

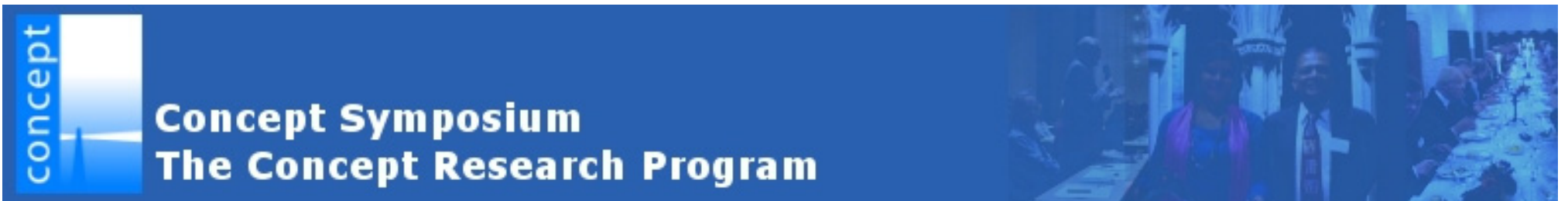
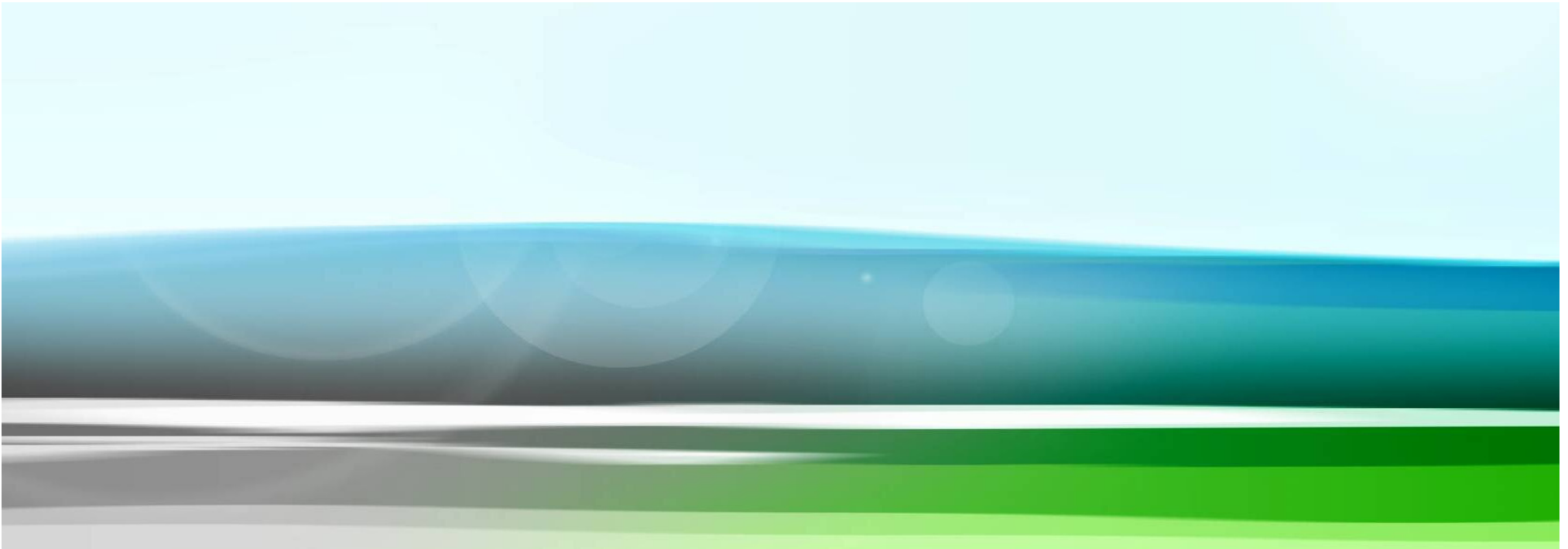
A regional freight hub – its local, national and international significance

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Valuing the Future - Public Investments and Social Return
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Symposium web-site: <http://www.conceptsymposium.no/>
Concept Research Programme: <http://www.concept.ntnu.no/english/>



A regional freight hub

– its local, national and international significance

Det Norske Veritas (DNV)

identify
assess
manage

risk



The partners in the QA consortium



Leading experts in project planning and execution



Leading scientists in economics and business



The constellation has done more than 30 QA projects since 2006

Who am I?



Rune M. Moen

Senior Principal Consultant

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- Ph.D. within Quality Management
- 20 years consultant and line manager experience from Norway, Germany and the Netherlands
- Competence within Strategy and Organisational development, Risk Management, Quality and Process Improvement
- PMP certified project manager responsible for several Independent quality assurance of large investment projects – both QA1 and QA2

Objectives of this session



Show the value of broad involvement and a thorough process early in the project life cycle



Discuss the balance between local, national and international needs and potential conflicts between these

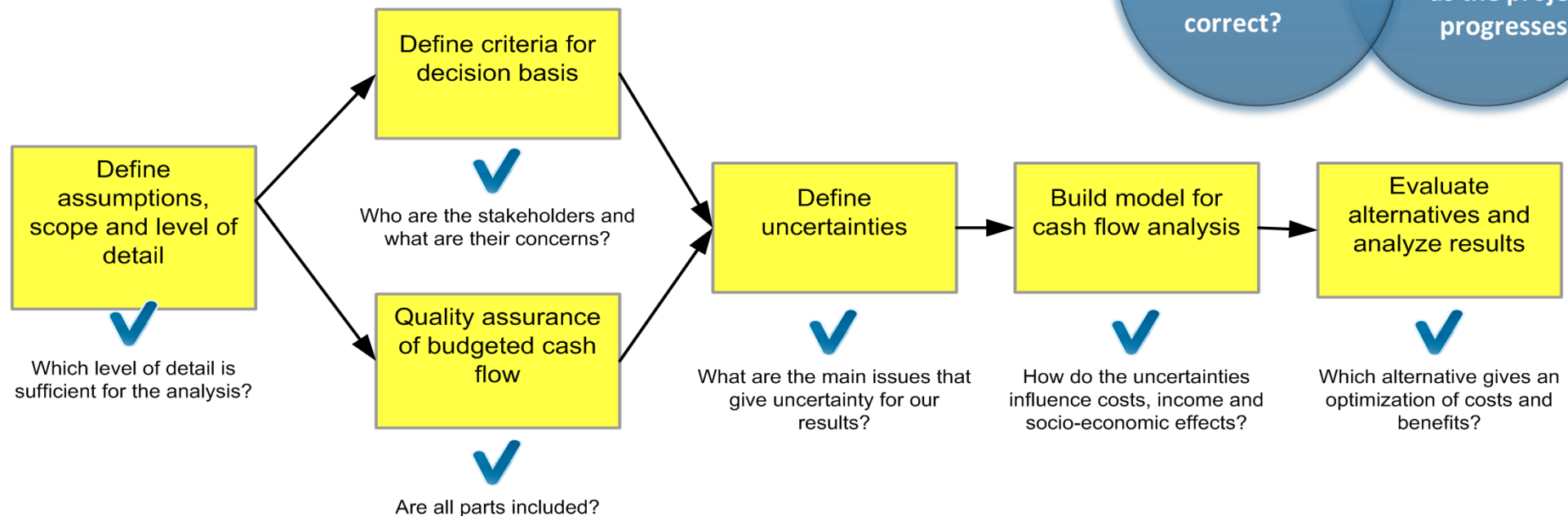


Demonstrate the need for and value of independent Quality Assurance of large investment projects



Objective and focus of independent quality assurance

- Independent analysis of the project to ensure that concepts are unbiased presented for political decision
- Verify the quality of underlying assumptions, calculations and documentation
- Give advice on ranking of concepts and further focus in the project



Project summary

Project triggering needs

- The current freight terminal is not efficient and reaching its limit of capacity. Based on prognosis for increased freight volumes it is necessary within 2020 to:
 - Increase freight transfer capacity through a new freight terminal for mid-Norway and
 - Increase the efficiency of the freight terminal and future connected infrastructure

Central questions

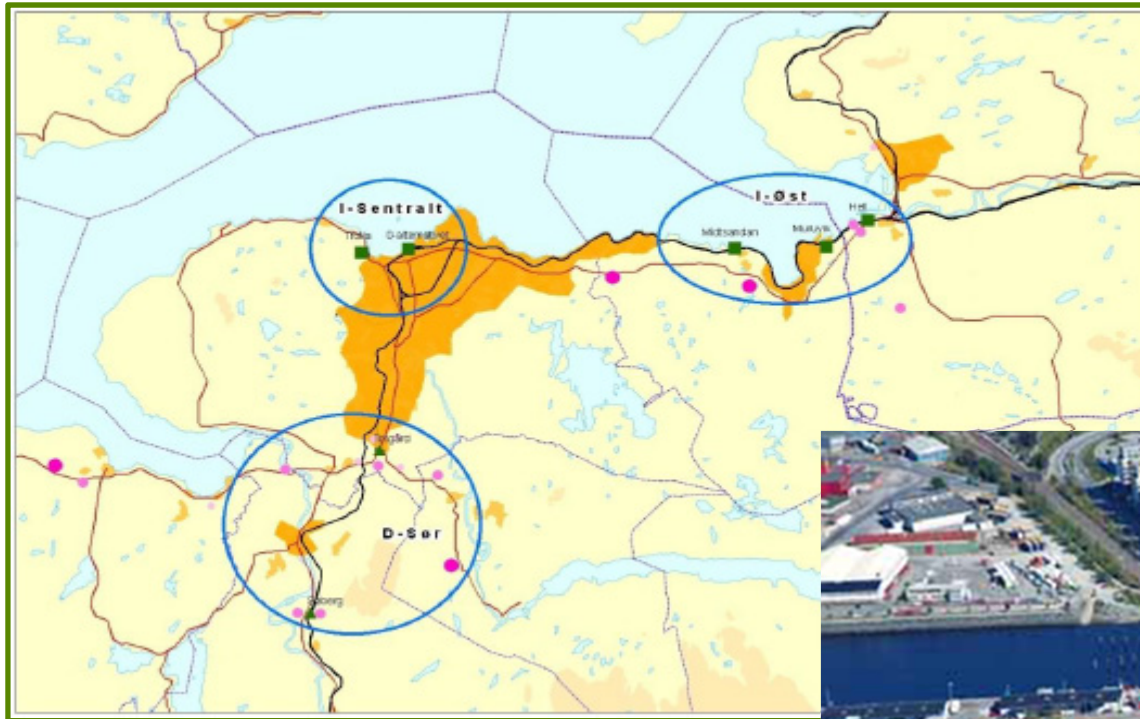
- What leads to more goods on rail?
- What leads to more goods on sea?
- What leads to less freight traffic in and through the centre of Trondheim?

Complexity

- 11 municipalities in 2 counties
- Embrace road, rail, air and sea
- Many stakeholders, needs, requirements and expectations – 63 written submissions



Concepts and alternatives



- 4 main concepts
- 15 alternatives

Existing terminal
(Zero option)



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High level objectives and project success

National objective - transfer goods from road to rail and sea



Heavy rain slows trains

Aftenposten



Freight traffic moves to roads



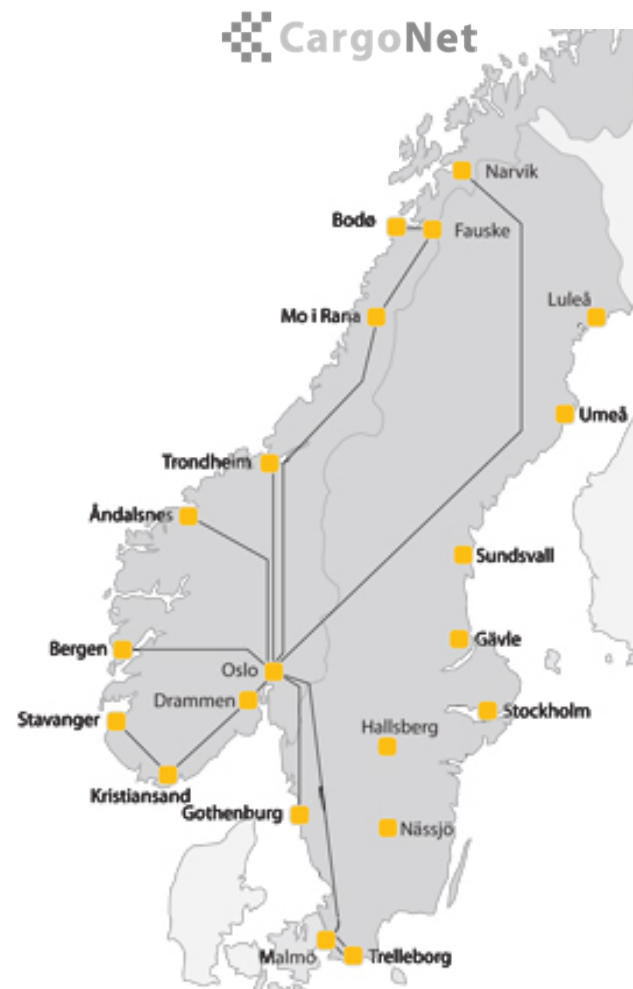
Dovrebanen in lose air

The freight terminal project can't meet its objectives in isolation!

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An integrated value chain



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**“Tell me and I will forget
Show me and I may remember
Involve me and I will change”**

- Confucius



*The government approves
disputed power line in Hardanger*



*Local resistance stops E18
after 9 years planning*

*Minister of Transport and Communications warns
that the government can intervene with government
regulation to ensure the development of E18.*

Importance of stakeholder involvement



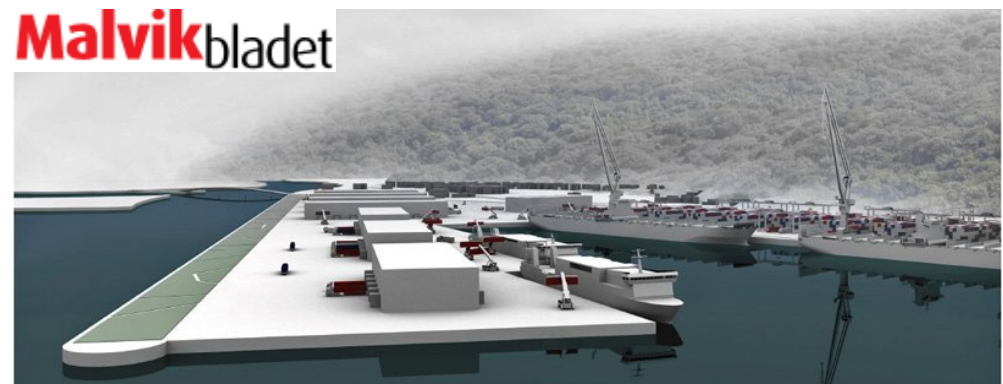
Worried for the future if the terminal is moved



On-site visit



Reduced importance of integrated harbour – split solution recommended



Do not want gigantic harbour at Hell

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Important elements in the Quality Assurance

- On-site visit to get a first hand impression of concept feasibility
- Open and honest meeting with stakeholders to capture concerns and opinions
- Review and verification of consistency within and between needs, goals and requirements
- Detailed review and verification of socio-economic model
 - Investment and life cycle costs
 - Socio-Economic effects – quantified and non-quantified
- Build economic model with own assumptions, estimates and uncertainties
- Challenge the assumptions and calculations done by the project
- Conclude and verify with the project



Hypotheseses for the Quality Assurance

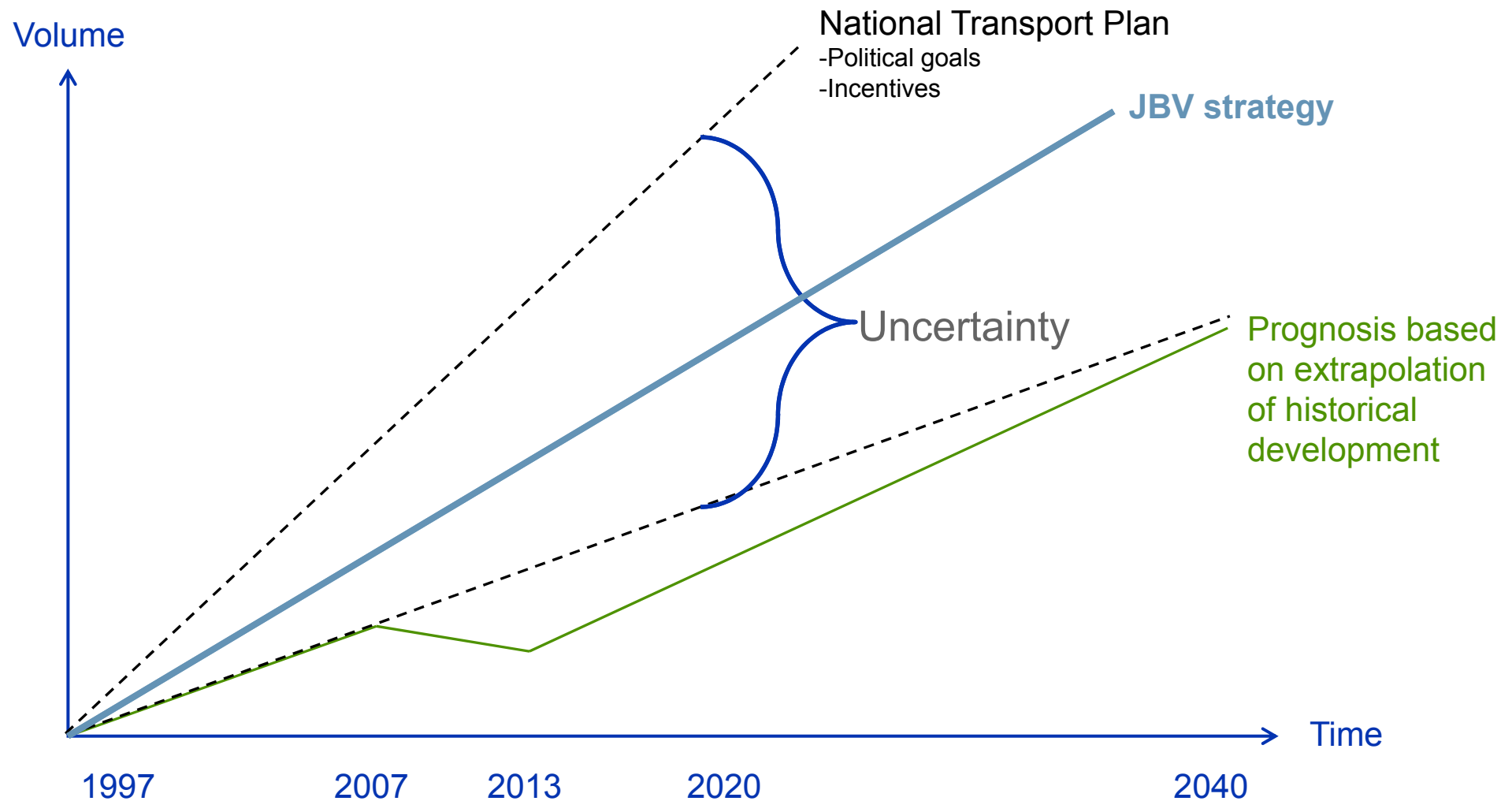
- An integrated solution does not require co-location of harbour and rail terminal when there are efficient transit and integrated IT-systems ✓
- Prognosis for increased freight volumes are too high ✗
- There are conflicts between individual needs and all needs are not equally important ✓
- The Zero option includes costs that will accrue anyway ✓
- Needs and requirement fulfilment depends heavily on neighbouring infrastructure ✓



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Uncertainty in prognosis for increased freight volumes

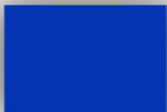
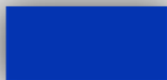
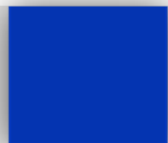
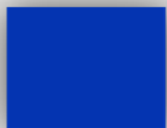

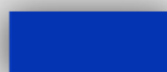
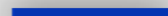


Quantitative consequences compared to the Zero option

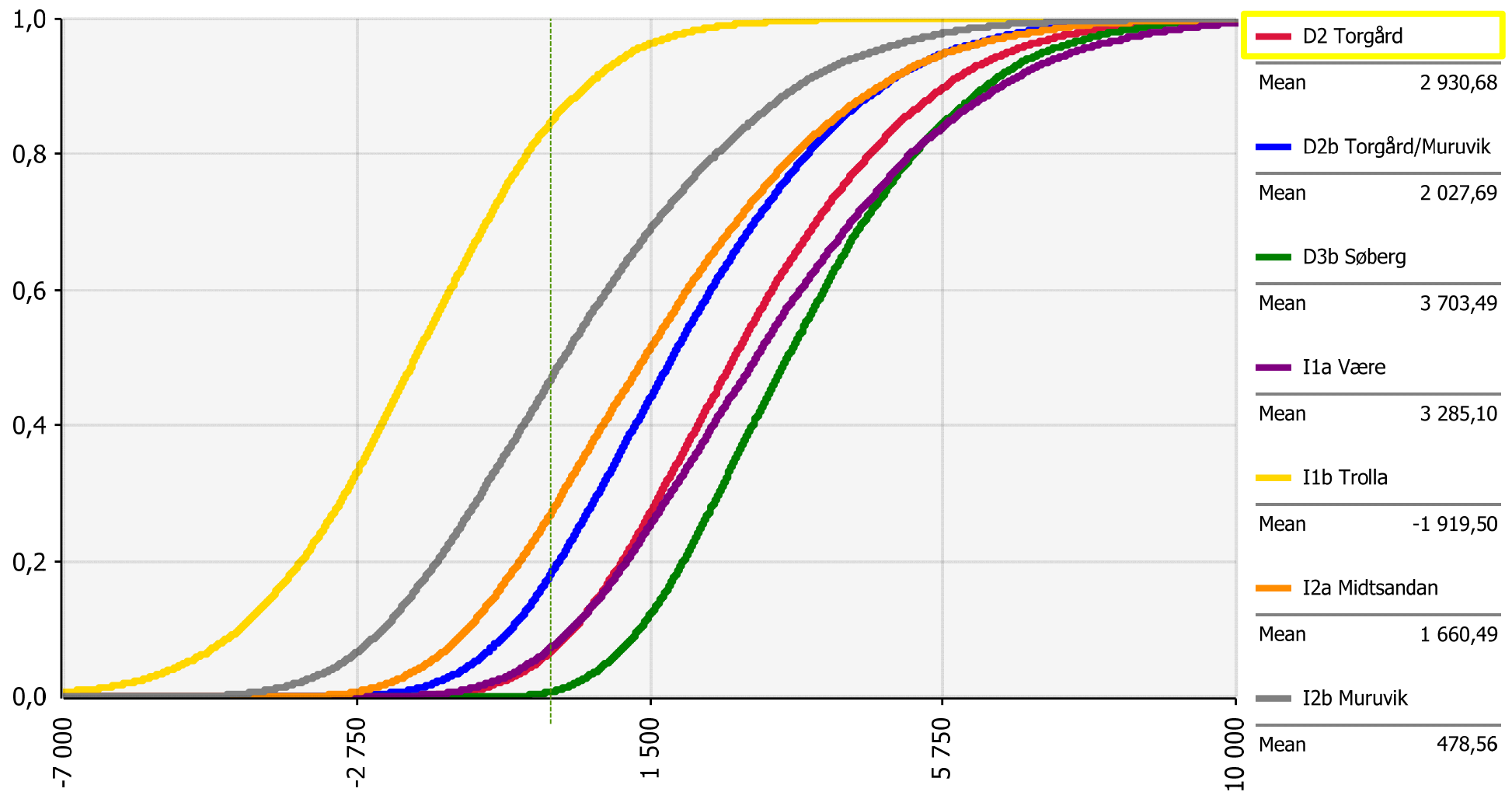
	Alt-0	D2 Torgård	D2b Torgård m/Muruvik	D3b Søberg	I1a Være	I1b Trolla	I2a Midtsandan	I2b Muruvik
Investments	985	-1 426	-1 619	-450	-738	-4 681	-689	-1 793
Operating costs	1 155	-588	-721	-588	-719	-694	-688	-692
Maintenance costs	25 498	750	650	719	788	514	701	751
Transport costs	344 775	1 966	1 227	1 860	880	1 810	-339	-309
Environmental costs	37 905	2 414	2 330	2 291	2 951	1 039	2 534	2 407
Government dues	28 716	1 450	1 327	1 365	1 855	761	1 699	1 604
Public budgets	-1 077	-2 714	-3 017	-1 683	-2 523	-5 623	-2 375	-3 339
Sales	0	169	619	169	607	607	607	607
Remaining value	-154	189	145	39	20	611	9	176
Tax	-215	-543	-603	-337	-505	-1 125	-475	-668
Change in NPV	409 949	2 931	2 028	3 703	3 285	-1 920	1 660	479

Prognosis for increased freight volumes are of paramount importance!

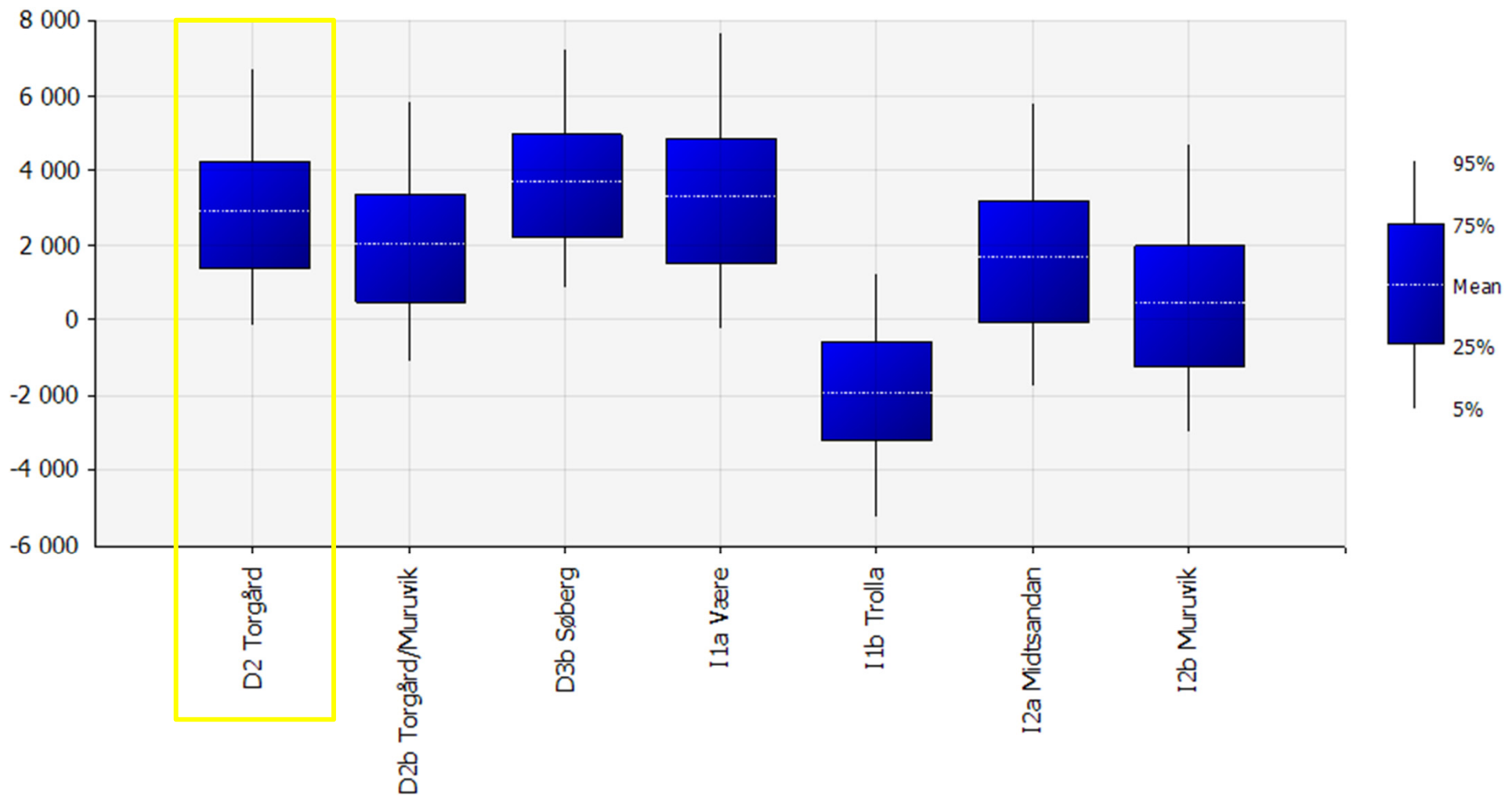
Total results from the socio-economic analysis

Analysed Concepts	D2 Torgård	D2b Torgård/ Muruvik	D3b Sjøberg	I1a Være	I1b Trolla	I2a Midtsandan	I2b Muruvik
Quantitative Analysis							
Change in benefit compared to Alternative 0 (MNOK)	2 931 	2 028 	3 703 	3 285 	-1 920 	1 660 	479 
Ranking (quantitative)	3	4	1	2	8	5	6
Qualitative Analysis							
Environment	+	+	0	÷ ÷ ÷	+++	÷ ÷ ÷	÷
Local community	+	+	0	0	0/+	0	+
Flexibility	+	+	0/+	0	+	+	0
Consolidated evaluation	++	++	0	÷ ÷	+++	÷	0
Ranking (qualitative)	2	2	4	8	1	7	5
Total ranking	1	2	3	7	8	6	5

Comparison of NPV for each alternative (MNOK)

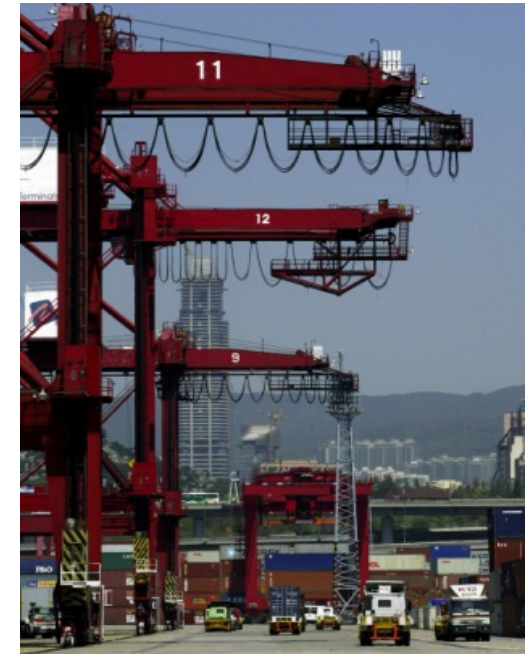


Uncertainty in NPV



Impact of the QA process on this project

- Originally a comprehensive and well documented job by the Norwegian National Rail Administration that was further improved through the QA process
- The robustness of the data improved through correction of errors in the original model
- Definition of integrated concept did not require co-location
- Focus shifted from a co-located site at the shore to an integrated but split concept using existing harbours
- Reduced local resistance
- Increase robustness in decision basis and broad stakeholder involvement increases the likelihood of a smoother continuation of the project



Independent Quality Assurance provides value

- Discover errors in the basis of calculation
- Forces the project to consistently and thoroughly describe and document all assumptions and results
- Trigger new thought processes in the project by challenging concepts and alternatives
- Reduce the chance for stakeholder conflicts through hearing and considering their inputs objectively
- Reduce the overall planning horizon due to less chance of stakeholders revisiting decisions
- Objectivity without a political agenda – solid and trustworthy decision basis!



The next step is political decisions – on all levels – what will the solution be?

Safeguarding life, property and the environment

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