NTNU
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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Agenda

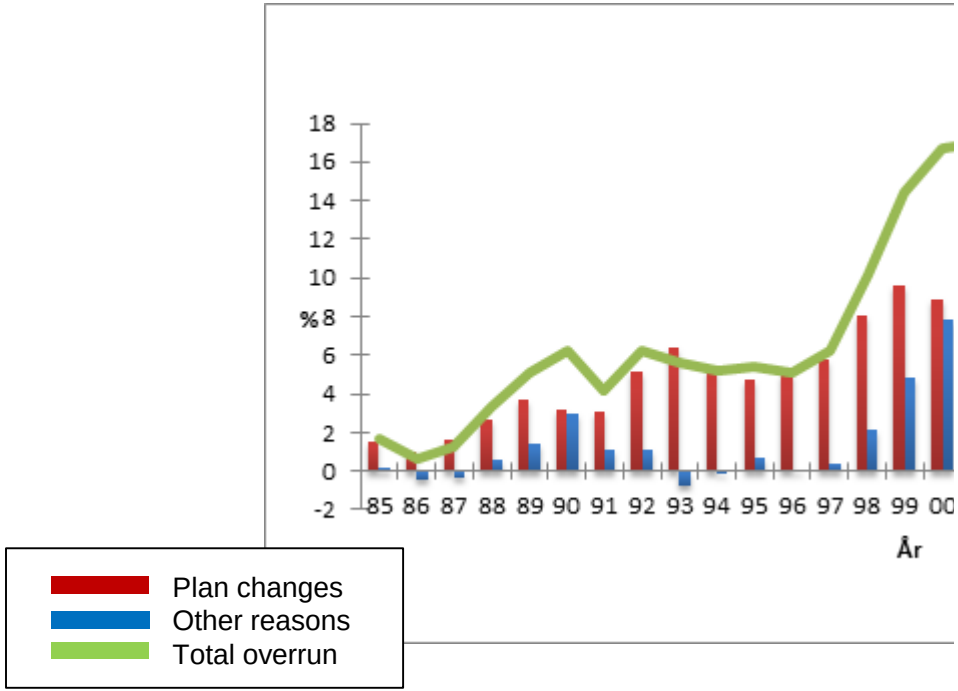
1. The Norwegian State Project Model
   - Structure, elements and preconditions
   - Effects and experiences
   - Latest improvements and direction of development
2. Selected other Governance Schemes
   - Comparisons - similarities and differences
3. Context Dependency and Development
   - How governance 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

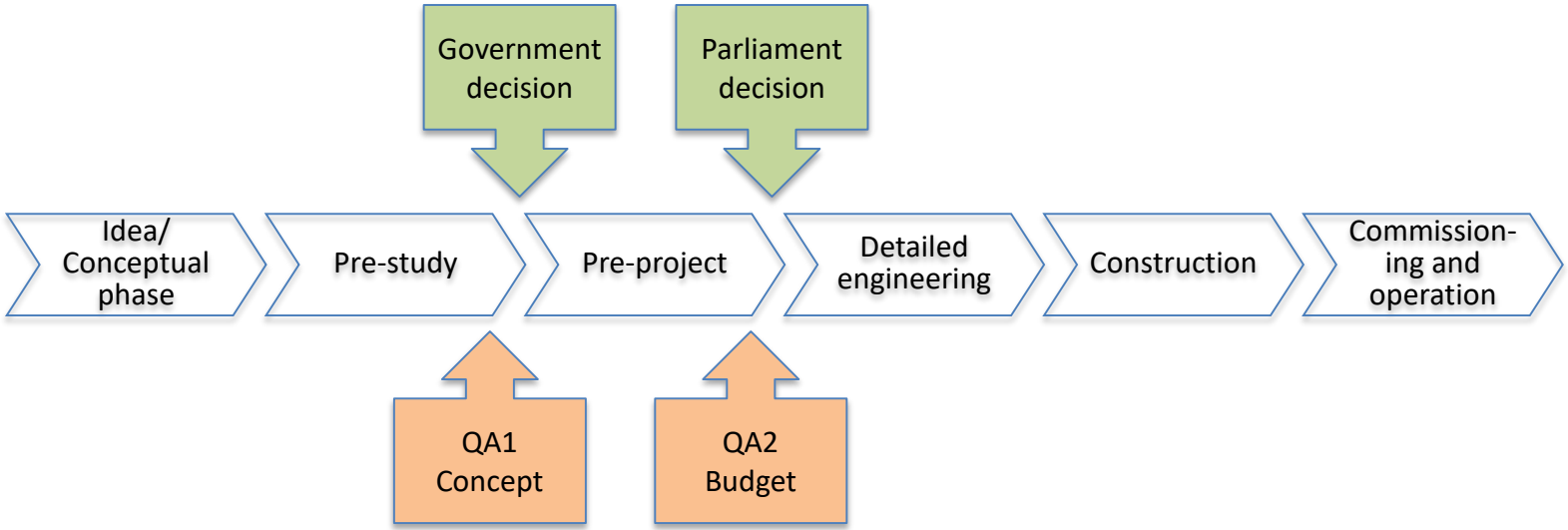
Cost overrun in Norwegian road projects 1985-2000



Why the Norwegian initiative came

Source: Norwegian Public Road Administration

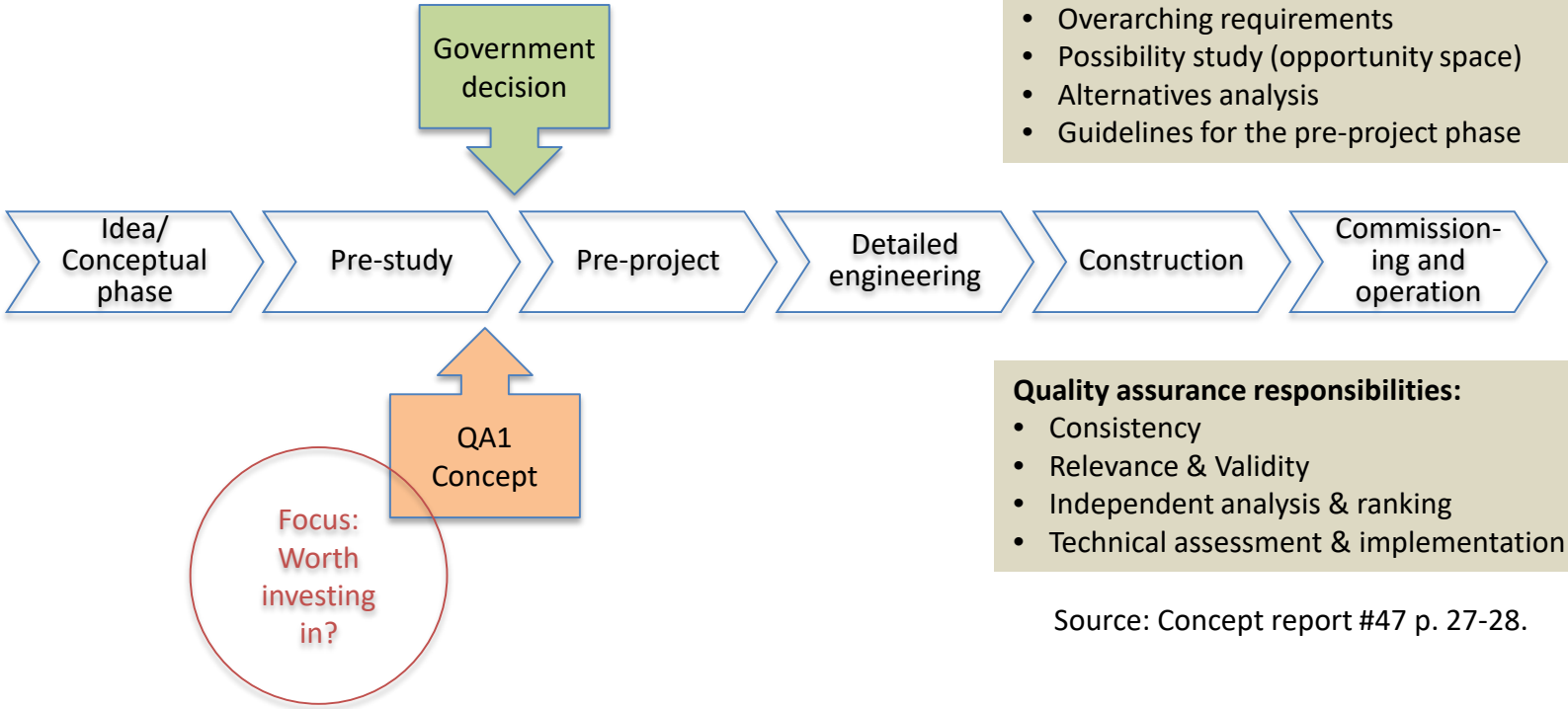
Norwegian State Project Model



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

QA1 Assessment

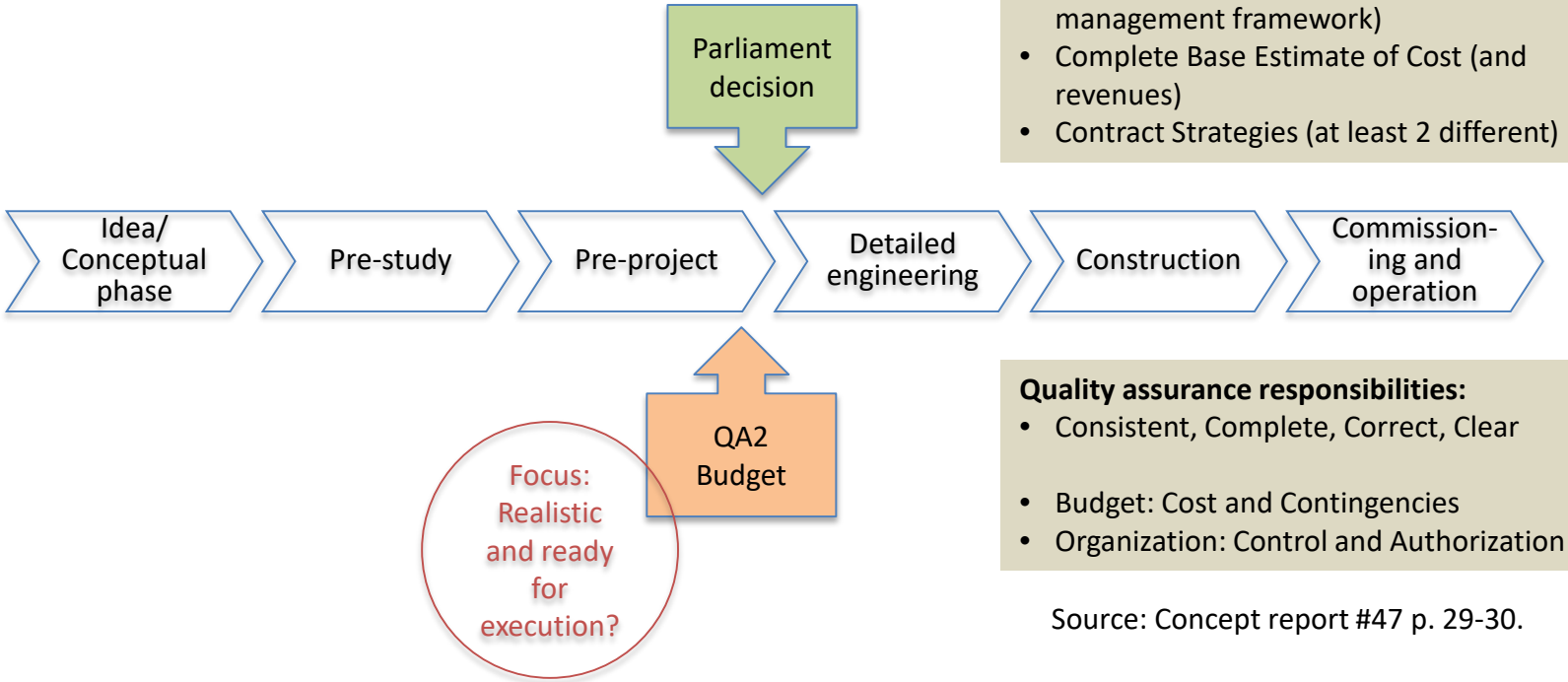
Ministry/Agency's appraisal document:
- Needs analysis (stakeholders)
- Strategy chapter (goals)
- Overarching requirements
- Possibility study (opportunity space)
- Alternatives analysis
- Guidelines for the pre-project phase



Quality assurance responsibilities:
- Consistency
- Relevance & Validity
- Independent analysis & ranking
- Technical assessment & implementation

Source: Concept report #47 p. 27-28.

QA2 Assessment



Ministry/Agency's appraisal document:

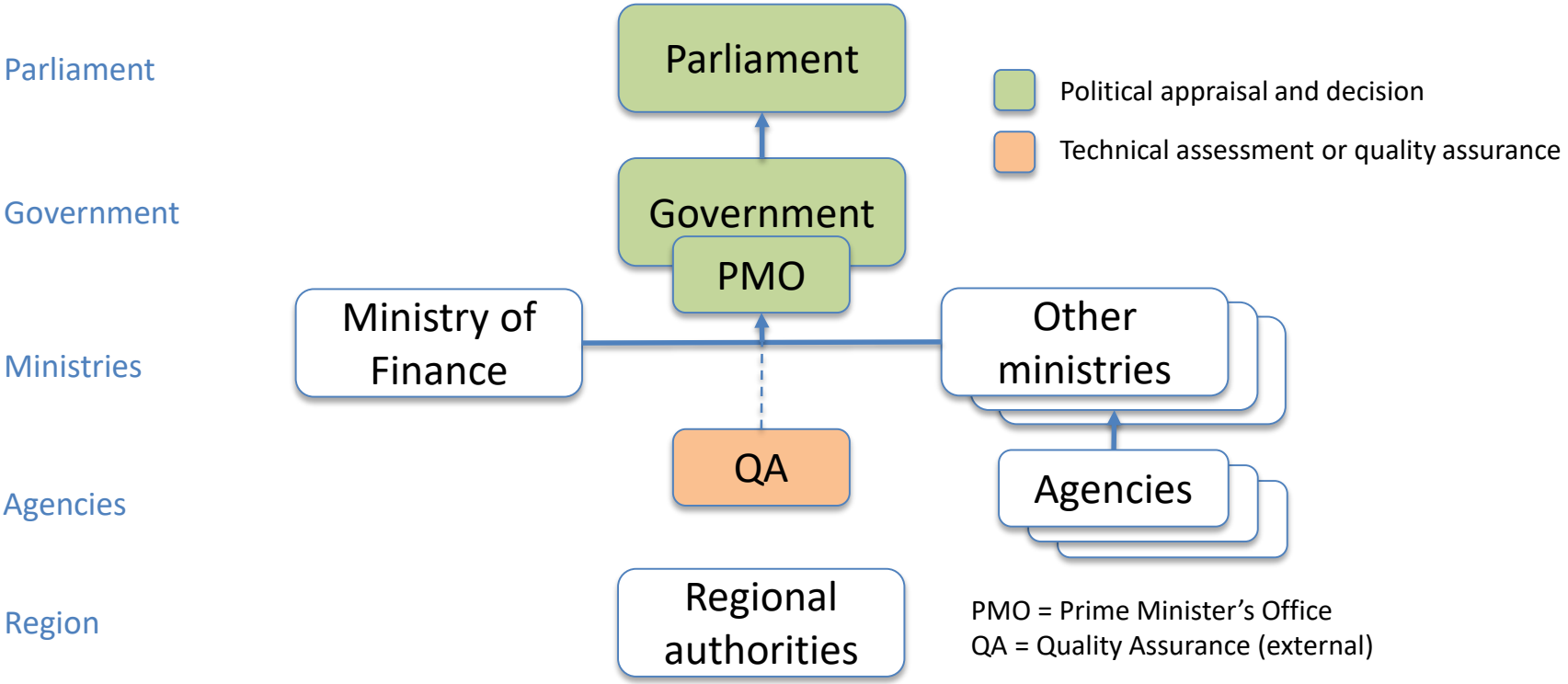
- Overall Strategy Document (Objectives, Scope, Implementation strategy, Project management framework)
- Complete Base Estimate of Cost (and revenues)
- Contract Strategies (at least 2 different)

Quality assurance responsibilities:

- Consistent, Complete, Correct, Clear
- Budget: Cost and Contingencies
- Organization: Control and Authorization

Source: Concept report #47 p. 29-30.

Investment Project Governance Norway



Source: Concept report #47 Fig 3.1 p. 23.

Purpose of the QA scheme

First appeared approximately

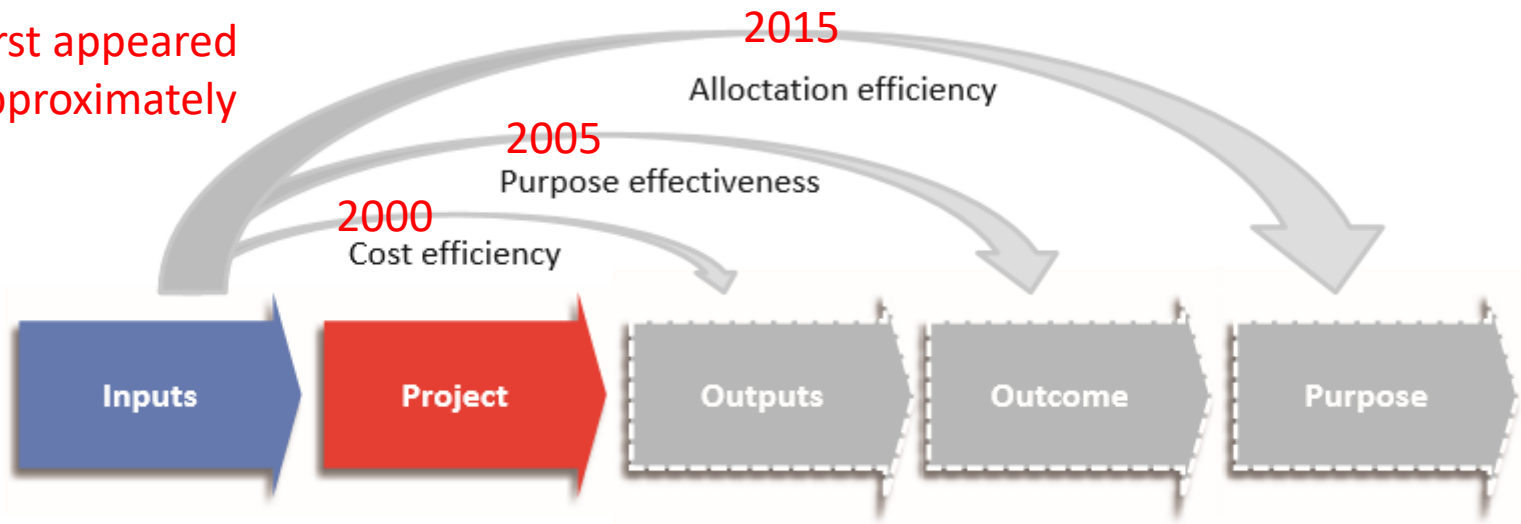


Figure 1. Three levels of efficiency. A successful project should realize agreed objectives, but it is also required that this is done efficiently, on time and with minimum cost.

Source: Concept report #36 Fig. 1 p. 18.

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)

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 throught both QA1 and QA2.	22	0	0	0

*5 years into operations.

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

Experiences QA1

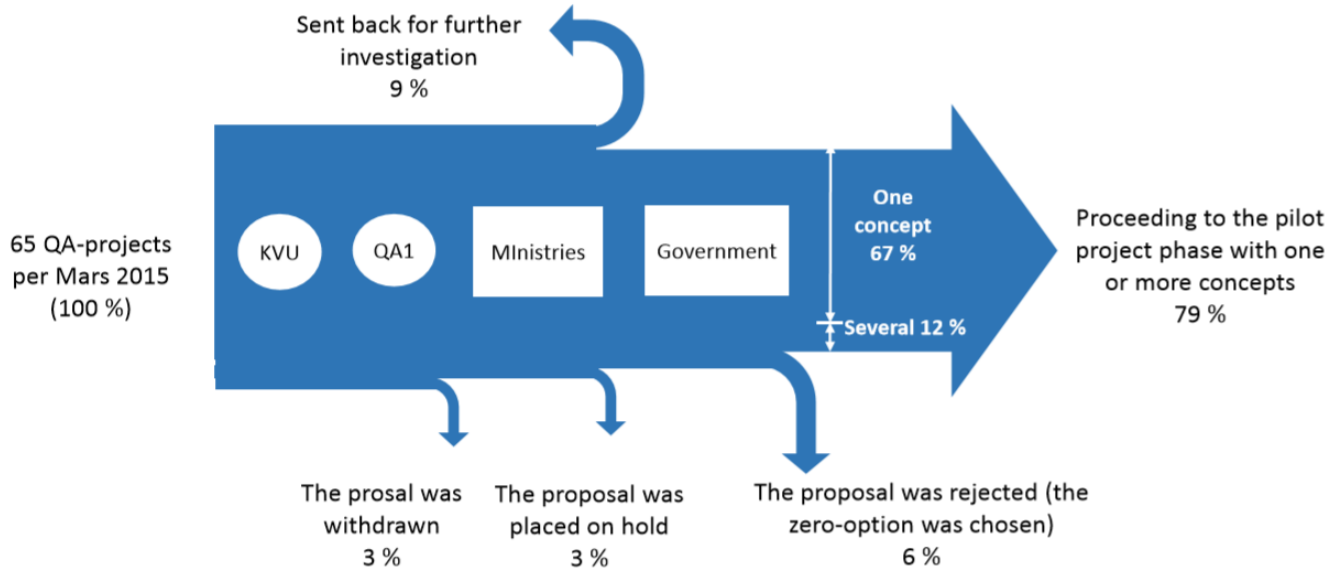
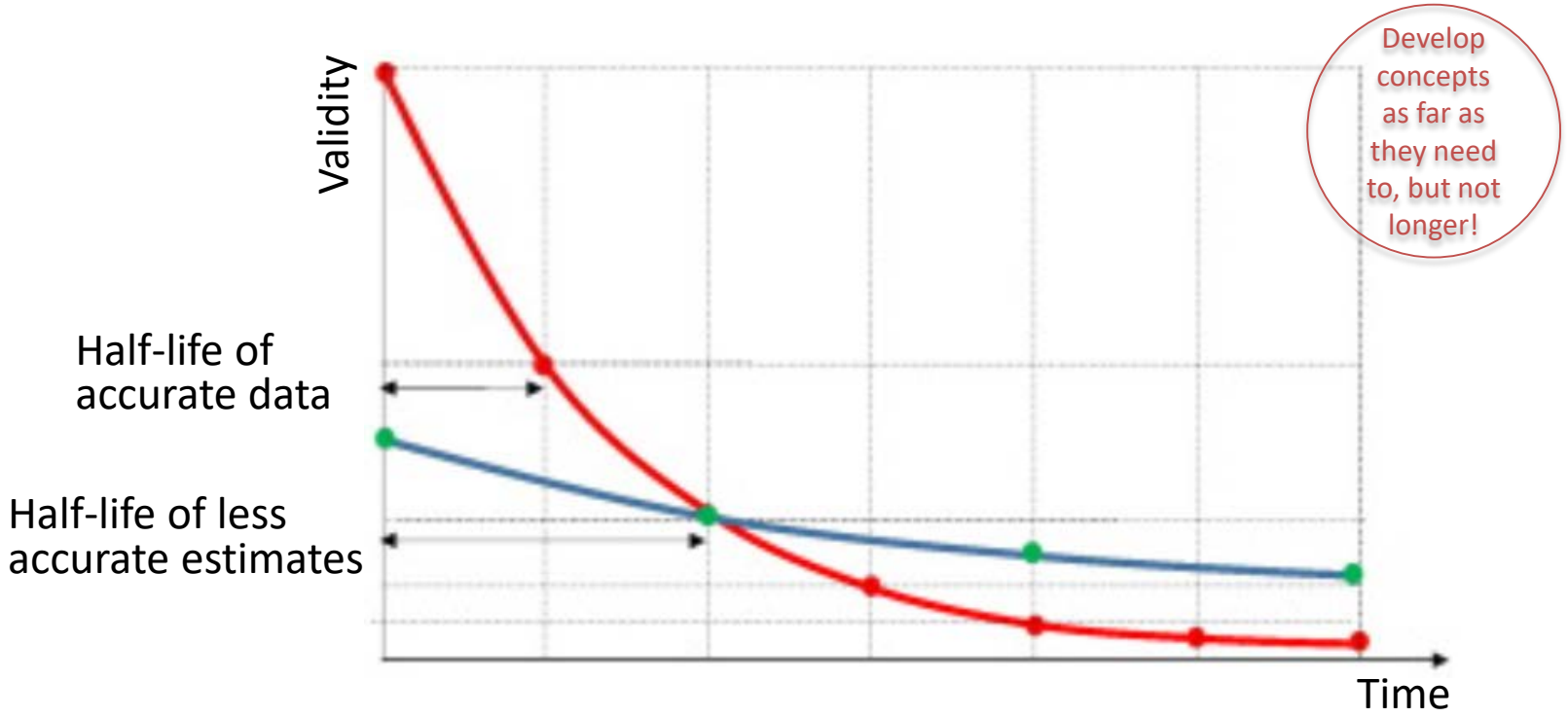


Figure 3.4 Overview of what has happened to the first 65 projects subjected to QA1

Source: Concept report #47 Figure 3.4 p. 33.

Avoid information overload/details



Source: Samset (2010)
Source: Samset and Volden (2016)

Experiences QA2

Criteria:
- Cost
- Time
- Quality
- Organization
- Execution

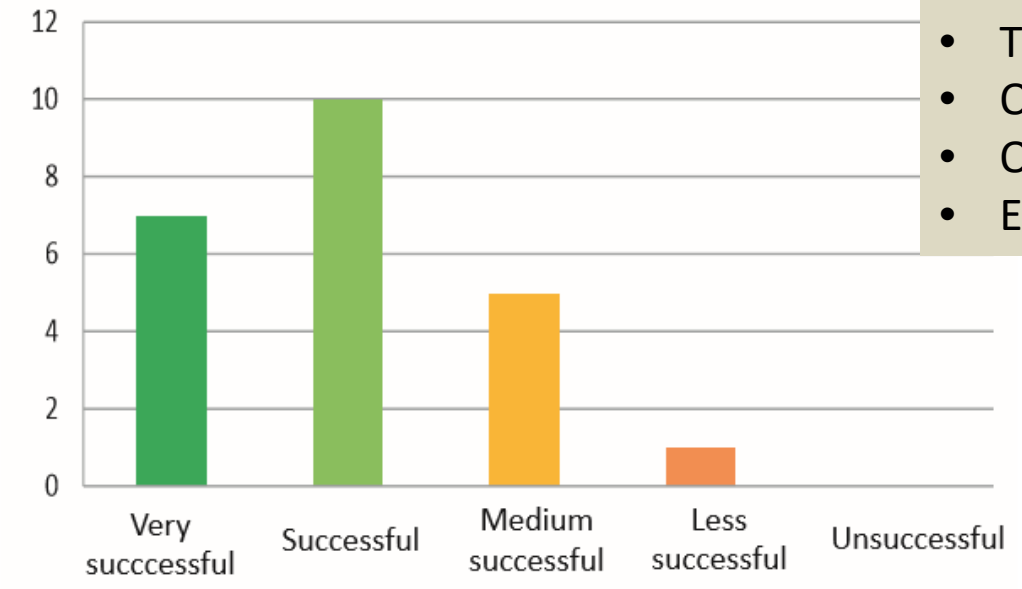


Figure 16. Operational success, the researchers' assessment. N=23.

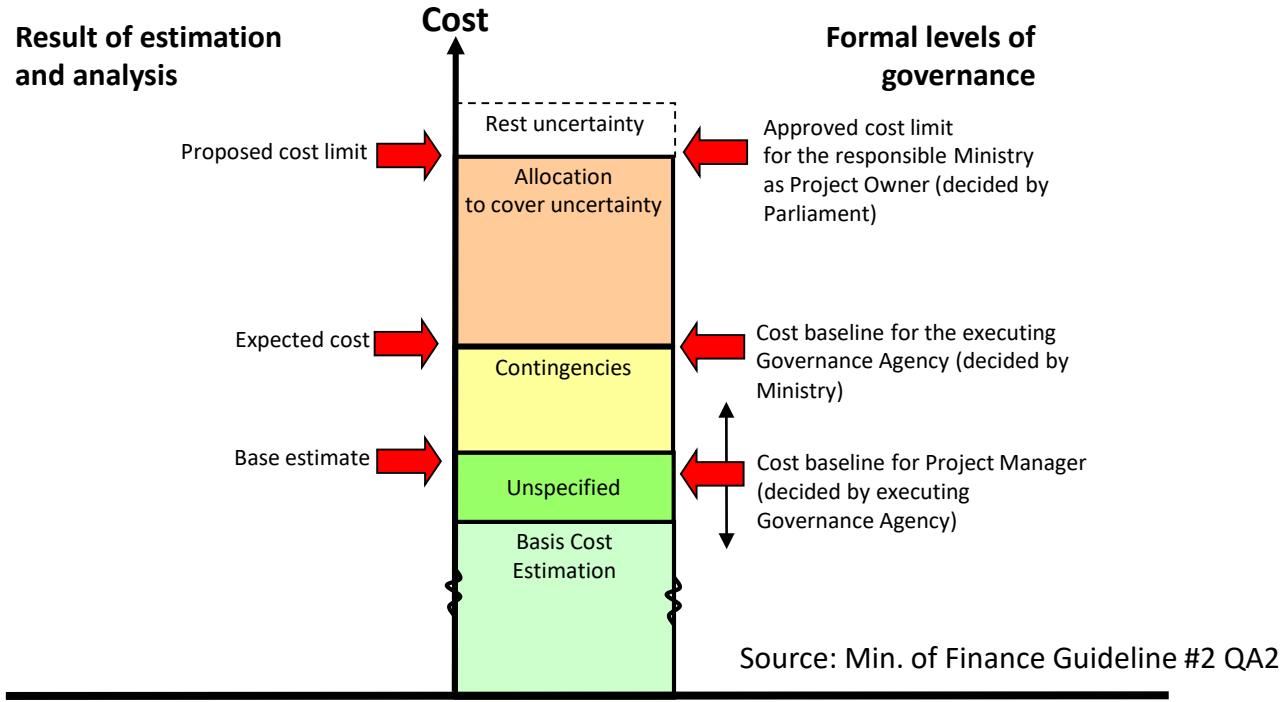
Source: Concept report #36 Figure 16 p. 36.

Experiences - overview

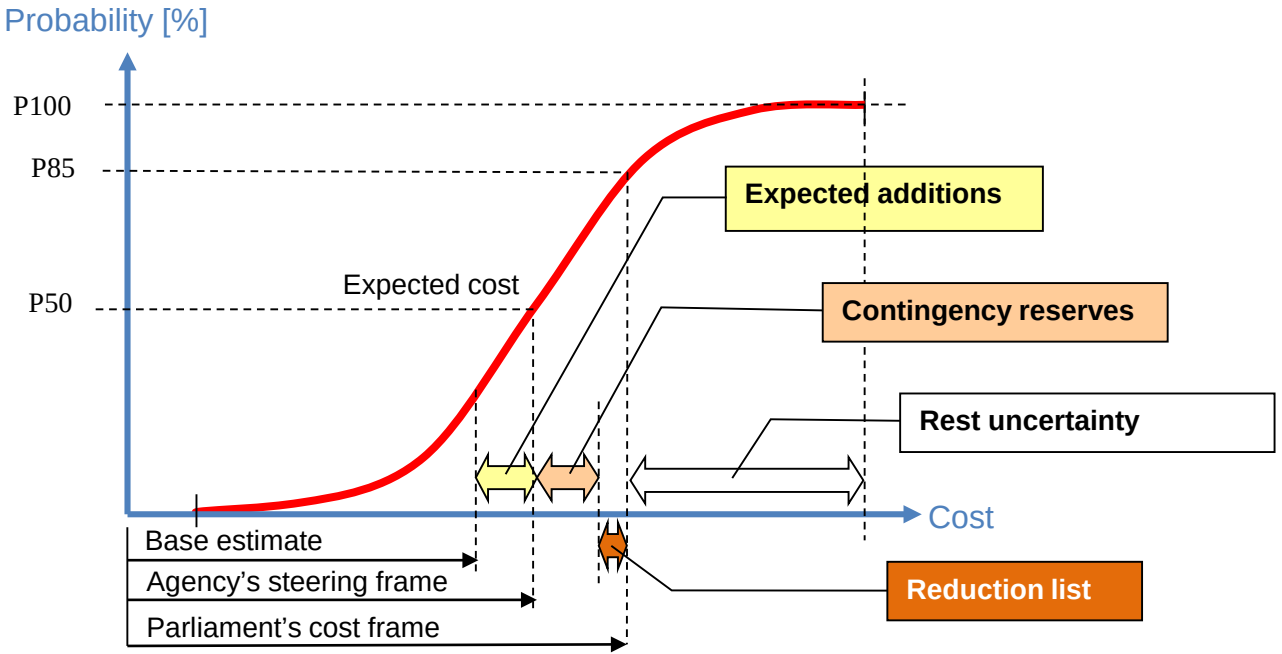
Sector	Projects	Efficiency	Effective-ness	Other impacts	Relevance	Sustain-ability	Socioec. efficiency
Construction	5	5,4	4,2	4,6	4,6	4,8	3,8
Defense	2	4,5	4,5	4,5	4,5	3,5	3,5
ICT	2	5,0	5,5	4,5	4,0	5,5	4,0
Railway	3	4,3	3,3	4,0	4,7	4,7	2,7
Roads	8	4,4	5,3	4,3	4,6	4,5	5,3
Average		4,7	4,7	4,4	4,6	4,6	4,2

Source: Concept report #52 Figure p. 18.

Concepts in cost estimation and control

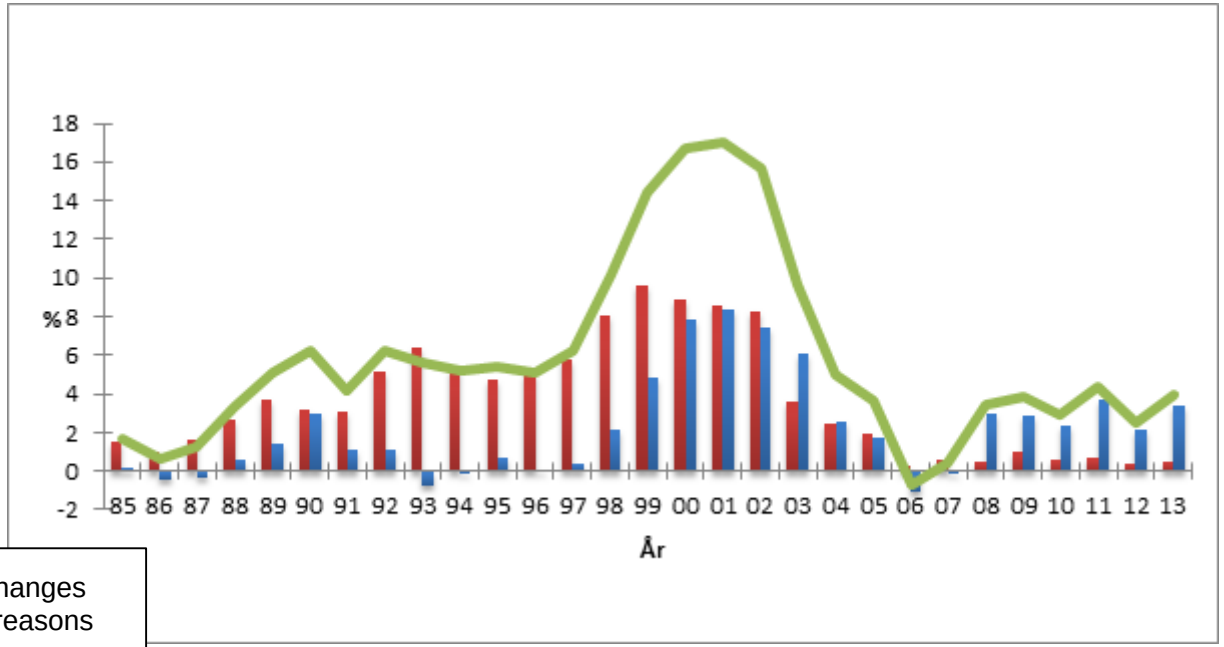


Stochastic cost estimation – key terms



Source: Concept report #47 p. 30.
Source: Min. of Finance Guideline #2 QA2

Cost overrun in Norwegian road projects 1985-2013



Source: Norwegian Public Road Administration

Cost performance in Norwegian projects

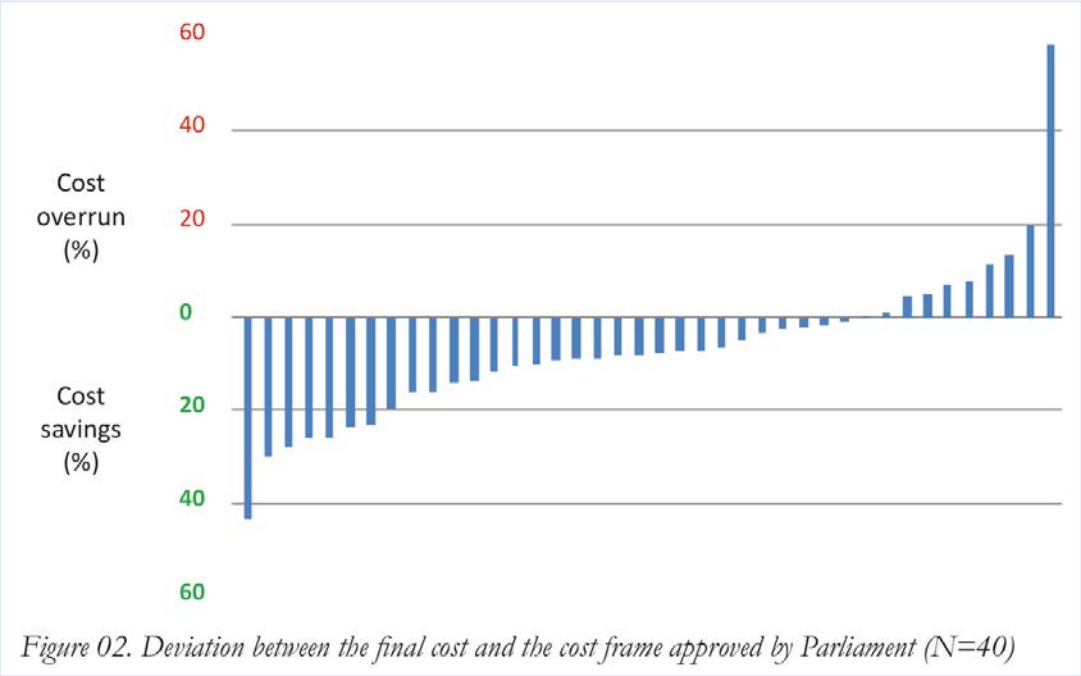
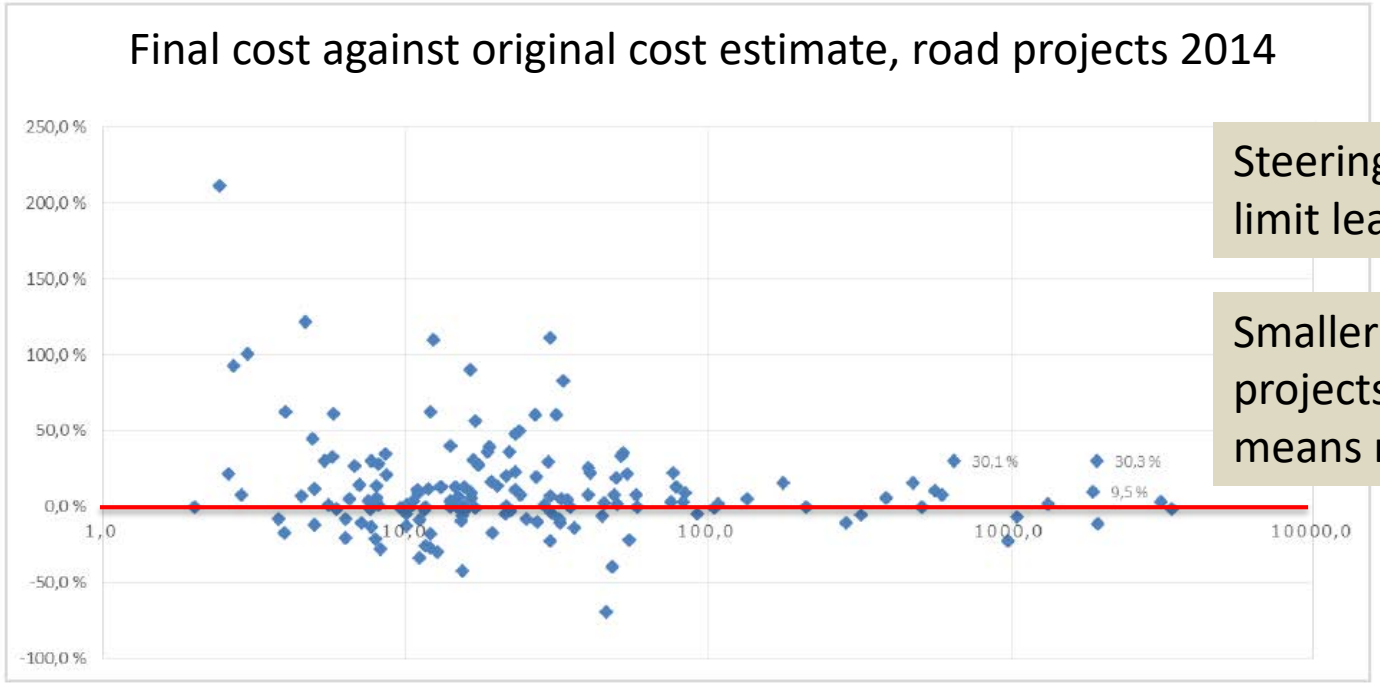


Figure 02. Deviation between the final cost and the cost frame approved by Parliament (N=40)

32 of 40 projects within cost frame (80%).
Net cost savings for the portfolio of projects 7%.
Average below expected cost and symmetrically distributed.

Norwegian results from 40 major public investment projects 2000-2011 (Samset & Volden, 2013)

Project size and steering philosophy matters



Steering towards the limit leads to overspend

Smaller projects/contracts means more variation.

Source: Norwegian Public Road Administration (2014)

Robustness of the system as a whole

2014

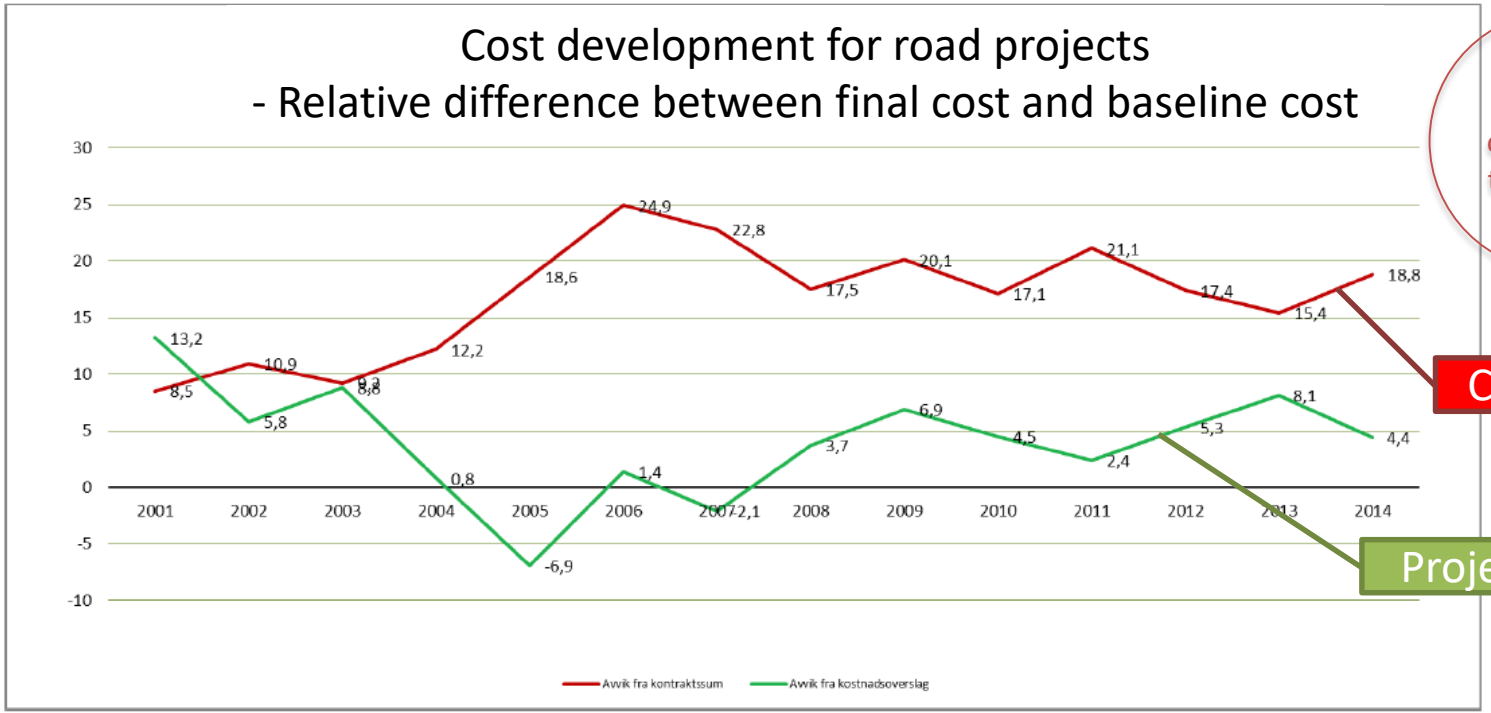
	Kontraktsum	A-nota	T-nota	Sum sluttkost.	Awik	
					Mill. kr	Prosent
Øst	2 635	2 730	591	3 321	687	26,1%
Sør	3 643	3 645	574	4 219	576	15,8%
Vest	1 339	1 283	201	1 484	145	10,8%
Midt	1 981	1 989	232	2 221	240	12,1%
Nord	1 269	1 372	287	1 659	390	30,8%
Samlet	10 866	11 019	1 885	12 904	2 039	18,8%

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)

Robustness over time (Road projects)



Even if contracts overspend, the project is OK

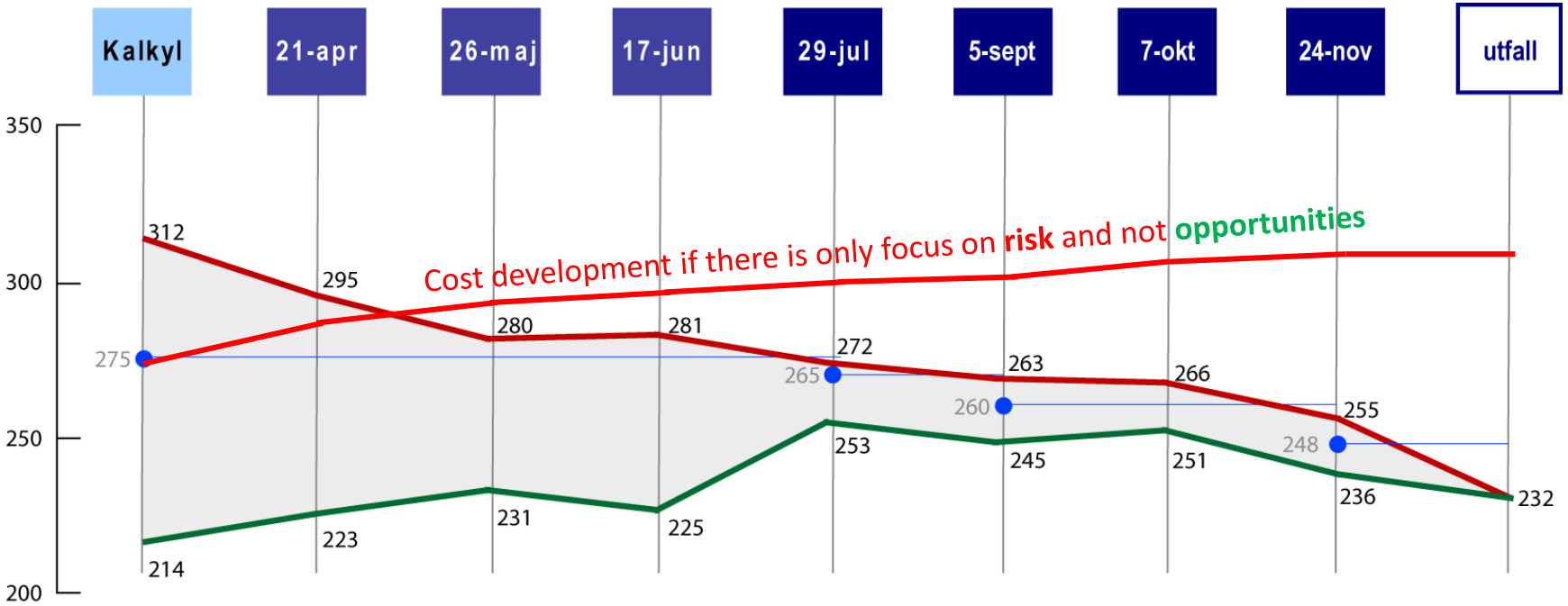
Contract cost

Project estimate

Source: Norwegian Public Road Administration (2014)

Importance of having the right focus

Illustration based on a real case example.



QA in the Norwegian public sector

Ministry of Finance (from 2000)

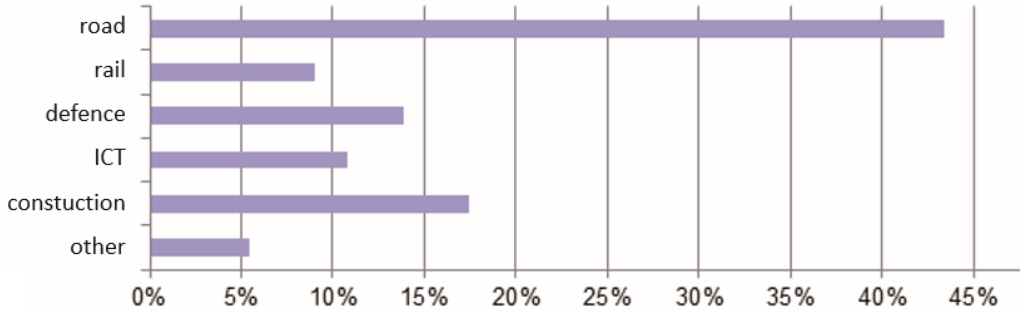


Figure 5. The distribution of projects subjected to quality assurance according to the type of project from the period 2000-2013 (both QA1 and QA2).

- Airports* (from 2001)
- Hospitals (from 2006)
- Railroads* (from 2017)
- Nye Veier* (from 2017)
- EL-power sector* (from 20??)
- Regions** (from 2009)
- Municipalities** (from 20??)
- Oil & Gas sector (from 1970s)

Frameworks similar to FIN

*State owned companies
**Gradually, starting where investments are high/economy good.

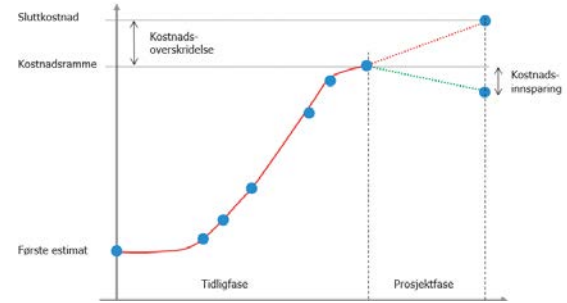
Latest developments

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 or 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).

Three well known remaining issues

In Norwegian QA



First initiative Final decision Finished

Figur 15: Generell modell som illustrerer kostnadsutviklingen i tidligfasen i prosjekter

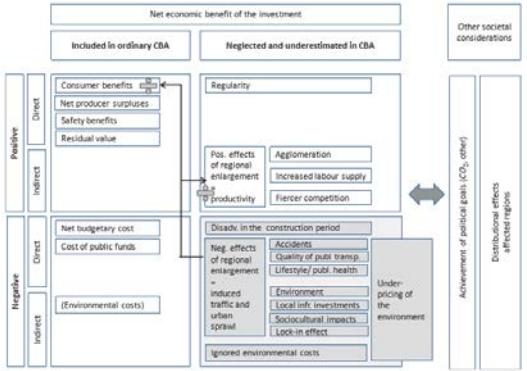
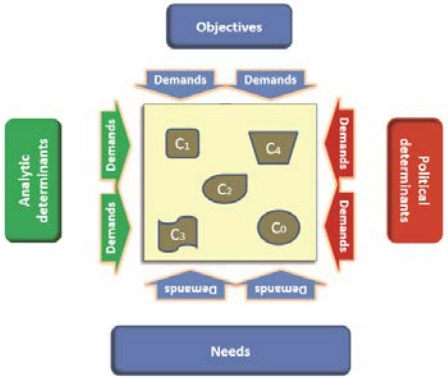


Figure 1. The neglected and underestimated negative impacts discussed in the report



1. Early cost estimations are still challenging

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

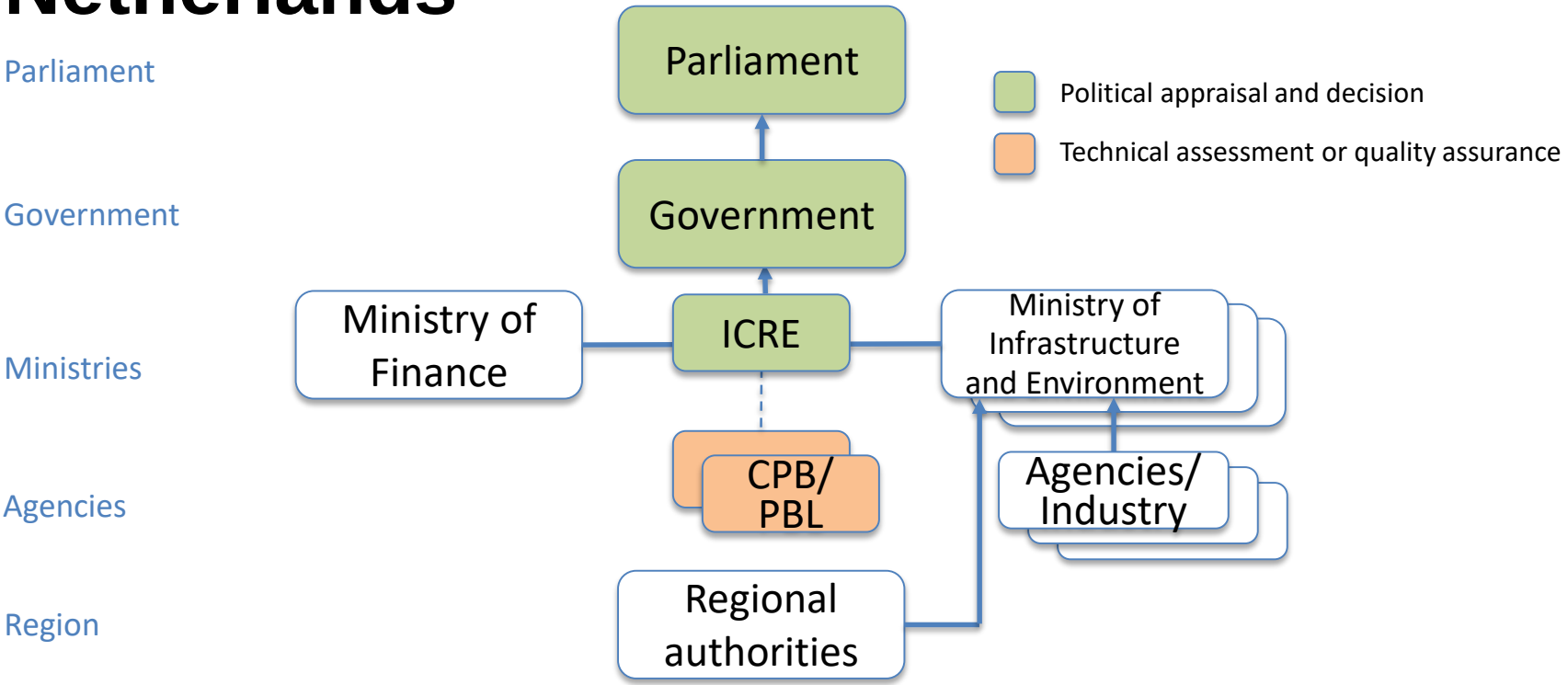
3. Choosing the right Investments/Concepts/ Projects/Alternatives

2

Other Governance Schemes

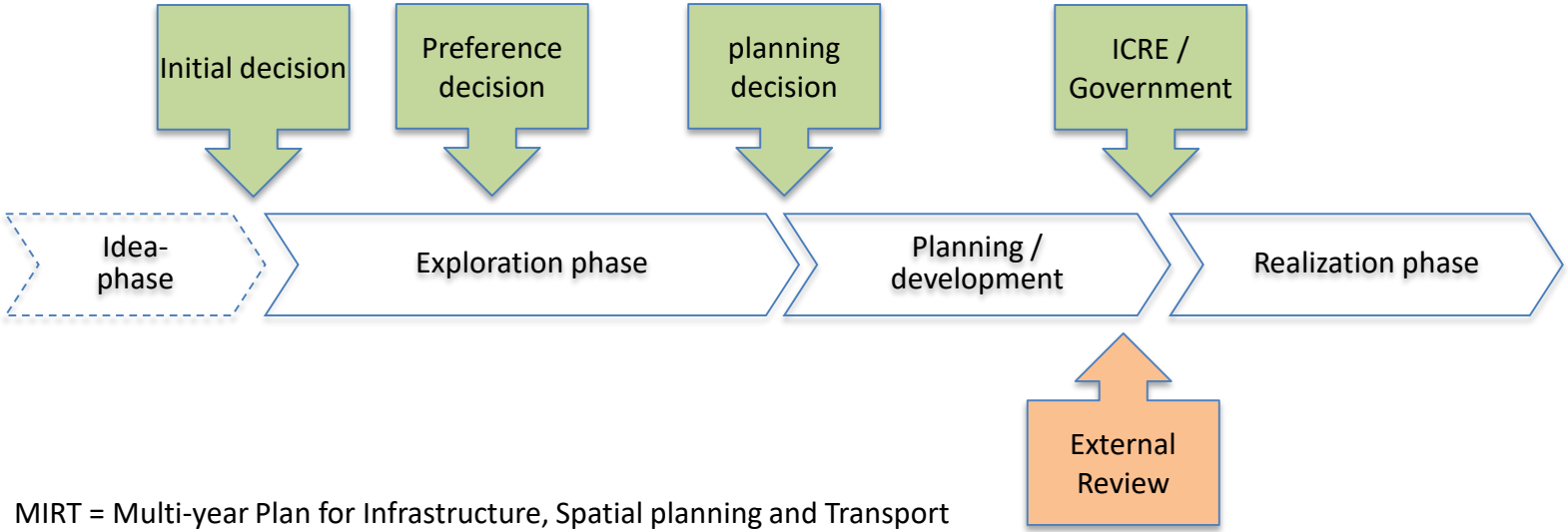
- Similarities and differences compared to the Norwegian one

Investment Project Governance Netherlands



Source: Concept report #47 Fig 4.1 p. 39.

Netherlands MIRT process



MIRT = Multi-year Plan for Infrastructure, Spatial planning and Transport
ICRE = Inter-ministerial commission for improvement of the structure of economy

Source: Concept report #47 Fig 4.2 p. 41.

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

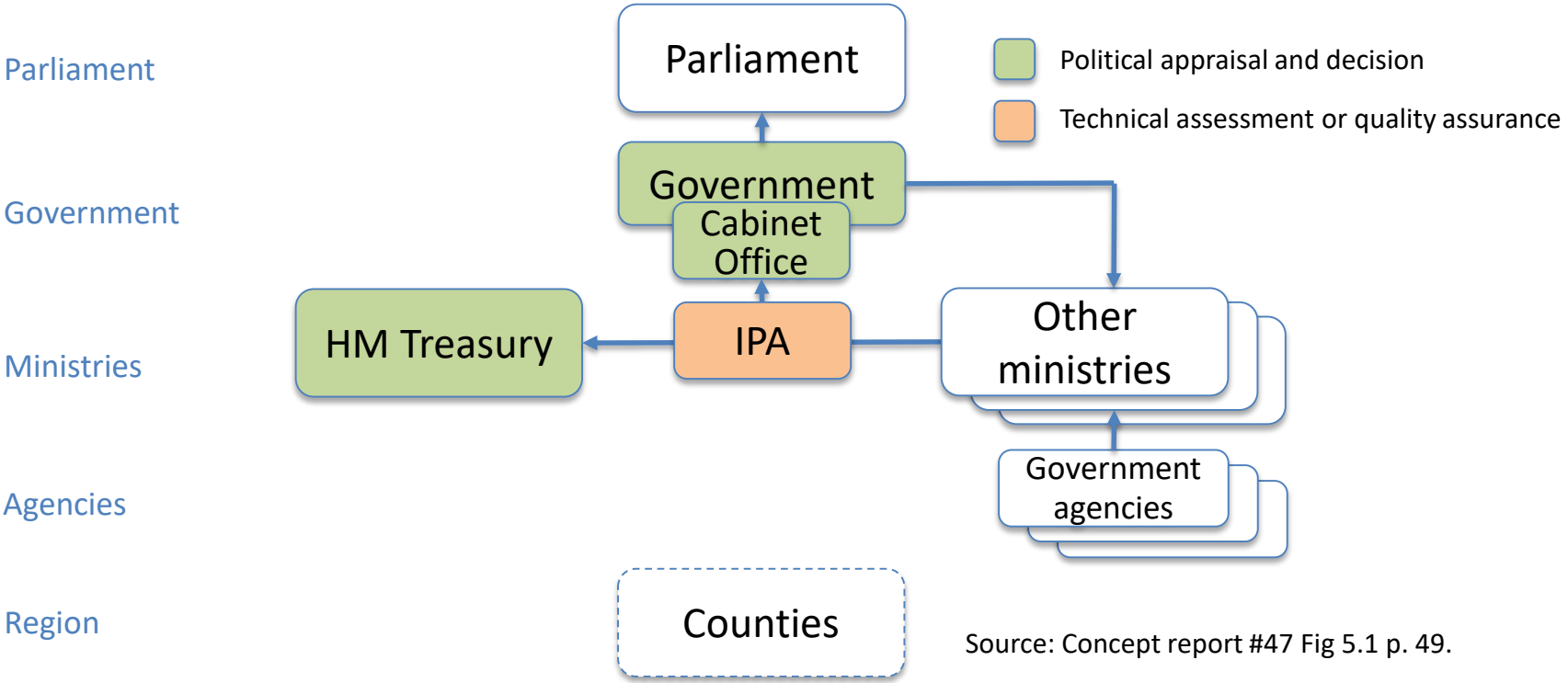
To involvement of stakeholders:

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

Source: Heeres, Tillema and Arts (2012)

Source: Klakegg, Williams and Schiferaw (2016)

Investment Project Governance UK

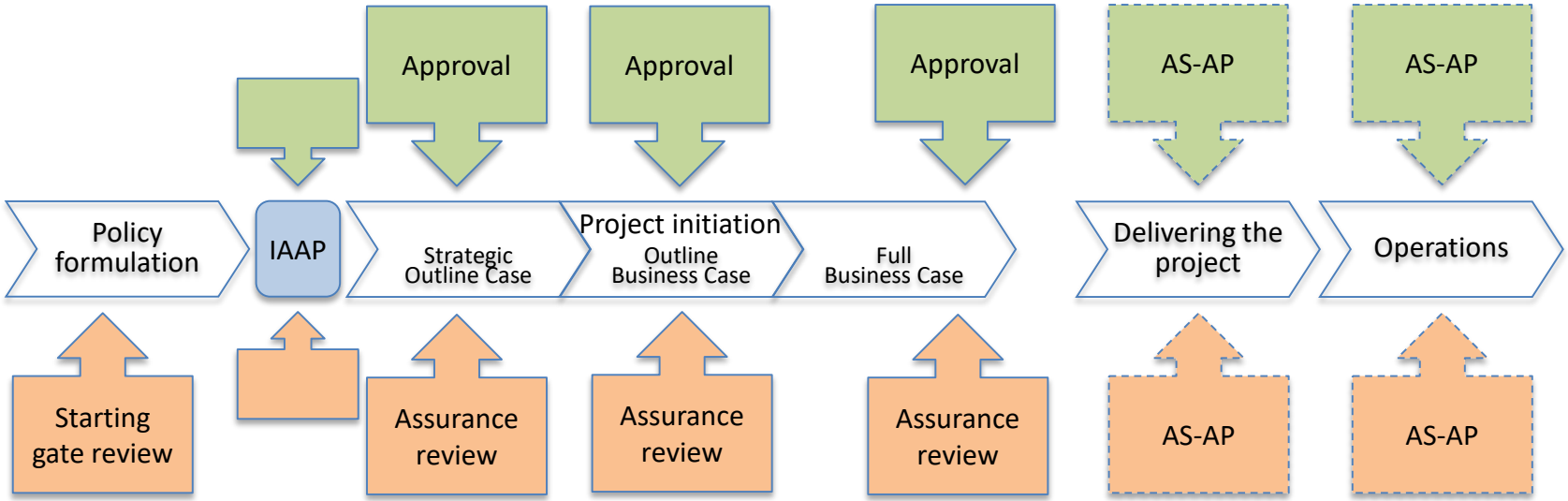


Source: Concept report #47 Fig 5.1 p. 49.

UK Stage Gate Model

IAAP: Integrated Assurance and Approval Plan

AS-AP = As appropriate



HM Treasury decision

IPA Assurance review

Source: Concept report #47 Fig 5.3 p. 55.

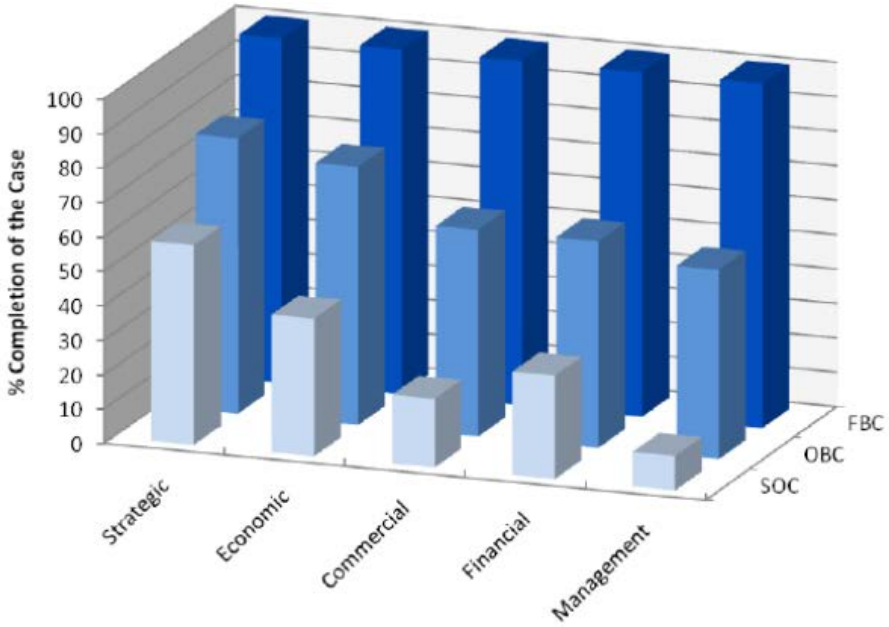
External Quality Assurance UK

- 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.

UK Five Case Model

Use of standardized adjustment factors based on historical data for each project type and development level.

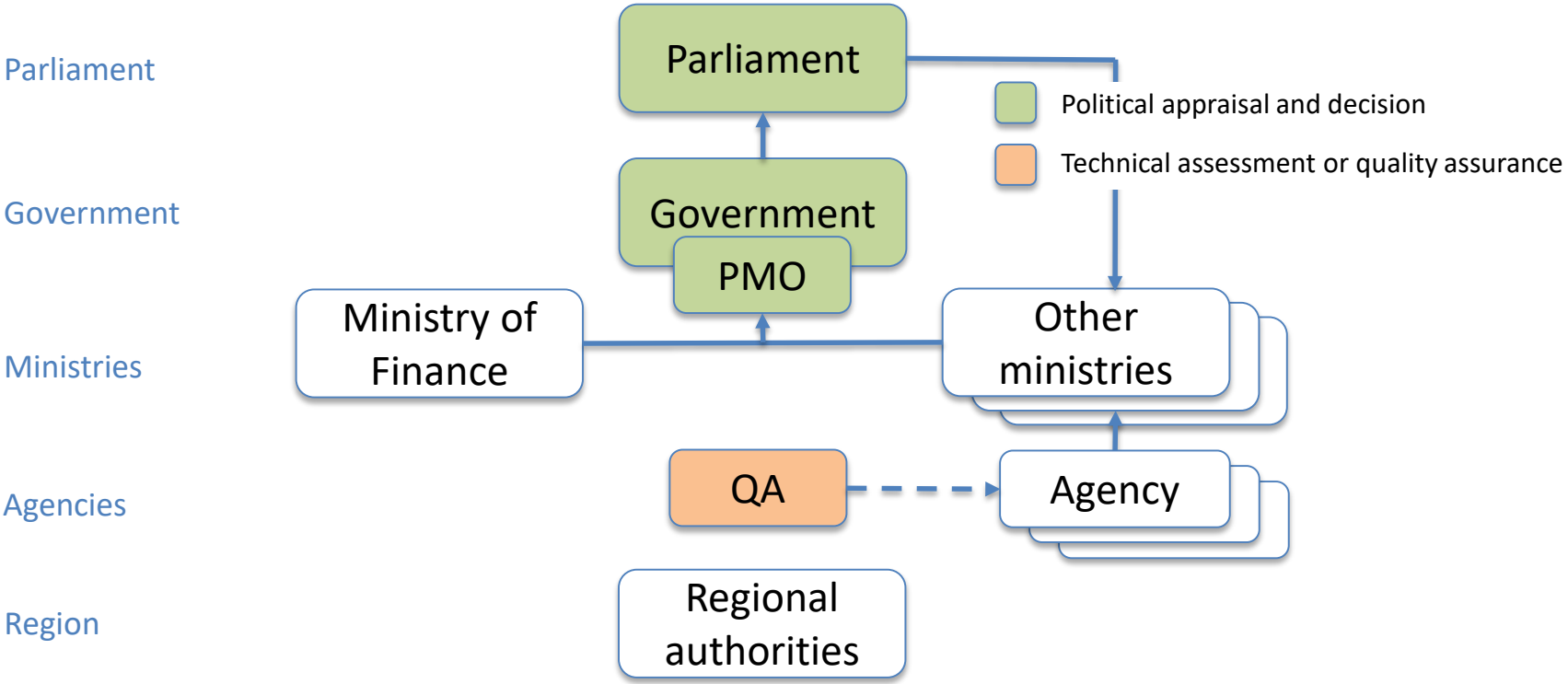


Figur 5.4. The development of the business case across the five dimensions of the Five Case Model (source: HM Treasury, 2013).

FBC = Full Business Case
OBC= Outline Business Case
SOC= Strategic Outline Case

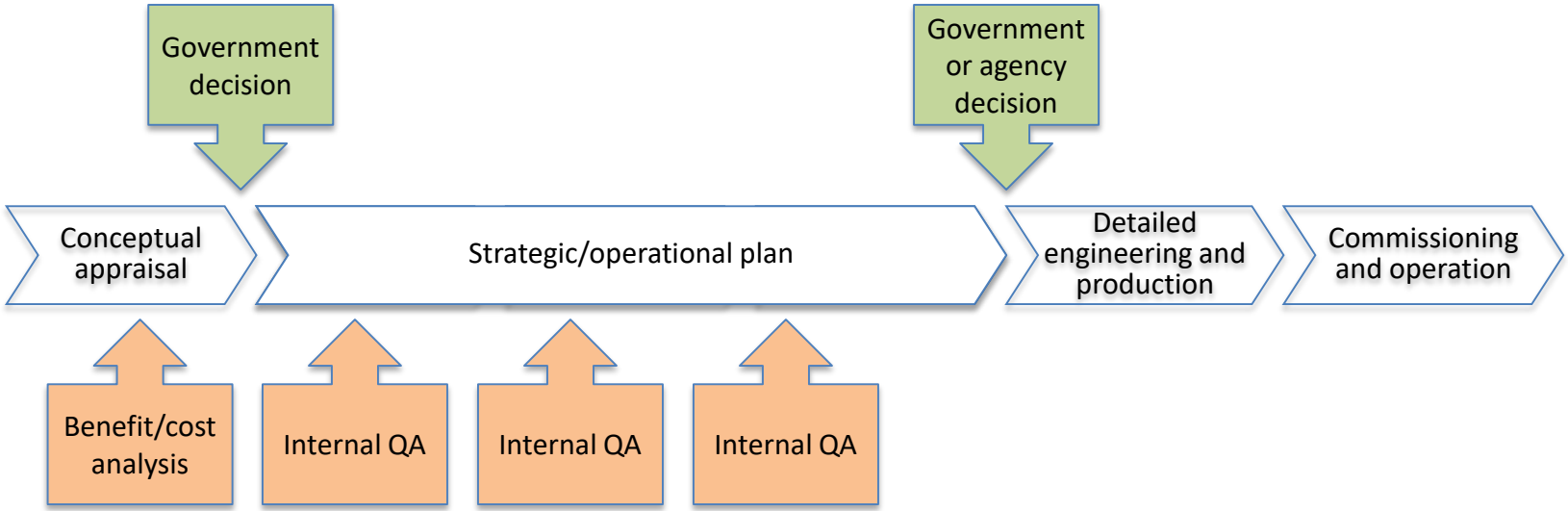
Source: Concept report #47 Fig 5.4 p. 58.

Investment Project Governance Sweden



Source: Concept report #47 Fig 6.1 p. 67.

Sweden Infrastr. Planning Process



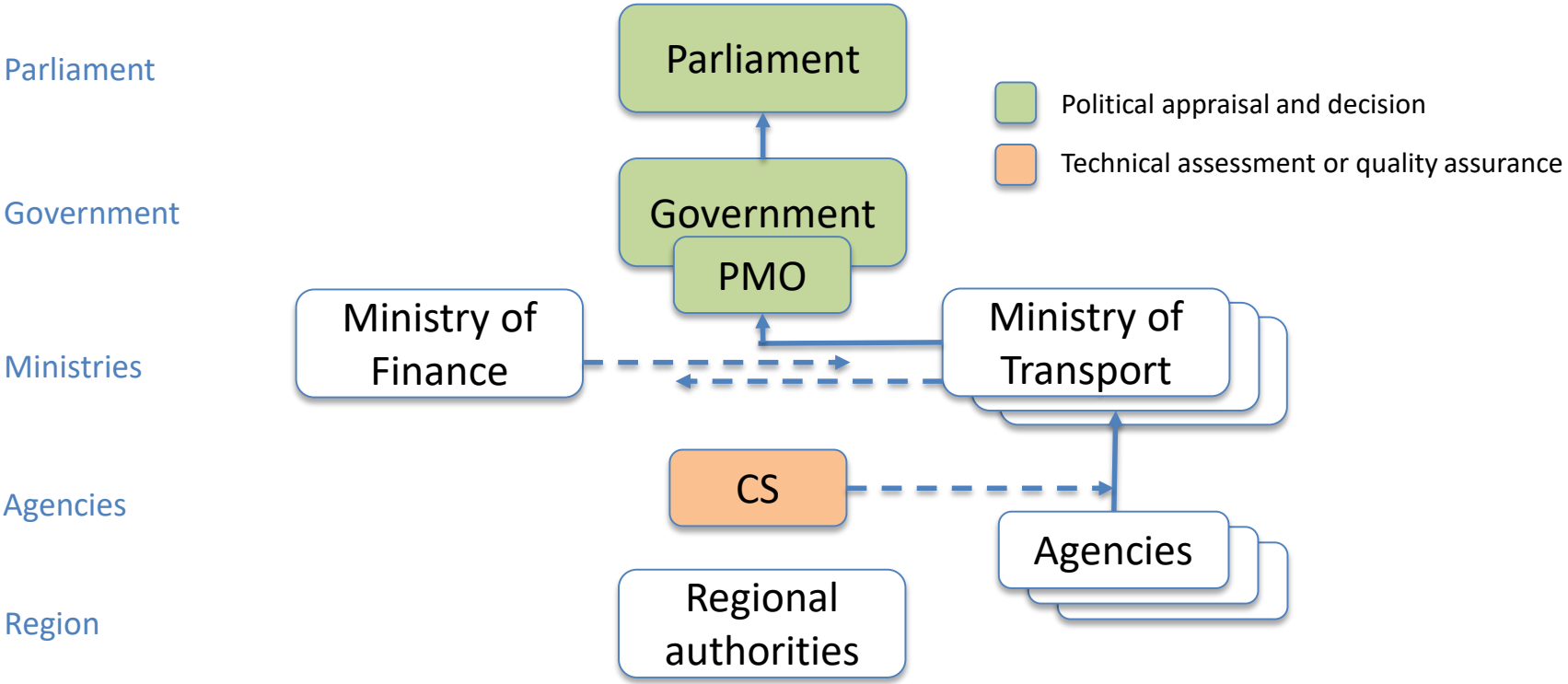
Source: Concept report #47 Fig 6.2 p. 68.

Sweden: Internal QA matters

Key differences from Norway:

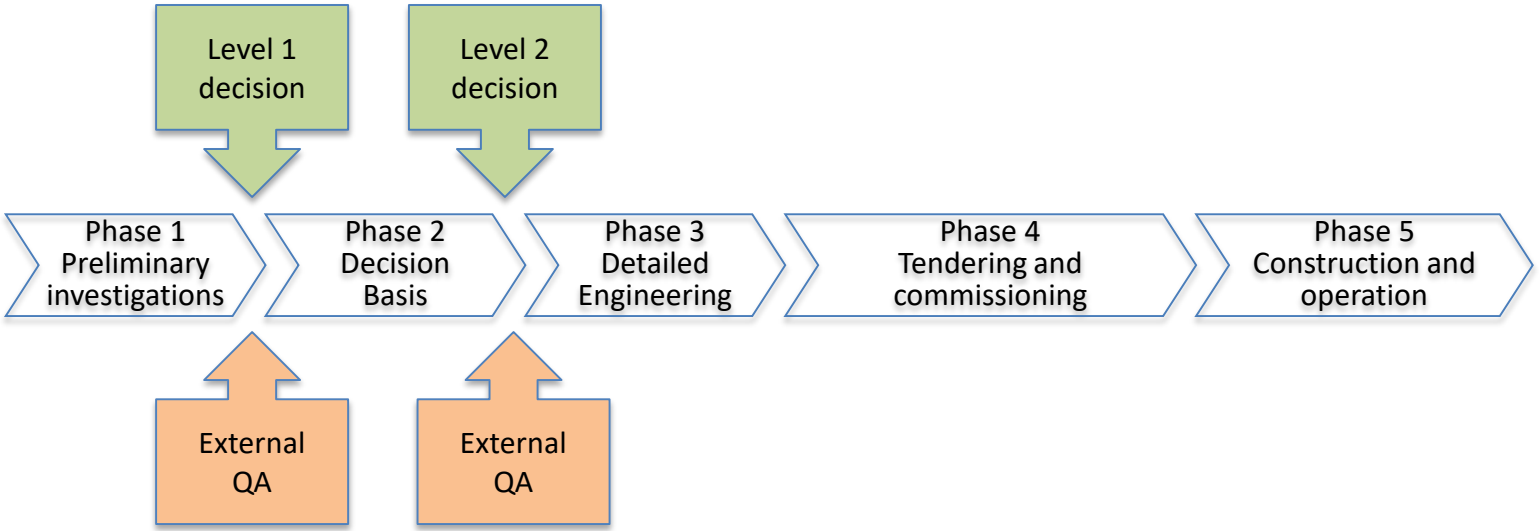
- All transport modes under one administration
- Use of debt for critical projects is accepted
- Agencies can prioritize within their budgets (each project is not explicitly decided in Parliament)
- No external QA at all (although similar checks are made internally, including more and more often uncertainty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

Investment Project Governance Denmark



Source: Concept report #47 Fig 7.1 p. 83.

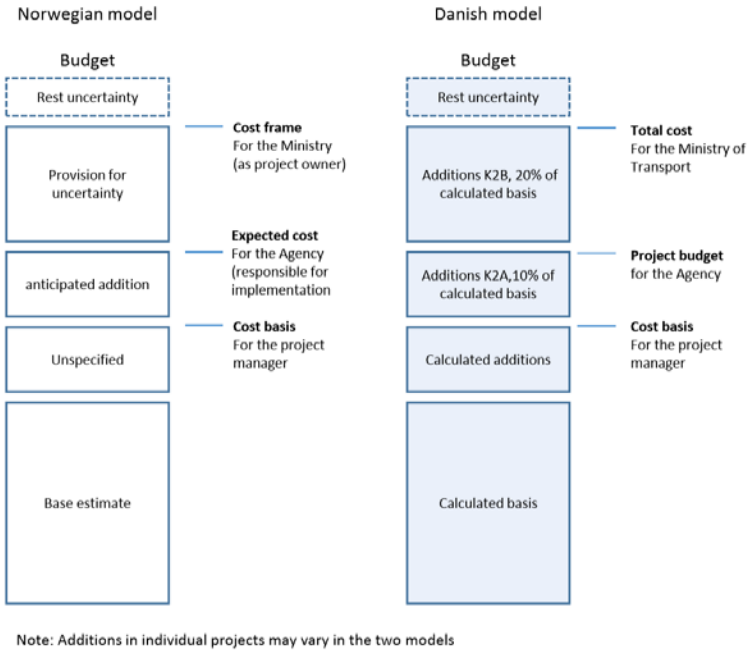
Denmark Financial Management Model



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

Inside – or - Outside view?

Based on Successive approach (Lichtenberg)

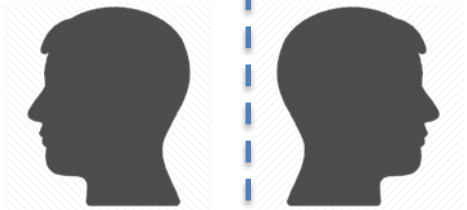


Based on statistics (Flyvbjerg)

Note: Additions in individual projects may vary in the two models

Figure 9.4 Comparison between the Norwegian and the Danish budget model. Source: (Ministry of Transport and Building, 2015)

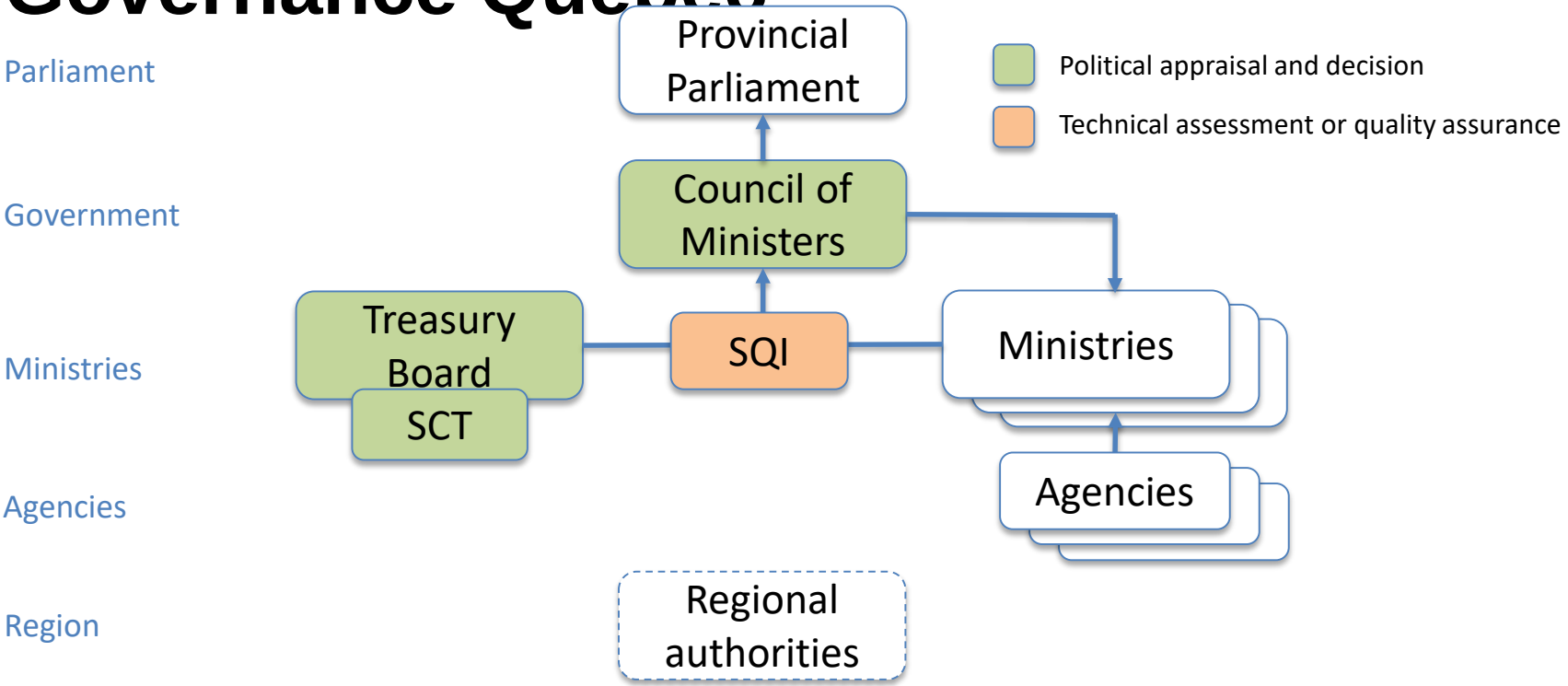
Inside AND Outside view



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

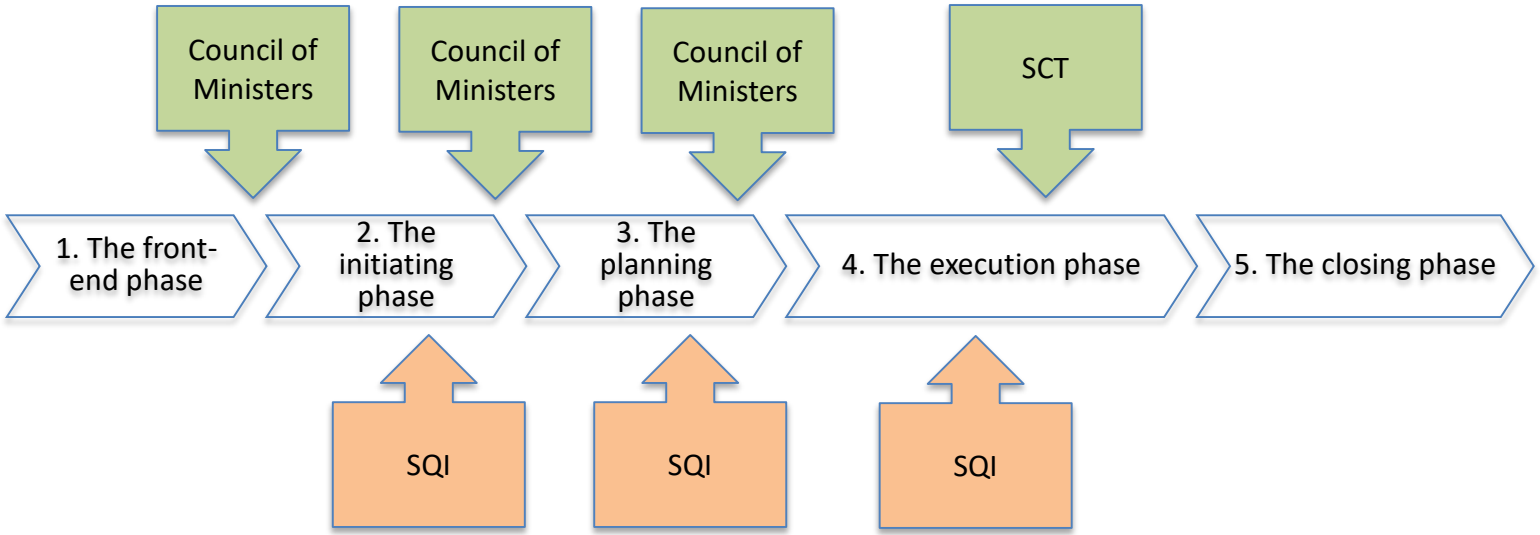
Outside view: Look at your other projects and consider general issues

Large Infrastructure Investment Governance Quebec



Source: Concept report #47 Fig 8.1 p. 97.

Quebec Project Process



SCT = The Treasury Board Secretariat
SQI = Société Québécoise des Infrastructures

Source: Concept report #47 Fig 8.3 p. 98.

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 Quebécoise des Infrastructures - SQI)

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

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

3

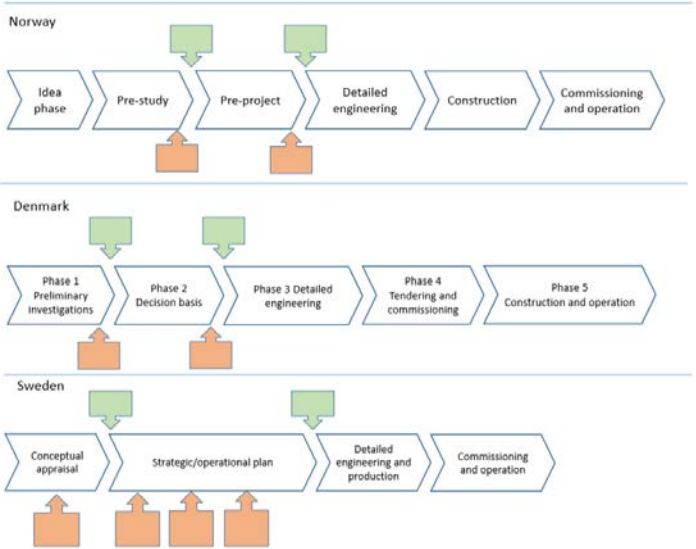
Context dependencies and development

- How governance frameworks evolve
- Trends and their consequences

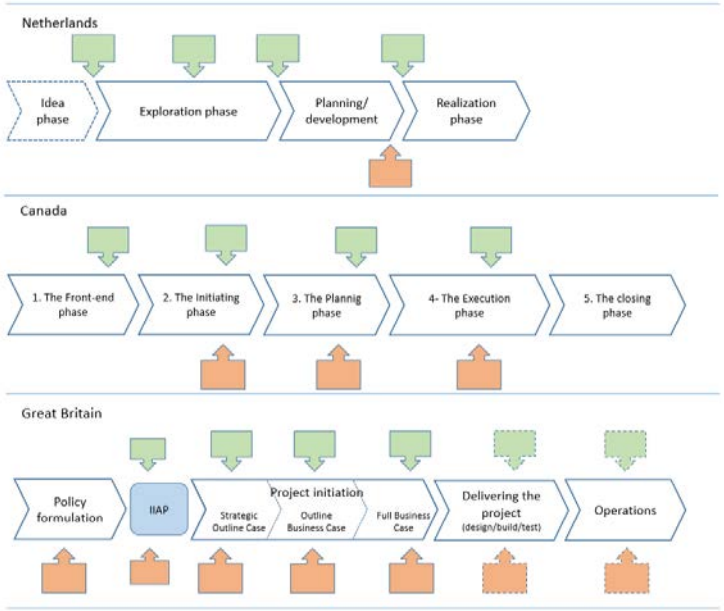
They are different … but how and why?

Political azssessment or decision Technical/economic appraisal or quality assurance

Nordics



International



Source: Concept report #47 Fig. 9.3 p. 113.

Countries and regions are different

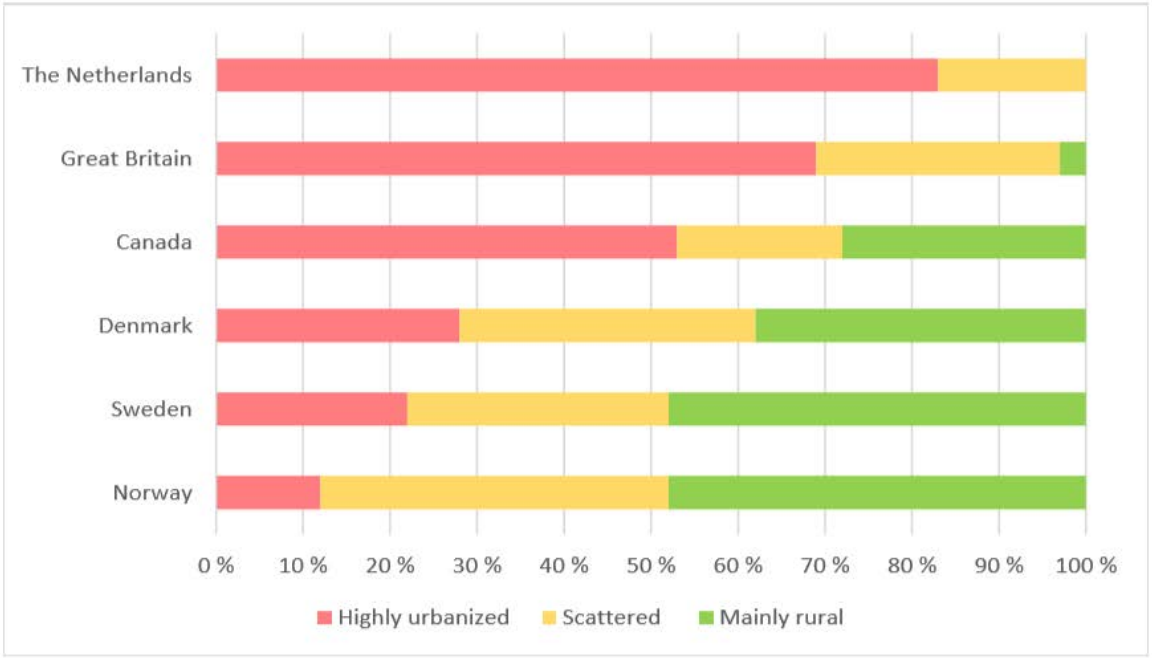


Figure 2.1. Degree of urbanisation in the selected countries. Source: OECD[5]

Geographically
Economically
Judicially
Traditionally
…

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)

(EUR/capita)

Geographical/Regional differences

Region: **Samlet**

Tall i millioner kr / 2014-kr / inkl. mva

Original estimate

Final cost

2014

	Opprinnelig kostnadsoverslag	Sluttkostnad	Avvik Mill kr	Avvik (%)
Øst	3 900	4 677	777	19,9 %
Sør	6 901	6 817	(84)	-1,2 %
Vest	2 463	2 402	(61)	-2,5 %
Midt	6 719	6 718	(1)	0,0 %
Nord	3 022	3 406	384	12,7 %
Samlet	**23 005**	**24 020**	**1 015**	**4,4 %**

Difference between final cost and original estimate. Summary for each region in Norway. Base: All road projects opened in 2013, with a cost >5 Mill. NOK. (approx. 765.000 CAD).

Very urban

West coast

Very rural

Source: Norwegian Public Road Administration (2014)

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)

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

Source: Klakegg (2010)

Governmentality and structure framework

Example of international comparison

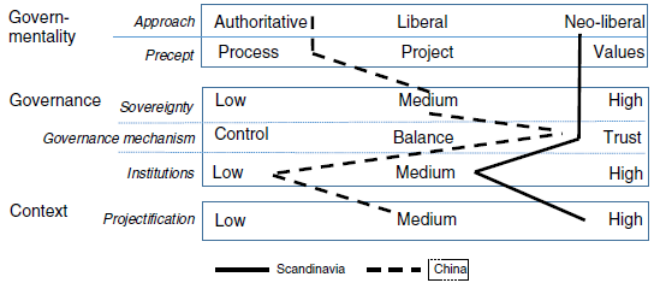


Fig. 1. Profiles of small consulting organizations.

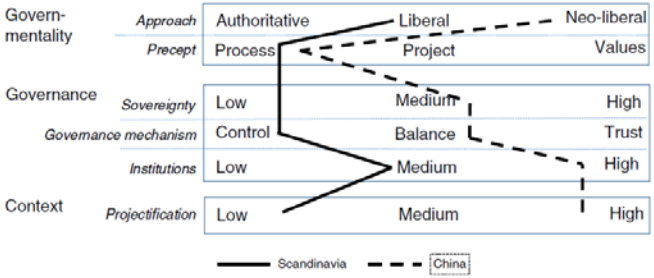


Fig. 2. Profiles of medium sized IT organizations.

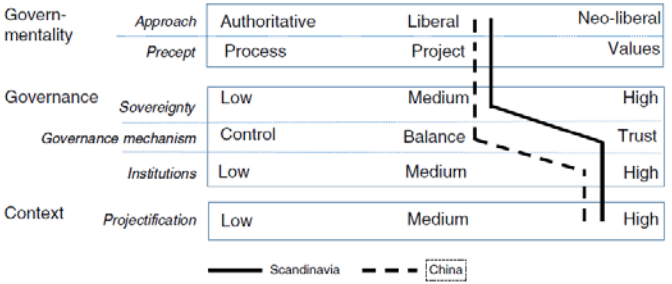


Fig. 3. Profiles of large construction organizations.

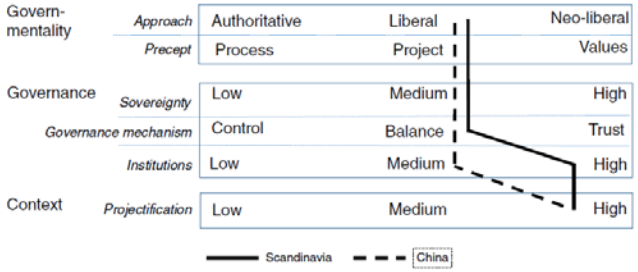


Fig. 4. Profiles of very large pharmaceutical organizations.

Source: Müller et al. (2016)

Changes in European Transport Planning

From line-initiatives to interwoven ecosystems with surroundings

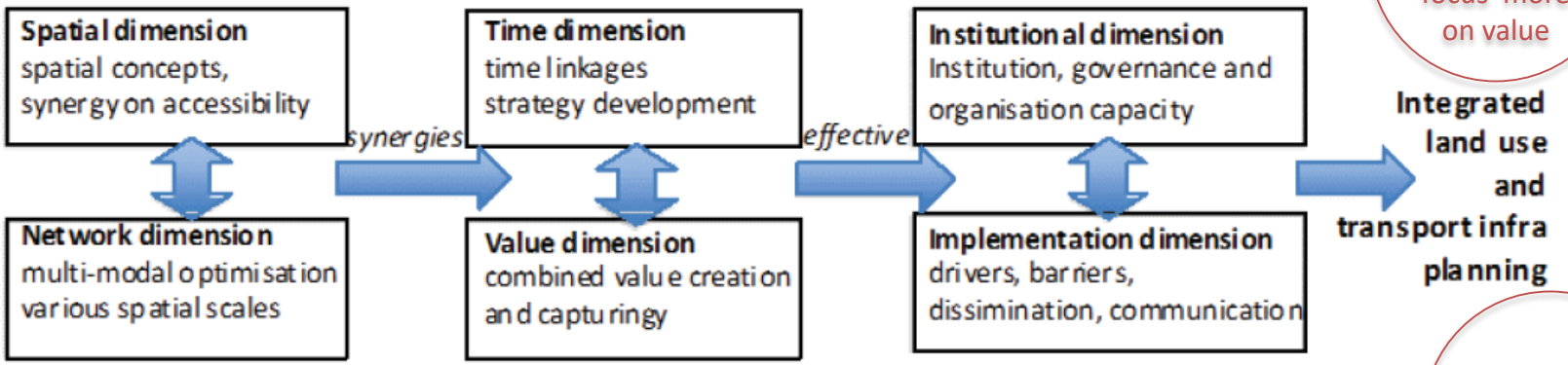


Fig. 8. Linkages between dimensions.

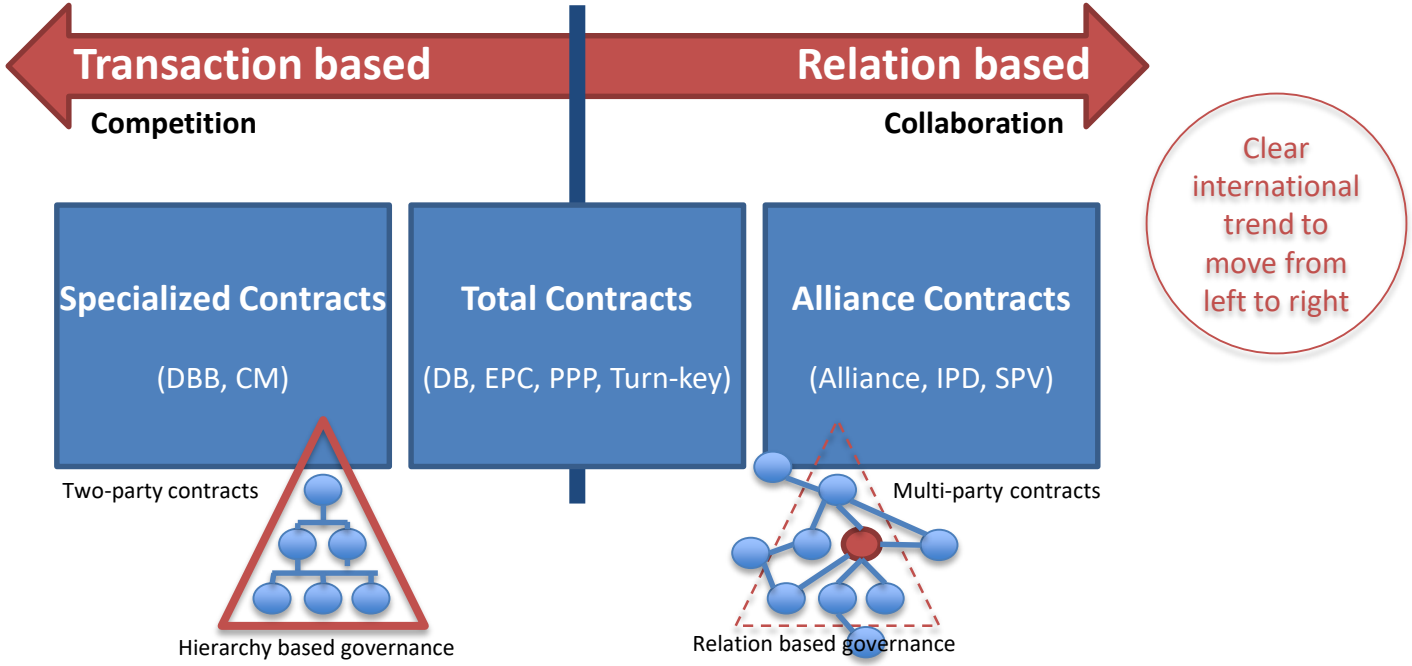
Clear international trend to focus more on value

... in a wider perspective.

Multi-modal
Network integrated

Source: Arts et al. (2016)

Changes in project delivery models



Source: Walker & Lloyd-Walker (2015)

Framework development over time

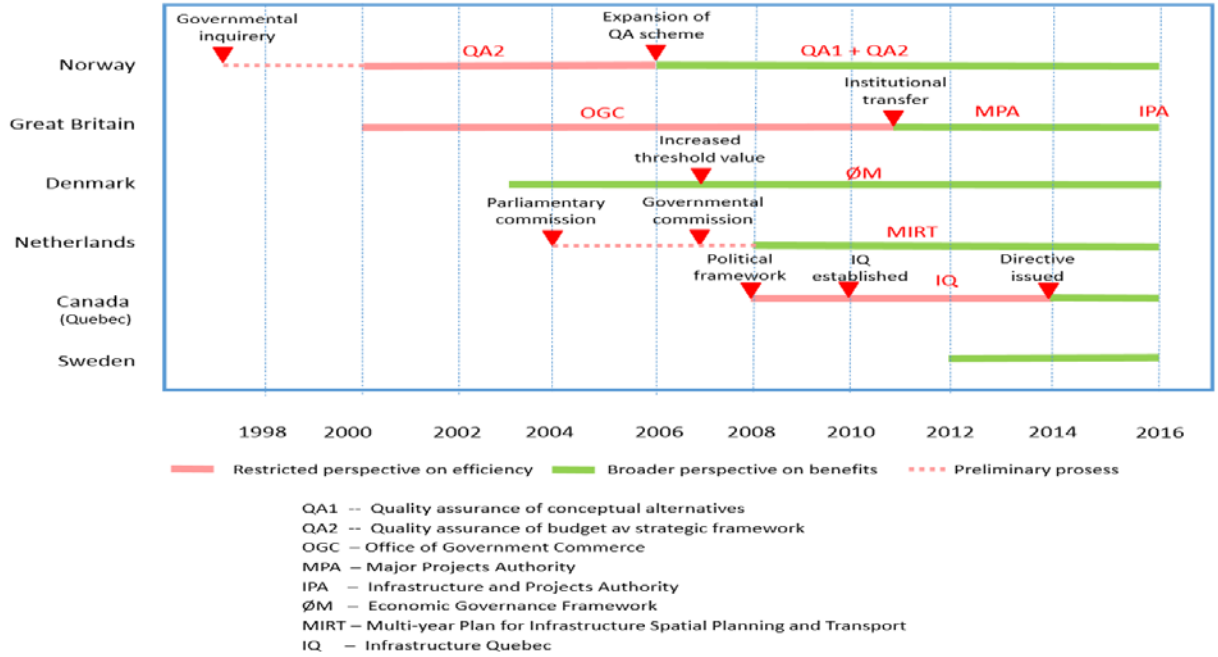


Figure 9.1 Introduction of investment project governance schemes in six countries

..and governance frameworks follow (or lead?)

Source: Concept report #47 Fig 9.1 p. 104.

4

Conclusions

- My suggestions for Newfoundland and Labrador

Comparison 1

Advice 1: Anchoring of framework as high as possible

Table 9.1 A comparison of the schemes in six countries

Criteria/Country	Norway	Denmark	Sweden	Netherlands	UK	Canada
Who initiates the QA process?	Minist	rt	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	Agency or Government	A designated government agency	Treasury	Council of Ministers
Who determines the budget?	Parliame		y or ment	Government	Treasury[8)]	Government

Advice 2: Build on existing democratic traditions and governance

Advice 2B: Challenge the existing

Advice 3: Make sure it is completely transparent and produces good basis for decision making

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

Comparison 2

Advice 4: Standardize – at least on structure and principles

Table 9.1 A comparison of the schemes in six countries

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

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

Comparison 3

Advice 6: Apprise on the level of ownership that oversees the project portfolio

Table 9.1 A comparison of the schemes in six countries

Criteria/Country	Norway	Denmark	Sweden	Netherlands	UK	Canada
Who appraises the proj		Agency	Agency and regional authority	Responsible government agency	Agency or ministry	A designated government agency (SQI)
Who pe quality assurance?		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		No, but may happen	For all in excess of EUR 60 billion	Desired, but no requirement[7)]	To be considered, not required

Advice 7: Project assessments require competence and critical distance – externals should be included

Advice 8: Private funding: Do what is necessary to avoid false incentives

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

Comparison 4

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

Table 9.1 A comparison of the schemes in six countries

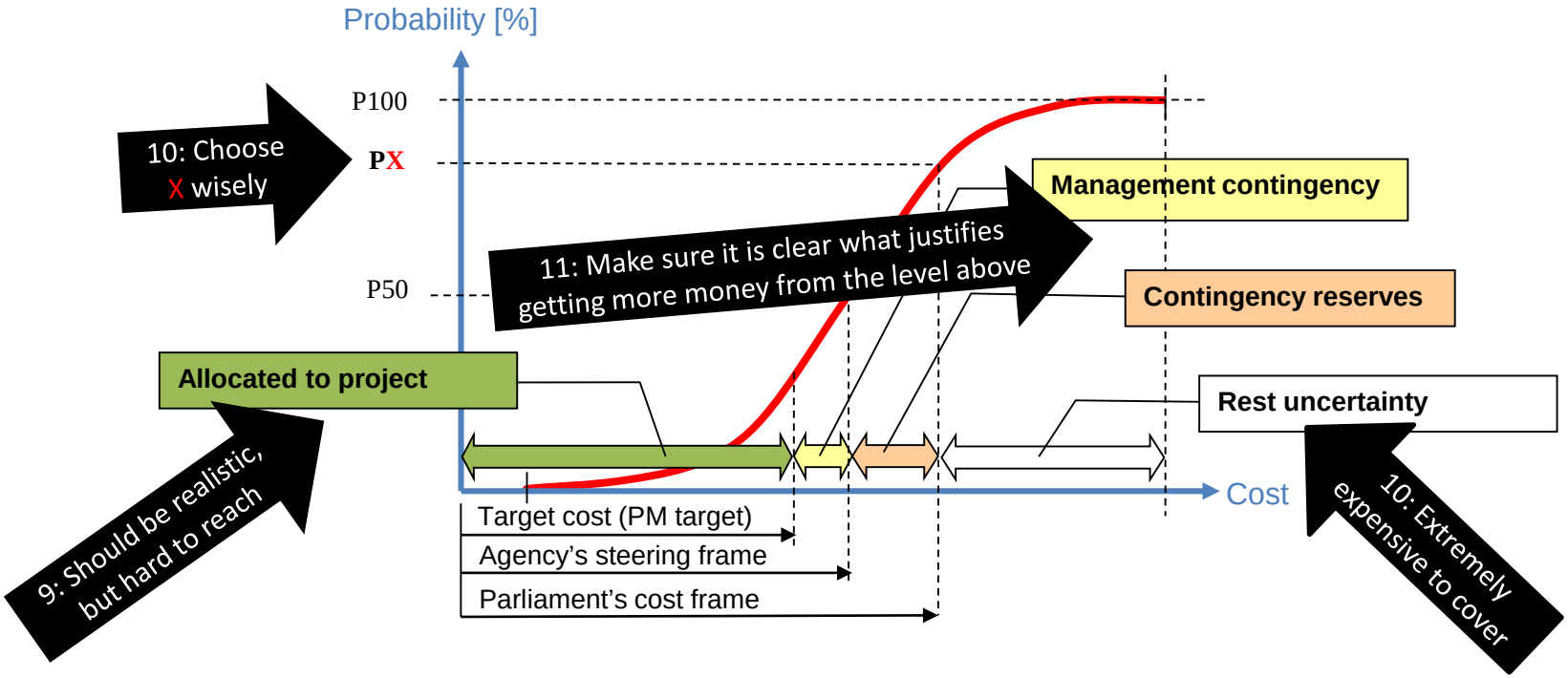
Criteria/Country	Norway	Denmark	Sweden	Netherlands	UK	Canada
Budgeted cost	P85 (normally)	Basic calculation + 20% [2)]	In the portfolio		Estimate plus supplement	Estimate plus supplements [1)]
Target cost	P50 (normally)	Basic calculation + 10%	Budget		Estimate plus supplement	Budget

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

Advice 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.

Explanation to advice 9, 10, 11



Comparison 5

Table 9.1 A comparison of the schemes in six countries

Criteria/Country	Norway	Denmark	Sweden	Netherlands	UK	Canada
Decision points	2	2	2	3	5	5
Advisory interventions	2	2	Ongoing	1	6	Ongoing

Tip: The more complexity, the more dependent on «gut feeling» approach (Klakegg et al. 2010, 2016)

Advice 12: As many decision points as you find necessary, not more

Advice 13: Use the type of intervention that has the strongest desired effect, and without unwanted effects

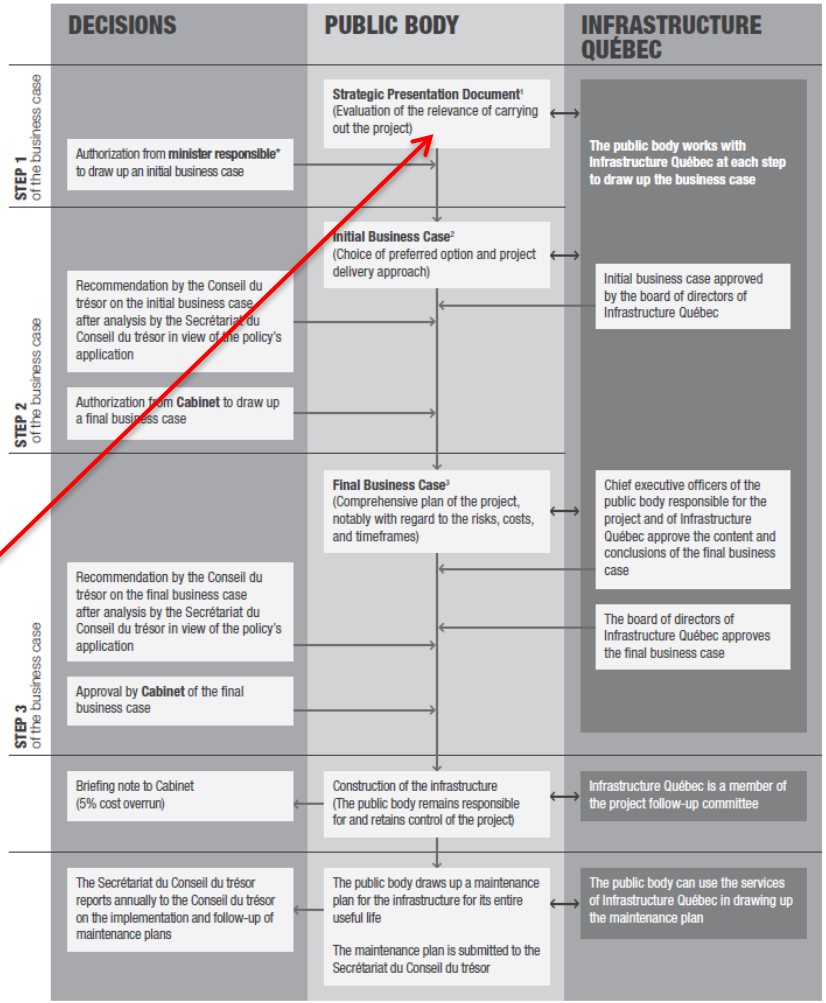
Source: Concept report #47 Table 9.1 p. 107.

Starting point

My suggestion:

Québec
FRAMEWORK POLICY
FOR THE GOVERNANCE OF MAJOR PUBLIC INFRASTRUCTURE PROJECTS

Strengthen the **value focus** early
(this may be fixed in the 2014 version)



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?