Governance regimes for large transport infrastructure investment projects: Comparative analysis of Norway and Sweden

Abstract

The two Nordic countries Norway and Sweden have launched governance regimes for the early phases of transport infrastructure investments after experiencing frequent cost overruns and low cost-benefit ratios. This study seeks to find out if these governance regimes have reduced the escalation of costs from early estimates to finalized projects and influenced the choice of projects away from those with lower benefit to cost ratios. We have compared governance regimes for major transport infrastructure investments in the two countries and examined the development and content of quality assurance activities, the involvement of internal and external parties, their duties and responsibilities, their stage gate models, and how decisions are made. The findings are that both countries have introduced formalizations of their governance regimes that mandate project reviews during the planning process and quality assurance, both of which have increased early cost estimates. One difference was that in Norway, the Ministry of Finance manages the quality assurance scheme and imposes external quality assurance requirements, while Sweden has no corresponding ministerial oversight. Therefore, on the one hand, the process is more strictly formalized in Norway, but on the other hand, cost-benefit ratios appear to have more weight in Sweden. Furthermore, although both countries have done several ex post evaluations, neither country has introduced a formalized ex post evaluation process allowing for systematic examination of the causes of cost overruns and low benefit to cost ratios. Even so, politicians may manoeuvre projects with lower benefit to cost ratios around the governance systems in both countries. Finally, some projects in both countries still have experienced significant cost escalations despite these processes.

Keywords: Quality; Investments; Stage-gate

1. Introduction

The planning of transport infrastructure projects in democracies could be described as emerging in environments where there are tensions between politicians with different roles. Some politicians have an interest in infrastructure investments in their constituencies, while other parts of government (often ministries of finance and governmental officials) are more concerned with cost efficiency. With the former having the final word, the latter often take a

backseat, which could be one explanation for the problems with cost-overruns and low benefit to cost ratios in many countries (Eliasson et al., 2015; Flyvberg, 2007).

A measure to strengthen project management from a cost-efficiency perspective is to impose general management procedures in the planning process in the hope of weeding out less profitable projects and mitigate problems with large cost overruns. This paper focuses on evaluating such management systems.

Norway and Sweden do not differ from other countries in that they both have experienced problems with cost overruns (Lundberg et al., 2011; Nilsson et al., 2019; Odeck, 2004) and have undertaken projects with low benefit to cost ratios (Eliasson et al., 2015) in the past. This fact also contributed to both countries introducing new governance procedures in their planning models. The Norwegian quality assurance scheme was established in 2000 and the current Swedish planning model in 2013.

The purpose of this study is to compare the governance regimes for large transport infrastructure investment projects in these two Nordic countries and to assess whether these governance regimes have reduced the escalation of costs from early estimates to finalized projects or influenced the choice of projects away from those with a low benefit to cost ratio. Thus, our key research questions were:

- With special focus on quality assurance of cost and benefits, how is the governance of large transport investments set up in the two countries?
- How is the governance compared to best practice?

We also discuss whether such governance systems are likely to make a difference, given the strong political interest for providing new infrastructure even at costs substantially higher than the calculable benefits. The main contribution of this paper lies the in-depth description and analysis of the governance systems of the two countries for major transport projects, expanding the comparison to include ex-post evaluations. Our contribution to the literature is the compilation of project governance schemes, with illustrations of the differences and similarities for the two countries. The results thus provide information for other countries considering the introduction of or adjustments to governance regimes for transport infrastructure investments.

The main result is that the governance reforms, to various degrees, have been successful in introducing new procedures and methods in the planning process, but that the governance procedures have failed to prevent cost overruns and projects with low benefit-cost ratios. The Norwegian system partly avoids cost escalation largely by more successfully anticipating cost escalation by increasing budgets.

The paper is structured as follows. Section 2 describes the analytical framework applied. Section 3 describes the research methods used in the study. Section 4 presents the planning practices used in Norway and Sweden. Section 5 compares their practices with each other. Finally, Section 6 concludes.

2. Background and state of the art

Planning systems have been studied by a range of scientific disciplines, including political science, public administration and economics. According to Peters and Pierre (2017) there are two main approaches in current public administration research, either almost completely theoretical analyses of public institutions, or detailed empirical studies. They argue that there is a need to join these two types of research in order to have theoretically informed empirical studies of the practice of public administration. In order to do so, this study mainly uses project management and economics as a theoretical framework for the study, along with the empirical analysis.

The doctrines of good governance used in this paper are the following. A governance regime for a large investment project can be defined as the processes and systems employed by the funding party to safeguard the quality of decision-making (Volden and Samset, 2017a). In addition, it should be ensured that the financial framework is realistic, the goals clearly defined, and the responsibilities allocated in such a manner that any problems arising along the way can be resolved. These track the six «Principles of Good Governance», which comprise: accountability, transparency, effectiveness, responsiveness, vision and rule of law (OECD, 2014). Müller (2009) describes project governance as encompassing all the requirements, processes and structures established by an organization's management of projects. In this study, we focus on the strategic aspects of project governance and to a lesser extent on project internal requirements.

In contrast to programs, projects are common in modern society as a way to get things done and organize work. This way of working can cause problems with cost overruns (Flyvbjerg, 2014; Jergeas and Lozon, 2015), and poor choices of which projects to implement (Brunet and Aubry, 2016). The concept of governance with emphasis on how processes are managed has emerged as a key concern in the effort to achieve better project control (Klakegg and Olsson, 2010). Samset et al. (2006) describe governance regimes as the processes and systems the financing party needs to put in place to ensure successful investments. APM (2004) describes the governance of projects, which relates to those areas of corporate governance that specifically addresses project activities; key objectives of project management governance are to ensure that the project portfolio of an organization is aligned with its objectives. According to PMI (2013), project governance provides a comprehensive and consistent method of controlling projects and ensuring their success. A number of guidelines have been developed to describe best practice of project governance models. Reviews of such guidelines are found in Muller (2017), Olsson (2018), and Williams and Samset (2012).

In the following, we present two concrete lists of such requirements, along with findings from important research on the issue. Haanes, Holte, and Larsen (2006) reviewed different project governance models and suggest key elements, shown in Table 1. In a similar way, Narayanan and DeFillippi (2012) identified five elements that project governance schemes should include, also found in Table 1. Such elements are comparable to bureaucratic structures for accountability, as discussed for example in West (1997), and further discussed below.

Flyvbjerg (2007) summarized over a number of years the research on the planning and governance of large-infrastructure projects (see also Flyvbjerg, 2005; Flyvbjerg et al., 2003, 2004). We have included key characteristics of good project governance addressed by Flybjerg et al. (2003) in Table 1. In addition, we include issues added later and presented by Flyvbjerg (2007).

Table 1 shows the relation between our chosen aspects of good governance and those in relevant literature. In the left column of the table, we have listed the aspects that this study utilizes to analyse and compare the governance systems of the two selected countries. The table illustrates that the issues addressed in this paper (rows in the table) are in general aligned with previous studied on good governance. However, we emphasize ex-post evaluation more than previous literature has done on average (this is indicated by empty cells in the table), even though there are authors, notably Flyvbjerg, who have pushed the issue.

Table 1. Aspects of good governance addressed in this study and comparison with selected previous studies

Aspects of good governance				
Focus in this study	Haanes, Holte, and Larsen (2006)	Narayanan and DeFillippi (2012)	Flyvbjerg et al. (2003)	Flybjerg (2007)
Stage gates, project phases and decision gates	Clearly defined project phases and decision points Some degree of standardization and common terminology Simplicity	Stage-gate approval processes Contracts and sign-offs	Ensure transparency Ensure accountability in decision-making processes	Ensure accountability
(Avoiding) short cuts in the planning process	Formal roles and responsibilities	Stakeholder representation	Authorities should not promote specific projects	Potential projects should be subject to independent reviews
Uncertainty analyses	Quality assured basis for the decisions	Quality assurance	Risk management	Compare a proposed project to previous similar projects
Ex-post evaluation as part of a feed-back loop			Follow-up of planner's estimates	Follow-up of forecasts of cost and demand for transport investments

In the following, we present a model to analyse major projects, more specifically, one that is adapted to review the Norwegian and Swedish planning systems for transport infrastructure. The overview will also serve as a basis for the comparison of Norway and Sweden's planning systems that is presented later in the paper. The issues we address are described below.

2.1. The planning system, structure and responsibilities

According to Klakegg and Olsson (2010), the literature on governance often focuses on international macro-perspectives in the public sector (e.g. Kaufmann and Kraay, 2007), at the national and regional level (e.g. Pollitt, 2003). Governance should provide a link between the role of the strategic owner and the project. The planning system is a key part of securing this link. The planning system describes how public finances are allocated.

The interest in the governance of projects has been a key interest in project management since around the turn of the millennium. Major contributions to the understanding of governance of large transport infrastructure projects are made by Flyvbjerg et al. (2003) and the subsequent publications by Flyvbjerg, as listed above. Odgaard et al. (2006) found that cost-benefit

analyses (CBA) are the most commonly used tool for decision support for projects subject to co-funding from the EU, as well as nationally in EU countries. However, studies such as Sager (2016) show that the benefit to cost ratio of a transport investment is not necessarily well correlated to the likelihood of a transport project being selected for funding. This indicates that other perspectives than only the benefit to cost ratio need to be included in analyses of appraisal of transport projects. Altshuler and Luberoff (2003) and Christensen et al. (2007) have highlighted the political dimension in the understanding of the governance of public investment projects.

2.2. Stage gates, project phases and decision gates

The use of stage gate models is an established best practice in project management (Cooper 2014). A stage gate project model is a standardized classification into project phases with specified decision points and the appurtenant documentation requirements. The decision points are introduced at especially important junctions, and the project cannot move into the next phase until a positive decision has been made. In this study, we apply a general model for classifying and identifying different project phases. The model is based on the Norwegian Next Step model (Knotten, Hosseini, and Klakegg, 2016).

2.3. Short cuts in the planning process

Since the introduction of stage gate processes, one key intention has been to force project screening into a structured process and to avoid short cuts (Cooper, 1990). The reason is that rushed decisions and poor front-end planning are well-known causes of project disasters (Morris and Hough, 1991). The purpose of planning models and decision gates is to make sure the best projects and most suitable designs are undertaken. However, there will always be stakeholders pushing their pet projects through or around the process, typically searching for excuses for not exposing their project to cumbersome screening and questioning and ultimately the risk of rejection. It is therefore interesting to study how the intended decision processes work in practice.

2.4. Uncertainty analyses

Cost uncertainty is a concern in major investments, even though uncertainty regarding the benefits also deserves attention. An uncertainty analysis includes an estimate of the probability and consequence of any identified uncertainties (Lichtenberg, 1974). Special attention is often paid to quantitative analyses of the expected cost for a project. Formalized uncertainty analyses can present the probabilities of different cost outcomes of a project. Stochastic estimation yields a cumulative probability distribution for the investment cost. The most likely cost is usually of main interest, but also, for example, the costs that have only a 15% probability of exceeding. Here, we studied how such uncertainty analyses are integrated in the governance regimes.

2.5. Ex-post evaluation as part of a feed-back loop

In project management, evaluation is relatively common (Olsson et al., 2010). One reason is a desire to learn from previous project experiences. Pemsel and Weiwiora (2013) highlight the serious problem of knowledge loss at the project's end for project-based organizations. According to Williams (2007), learning from project reviews is important and should be an integral part of an organization. In general, we can distinguish between ex ante and ex post evaluations of an intervention. Ex post CBA evaluation of transport projects is done in

England and France, as well as on the European level, for example, but relatively infrequently (Kelly et al., 2015).

Argyris and Schön (1996) describe learning as understanding and eliminating the gap between the expected result and the actual result of an action. This gap can be eliminated either by making changes (such as taking corrective measures) within the existing norms (referred to as single-loop learning), or by changing the existing norms (double-loop learning). Single- and double-loop learning can be accomplished by active use of evaluations for reflection and knowledge sharing. Evaluation can be a part of project governance systems. Researchers such as Flyvbjerg (2014) and Welde (2018) recommend project planning structures that include evaluation feedback loops be used in major transport projects. A further purpose is to hold planners accountable for previous cost overruns. In this paper, we limited the analysis to the detection of any institutional arrangements with a likeness to such a suggested structure.

2.6 The politics of bureaucratic structures and governance systems

The introduction of the management methods and governance structures to improve projects ant prevent implementation of bad projects raises the question of why government simultaneously want to promote 'bad' projects and governance structures to prevent the implementations of such projects. The theoretical literature on bureaucratic structures contains different types of explanations for how structures emerge and for what reasons (West, 1997). Bureaucratic structures are defined as formal, legal dimensions of public administration, including administrative procedures and personnel arrangements, but can also be classified in terms of oversight and accountability and opportunities for outside participation. West (1997) points to three perspectives on theories of structural choice: normative, idealist and a rational choice. As an outflow of the latter perspective comes efforts to develop a theory of delegation of authority and the uncertainties associated with such delegation. This development, Moe (1990) claims, sought to explain structural choices in terms of group preferences. Moe's analysis suggests that institutional choices accommodate conflicting interests and that program designs often embody several competing objectives, therefore framing the structural decisions in terms of struggle between winners and losers from program implementation (West, 1997, p 596.)

An example of a situation where the construction of the governance systems fails to accommodate competing objectives was the commission to promote a Swedish high-speed rail system (Ronnle, 2019). Ronnle suggests that this commission was launched to pave the way for constructing this project although government was well aware that it could not pass the cost-benefit criteria of the government's own agency for transport infrastructure. In fact, Ronnle's study is one of the best documented analyses of the conflict between the political will to build infrastructure and the values built into the governance system of the planning system.

In this context, principal–agent theory has suggested that uncertainty due to difficulties in foreseeing upcoming issues and the efficient handling of these according to the political preferences of the majority can create problems of deciding appropriate structures in advance. Legislators can address these problems with a combination of ex ante and ex post controls. March (1994) suggests some further sources of conflict between general perceptions of preferences and strict decision processes. March further points to the need to understand the wider wishes of the public in decision making and fulfilment of the preferences of the decision maker. Therefore, there will always be real or potential conflicts arising from e.g.

different understandings of: objectives, available alternatives, consequences of the alternatives and the decision process.

West (1997) points to the main choice between constraining administrations to case-by-case adjudication or to legislation-like rule-based procedures. West proceeds to deliver a main critique that rational choice perspective in that it is hard for legislators to foresee which of these kinds of procedures will benefit their interest groups.

This kind of theory suggests some important observations for the study of governance issues for infrastructure projects. First, the introduction of the governance structures analysed in this paper do not unequivocally and consistently promote the interests of particular interest groups. It is frequently observed that emphasis on net benefit to cost ratios will sometimes be to the disadvantage of the interests of political majority (Sager, 2016). Second, an emphasis on positive net benefit ratios may even be at odds with popularly held perceptions like 'improving transport infrastructure is necessary to achieve national economic growth' (Ronnle, 2019). Third, the second observation may place agencies in charge of managing the governance systems in conflict with the ruling majority. This is a very important observation for the further analysis of the future viability of such governance systems. This conflict will require more careful observation of the actual possibility of producing proposals for new infrastructure in keeping with both political preferences and 'good' governance. These observations should alert us to the possibility that an apparently legitimate introduction of stricter decision requirements may generate conflict as political majorities that can want projects that are likely to end up with cost overruns or low net benefits

In the following sections, we first present the research approach, followed by an overview of the findings regarding the planning processes for transportation projects in Norway and Sweden.

3. Research approach

This case study is based on review of relevant documents, complemented by interviews with key informants about governance schemes in both countries (see Table 2 for a description of respondents). The gathering of data was focussed on the development and content of stage gate models, which involved internal and external parties, their duties and responsibilities, how decisions were made at the political level, and how the schemes were structured at the project level.

Table 2. Informants who were interviewed as a part of the study.

Type of organization	Number of interviews
Office of auditor general	2
Public analysis	4
Transport agency	4
Total	10

An interview guide was set up to support the interviews (see Appendix 1). Notes from the interviews were usually written directly afterwards, the day after at the latest. All interviews

were done by telephone. In addition, several of the interviewees supplied additional information by e-mail after the interviews. A case study report (Samset et al., 2016) was prepared, as recommended by Yin (2013).

The case study was also based on a review of publicly available guidelines from responsible agencies, a literature study of relevant research reports, and interviews with officials. An overview of reviewed documents is found in Appendix 2.

We are familiar with the Swedish and Norwegian planning system through working experience. The authors have also previously worked with the Swedish and Norwegian planning system. Such knowledge has advantages, but also raises the question of possible bias. To compensate for potential personal bias, we have emphasized outside review of the study throughout the process. Key review points are listed in Table 3. A preliminary version of the case study report was reviewed by Norwegian and Swedish ministries to verify the descriptions of the schemes. Necessary corrections and clarifications were added in the final case study report. This case study report itself (Samset et al., 2016) was reviewed by the editorial board of the concept research programme. As a part of converting the case study report to a journal publication, a draft paper was reviewed at an open hearing at Swedish National Road and Transport Research Institute (VTI) for quality assurance. The hearing had a main opponent and was attended by 10 transport researchers, who commented the study. Records of the public hearing were kept.

Table 3. Steps in the quality assurance of the study.

Type of organization	Number of reviews	Type of review
Ministries	2	Commenting on a preliminary case study report
Editorial board	1	Review of case study report were these two countries were included
Transport research agency	1	Public hearing of draft paper

4. Empirical setting and findings

The following section provides a descriptive presentation of the governance regimes for large transport infrastructure investment in Norway and Sweden.

4.1. Norway

To begin with, we present an overview of the situation in Norway, beginning with general structures, and then addressing the aspects of god governance presented in table 1.

4.1.1 Structure and responsibilities

In Norway, individual ministries are responsible for new investment initiatives, the majority of which are analysed and implemented by a subordinate agency. Strategic planning of Norwegian transport projects is coordinated through the national transport plan (NTP). The NTP outlines how the government intends to prioritize resources within the transport sector. It is presently a twelve-year plan that is revised every fourth year. This plan provides a comprehensive basis on which to make decisions and addresses other important policy issues (NTP, 2017).

The joint proposal from the four agencies responsible for road, rail, sea and aviation transport is presented to Parliament every four years. It sets forth the government's transport goals and

strategies from a long-term perspective and forms the basis for the annual state budgets in the Norwegian transport sector. However, the transport plan is not a budget. Projects that are prioritized in the plan rely on funds to be allocated through the annual state budget. This means that the final decision to build is made when a formal budget is approved in the state budget or in other parliamentary bills. As we will discuss below, such a decision is subject to the passing of a stage gate decision.

4.1.2 Stage gate models

The Norwegian quality assurance scheme was established by the Ministry of Finance in 2000 and expanded in 2006. Its purpose was to achieve a higher success level for projects. The background for establishing the scheme was negative experiences in the form of major cost overruns, delays, and low benefit to cost ratios for several major public investments during the 1980s and 90s (Berg et al., 1999). The scheme covers a range of governmental investments, including transport projects.

The Norwegian stage gate process involves two stages. Any initiatives with a presumed budget in excess of a NOK 750 million (about 75 million EUR) threshold value must be analysed in accordance with the requirements and formats stipulated by the Ministry of Finance. These analyses are then subjected to external quality assurance on behalf of the relevant ministry.

The first stage concerns the actual choice of concept, i.e. the conceptual solution one chooses to meet a societal need. After an idea phase, the Ministry of Transport and Communications instructs one or more transport agencies to carry out a Conceptual Appraisal (CA), indicated by the letter A in Figure 1. A CA attempts to clarify the underlying problem that needs to be resolved, describes the conditions and requirements that must be fulfilled, identifies solutions, and then assesses their feasibility (Samset and Volden, 2013). As part of the conceptual appraisal, a cost-benefit analysis of different project alternatives is carried out, along with uncertainty analyses.

The agency's CA is subject to an independent assessment of the document, termed Quality Assurance 1 (QA1), letter B in Figure 1. The quality assurer checks the technical quality of the basis for decision-making. The CA and the QA1 serve as input to a decision at the government level whether to reject the project or proceed to the pre-project phase, letter C in Figure 1.

When the pre-project has been finalized and the project presumably is ready for final decisions regarding funding, the budgets and general maturity of the project are subjected to external Quality Assurance 2 (QA2), letter D in Figure 1. The ministry submits these documents to the Ministry of Finance. The government thereafter submits the matter to the Parliament, which makes the final decision (E in Figure 1) and sets the budgeted cost that commits the responsible ministry and the target cost that commits the agency. The Parliament can also reject the project.

The Ministry of Finance is responsible for the administration of the QA scheme and serves as a key gatekeeper in the decision process. Commissioned by the ministry, independent reviews are conducted by consultants. There are currently six consultancy consortia that have framework agreements with the Ministry of Finance for a period of years. The consultants

examine the quality of the documents and perform a separate independent analysis of the uncertainty associated with the investment cost and benefit to cost ratios.

Figure 1 presents the Norwegian project model. The Norwegian scheme involves two decision points with specified documentation requirements.

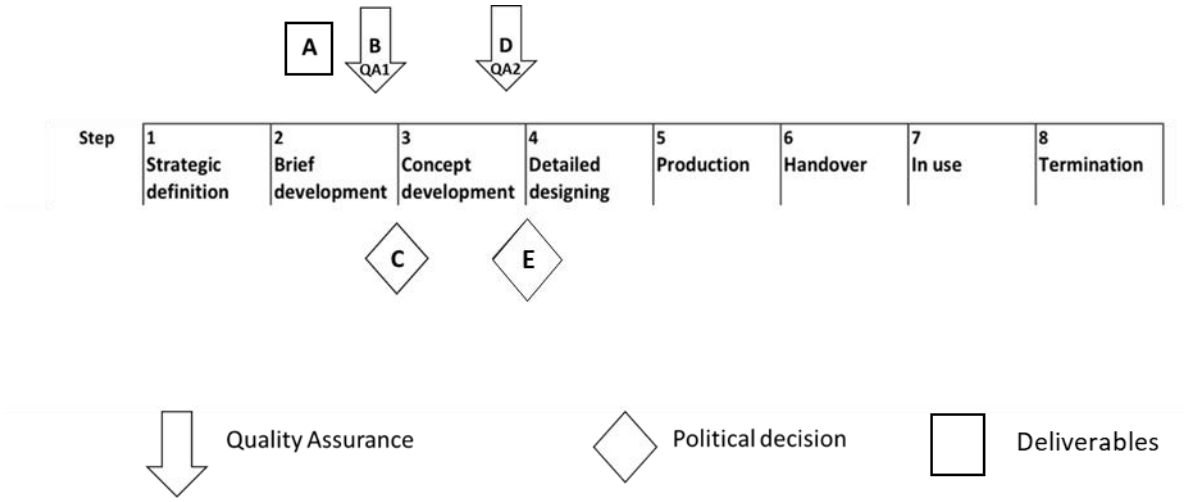

Figure 1: The Norwegian project model mapped into the Next Step framework.

During the 15 years since the scheme was introduced, there have been more than 230 project reviews. All projects represent major central government investments, most of which have fallen into the interval between the threshold value of 75 million EUR and up to 3 billion EUR. About half of the projects fall under the responsibilities of the Ministry of Transport and Communications. There are indications that the Norwegian scheme has had a significant impact on important issues like budget discipline. Samset and Volden (2013) found that 80% of the first 67 projects subjected to QA2 were completed within the budgeted cost. Magnussen and Olsson (2006) found that the differences in the proposed cost estimates between consultants and agencies decreased systematically following the introduction of the quality assurance scheme. However, there have also been objections. One issue has been time and resource use. It has been claimed that the use of private consultants prevents the development of central government expertise and that the scheme is rigid and inflexible. Another issue has been the relationship between technocratic analysis and advice on the one hand and democratic processes on the other.

4.1.3 Shortcuts and alternative ways into the planning system

A key intention of the Norwegian quality assurance scheme was to close loopholes that open for governmental commitments without proper review. Formal commitments for governmental investments are covered by the process, but some potential projects do not necessarily follow the typical planning process. Transport investment packages in major cities typically have a history of negotiations between the local level (municipalities), regional level (counties) and national level about sharing of costs and design of user financing, such as through toll roads. Similar negotiations can be done prior to major investments in new or upgraded roads. Urban investment packages typically consist of several interrelated projects including roads, rail, other public transportation and improvements for cyclist and pedestrians.

As an example, Oslo-pakke 3 covers most transport investments in the Oslo area for the period 2017–2036, with an estimated cost of 100 billion NOK.[1] (about 10 billion EUR)

Each individual investment project still needs to pass through the quality assurance scheme, but they do so with a history and relations to other investments as described in the Oslo-pakke 3 agreement. Sager et al. (2017) point out that the practice of transport packages makes it difficult to do front-end evaluation of the individual projects, as they are interconnected.

Another potential alternative way into the planning system is illustrated by the Norwegian High-speed Rail Assessment, conducted from 2010 to 2012. Related to the planning process, this study was at a very early stage, where the main question was if high speed rail should be considered for inclusion in the NTP, prior to a CA. However, the analysis covered several of the elements in a CA and QA1. It concluded that high-speed rail had a very low benefit to cost ratio, and focus shifted from high-speed rail to developing regional and commuter trains in the greater Oslo area. Plans for major construction were quickly established, subjected to CA and QA1, and proceeded in the planning process. The railway authorities have revised the plans, however, postponing large parts of the original plans due to lack of planning and construction capacities, and cost increases.

From 2016, a part of the road investment portfolio was handed over to a separate agency, Nye Veier ("New Roads"). Nye Veier can prioritize between projects within their portfolio, based on benefit to cost ratio and planning maturity. Prioritization of their projects are to a higher degree done within the agency, compared to the investments that are still within the standard governmental structure.

4.1.4 Uncertainty analyses

Uncertainty analyses are done through the planning process. Both QA1 and QA2 include uncertainty analyses. As a part of QA1, the quality assurer is required to conduct a separate uncertainty analysis and cost-benefit analysis as well as make a recommendation on a decision-making strategy.

Uncertainty analyses of project costs in particular are a key part of QA2. QA2 is focused on realistic budgets and ensuring that delivery takes place in a time- and cost-effective manner. Quality assurance of management documentation and cost estimation should be carried out prior to any appropriation decision by the Parliament and prior to commencement of the project. The recommendation on budgeted cost is an important part of QA2, and its technical basis is stochastic cost estimation. The background to this is that deterministic cost estimates are often systematically skewed and do not provide sufficient assurance that the budgeted cost approved by the Parliament will not be exceeded. The quality assurer should make its recommendations on budgeted cost and necessary contingency reserves. This includes how the project should be managed in order to remain within the budgeted cost, including the organizational structuring of authorization to draw on the contingency reserves.

While formal cost overruns have been reduced since the scheme was introduced, Welde and Odeck (2017) show there have been substantial cost increases during the planning process, before the formal decision to build is made. Such cost increases are not formally seen as cost overruns but raise the issue of whether decisions and priorities established in the early stages

[1] https://www.vegvesen.no/vegprosjekter/oslopakke3.

of project development are based on false information in spite of the measures taken to produce realistic cost estimates.

4.1.5 Ex-post evaluation and feed-back loops

The Norwegian system does not have formal mandatory ex-post evaluations, even though it has been discussed. However, the investments that have been subject to QA1 and QA2 are closely followed up not only by the ministries and agencies but also by a dedicated research programme, Concept, located at the Norwegian University of Science and Technology. Concept has studied cost performance and other aspects of finished projects (Concept, 2018). In addition, both Concept and the agencies perform ex-post evaluations of selected investment projects.

A general approach based on a logical framework is used for ex-post evaluation of Norwegian major investments (Sørensen et al., 2015). An evaluation framework was developed and co-ordinated by the Concept programme at the Norwegian University of Science and Technology. Evaluations based on the framework are conducted by the university, by consultants or by the relevant agencies. The evaluators collect and analyse relevant data and provide an assessment of the project performance, and the evaluations are made public (Concept, 2018).

Volden and Samset (2017b) did a meta-evaluation of 20 evaluation reports. They found that the projects performed well from an operational perspective (efficiency), which means that they were finished within budget and on time. Most projects also scored well on effectiveness and sustainability. The projects had weaker results regarding their impact. The projects scored lowest on cost-benefit ratio. They found that railway projects scored low on effectiveness and profitability, while road projects scored better on these criteria.

After having briefly presented an overview of the situation in Norway, we will review Swedish situation in the following.

4.2. Sweden

The presentation of Sweden will follow the same structure as for Norway, based on the aspects of table 1.

4.2.1 Structure and responsibilities

Long-term planning in Sweden dates back to at least the 1980s. Many changes and reforms have been undertaken since then, but the basic idea, that the agencies are in charge of preparing a basis for decision-making, remains the same. Sweden has a tradition of small ministries and large, strong government agencies (Boge, 2006).

Strategic planning of Swedish transport infrastructure projects, as manifested in the national plan for the transport system, is conducted and coordinated by the Transport Administration. This work, however, is governed by the Ministry of Enterprise and Innovation. The plan outlines how Parliament and the government intend to prioritize resources within the transport sector. It is presently an eleven-year plan that is revised every fourth year. This plan provides a comprehensive basis on which to make decisions and addresses other important policy issues. It seeks to ensure the efficient use of resources and strengthen interactions between the various modes of transport.

The government makes annual decisions for projects that could start within 1–3 years as well as projects that are or will be prepared for construction in the following 4–6 years. The Swedish Transport Administration (Trafikverket in Swedish) prepares the basis for the decisions, and the documents are quality assured by Transport Analysis, a third-party government agency. Transport Analysis performs several tasks associated with third-party control of Transport Administration, including reviewing cost-benefit analyses and analysing cost calculations before start decisions.

The principle governing transport investment planning is that the government lays down directives, while the Transport Administration prepares and proposes plans. Plans are put into action based on the yearly funding. Hence, most investments are funded by the agencies' own budgets, but major transport investments may also be financed by specific decisions of Parliament. In recent years, the government has decided that a number of major rail projects should be built despite their benefit to cost ratios (e.g. the Västsvenska paketet in Gothenburg), which have absorbed a large portion of the investment allocation for new large projects. The Swedish Transport Administration's freedom to prioritize has therefore been limited to minor initiatives.

Jussila Hammes and Nilsson (2016) examine different possible explanations for the choices of projects in the Swedish national infrastructure plan. They tested three distinct explanations, calculable net welfare effects, co-funding from the municipality and a swing voter hypothesis. They found that calculable net welfare has little influence on chosen projects, but co-funding and which municipalities are swing communities do.

4.2.2 The stage gate model

In 2013 a new planning process for infrastructure was adopted in Sweden. One key feature of the new process is flexibility (Winzell, 2017), which complicates describing the process in a simple and chronological manner. Therefore, the following description, depicted in Figure 2, is not to be seen as a comprehensive but a basic representation that focuses on the stage gates.

The planning of a road starts in Sweden with a financial framework being decided by Parliament, see letter A in Figure 2. This framework gives the budget for the coming 12 years and is revised at least every fourth year. The next step is for the Swedish Transport Administration to undertake a strategic choice of measures that analyse the deficiencies and problems within the current system to find alternative solutions (Trafikverket, 2013). The core of this analysis is the four-step approach, see B in Figure 2 (Trafikverket, 2013):

Step 1: Rethink – Measures that can affect the demand of transportation and choice of transport mode
Step 2: Optimize – Measures that make the utilization of existing infrastructure and vehicles more efficient
Step 3: Improve – Limited amount of reconstruction and improvements
Step 4: Invest – New constructions and major improvements

The four-step method is a planning tool that first tries to improve the current infrastructure with organization changes or policy instruments (Steps 1–2). Only if this is not enough, construction is undertaken (Steps 3 and 4).

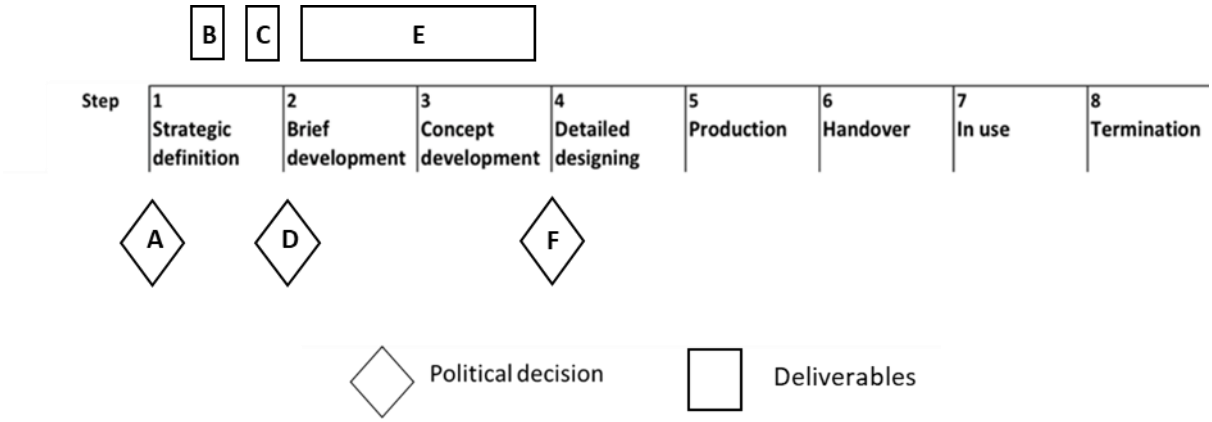

Figure 2: The Swedish project model mapped into the Next Step framework.

Given that construction is needed, the next phase of the planning is to estimate the cost and the benefits of the project. Sweden has a long tradition of doing cost-benefit analyses regarding infrastructure investments, and this method is robust (Börjesson et al., 2014). The cost-benefit analysis and the relevant aspects not included in it are summed up in an overall impact assessment, letter C in Figure 2. Overall impact assessments are presented for all projects and handed into the government, as input for their decision on the national transport plan, letter D in Figure 2. This plan is a running 12-year plan, where the government selects candidates from the overall impact assessment. The projects chosen by the politicians do not always coincide with the ranking of the overall impact assessment, however (Eliasson et al., 2015).

It is not until the government finalizes its decision on the plan, that the final stages of the included project planning start. This is an integrated process where all the stakeholders get consulted, but it is the Swedish Transport Administration that is responsible for the planning. The actual work is conducted both in-house and with procured consultants. This integrated planning process emphasizes collaboration and involves central, regional, local government agencies but also private and corporate interests. Indicated by letter E in Figure 2, a number of documents, measures and consultation are undertaken, such as an environmental impact assessment (EIA), in order to get the road plan approved. The road plan provides the legal basis for building a road, in accordance to Swedish legislation (Vägförordningen, SFS 2012:707 and Väglagen, SFS 1971:948). Once the road plan has acquired legal status and Swedish Transport Administration has the necessary funds for it in their own yearly budget, indicated by letter F in Figure 2, the detailed design of the road can start.

Sweden does not have formal schemes for external quality assurance of investments. According to both Bruzelius (2012) and the Swedish National Audit Office (2011), there is no activity on the part of the Swedish Transport Administration that could be described as external quality assurance, or more deliverables. External reviews have nonetheless been conducted on a couple of occasions and have typically focussed on the compositions of the project portfolios rather than on individual projects. From a European perspective, the Swedish Transport Administration undertakes much of the planning, in contrast to other countries where more planning work is done by the ministries. This can be seen as an effect of the relatively large size of Swedish agencies in relation to the ministries (Eliasson et al., 2015).

However, within the transport sector, Transport Analysis follows up on cost benefit calculations and methods in particular. The cost-benefit analyses are subjected to internal quality assurance within Trafikverket. The agency has dedicated personnel trained in such analyses. SIKA (Swedish Institute for Communication Analysis) was charged with reviewing the underlying planning documentation. This effort continued when SIKA was incorporated into Transport Analysis in 2010, see Transport Analysis (2013). Transport Analysis, which was established in 2010, is a separate agency under the Ministry of Enterprise and Innovation. Transport Analysis reviews the basis for decision making, carrying out evaluations, and compiling statistics within transport and communications (Transport Analysis, 2015b).

4.2.3 Shortcuts and alternative ways into the plans

There are however ways of getting into the plan without going through all the steps described above or being nominated by Transport Administration.

This process frequently starts with an initiative from regional or municipal politicians, before Steps A and B in Figure 2. If these succeed in cutting a deal with national politicians, their favoured project may enter the select projects championed by the government.

A recent example from Sweden is Sverigeförhandlingen, which is an initiative to find funding for a high-speed rail investment in Sweden. Ronnle (2017) shows how stage gate models are put aside in order to push the project forward, despite critiques.

4.2.4 Uncertainty analyses

The former Swedish National Audit agency (Riksrevisionsverket 1994) did an early study recognizing the problem of cost overruns. This led the Swedish government to introduce a requirement for the former Road and Rail Administrations (Vägverket and Banverket) to report cost outcomes for its major investment projects in 1996 and 1997 in their yearly reports. These calculations of cost outcomes were used by SIKA (2002) for a renewed analysis of cost outcomes and uncertainty. SIKA urged the government and the administrations to regularly report on the uncertainty of cost outcomes. Further experiences with cost overruns in Sweden led the Swedish government to commission Vägverket and Banverket to introduce methods to curb the phenomenon. Just in time for the preparation of the long-term plan 2010–2021, the Successive calculation method was introduced and applied to more than 300 projects.

Quality assurance of cost estimates for investment projects is primarily performed in the form of internal analyses, although these may include or be carried out by external consultants. There has been a development towards expanded use of successive calculation for the quality assurance of cost estimates (Transport Analysis, 2012).

The Swedish National Audit Office (2011) notes that the government had not performed any quality assurance of cost estimates in connection with the latest planning of rail investments. Successive calculation (Lichtenberg, 1974) a type of stochastic cost estimation, is used for all rail projects in excess of SEK 50 million (about 5 million EUR), and extensive training in the application of the method has been provided. Stochastic cost estimation is used for the quality assurance of previous project cost estimates (Trafikverket 2011a and b). Transport Analysis (2015) observes that cost calculations based on successive calculation are established practice within the Swedish Transport Administration. There are steering committees for all large investment projects, and one of their duties is the quality assurance of cost estimates.

Calculation blocks are used in both budgeting and follow-up. This practice facilitates the follow-up of actual costs not only at the project level, but also for individual parts of projects (Trafikverket, 2011a and b). These calculations were analysed by Lundberg et al. (2011). They show that the successive calculations estimate considerably lower variances of costs than previously observed. A couple of reports from the current Swedish National Audit Office (Riksrevisionen, 2010, 2011) shed light on cost overruns. Nilsson et al. (2018) indicate the continued prevalence of cost overruns. The most important observation, however, is the continued difficulties in establishing documentation showing credible and precise cost outcomes.

One challenge within the Swedish system, according to the Swedish National Audit Office (2010), was that projects evaluated in connection with a national or regional plan may have reached different stages of the physical planning process. This implies that cost estimates for various projects can be based on different degrees of certainty. There is typically more uncertainty in the early phases. This was one of the reasons for introducing the 2013 planning process, whereby the government makes annual decisions regarding transport infrastructure projects.

4.2.5 Ex post evaluation and feedback loops

Some of the central observations about ex post evaluation are already implicit in the above discussion. Sweden has never consciously fully integrated a full system of ex post evaluation with the intention of creating a continuous and systematic feedback loop. There are patchy and half-hearted attempts at gathering cost outcomes without a commitment to analysing the results either at the agency or government level.

In the following, we intend to make a discussion and comparison between the panning practices in the two studied countries.

5. Comparison of Norway and Sweden and Discussion

Having presented both countries' planning schemes for large transport infrastructure, the important similarities and differences are identified here.

5.1 The planning system

The planning systems have much in common in Norway and Sweden. The process is primarily politically governed with delegation of detailed preparation of plans for individual projects and choice of smaller projects. Government agencies play a key role in the evaluation of measures, the analysis of alternatives, and the estimation of costs. The government makes the decisions, but it does so largely based on the proposals of agencies. The County Administrative Boards evaluate projects from an environmental perspective. The agencies have a strong formal role in Sweden. However, decisions in both countries pertaining to many large projects involve the government and Parliament.

The system for the appraisal of transport investments is well established, with step-by-step planning and extensive involvement of affected parties. Both countries use twelve-year plans that are updated every fourth year.

In Sweden, there is a clear distinction between policies and their implementation (Bruzelius, 2012). The government formulates policies and charges its agencies with implementing them. However, the government tends to identify the projects that are to be accorded priority. When these and ongoing projects have been included in the plans, a major portion of available funds are committed, so the Swedish Transport Administration may have less freedom than perceived.

5.2 Implementation of stage gates

Norway also has a strong external quality assurance system with the Ministry of Finance in a strong gatekeeper role. The gatekeeper role that the Norwegian Ministry of Finance holds has no obvious parallel in the Swedish system.

In practice, the Swedish system for transport projects encompasses many of the elements from Norway's Conceptual Appraisal and QA1, although it is somewhat less formalized. However, there is no evident parallel to the Norwegian QA2 review. Cost-benefit ratios and environmental consequences are focal areas in the Swedish analyses of transport sector investments.

Cost-benefit analyses are important to the front-end analyses of transport investments in both Sweden and Norway. Eliasson et al. (2015) investigated how cost-benefit analyses affected road investment decisions in Sweden and Norway. They found that in Norway, neither benefits nor costs seemed to influence project selection. Benefit to cost ratios influenced project selection to a higher degree in Sweden, where civil servants' decisions in particular were strongly influenced by these ratios in the studied plan. Halse and Fridström (2018) show that road investments have lower benefit to cost ratios in Norway compared to Sweden, which can be explained by more challenging geographic characteristics, such as mountains and fjords, along with lower population density. Sager (2016) shows that the prioritization in the Norwegian road sector is not necessarily guided by the results of cost-benefit analyses, either by the bureaucrats, or by the responsible Ministry.

5.3 Short cuts and alternative ways into the plans

In both countries, there are established stage gate processes but also different initiatives that provide alternative ways to avoid or shortcut planning. This means that some investments enter the stage gate process with a history of commitments from authorities at different levels. Planning systems in both countries provide far-reaching freedom for national politics to decide on projects. However, in Norway the projects undergoing an alternative path are still entered into the stage gate process with CA/QA1 and QA2.

5.4 Uncertainty analyses

There is a more systematic external quality assurance system of cost estimates in Norway than in Sweden. In Sweden analyses of cost estimates have used successive calculation for a long time, and the calculation basis has developed to include other calculation methods such as simulations. Uncertainty analysis is a well-established part of the Norwegian quality assurance system. There is no established parallel effort in the Swedish state administration. Several studies from the Swedish National Audit Office have identified challenges related to cost overruns, as well as the absence of a formal benchmark cost against which the final cost can be assessed. As a result, more systematic cost evaluations have been introduced in the planning stage. The Swedish Transport Administration has introduced successive calculation for cost estimates. More structured use of external quality assurance of cost estimates for

major Swedish projects has been proposed to highlight the uncertainty associated with the projects and to take advantage of the disciplining effect of external review.

5.5 Ex post evaluation as part of a feedback loop

In both countries, researchers appear to be more interested in ex post evaluations than the agencies are. One initiative from the research programme, Concept, at the Norwegian University of Science and Technology, has begun to start ex post evaluations.

After the early initiative to mandate ex post calculations in yearly reports, such efforts from central government and infrastructure administrations have been feeble. This leaves plenty of potential to introduce such measures. A natural step to take is the one taken by the UK government, by introducing a systematic cost-uplift (Flyvbjerg and COWI, 2004). In the current climate, with intense political desires to invest in projects that cannot reach positive calculable cost-benefit ratios, the appetite for ex post evaluation also appears to be low.

In Sweden, the Ministry of Enterprise and Innovation has given the Transport Administration an assignment to improve productivity (N2017/06132/TIF, N2017/02483/TIF), which includes building a database to evaluate projects.

The most obvious steps to take would be to examine ways to ensure efficient data capture by adequate reforms of accounting and to institutionalize the ex-post analysis of individual purchases and projects within the infrastructure administrations. This could be promoted by assignments infrastructure administrations to identify and examine cost categories that develop faster than national inflation measures in order to forecast such cost development.

5.6 Using politics of bureaucratic structures

Neither Norway nor Sweden has been successful in avoiding cost overruns and negative benefit cost ratios. If the political majority finds this state comfortable in the sense that it does not create discontent in media or among citizens when negative benefit cost ratios are presented by its own administration, not much is likely to change soon. If on the other hand this is not the case, the analysis in section 2.6 suggests that solving such conflicts between political will and better governance could be done by purposely creating bureaucratic structures, either as a separate agency or as structures within the infrastructure administration, charged with proposing projects that may reconcile such conflicting objectives. This could require a wider mandate to examine alternative measures to infrastructure in order to improve transport or regional growth options that could deliver goal attainment at lower costs. Such an organization would need to be responsive to the political interests and creative in finding solutions in keeping with these.

6. Conclusion

This paper compares governance regimes in the early phases of major transport infrastructure investments in Sweden and Norway. Both countries apply project reviews during the planning process. In Norway, this is done by external private consultants reporting to the Ministry of Finance. Sweden also uses private consultants, but they report to the Swedish Transport Administration. Norway has two decision points. Sweden has several intervention points for technical advice and quality assurance. In Sweden, much of the quality assurance takes place internally within government agencies. In Norway, the Ministry of Finance has a gatekeeper

role. A similar gatekeeper role is not allocated to one particular part of the government in Sweden. In both countries, the outputs of formal decision tools are confronted with politics, as is expected in a democracy.

Our study addresses how formalized ex post evaluations are utilized for systematic learning from project experiences. Although both countries have done several ex post evaluations, neither country has introduced a formalized ex post evaluation process allowing for systematic learning about the causes for cost overruns and low benefits. Both Sweden and Norway need to structure project evaluation data (e.g. final cost) in an accessible way. In Norway, evaluation data are to a certain extent available through a university. In Sweden, a government assignment regarding data collection is being prepared.

Although many of the institutional settings are similar in Norway and Sweden, some differences are apparent in the planning of large infrastructure projects. On the one hand, this process is stricter and more formalized in Norway, but on the other hand, benefit to cost ratios appear to have more weight, at least for some projects in Sweden.

A key issue is whether these governance regimes can be expected to reduce the escalation of costs from early estimates to finalized projects and choices of projects with low benefit to cost ratios. The study indicates that the formal reviews contribute to providing realistic cost estimates. However, there are still cost increases between the decision points in the processes. We also studied to what extent the process is open for projects with low benefit to cost ratios. Although the formalizations of the governance regimes introduce quality assurance in both countries, which increases early cost estimates, still politicians in both countries manoeuvre projects with low benefit to cost ratios around the governance systems, and projects in both countries still experience significant cost escalations. The main contribution of this paper is therefore the indications that current governance systems can avoid cost overruns by increasing budgets but that they are unlikely to avoid low benefit to cost projects if these are wanted by political majorities.

This conclusion raises the following questions for future research. To what extent do governance systems contribute to redesign or weeding out of bad projects? Some indications could be found if internal selection of projects within agencies or ministries were documented. A related question is if there is a potential for redesigning projects and if local interests could be persuaded that designing projects in a less costly fashion could be acceptable? Such research would also have to involve early discussions on the design of the project. Both these issues presuppose a desire for redesigning projects to improve net benefits.

Given these observations should similar governance systems be introduced in other countries? Our assessment is that the introduction of governance systems should be associated with a clear vision about what kinds of learning the political majority and the agency want. If there is a perception that projects are insufficiently prepared, then more attention should be given to reassessment of design before projects start and sometimes after projects have started. An agency should also consider some reasonable degree of documentation of such design changes. At the same time governance systems should acknowledge that cost escalations may be so large that termination may be rational, even if painful, and that some contingencies in projects are difficult to foresee.

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Appendix 1. Interview guide

Is there a special regime for governance and quality assurance of large governmental investments? If so, what are the criteria for an investment to be included in the regime?

Describe the process for large governmental investment planning. Define key decision points.

Who are the key decision makers? At what level of the administration hierarchy?

What are the criteria for a potential investment to pass a decision point in the process? What is the role of cost-benefit analyses?

Who are doing that quality assurance of decision basis documentation, at what points in the process?

How, when and by whom are uncertainty analyses done?

What are the experiences from quality assurance of large governmental investments?

Appendix 2. Overview of documents included in the case study.

Document	Country	Topic
Berg, P. m.fl., 1999. Styring av statlige investeringer. Sluttrapport fra styringsgruppen, Finansdepartementet, 10 February 1999.	Norway	Basis for introduction of the Norwegian Quality Assurance Scheme
Concept, 2019. The Norwegian scheme for quality assurance of major public investments (the QA scheme). https://www.ntnu.edu/concept/qa-scheme.	Norway	Description of the Norwegian Quality Assurance Scheme
Regjeringen.no, 2014. Eierstyring og selskapsledelse https://www.regjeringen.no/no/tema/naringsliv/statlig-eierskap/eierstyring-og-ledelse/id613433/ Sist oppdatert: 07.01.2014.	Norway	Corporate governance policy of the Norwegian government
Finansdepartementet, 2003. Reglement for økonomistyring i staten. Bestemmelser om økonomistyring i staten. Fastsatt 12. desember 2003 med endringer, senest 8. juni 2010	Norway	Instructions for governmental Financial control
Finansdepartementet, 2005. Veileder i samfunnsøkonomiske analyser.	Norway	Guidelines for socio-economic analyses
Finansdepartementet, 2010a. Konkurransegrunnlag med innarbeidet kravspesifikasjon og kontraktspesifikasjoner til rammeavtale om konsulenttjenester vedrørende kvalitetssikring av konseptvalg, samt styringsunderlag og kostnadsoverslag for valgt prosjektalternativ, november 2010.	Norway	Task description for framework agreement of quality assurance of large governmental investments
Christensen, T., 2009. The Norwegian Front-End Governance Regime of Major Public Projects – A Theoretically Based Analysis. Concept-rapport No. 23.	Norway	Political science review of the Norwegian Quality Assurance Scheme
Rasmussen, I., N. Heldal, T. Homleid, K. Ibenholt, J. M. Skjelvik, H. Vennemo. 2010. På vei til kvalitet? Evaluering av KS1 i transportsektoren. Vista Analyse rapport 2010/10.	Norway	Evaluation of the first step of the Norwegian Quality Assurance Scheme (QA1)
Trafikverket, 2014. Planläggning av vägar och järnvägar. Trafikverket, Borlänge	Sweden	Description of the Swedish system for transport infrastructure planning
Trafikverket, 2012. Nya former för val av åtgärder i transportsystemet TV17078. Dokumentbeteckning: 100513. https://online4.ineko.se/trafikverket/Product/Detail/44426	Sweden	On the new Swedish system for conceptual evaluation in transport infrastructure planning

Trafikverket, 2015. http://www.trafikverket.se/Foretag/Planera-och-utreda/Planerings--och-analysmetoder/Atgardsval/.	Sweden	Description of the Swedish system for conceptual evaluation in transport infrastructure planning
Trafikanalys, 2015. Om Trafikanalys. http://www.trafa.se/sv/Om-Trafikanalys/.	Sweden	Respoinsibilities of the Transport Analysis agency
Ekonomistyrningsverket, 2015. http://www.esv.se/amnesomraden/Styrning/Intern-styrning-och-kontroll/.	Sweden	Guidelines for governmental Financial control
Regeringen, 2011. Regeringens proposition 2011/12:118. Planeringssystemet för transportinfrastruktur.	Sweden	Proposed long range plan for transport infrastructure
Riksdagen, 2015. http://www.riksdagen.se/sv/Sa-funkar-riksdagen/Riksdagens-uppgifter/Beslutar-om-statsbudgeten/Inkomster-utgifter-och-skulder1/.	Sweden	How parliament decides the budget
Regeringen, 2015. http://www.regeringen.se/sa-styrs-sverige/budgetprocessen/.	Sweden	On the governmental financial planning process
Riksrevisionen, 2010. Kostnadskontroll i stora väginvesteringar? RiR 2010:25. Riksrevisionen, Stockholm.	Sweden	Office of auditor general. Review of road investments
Riksrevisionen, 2011. Kostnadskontroll i stora järnväginvesteringar? RiR 2011:6. Riksrevisionen, Stockholm.	Sweden	Office of auditor general. Review of rail investments
Trafikanalys, 2013. Kvalitetsgranskning av Trafikverkets förslag till nationell plan för transportsystemet 2014–2025. Rapport 2013:11. Trafikanalys, Stockholm.	Sweden	Quality assurance of proposed long range plan for transport infrastructure
Trafikverket, 2011a. Anläggningskostnadskalkyler TDOK 2011:184. Trafikverket, 2011b. Fullständig osäkerhetsanalys enligt Successivprincipen TDOK 2011:185	Sweden	Guidelines for infrastructure cost analyses
Trafikanalys, 2012. Kvalitetssäkring och kostnadskontroll i de nordiske länderna. Rapport 2012:6	Norway and Sweden	Comparison of quality assurance of cost in the two countries
Boge, K., 2006. Votes Count but the Number of Seats Decides. A comparative historical case study of 20th century Danish, Swedish and Norwegian road policy. PhD thesis, BI Business School, Oslo	Norway and Sweden	Comparison of road planning policies