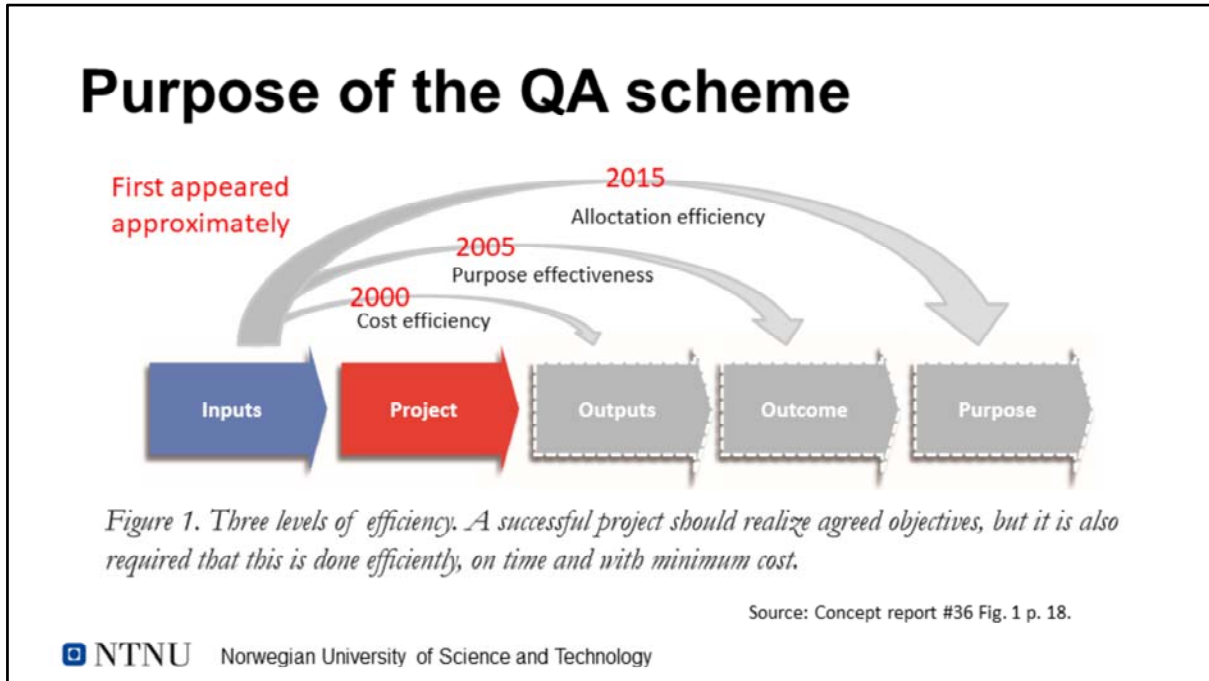
Source: Concept report #47 Fig 3.2 p. 26.





This is still similar to the original Quality Assurance Scheme introduced in 2000. This is where it all started. As a control measure, it has hardly changed at all. The practice, however, is much developed over the years. It has definitely driven up both governance and project management professionalism in the Norwegian ministries, agencies, and project based industries over these years.





The author was involved in the process in the period 2000 – 2011. First as QA assessor 2000 – 2003, then as Research Director for Concept Research Programme. After I left in 2011 I followed the development from the sideline. My successor in the role as Research Director is a Social Economist. This coincides well with the development indicated in the illustration.

Key elements of Norwegian QA

Purpose and Principles:

- Initially: Control with budget
- Today: Better investments

- Common Governance Principles
 - see next slide

Structure

- Anchored: Prime Ministers Office
- Administrated: Ministry of Finance
- 2 Gateways
- Initially: Control rules in contract
- Today: Government directive
- External assessors
- Owners' forum/PM forum
- Concept Research Programme

Source: Klakegg, Williams, Magnussen (2009)

Common Governance Principles

In Norwegian QA

- Transparency, openness for scrutiny
- Learning, willingness to change
- Setting high professional standards
- External control, independency
- Political anchoring on high level, stability
- Reviews are non-political

Source: Klakegg, Williams, Magnussen (2009)

The point made concerning holding Learning as a governance principle has many consequences. One thing is the direct connection to willingness (and ability) to change. Another is the reason why the Concept Research Programme was established to follow, and contribute to further develop the scheme. Involving the university contributes to spreading this knowledge to students and the industry and internationalization. Another aspect is the need for co-creating practice and sharing experience including both agencies and QA consultants. This also supports the transparency. The new knowledge, practices and requirements then trickles down into industry through implemented requirements in public projects.

Basis for experiences (status February 2017)

External quality assurance	Quality assured	Of which completed	Of which to be evaluated*	Of which evaluated
Total number of QA-projects as per September 2016	252	92	40	20
Of which have only been through QA2	177	92	40	20
Number of projects that have been through QA1	93	0	0	0
Projects that have been through both QA1 and QA2.	22	0	0	0

*5 years into operations.

Source: Concept report #52 Table 2.1 p. 30.

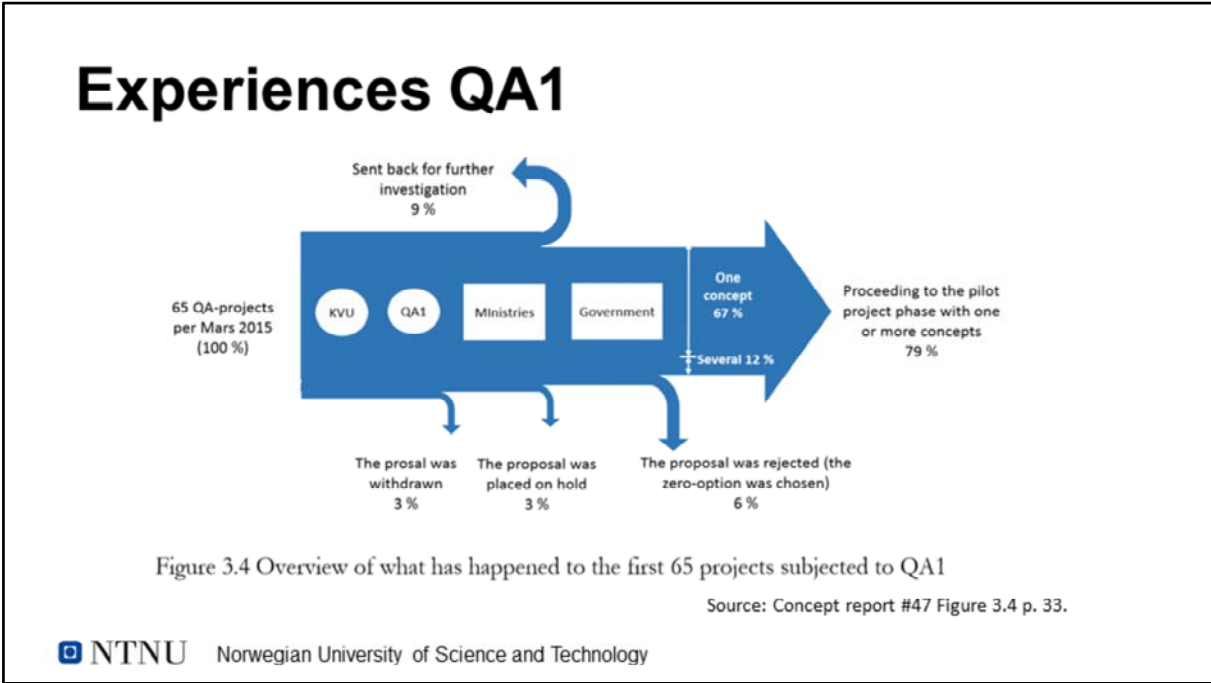
Unfortunately I do not currently have access to the database for the latest numbers.

The latest accessible overview is given in Concept report no 52:

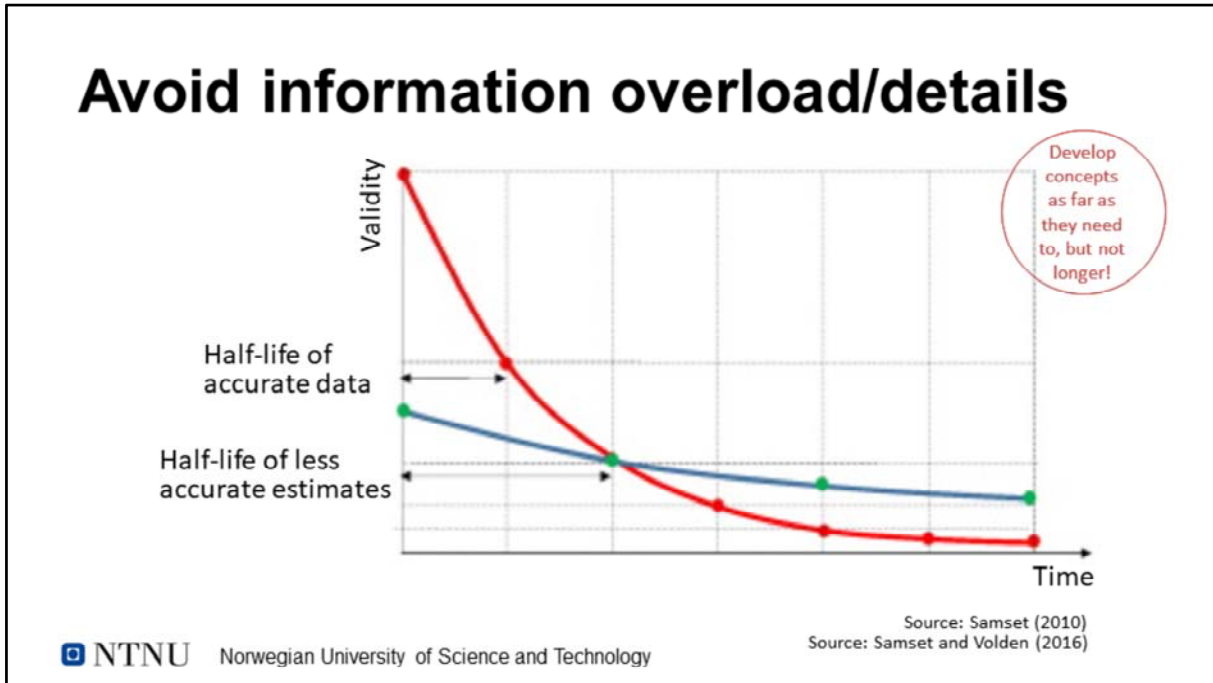
Volden, Gro Holst and Samset, Knut (2017) Statlige investeringstiltak under lupen. Erfaring med evalueringer av de 20 første KS-prosjektene. Concept report no 52 (in Norwegian).

Available at: <https://www.ntnu.edu/web/concept/concept-report-series>

(English title): A Close-up on Public Investment Cases. Lessons from Ex-post Evaluations of 20 Major Norwegian Projects.

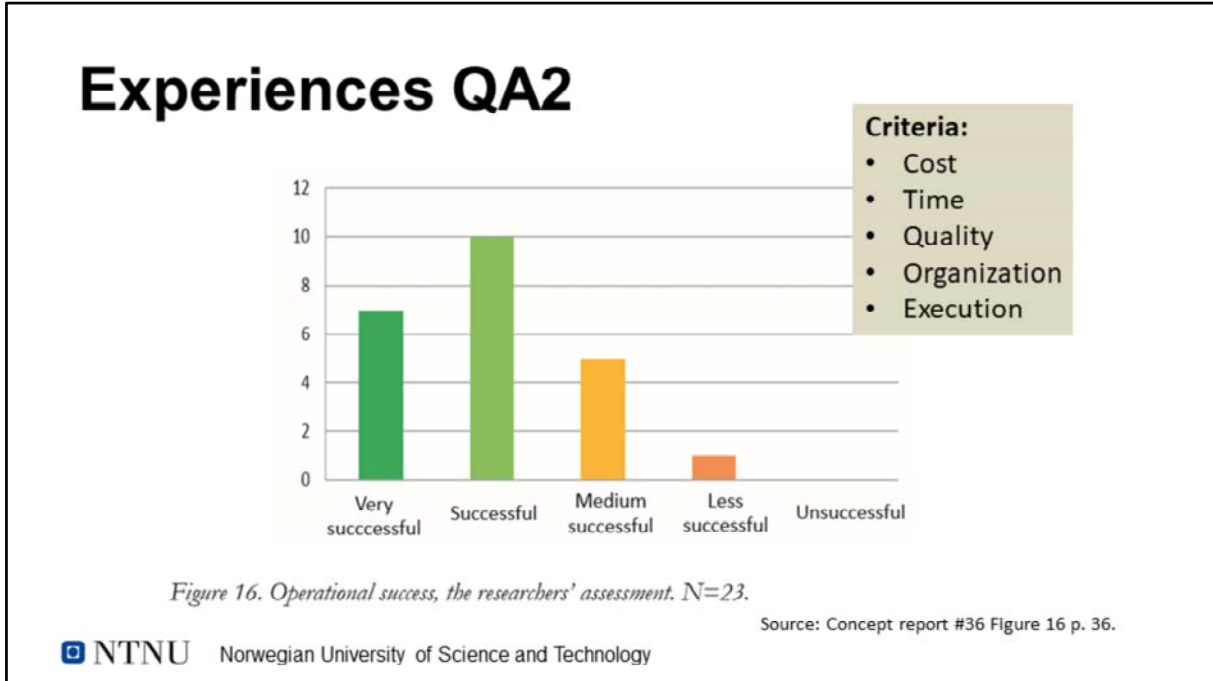


It is too early to say whether the effects of QA1 really increases purpose effectiveness or allocation efficiency (see Purpose of the QA scheme). What the figure shows is that the QA1 assessments do have consequences for the project proposers. Projects have been rejected, returned and sometimes put on hold. On the other hand, there is clear signs of not being clear enough to reach a clear decision (continue with more than one concept) and this may be interpreted as potential for improvement.



One major obstacle is the tendency to do too much! A tendency to give too much detail on each alternative at an early stage. The problem is – this makes the basis for decision seemingly accurate – but will soon be irrelevant.

Another problem with this is the use of resources. Too much detail means time and money are wasted unnecessarily. Details should wait till you are sure what to plan for.



A confirmation that the projects are successful – in operational and organizational perspectives.

Experiences - overview

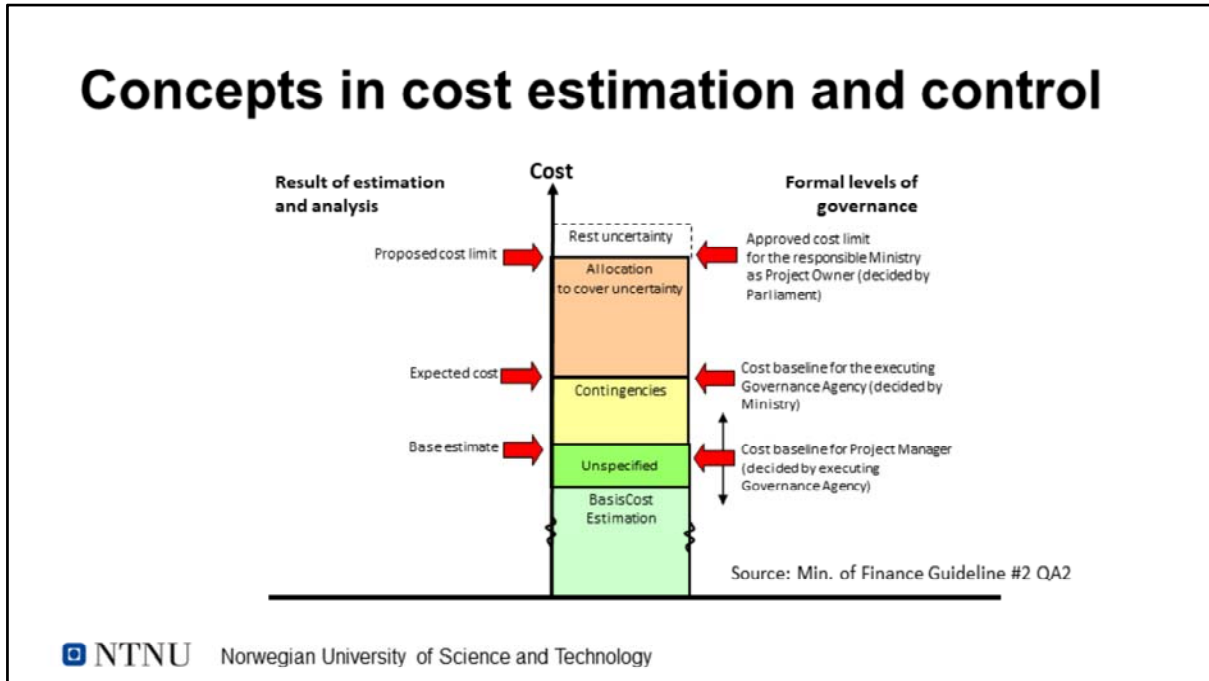
Sector	Projects	Efficiency	Effective-ness	Other impacts	Relevance	Sustain-ability	Socioec. efficiency
Construction	5	5,4	4,2	4,6	4,6	4,8	3,8
Defense	2	4,5	4,5	4,5	4,5	3,5	3,5
ICT	2	5,0	5,5	4,5	4,0	5,5	4,0
Railway	3	4,3	3,3	4,0	4,7	4,7	2,7
Roads	8	4,4	5,3	4,3	4,6	4,5	5,3
Average		4,7	4,7	4,4	4,6	4,6	4,2

Source: Concept report #52 Figure p. 18.

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Volden, Gro Holst and Samset, Knut (2017) Statlige investeringstiltak under lupen. Erfaring med evalueringer av de 20 første KS-prosjektene. Concept report no 52 (in Norwegian). Available at: <https://www.ntnu.edu/web/concept/concept-report-series>

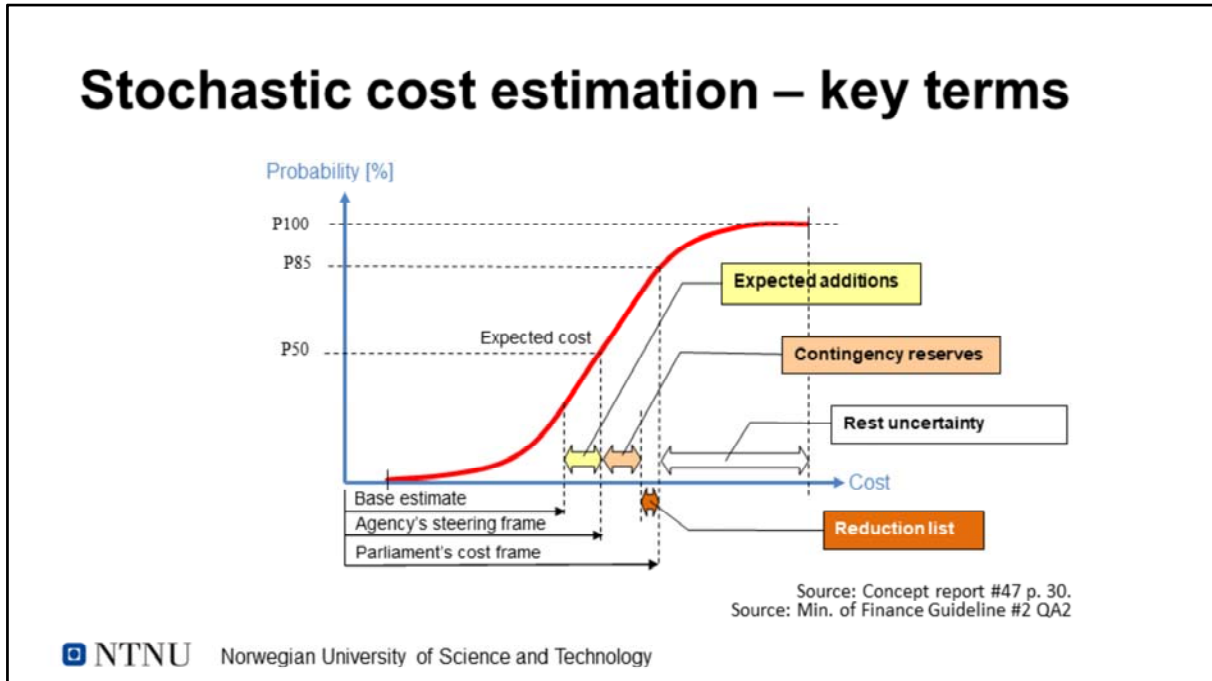
This shows that the projects are very successful in an operational perspective. The wider perspective shows a more mixed picture. Especially the Socioeconomic efficiency evaluations are not so positive. This indicates where the focus has turned lately – how to strengthen this.



Let us look at the Cost side of QA. This is what we started with and has worked continuously with over 30 years (even before QA was introduced in Norway). The basis is a traditional cost estimation. Then we do a thorough uncertainty analysis to check the realism for the whole project.

The left hand side of the figure only concerns cost estimation and the uncertainty analysis. The right hand side of the figure only concerns governance (Steering) of the allocated money.

The left hand side tells us how much money needs to be allocated – the right hand side how to handle them after the decision is made.

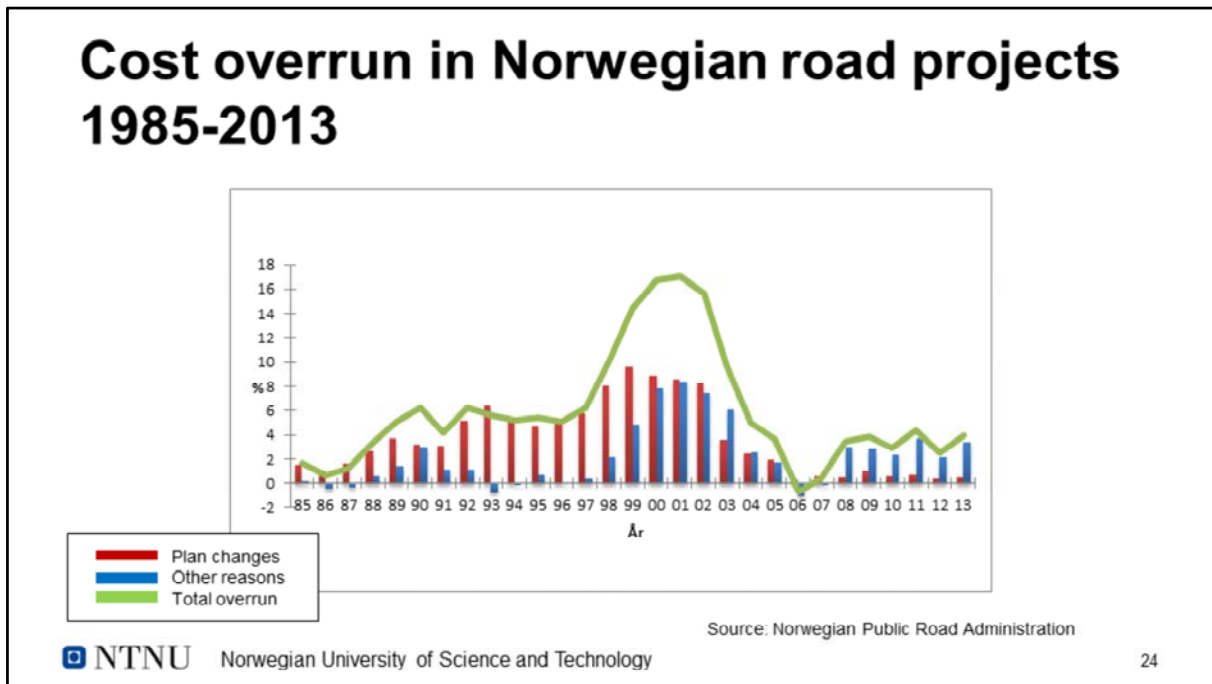


Stochastic cost estimation is a logic that needs to be understood to make this system work.

Stochastic cost estimation: Expected additions come from three different effects:

1. Every cost item is uncertain and has a tendency to become more expensive than planned.
2. There are general effects (developments, changes) that tend towards increased costs.
3. There are correlation effects among cost items and assumptions that adds to points 1 and 2.

However – it is possible (happens in some cases where the situation is much better than normal) that the sum of expected changes is positive (towards lower total cost).



Cost overrun in Norwegian road projects from 2000 – 2013 (and beyond):

The consequence of the problem from the 1990's was a wake-up call. This led to introduction of the QA scheme (only QA2 at the beginning). QA2 specifically addresses the problem of budget overspending:

Key questions:

- How can we make the budgets realistic?
- How can we professionalize project owners and project management so they can control their projects?
- How can we make sure the plans do not change after we make the decision to finance and execute?

The answers to these questions for Norway 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 (again through uncertainty analysis).
- The consequence of uncertainty in cost estimates needs to be explicitly shown.

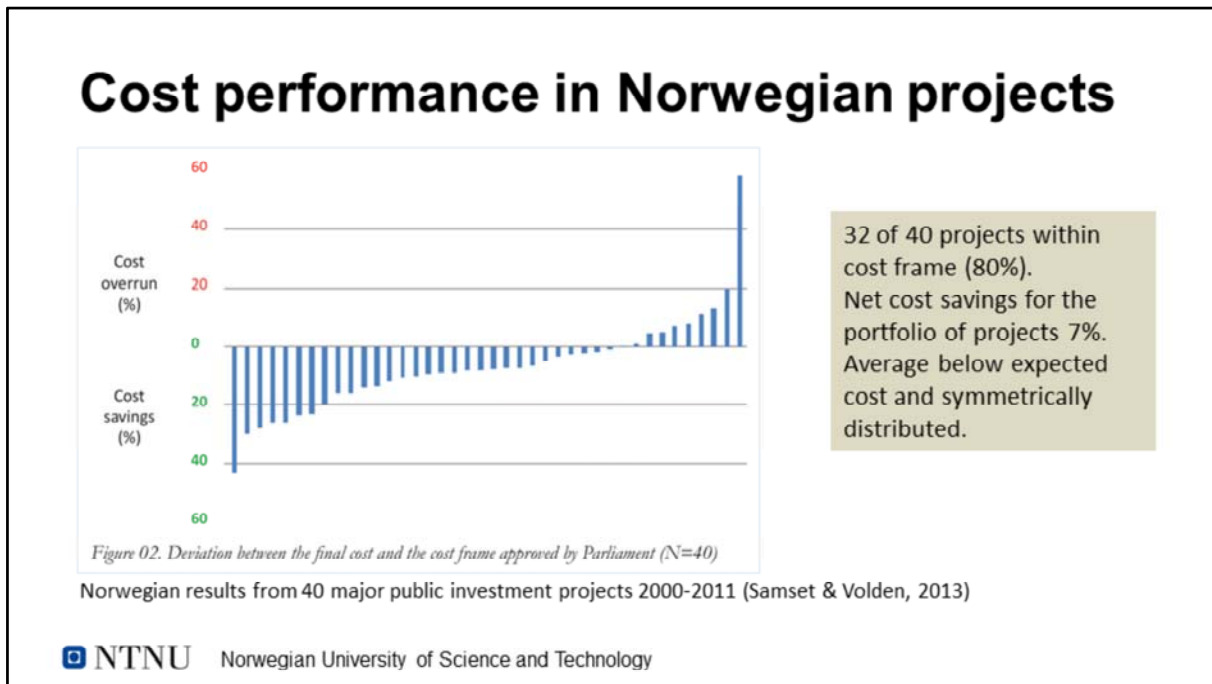
These two answers lead directly into establishing the QA scheme in 2000. At the same time the effect of introducing uncertainty analysis in the cost estimation process (Anslag*) kicked in after a few years of practicing.

The Ministry of Finance introduced two more things in connection with the QA scheme that is important in this development:

1. Establishing two arenas for exchange of ideas and experiences A) Project Owners Forum (for Ministries and Agencies to meet and discuss with external QA consultants), and B) Project Management Forum (for Ministry of Finance and external QA consultants to discuss and further develop the QA scheme). This was vital in professionalizing the project owners and project managers.
2. Establishing the Concept Research Programme to make sure the experiences was documented and made available for all relevant parties (public and private sector).

The total result was twofold: More robust budgets and more professional project owners and project managers. This is what dramatically reduced the cost overrun.

*Reference: Anslagmetoden (Handbook R764: Cost estimation and uncertainty analysis for the Norwegian Public Roads Administration. (in Norwegian). Available from: https://www.vegvesen.no/_attachment/69899/binary/967650?fast_title=H%C3%A5ndbok+R764+Anslagsmetoden.pdf



The success in terms of budget control is documented.

Source: Klakegg, Ole Jonny and Lichtenberg Steen (2016) Successive cost estimation – successful budgeting of major projects. *Procedia - Social and Behavioral Sciences* 226 (2016) 176 – 183.

However, there is a wear and tear effect. Later results show less cost savings. People get used to QA and thus the effect diminishes. Effect needs to be maintained with regularly changing and updating – and keeping focus on it. This effect is seen in Norway and UK.

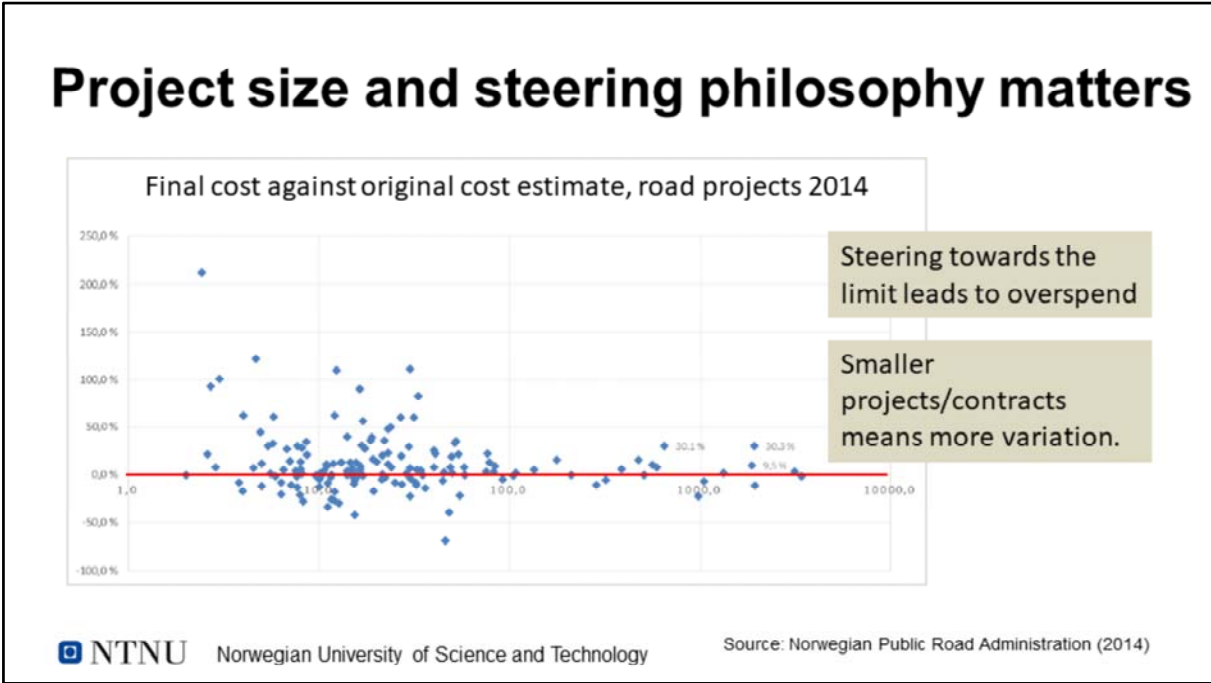
Source: Klakegg, Ole Jonny, Williams, Terry and Schiferaw, Asmamaw Tadege (2016) Taming the 'trolls': Major public projects in the making. *International Journal of Project Management*. Volume 34, Issue 2, February 2016, Pages 282–296;
<http://dx.doi.org/10.1016/j.ijproman.2015.03.008>.

One remaining question is: Does the system produce more costly projects? Does the realistic budgets lead to «gold plating»?

From the beginning it was claimed that having allocations for uncertainty would automatically lead to all available allocations being used.

This is well documented to be false. The projects are delivered on average a few percent's BELOW expected cost.

But still: The reference cost level may be higher than optimal – we might actually calculate the projects too expensive and then deliver them more expensive than they needed to be. (Level of security against budget overspend may be too high, giving project managers an easier road to successful delivery.) This is something we will return to later in this presentation.



Saxebo, Geir (2014) **Samledokumentasjon** For utbyggingsprosjekter avsluttet 2014. Statens vegvesen rapporter Nr 648. (NPRA Reports, Norwegian Public Roads Administration).

This report analyses all road projects in the portfolio of NPRA finished in 2014 - Norwegian Public Roads Administration.

Robustness of the system as a whole

	Kontraktsum	A-nota	T-nota	Sum sluttkost.	2014	
					Awik	
					Mill. kr	Prosent
Øst	2 635	2 730	591	3 321	687	26,1%
Sør	3 643	3 645	574	4 219	576	15,8%
Vest	1 339	1 283	201	1 484	145	10,8%
Midt	1 981	1 989	232	2 221	240	12,1%
Nord	1 269	1 372	287	1 659	390	30,8%
Samlet	10 866	11 019	1 885	12 904	2 039	18,8%

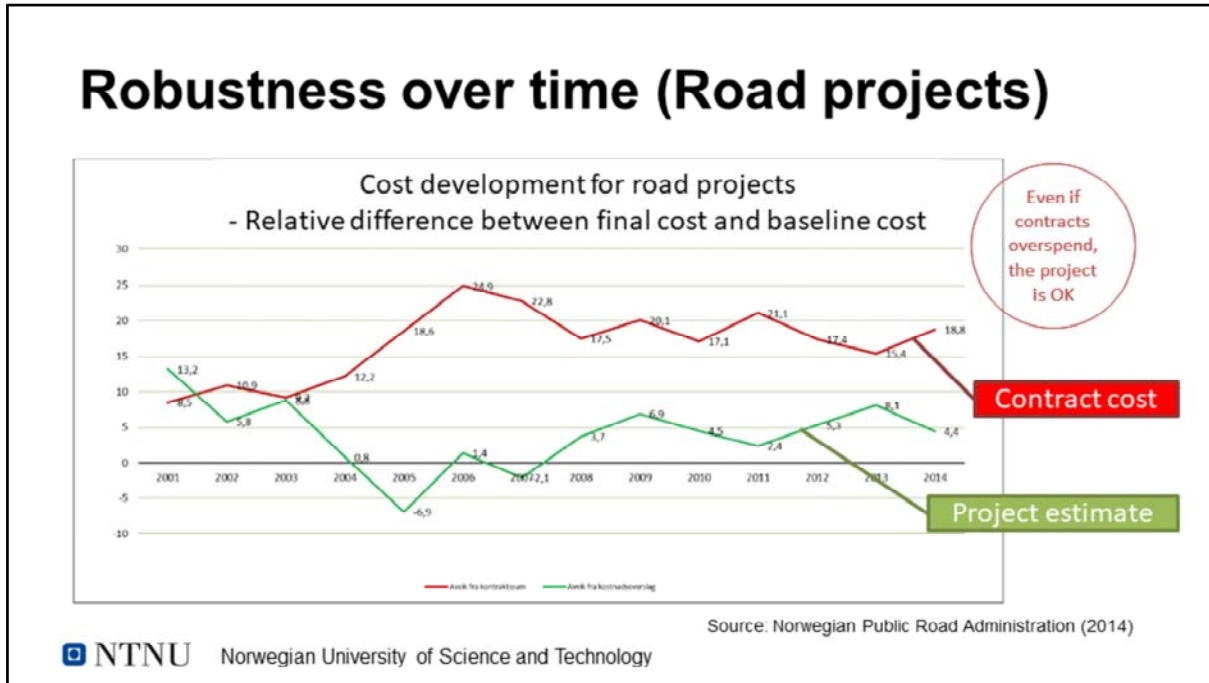
Difference between final cost and original contract agreement. Summary for each region in Norway.

Base: All contracts completed in 2014, with a cost >2 Mill. NOK. (approx. 306.000 CAD).

Still a problem with contracts

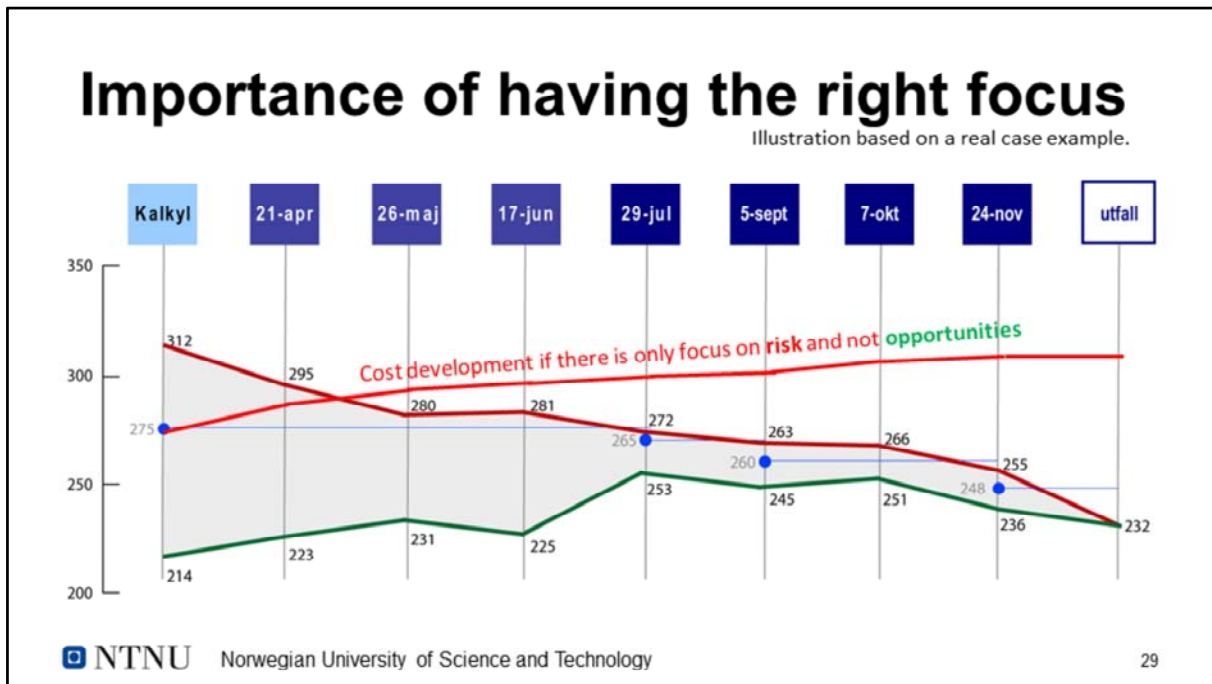
Source: Norwegian Public Road Administration (2014)

Saxebo, Geir (2014) **Samledokumentasjon** For utbyggingsprosjekter avsluttet 2014. Statens vegvesen rapporter Nr 648. (NPRA Reports, Norwegian Public Roads Administration).



Saxebøl, Geir (2014) **Samledokumentasjon** For utbyggingsprosjekter avsluttet 2014. Statens vegvesen rapporter Nr 648. (NPRA Reports, Norwegian Public Roads Administration).

This illustrates the system robustness in terms of avoiding budget overspend, but it also illustrates project management failure to control cost at each separate contract. The improvement work is not finished yet.



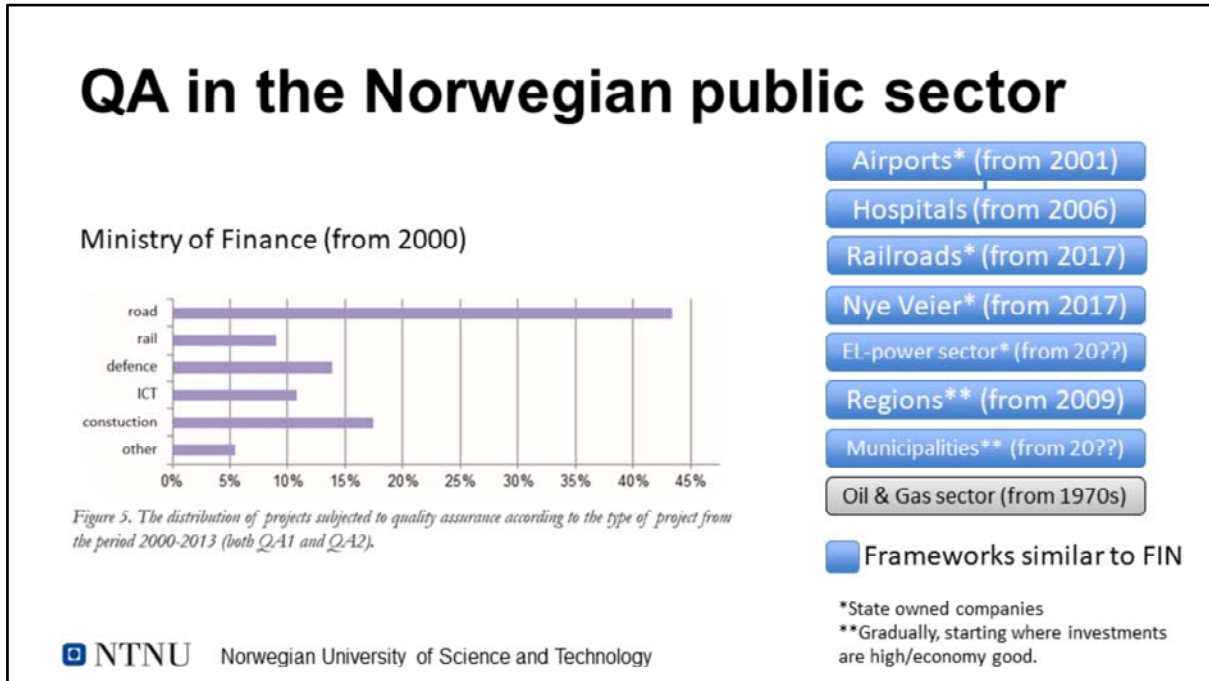
People (not least project managers) tend to focus risk and not opportunities. A successful project require balance between them.

The real life case used as basis for the illustration is a medium sized building project (Final cost approximately 35 million CAD). The case is from Sweden. The indicated cost development – if only focus on risk – is not quantified (it does not relate to the scale on the left hand side).

Case: Courtesy of Faveo (Scandinavian project management consultant company – later merged into WSP)

The scientific arguments for keeping a clear focus on opportunities are found in the doctoral dissertation by Agnar Johansen:

Johansen, Agnar (2015) Project Uncertainty Management: A New Approach – The «Lost Opportunities». Doctoral theses at NTNU, 2015:185. ISBN 978-82-326-1026-6 (printed) ISBN 978-82-326-1027-3 (electronic)



Frameworks (and requirements) across most sectors/industries are similar in Norway. They are not identical – some specific requirements make each sector slightly different. State owned companies are getting more usual, and they are required to have “as good QA as the Ministry of Finance scheme” – resulting in use of very similar schemes also for these sectors.

Oil & Gas sector is different, with a much longer tradition and history for project assurance. They use other means.

Some regions and municipalities has started using similar frameworks – all referring to Ministry of Finance framework.

Latest developments

Directive R-108/19 dated 08. March 2019, Ministry of Finance

- The Norwegian State Project Model is upheld and aligned with other directives for planning and economic control. In particular R-109 Social Economic Analysis.
- The requirements in Directive R108 is applicable for all state-financed investments.
- The threshold value is increased to 1000 MNOK for other projects, but reduced to 300 MNOK for ICT-projects.
- Increased flexibility: QA1 may be a two step process.
- Minimum two different **contract strategies** should be considered at QA1, including whether early involvement is desirable.
- A **benefits realization plan** needs to be present at QA1.
- A **change log** for important prerequisites, assumptions and requirements needs to follow the project.
- There is a new **gatekeeper** for QA2: The responsible Ministry
- Projects are required to deliver relevant **documentation** to the Concept Research Program (excluding any graded material).

The document is publicly available, but unfortunately only in Norwegian.

Det kongelige finansdepartementet: Rundskriv R-108/19. Referanse 19/144-19. 08.03.2019. Statens prosjektmodell – Krav til utredning, planlegging og kvalitetssikring av store investeringsprosjekt i staten.

Title in English (the author's translation): The State Project Model – Requirements for studying, planning and quality assurance of major investment projects in the state.

Three well known remaining issues

In Norwegian QA

First initiative Final decision Finished

Figure 15. Generell modell som illustrerer kostnadsforskjellen i tidligfase i prosjekter

Figure 1. The neglected and underestimated negative impacts discussed in the report

1. Early cost estimations are still challenging

2. Significant (negative) effects are not picked up by transport models.

3. Choosing the right Investments/Concepts/Projects/Alternatives

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1.

Welde, Morten; Samset, Knut; Andersen, Bjørn and Austeng, Kjell (2014): [Lav prising – store valg. En studie av underestimering av kostnader i prosjekters tidligfase.](https://www.ntnu.edu/web/concept/concept-report-series) English title: [Low estimates – high stakes. A study of underestimation of costs in projects' earliest phase](https://www.ntnu.edu/web/concept/concept-report-series) *Concept report no. 39.* Available at: <https://www.ntnu.edu/web/concept/concept-report-series>
2.

Næss, Petter; Volden, Gro Holst; Odeck, James and Richardson, Tim (2017) [Neglected and underestimated negative impacts of transport investments](https://www.ntnu.edu/web/concept/concept-report-series) *Concept report no. 54.* Available at: <https://www.ntnu.edu/web/concept/concept-report-series>
3.

Samset, Knut; Andersen, Bjørn and Austeng Kjell (2013) [Mulighetsrommet. En studie om konseptutredninger og konseptvalg.](https://www.ntnu.edu/web/concept/concept-report-series) English title: [The opportunity space. A study of conceptual appraisals and the choice of conceptual solutions.](https://www.ntnu.edu/web/concept/concept-report-series) *Concept report no. 34.* Available at: <https://www.ntnu.edu/web/concept/concept-report-series>

Knut Samset, Gro Holst Volden, Morten Welde and Heidi Bull-Berg (2014) [Mot sin hensikt. Perverse insentiver – om offentlige investeringsprosjekter som ikke forplikter.](#) English title: [Perverse incentives and counterproductive investments. Public funding without liabilities for the recipients.](#) *Concept report no. 40.* Available at: <https://www.ntnu.edu/web/concept/concept-report-series>

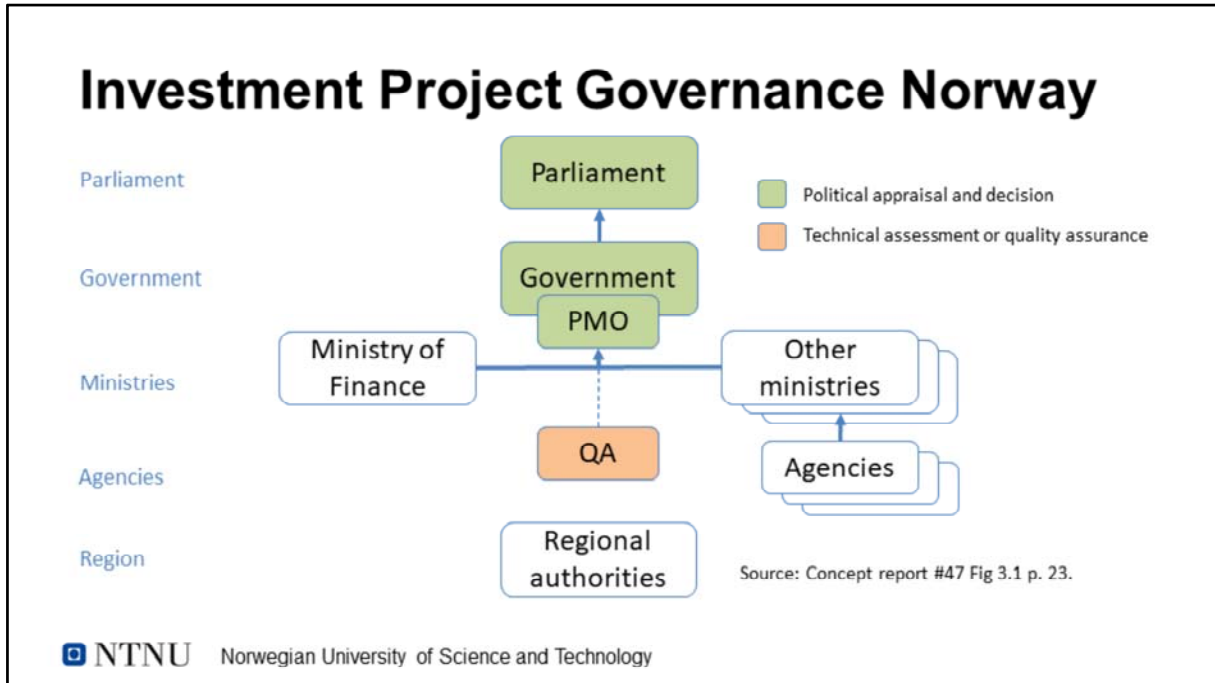
Also shown (in English) in:

Samset, Knut; and Volden, Gro Holst; (2013) Investing for Impact Lessons with the Norwegian State Project Model and the first investment projects that have been subjected to external quality assurance. *Concept report no. 36.* Available at: <https://www.ntnu.edu/web/concept/concept-report-series>

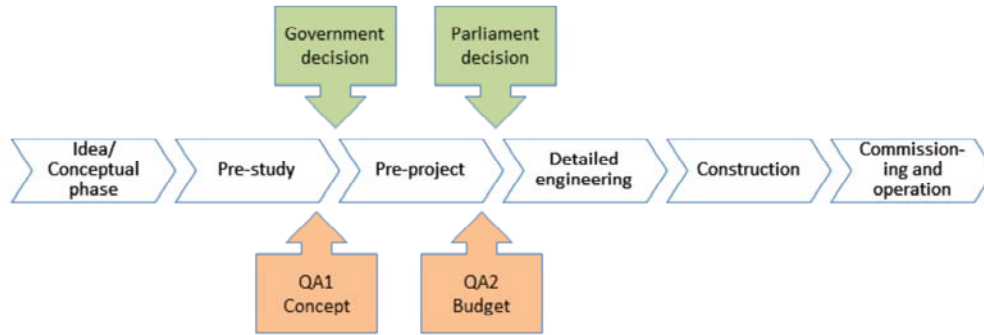
2

Other Governance Schemes

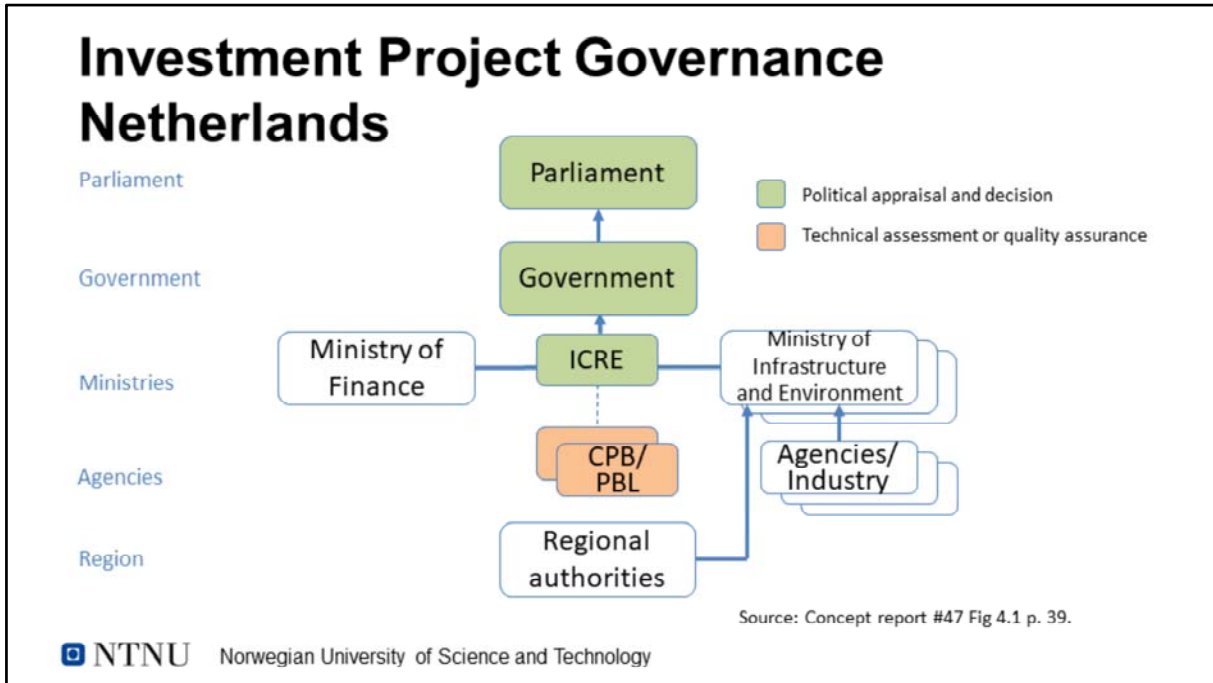
- Similarities and differences compared to the Norwegian one



Norwegian State Project Model



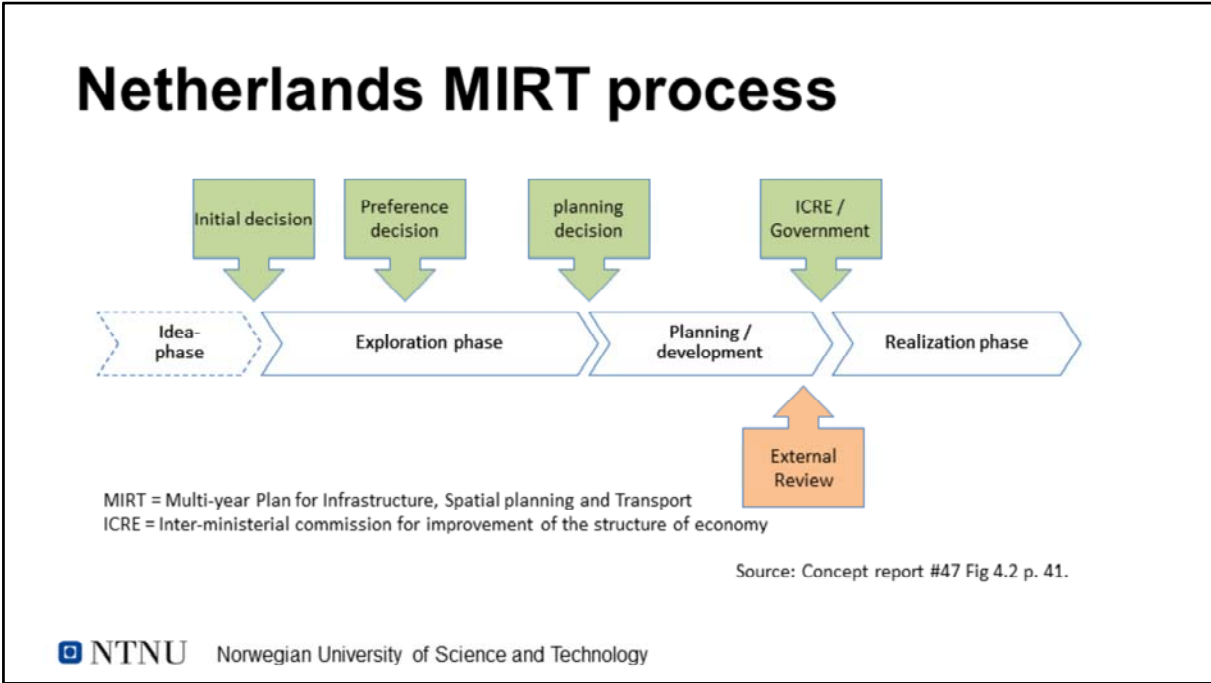
Source: Concept report #47 Fig 3.2 p. 26.




ICRE = Inter-ministerial commission for improvement of the structure of economy

CPB = Netherlands Bureau for Economic Policy Analysis

PBL = Netherlands Environmental Assessment Agency



Netherlands



From «silo-based» planning:

- Separated expert areas
- Lack of interaction consideration
- Planning phase took many years
- Basis for decisions weak
- Rematch on previous decisions

To involvement of stakeholders:

- Collaborative effort
- Solving «wicked problems»
- Shared vision
- Faster and better

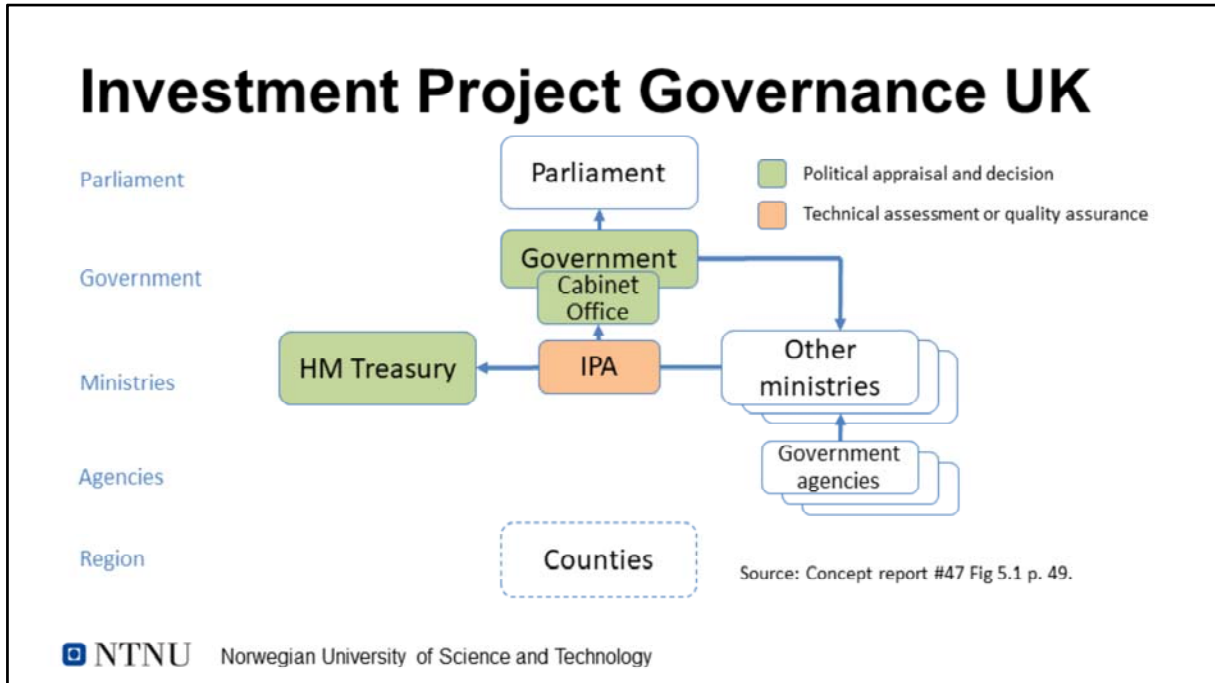
Source: Heeres, Tillema and Arts (2012)
Source: Klakegg, Williams and Schiferaw (2016)

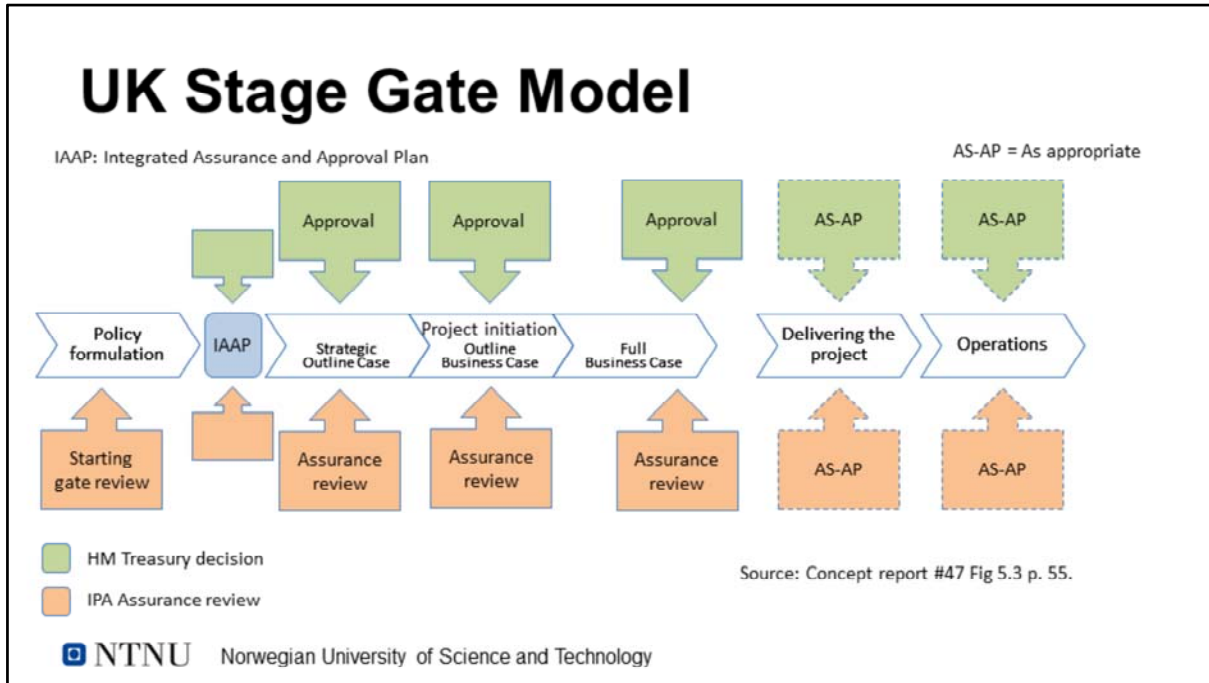
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Planning phase came down from average 5 years to 2-4 years (Klakegg et al, 2016, p 292).

Klakegg, Ole Jonny, Williams, Terry and Schiferaw, Asmamaw Tadege (2016) Taming the 'trolls': Major public projects in the making. *International Journal of Project Management*. Volume 34, Issue 2, February 2016, Pages 282–296; <http://dx.doi.org/10.1016/j.ijproman.2015.03.008>.

Heeres, Niels; Tillema, Taede and Arts, Jos (2012) Integration in Dutch planning of motorways: From “line” towards “area-oriented” approaches. *Transport Policy*. Volume 24, November 2012, Pages 148-158. <https://doi.org/10.1016/j.tranpol.2012.08.002>





IAAP: Integrated Assurance and Approval Plan

AS-AP: As appropriate, which means – is considered in each case – according to plan (IAAP)

IPA: Infrastructure and Projects Authority

GMPP: Government Major Projects Portfolio

MPLA: Major Projects Leadership Academy

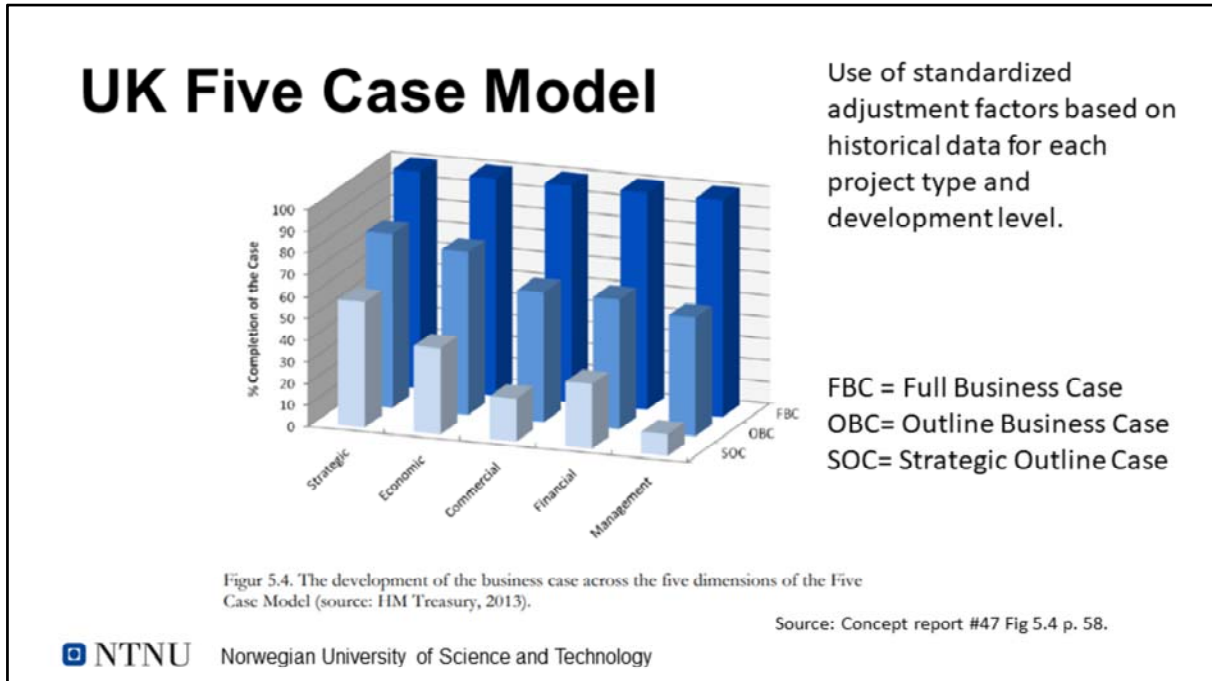
External Quality Assurance UK

- Team of 2-3 project experts
- Independent from the project (civil servants or external consultants)
- Team receives documentation from project (6-12 weeks)
- Review over 3-5 days for AR (up to 10 for PAR)
- Resulting report with recommendations

Source: Concept report #47 p. 59.

AR = Assurance Review (rather simple assessment)
PAR = Project Assurance Review (more detailed and

Concept report #47 p. 59: External quality assurance. As far as actual quality assurance is concerned, it is carried out by a team of 2-3 project experts who are independent from the project. These may be civil servants and/or external consultants. The team is appointed by the IPA on a case-by-case basis, from a pool of about 500 accredited quality assurers. After the team has been put together and has received the underlying documentation in preparation for quality assurance, specific deadlines apply, typically in the range of 6-12 weeks, depending on the type of quality assurance. The actual review is thereafter conducted intensively over 3-5 days (up to 10 days in case of PAR), based on interviews. This results in a report setting out the recommendations of the team



Guide to Business Cases, HM Treasury (2013)

The Green Book, a guide to Economic Analysis, HM Treasury (2003)

Guide to Integrated Assurance and Approval Plans, Cabinet Office (2011b)

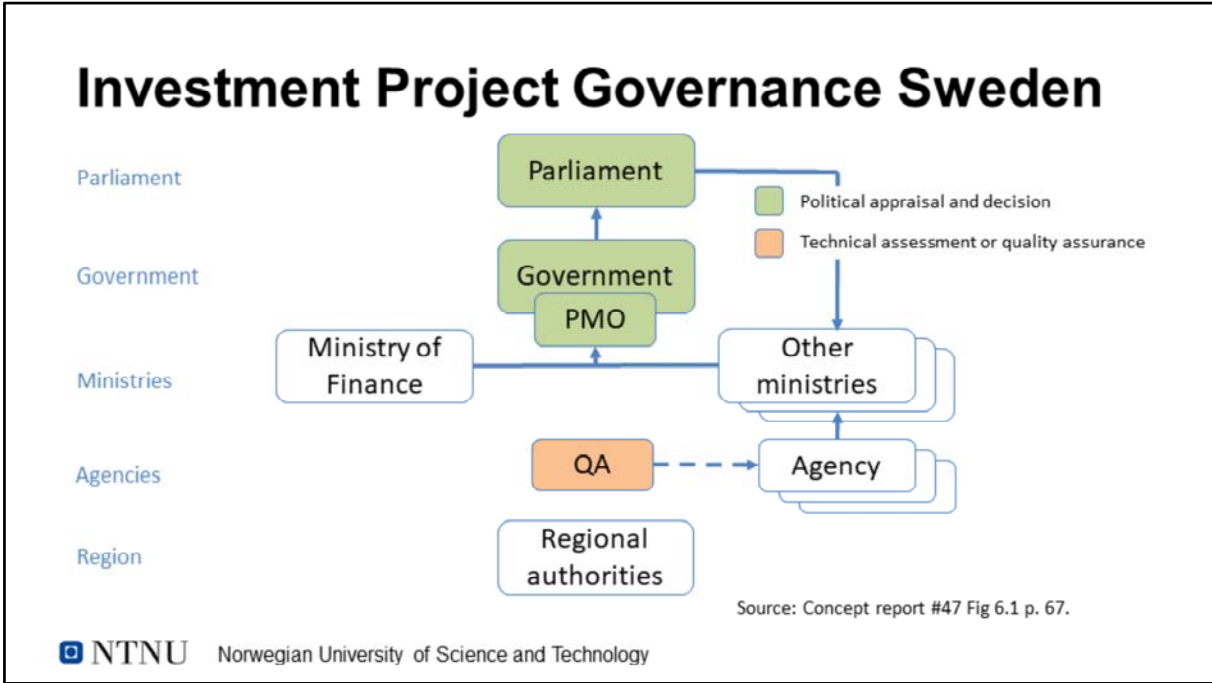
HM Treasury (2003): The Green Book. Appraisal and Evaluation in Central Government, updated in 2011

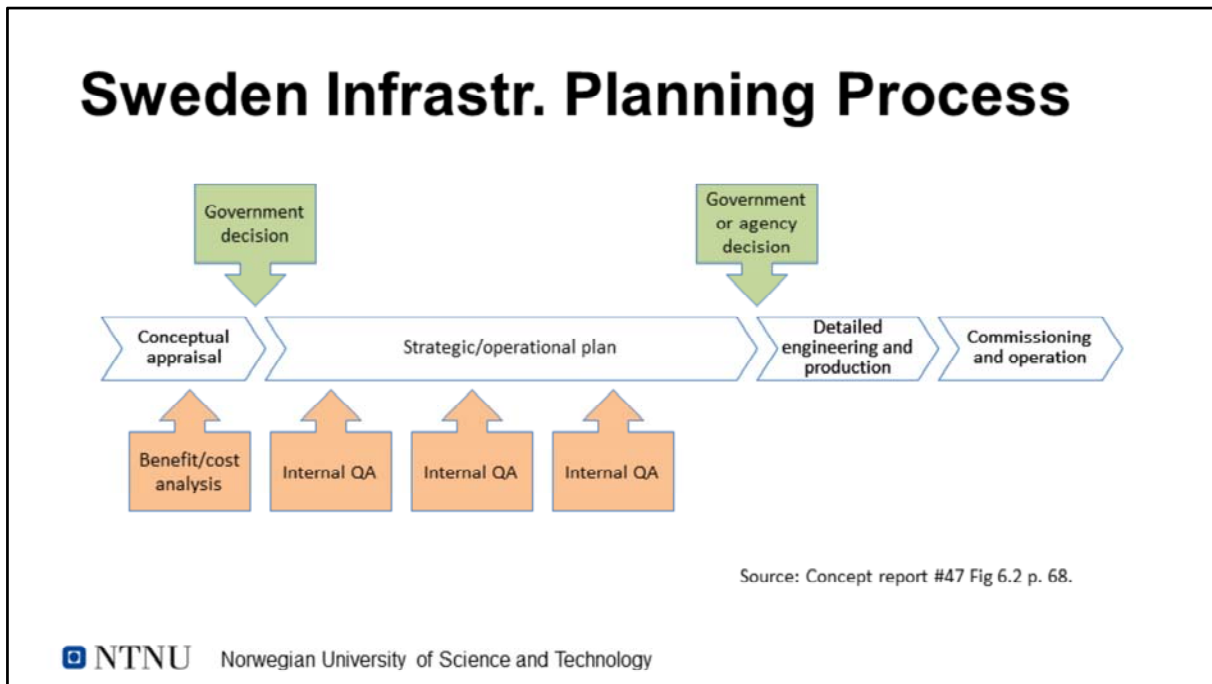
HM Treasury (2013): Public Sector Business Cases. Using the Five Case Model. Green Book Supplementary Guidance on Developing Public Value from Spending Proposals, available on the HM Treasury website and dated 2013

Cabinet Office (2011a): Starting Gate: MPA Guidance for Departments. Version 1.0 – September 2011

Cabinet Office (2011b): Integrated Assurance & Approval Strategy and Integrated Assurance and Approval Plans. A guide to implementing IAA. Version 1.0 – May 2011

Cabinet Office (2011c): Project Assessment Review. MPA Guidance for Departments. Version 1.0 – March 2012





Original sources:

Transport Analysis (2012). Quality Assurance and Cost Control in the Nordic Countries. (In Swedish only. Swedish title: Kvalitetssäkring och kostnadskontroll i de nordiske länderna). Report 2012:6

Transport Analysis (2013), Quality Assessment of the Swedish Transport Administration's Proposal for a National Transport System Plan 2014-2025 (In Swedish only). Swedish title: Kvalitetsgranskning av Trafikverkets förslag till nationell plan för transportsystemet 2014-2025). Report 2013:11. Transport Analysis, Stockholm

Transport Analysis (2015). On Transport Analysis (In Swedish only). Swedish title: Om Trafikanalys. <http://www.trafa.se/sv/Om-Trafikanalys/>

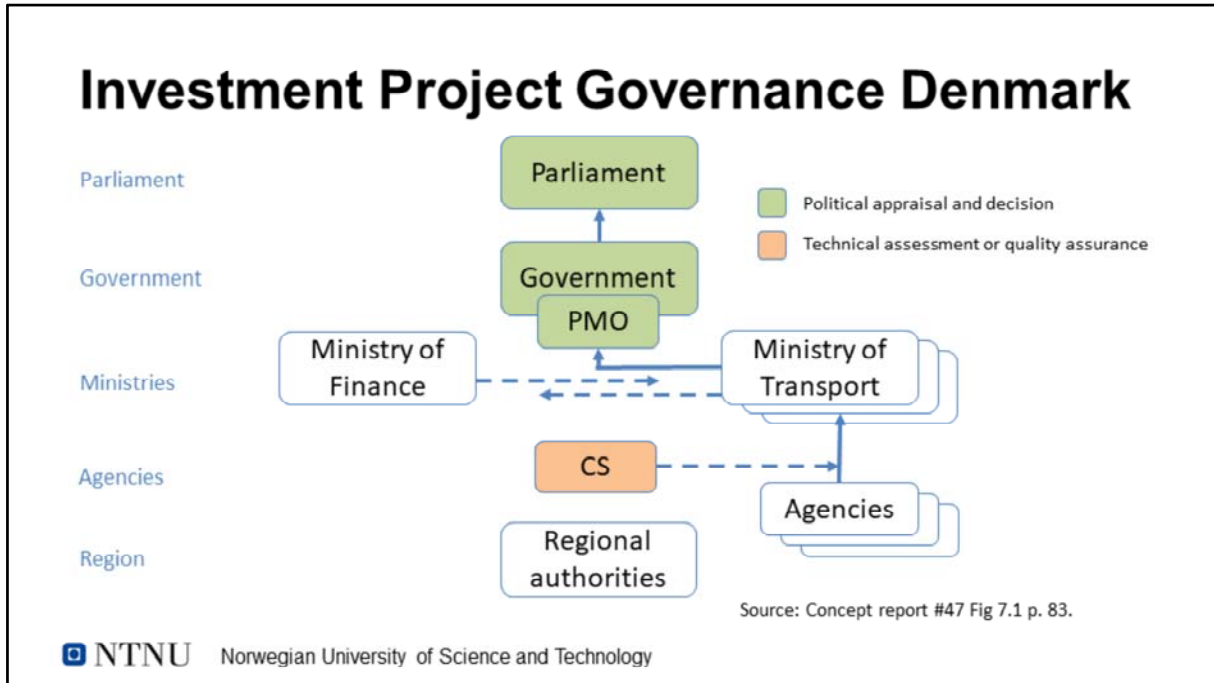
Sweden: Internal QA matters

Key differences from Norway:

- All transport modes under one administration
- Use of debt for critical projects is accepted
- Agencies can prioritize within their budgets (each project is not explicitly decided in Parliament)
- No external QA at all (although similar checks are made internally, including more and more often uncertainty analysis based on Successive approach)

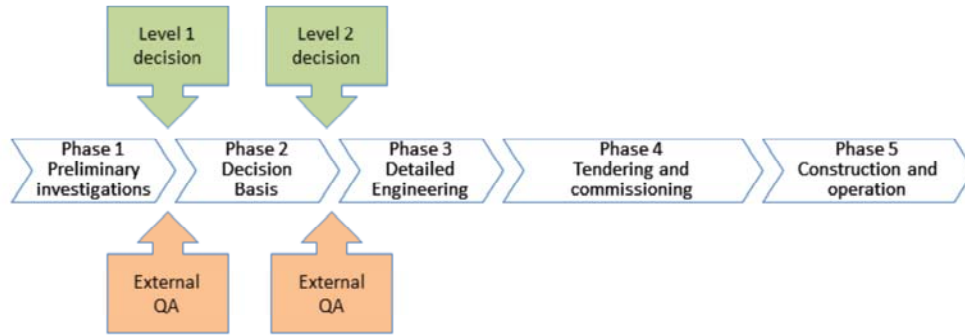
The early intervention by Trafikverket (Swedish Transport Administration) is similar to the Norwegian QA1. However, it is an internal one – the QA unit SIKa is integrated into Trafikverket.

Beyond this, there is only internal QA (which can be performed by consultants – but still is an internal responsibility).

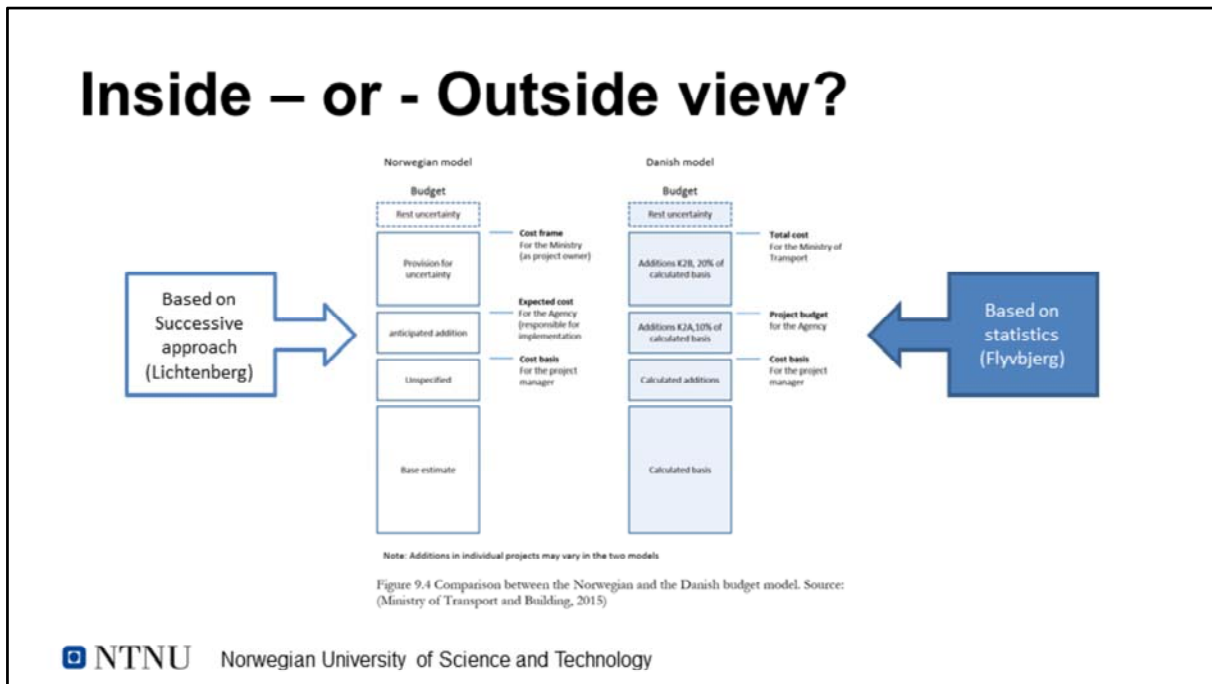


CS = Experience Based Correction Elements

Denmark Financial Management Model



Source: Concept report #47 Fig 7.2 p. 85.



In Denmark, there has been a long and tough discussion of whether to follow Lichtenberg or Flyvbjerg.

The perspectives are not in conflict – they supplement each other.

The two books I advise to read in order to understand these two positions:

Lichtenberg, Steen (2000) Proactive Management of Uncertainty using the Successive Principle. A practical way to manage opportunities and risks. Polytechnic Press. Copenhagen

Flyvbjerg, Bent; Bruzelius, Nils and Rothengatter, Werner (2003) Megaprojects and Risk. An anatomy of Ambition. Cambridge University Press.

Flyvbjerg also points back to the work of Kahneman and Tversky in Behavioral Economics. See: Kahneman, Daniel (2012) **Thinking, fast and slow**. Penguin books

Taking the outside view to the max, would suggest using **Reference Class Forecasting**, as described in Bent Flyvbjerg's testimony for the Commission of Inquiry Respecting the Muskrat Falls Project (CIMFP Exhibit P-00004).

A main source to knowledge about Reference Class Forecasting is Flyvbjerg, Bent (2008) Curbing Optimism Bias and Strategic Misrepresentation in Planning: Reference Class Forecasting in Practice. *European Planning Studies*, vol. 16, no. 1, January, pp 3-21.

A critical perspective on Reference Class Forecasting is presented in Ahiaga-Dagbui, Dominic D. (2019) Reference Class Forecasting: A clear and present danger to cost-effective capital investment on major infrastructure projects. Invited written evidence submitted to The Government's Management of Major Projects Inquiry, Public Administration and Constitutional Affairs Committee (UK House of Commons), MMP 25, <https://bit.ly/2HmbScG> (Published 14th May 2019).

Inside AND Outside view

Inside view: Look at your own project and consider its specificities

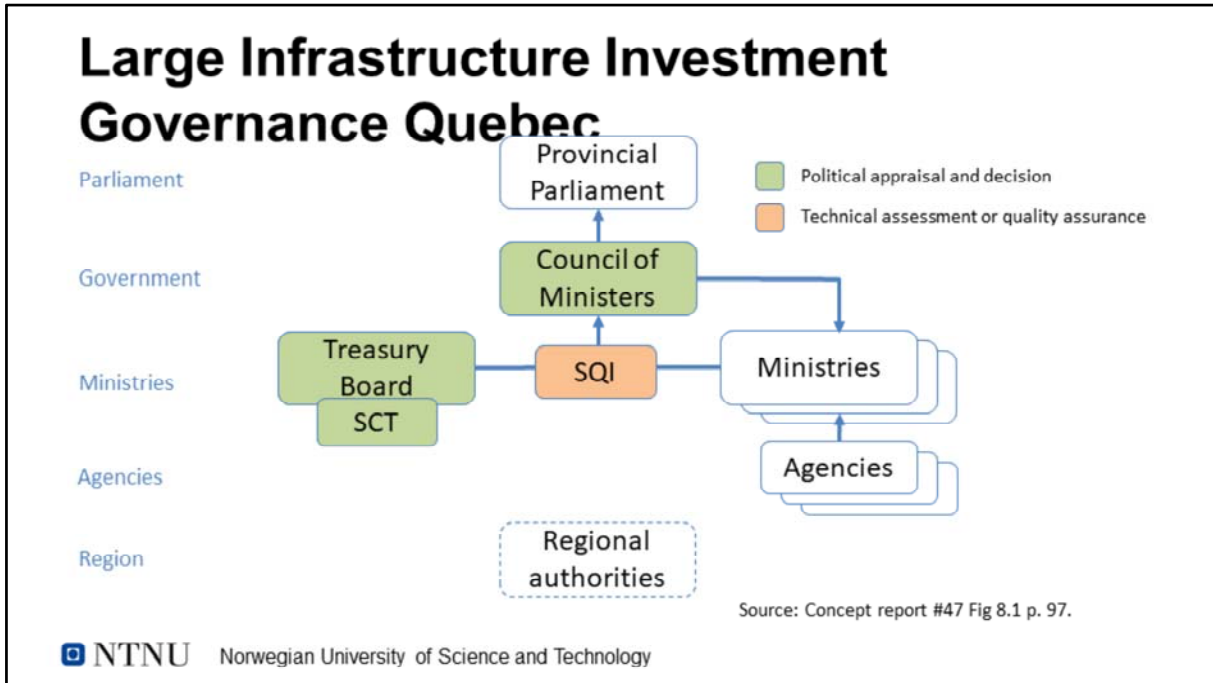
 Outside view: Look at your other projects and consider general issues

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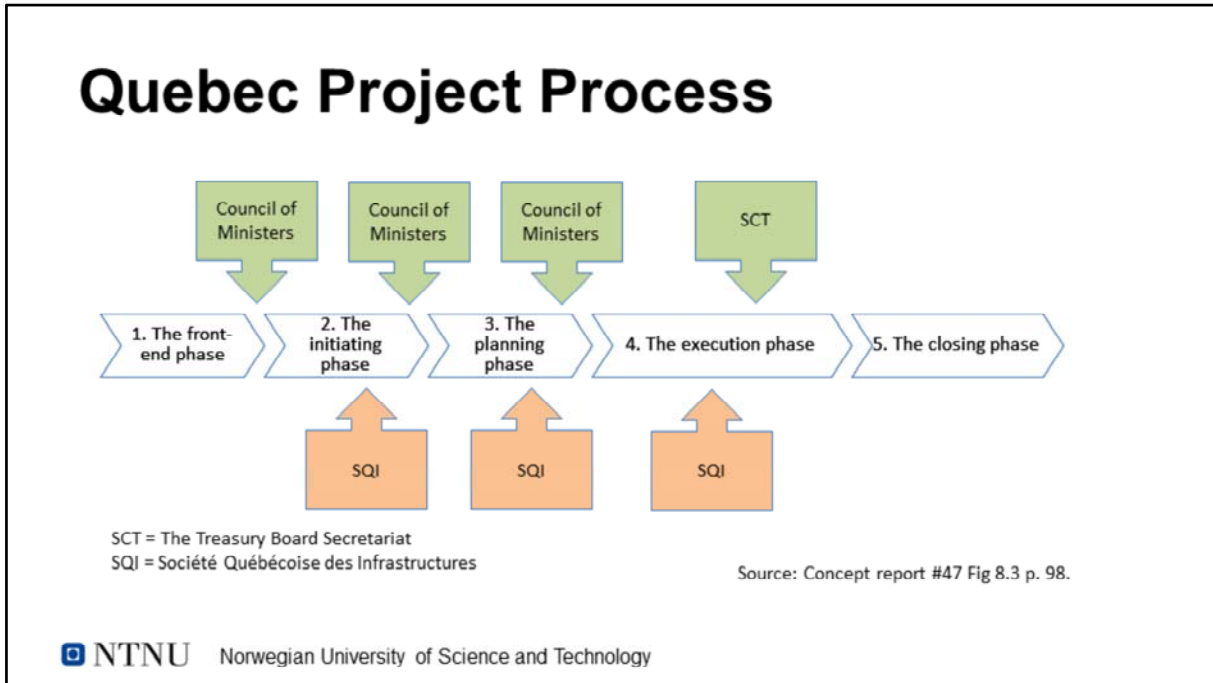
Remember: Consider reference projects' relevance as an object of comparison. Is it completely different in terms of type, size, complexity, risk, and other characteristics – then maybe a comparison is of no use.

And you do not have to compare the whole project. Maybe the relevant comparison is between single elements like bridges, tunnels, function areas (in a building) etc. This depends on – what data is available for comparison, and what the purpose of the comparison is.

See scientific arguments for combining inside- and outside view in Klakegg et al. (2016) "Taming the Trolls" paper.



The Treasury Board Secretariat (SCT)
 Société Québécoise des Infrastructures (SQI)



The Treasury Board Secretariat (SCT)
Société Québécoise des Infrastructures (SQI)

Quebec: From policy framework to directive

Similar to Norway:

- Simple structure
- SCT – central unit for learning
- Strong position as obligatory gateways

Similar to UK:

- Business case focus
- Internal expertise in central unit (Infrastructure Quebec → Société Québécoise des Infrastructures - SQI)

Quebec early focused Project Delivery Models – lately introduced in Norway too.

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Source: Concept report #47 p. 94-101.
Source: Framework Policy, Quebec, 2010.

Quebec early adopted experiences from Norway in designing their QA scheme. They also took experiences from UK and constructed a framework that may be seen as «the best of two worlds». Then they even added important issues of their own.

Started as a policy framework, later it is transformed to a Directive - obligatory.

Development seem to have taken it gradually closer to the UK framework.

Among other indications - reviews used to be external consultants – now by public sector experts.

It started out quite simple, and later developed into a more extensive system and more gateways.

Source: Framework Policy for the Governance of Major Public Infrastructure Projects.

(2010) Secrétariat du Conseil du Trésor, Quebec

ISBN 978-2-550-58484-1 (print), ISBN 978-2-550-58485-8 (on-line),

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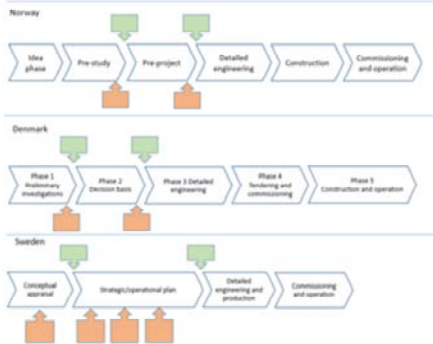
Context dependencies and development

- How governance frameworks evolve
- Trends and their consequences

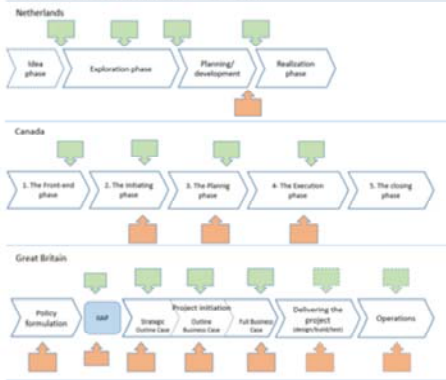
They are different ... but how and why?

■ Political assessment or decision
 ■ Technical/economic appraisal or quality assurance

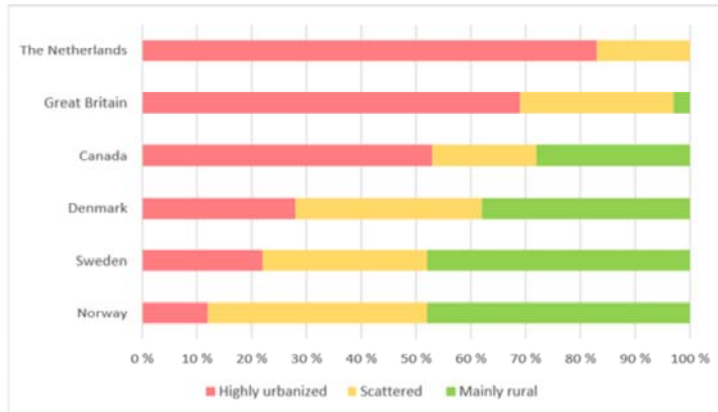
Nordics



International



Countries and regions are different



Geographically
Economically
Judicially
Traditionally
...

Figure 2.1. Degree of urbanisation in the selected countries. Source: OECD⁵

Source: Concept report #47 Fig 2.1 p. 19.

Demography and economy

Source: Concept report #47 Table 2.1 p. 18.

Table 2.1. Demographic, economic and natural conditions in the selected countries

Countries	Gross domestic product per capita	Topography	Climate	Population density, persons per sq.km	Road investment 2011 EUR/capita
Netherlands	47,000 (14)	+	+	407 (4)	136
UK	40,000 (27)	+/-	+	262 (51)	86
Denmark	44,000 (21)	+	+	131 (88)	190
Sweden	46,000 (17)	-/+	-/+	22 (196)	200
Norway	67,000 (6)	-	-	16 (206)	550
Canada	45,000 (20)	-	-	4 (230)	420
Newfoundland	39,000 (2017)	-	-	0,8 (2017)	2294 (2019-20 – all transport modes)

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Information was made available from:

The Economy: Budget 2019 for Newfoundland and Labrador. Working towards a brighter future.

Province of Newfoundland and Labrador: Public Accounts Consolidated Summary Financial Statements. For the year ended March 31. 2018.

However, I found this information less easy to access than I was hoping. So I did go elsewhere.

Relevant information was found at:

https://en.wikipedia.org/wiki/List_of_Canadian_provinces_and_territories_by_gross_domestic_product

Newfoundland and Labrador (2017):

GDP (million CAD): 33,074 (20,837 EUR)

Population: **528,567**

GDP per capita: 62,573 (**39,421 EUR**)

Exchange rate CAD to EUR = 0,63

https://en.wikipedia.org/wiki/Newfoundland_and_Labrador:

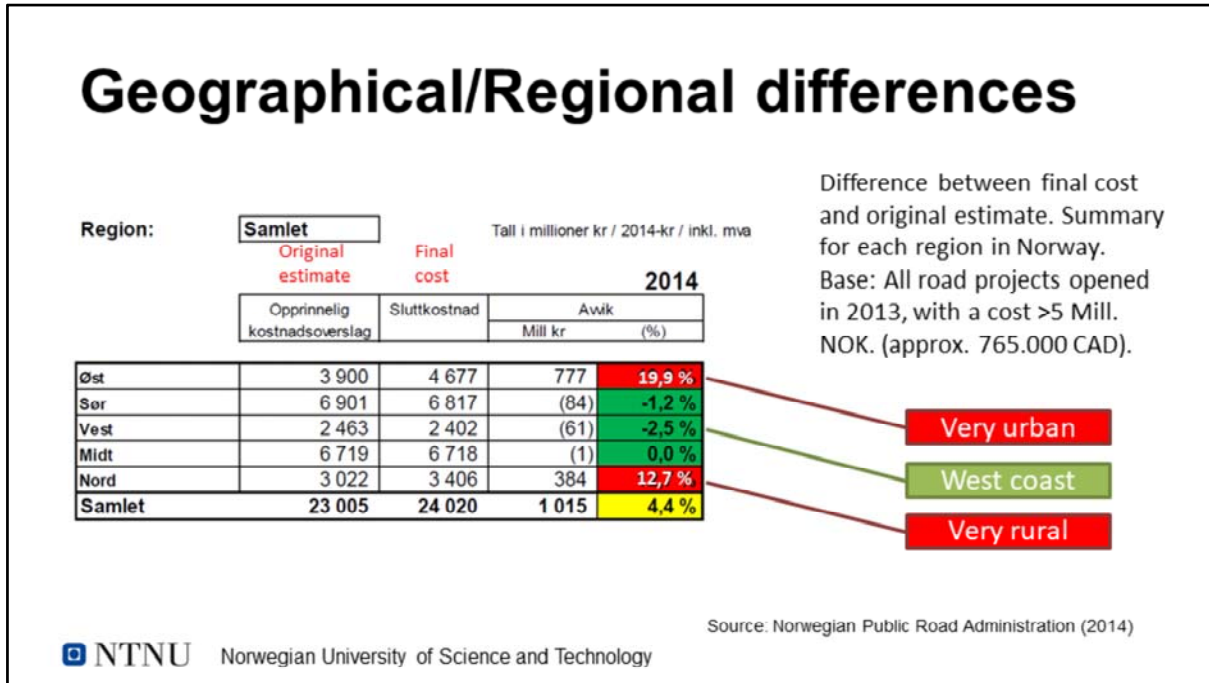
Newfoundland and Labrador combined area: **405,212 square kilometres.**

Newfoundland and Labrador: A Multi-Year Plan for Infrastructure Investments. The way forward.

Road investment: Specific for roads not available, but I expected roads to dominate the transport sector.

I had to go for investments in the whole transport sector: 192,5 million CAD. (**121,275 million EUR**)

$121,275,000,000.- / 528,567 = 2,294$ EUR per capita (extremely high due to small population).



Saxebo, Geir (2014) **Samledokumentasjon** For utbyggingsprosjekter avsluttet 2014. Statens vegvesen rapporter Nr 648. (NPRA Reports, Norwegian Public Roads Administration).

Comparison of principles (2007)

	NO:	U.K. MoD:	U.K. OGC:
Characteristic:	Simplicity, Robustness	Completeness	Complex system
Influence:	Management of expectation	Hurdles to cross	Recommendations
Authority:	Mandatory	Mandatory	By influence
Review focus:	Control of input and methods	Output within program (contribution to capability)	Business case
Project focus:	Cost/Risk/[Value]	Value for money	Value for money

Review format:
Independent,
external control

Review format:
Arena, challenge
everything in plenary

Review format:
Friendly advice, by
independent expert

Source: Klakegg et al. (2009), Table 5-4 p. 113
Source: Klakegg (2010)

Source: The author's doctoral thesis. It includes in-debt comparison of three frameworks: The Norwegian QA regime (later given the name Norwegian State Project Model), The Acquisition framework of the UK MoD (Ministry of Defence) and the original UK OGC Gateway process.

The basis is the same as shown in the PMI-report which includes the same table:

Klakegg, Ole Jonny; Williams, Terry and Magnussen, Ole Morten (2009) *Governance Frameworks for Public Project Development and Estimation*. Project Management Institute. Newton Square, PA, USA. Mai 2009. ISBN13: 9781933890784. Available from PMI (Free for PMI members).

Major design differences (2007)

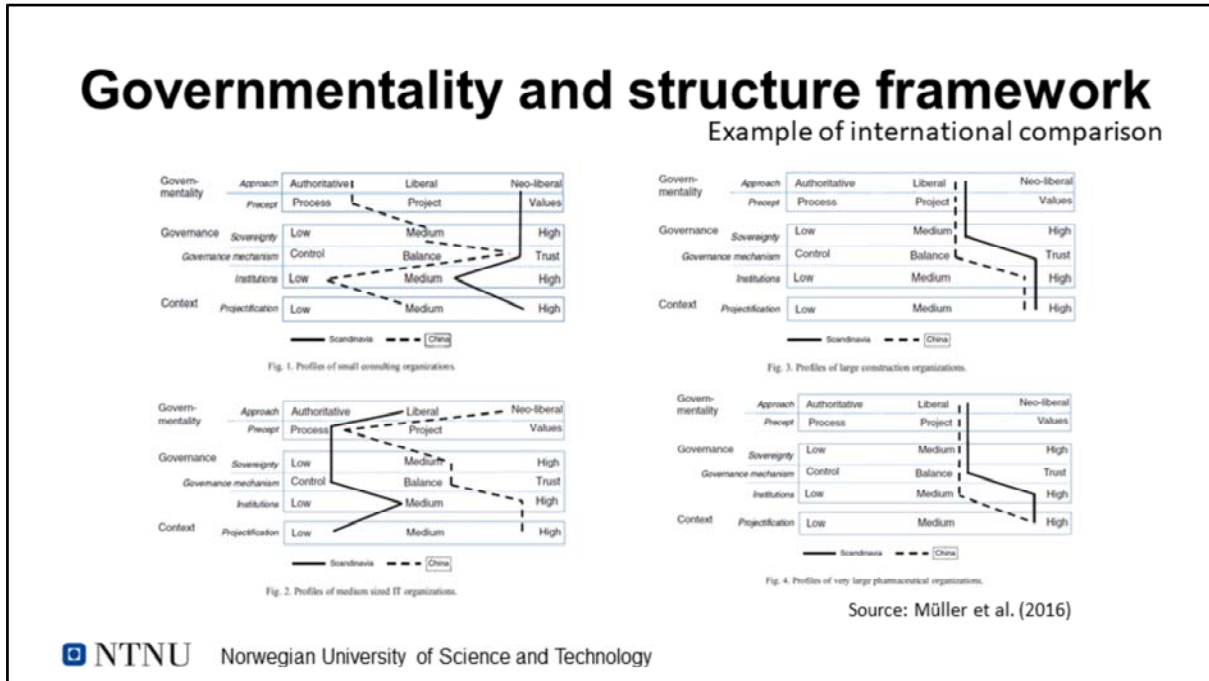
- Initiating process & implementation:
 - Norway: bottom–up, learning from cases, building a ‘new profession’
 - UK: top–down, introducing a ‘quality system’
- Historical anchoring:
 - Norway: breaking with tradition
 - UK: building on tradition
- Goals and measurement:
 - Norway: More politically anchored goals, less measurement.
 - UK: Goals more explicit, measured in money

Carefully
designed
to fit the
actual
situation

Further development:

Things have gradually changed over time. Today, Norway has learned from experience, and implemented elements of early involvement from the UK framework. UK IPA on the other side, has introduced more control in line with the Norwegian framework.

I interpret the development in Quebec to show the same type of development – starting out as a policy of simple control means to secure control of the projects and then gradually come closer to UK as an extensive system. It has been changes more often and faster than the Norwegian and UK schemes. It is unclear to me what these changes imply (as is also indicated in Concept-report no 47 p 101).



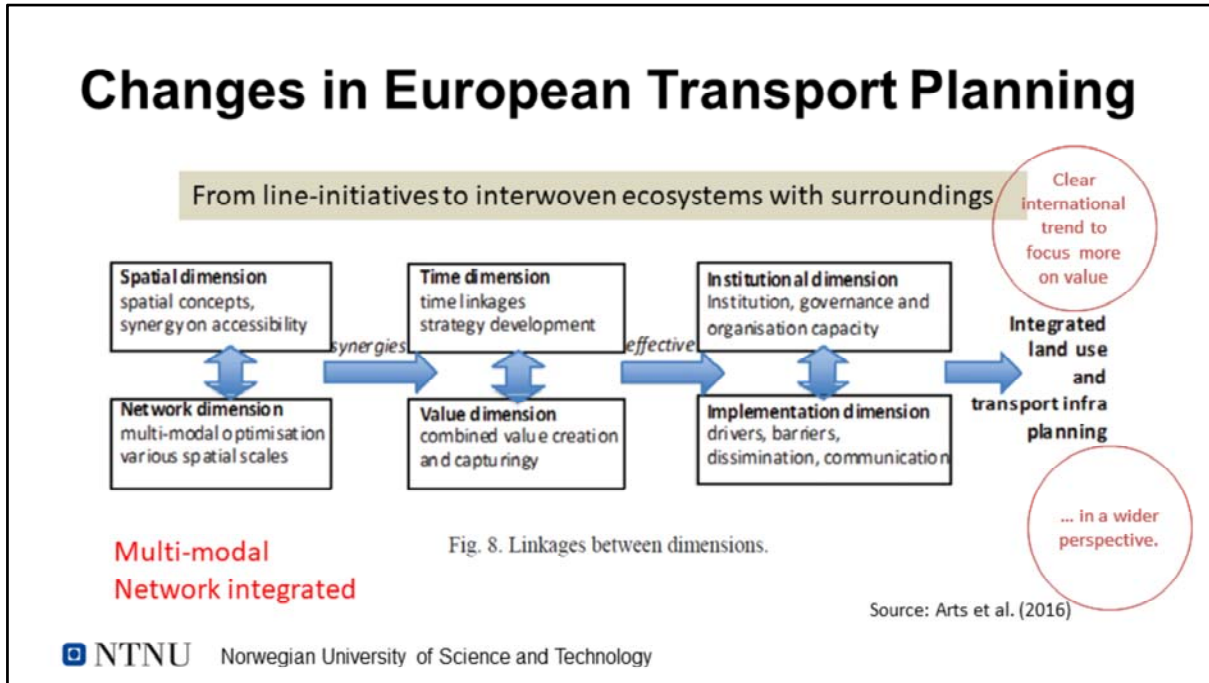
People matters!

Müller, Ralf; Zhai, Li; Wang, Anyu and Shao, Jingting (2016) A framework for governance of projects: Governmentality, governance structure and projectification. *International Journal of Project Management*. 34 (2016) 957–969

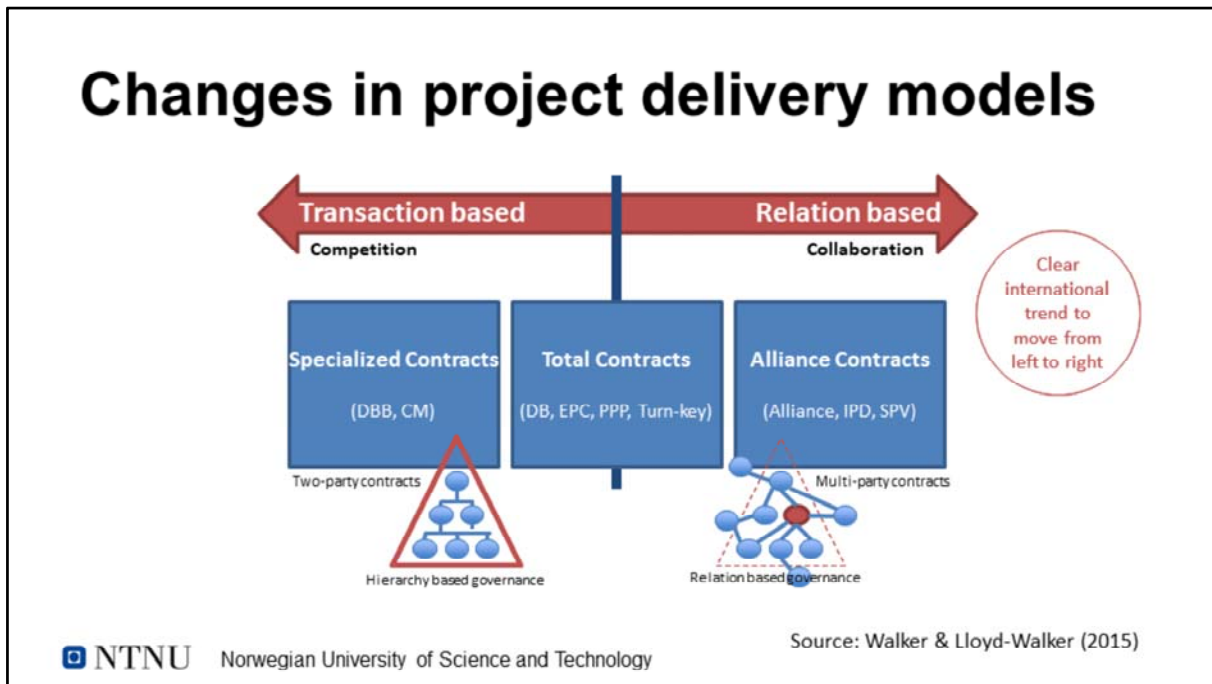
Governmentality, which is, the way governors present themselves to those they govern, sets the tone for the interaction between governing and governed individuals (Barthes, 2013; Lemke, 2007). Through that, it shows the attitude governors have toward the people they govern. Governmentality represents the human side of an otherwise more structure oriented governance, just as leadership does in the realm of management. For example, while governance provides a particular project management methodology in an organization, it is governmentality that regulates how the use of this methodology is enforced. Together the two complementary concepts of governance and governmentality shape, but do not determine the actions of individuals in projects (Clegg et al., 2002).

For those interested in details: Notice the difference between Scandinavia and China when comparing small consulting organizations vs. medium sized IT organizations. No matter what formal governance structure is implemented - understanding how people respond to

it is vital. There is still need for more research in this field.



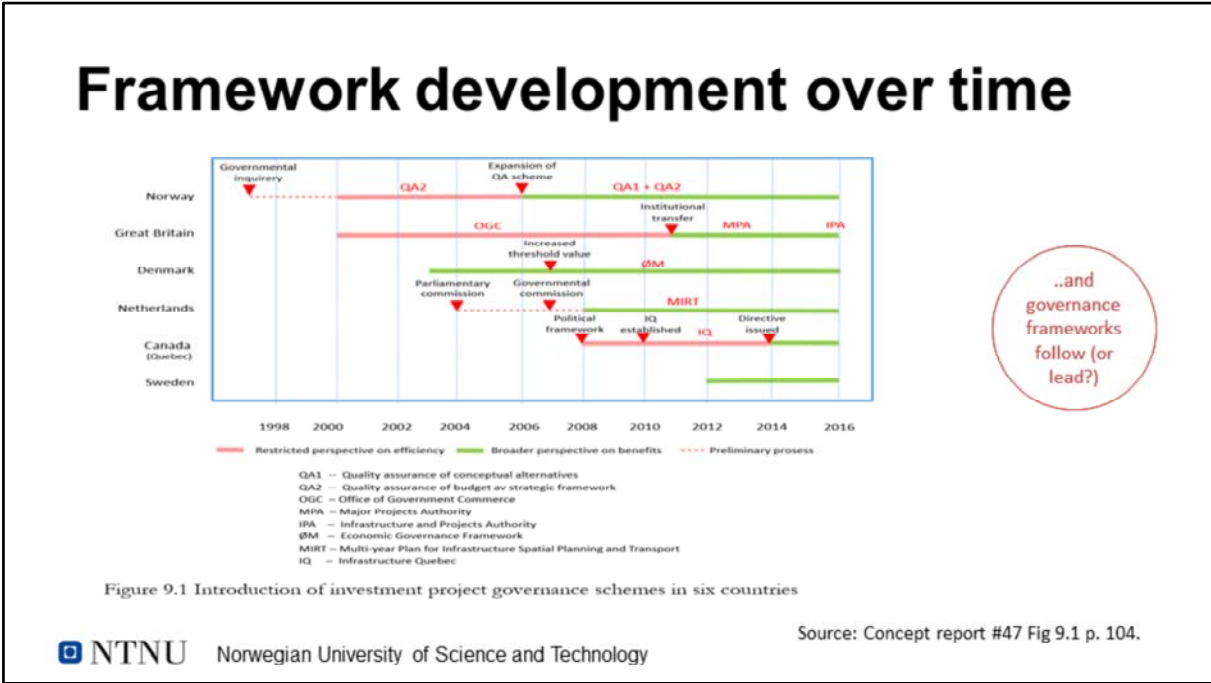
Arts, Jos; Hanekamp, Tertius; Linssen, Raymond and Snippe, Jasper (2016) Benchmarking Integrated Infrastructure Planning Across Europe – Moving Forward to Vital Infrastructure Networks and Urban Regions. *Transportation Research Procedia*. Volume 14, 2016, Pages 303-312. <https://doi.org/10.1016/j.trpro.2016.05.024>



Source: Walker, Derek and Lloyd-Walker, Beverly (2015) **Collaborative Project Procurement Arrangements**. Project Management Institute. Newton Square, PA, USA.

A new book on Integrated project delivery by Walker and associates are coming soon (autumn 2019), but in the meantime this is also a good reference for relation based (integrated) project delivery:

Fischer, Martin; Ashcraft, Howard, Reed, Dean and Khanzode, Atul (2017) **Integrating Project Delivery**. John Wiley & sons. Hoboken, New Jersey.



The growing awareness of wider perspectives, more focus on benefits and value creation, is evident in the development of governance frameworks in these six countries. I would claim the framework for State financed investment projects have been leading on in this development, at least in Norway.

4

Conclusions

- My suggestions for Newfoundland and Labrador

Comparison 1

Table 9.1 A comparison of the schemes in six countries

Advice 1: Anchoring of framework as high as possible

Criteria/Country	Norway	Denmark	Sweden	Netherlands	UK	Canada
Who initiates the QA process?	Minist	Advice 2: Build on existing democratic traditions and governance	Agency	A designated government agency	A designated agency under the Cabinet Office	A designated government agency (SQI)
Who decides the choice of concept?	Government	Parliament	Advice 2B: Challenge the existing Agency of Government	A designated government agency	Treasury	Council of Ministers
Who determines the budget?	Parliame	Advice 3: Make sure it is completely transparent and produces good basis for decision making	Agency or Government	Government	Treasury ⁸¹	Government

Comparison 2

Table 9.1 A comparison of the schemes in six countries

Advice 4:
Standardize – at least on structure and principles

Criteria/Country	Norway	Denmark	Sweden	Netherlands	UK	Canada
Sectors included ⁹⁾	All, with some exceptions ¹¹⁾	Transport sector	All sectors ¹⁰⁾	Infrastructure projects	All sectors ³⁾	Infrastructure projects
Threshold value (million)	NOK 750	DKK 250	No	No	Large projects ⁴⁾	CAD 50

Advice 5: Project assessments are resource demanding – so make sure there is balance between effort and benefit

Advice 5B: Complexity and Criticality are better criteria than size

Comparison 3

Table 9.1 A comparison of the schemes in six countries

Criteria/Country	Norway	Denmark	Sweden	Netherlands	UK	Canada
Who appraises the project?	Agency	Agency	Agency and regional authority	Responsible government agency	Agency or ministry	A designated government agency (SQI)
Who provides quality assurance?	External consultants	External consultants	A designated government agency, and internally	A designated government agency	Independent quality assurers ⁵⁾	A designated gov. agency (SQI and SCT)
Private co-funding	No	Do what is necessary to avoid false incentives	No, but may happen	For all in excess of EUR 60 billion	Desired, but no requirement ⁷⁾	To be considered, not required

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Source: Concept report #47 Table 9.1 p. 107.

On advice 8: Samset, Knut; Volden, Gro Holst; Welde, Morten and Bull-Berg, Heidi (2014) Mot sin hensikt. Perverse insentiver – om offentlige investeringsprosjekter som ikke forplikter. English title: [Perverse incentives and counterproductive investments. Public funding without liabilities for the recipients](https://www.ntnu.edu/web/concept/concept-report-series). Concept report no 40. Available at <https://www.ntnu.edu/web/concept/concept-report-series>

Comparison 4

Table 9.1 A comparison of the schemes in six countries


Criteria/Country	Norway	Denmark	Sweden	Netherlands	UK	Canada
Budgeted cost	P85 (normally)	Basic calculation + 20% ²⁾	In the portfolio		Estimate plus supplement	Estimate plus supplements ¹⁾
Target cost	P50 (normally)	Basic calculation + 10%	Budget		Estimate plus supplement	Budget

Advice 9: The economic targets should be realistic, and demanding

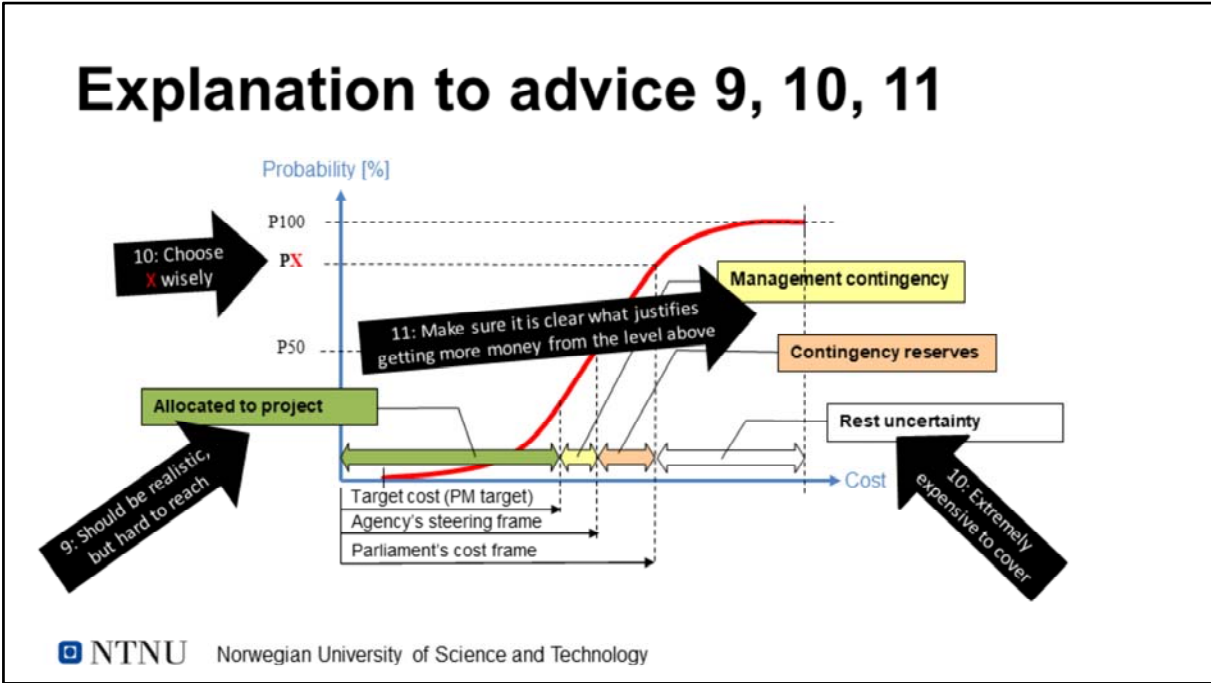
Advice 10: Consider carefully the level of required security against overspending

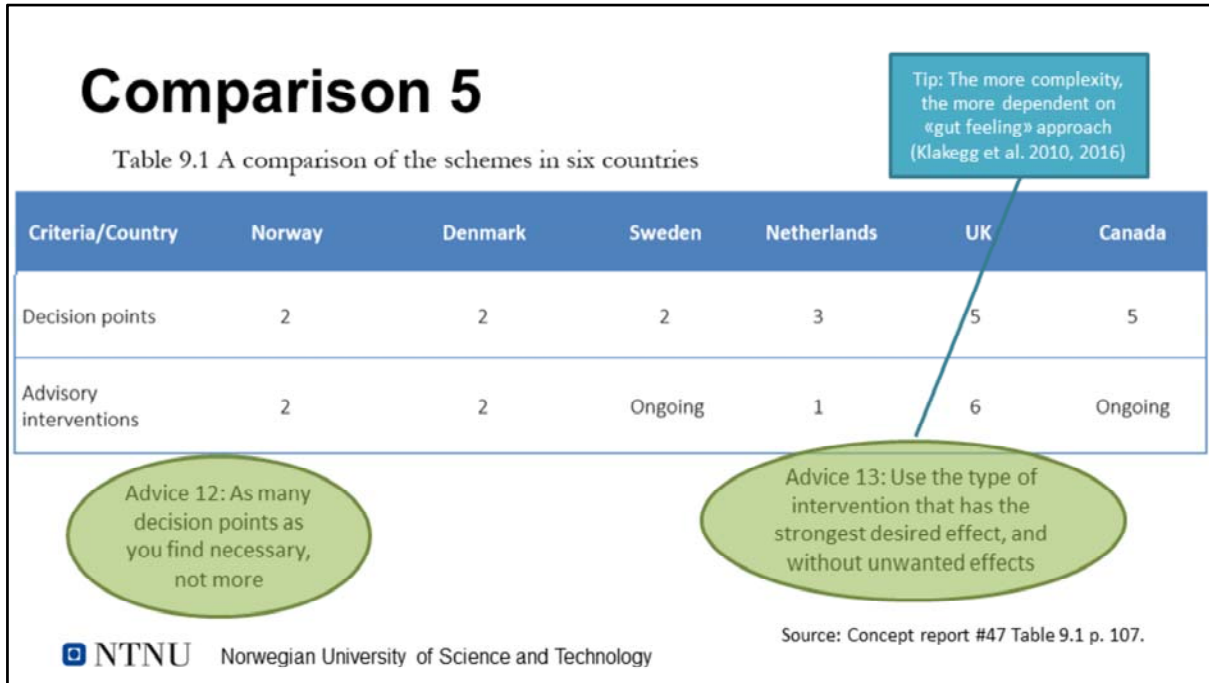
Advice 11: Be very strict on requiring pre-defined criteria for allocation of additional funds from contingency – and use it from day 1.

Source: Concept report #47 Table 9.1 p. 107.

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On advice 8: Samset, Knut; Volden, Gro Holst; Welde, Morten and Bull-Berg, Heidi (2014) Mot sin hensikt. Perverse insentiver – om offentlige investeringsprosjekter som ikke forplikter. English title: [Perverse incentives and counterproductive investments. Public funding without liabilities for the recipients.](#) Concept report no 40. Available at <https://www.ntnu.edu/web/concept/concept-report-series>





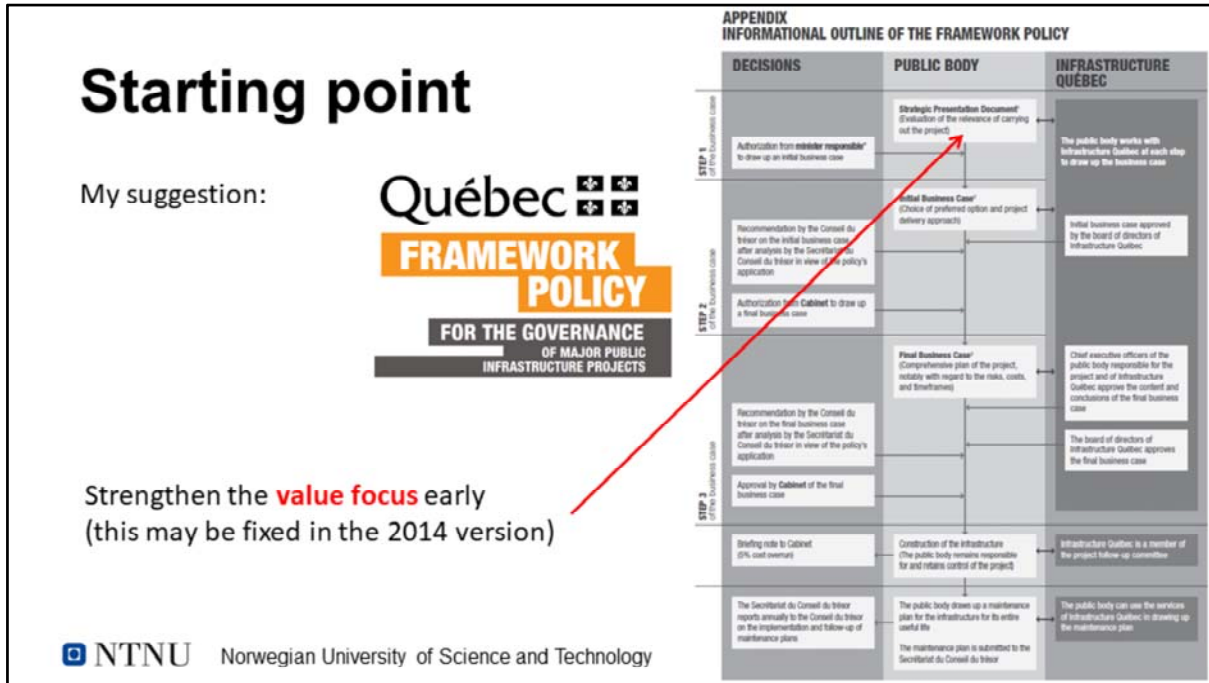
On advice 12: Klakegg, Ole Jonny; Williams, Terry and Magnussen, Ole Morten (2009) *Governance Frameworks for Public Project Development and Estimation*. Project Management Institute. Newton Square, PA, USA. Mai 2009. ISBN13: 9781933890784. Available from PMI (Free for PMI members).

On advice 13: Klakegg, Ole Jonny, Williams, Terry; Walker, Derek; Andersen, Bjørn and Magnussen, Ole Morten (2010) *Early Warning Signs in Complex Projects*. Project Management Institute. Newton Square, PA, USA. October 2010. ISBN: 9781935589181. Available from PMI (Free for PMI members).

Klakegg, Ole Jonny, Williams, Terry and Schiferaw, Asmamaw Tadege (2016) Taming the ‘trolls’: Major public projects in the making. *International Journal of Project Management*. Volume 34, Issue 2, February 2016, Pages 282–296; <http://dx.doi.org/10.1016/j.ijproman.2015.03.008>.

Two important acknowledgements:

- Formal systems have limited ability to identify new issues.
- The only way to see through complexity is intuition/“gut feel”.



The governance framework of Quebec is based on the best qualities of the Norwegian and UK frameworks, and should be familiar in terms of traditions, legal framework etc. within Canada. This would be my choice for a starting point in Newfoundland and Labrador.

FRAMEWORK POLICY FOR THE GOVERNANCE OF MAJOR PUBLIC INFRASTRUCTURE PROJECTS.

This document was prepared by the Sous-secretariat aux marchés publics at the Secrétariat du Conseil du trésor in conjunction with the Direction des communications.

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 ISBN 978-2-550-58485-8 (on-line)
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Consider aspects of the future

- Transparency: Digitally integrated systems will change the review practice (access to information).
- Change is inevitable: Mindset including willingness to change must be stimulated.
- Learning: Do not miss the opportunity to gather and exchange ideas and experience across government, industry and academia.
- Set high professional standards for collaboration.
- All systems need maintenance (wear & tear is a reality).

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QUESTIONS?

 **NTNU** Norwegian University of Science and Technology