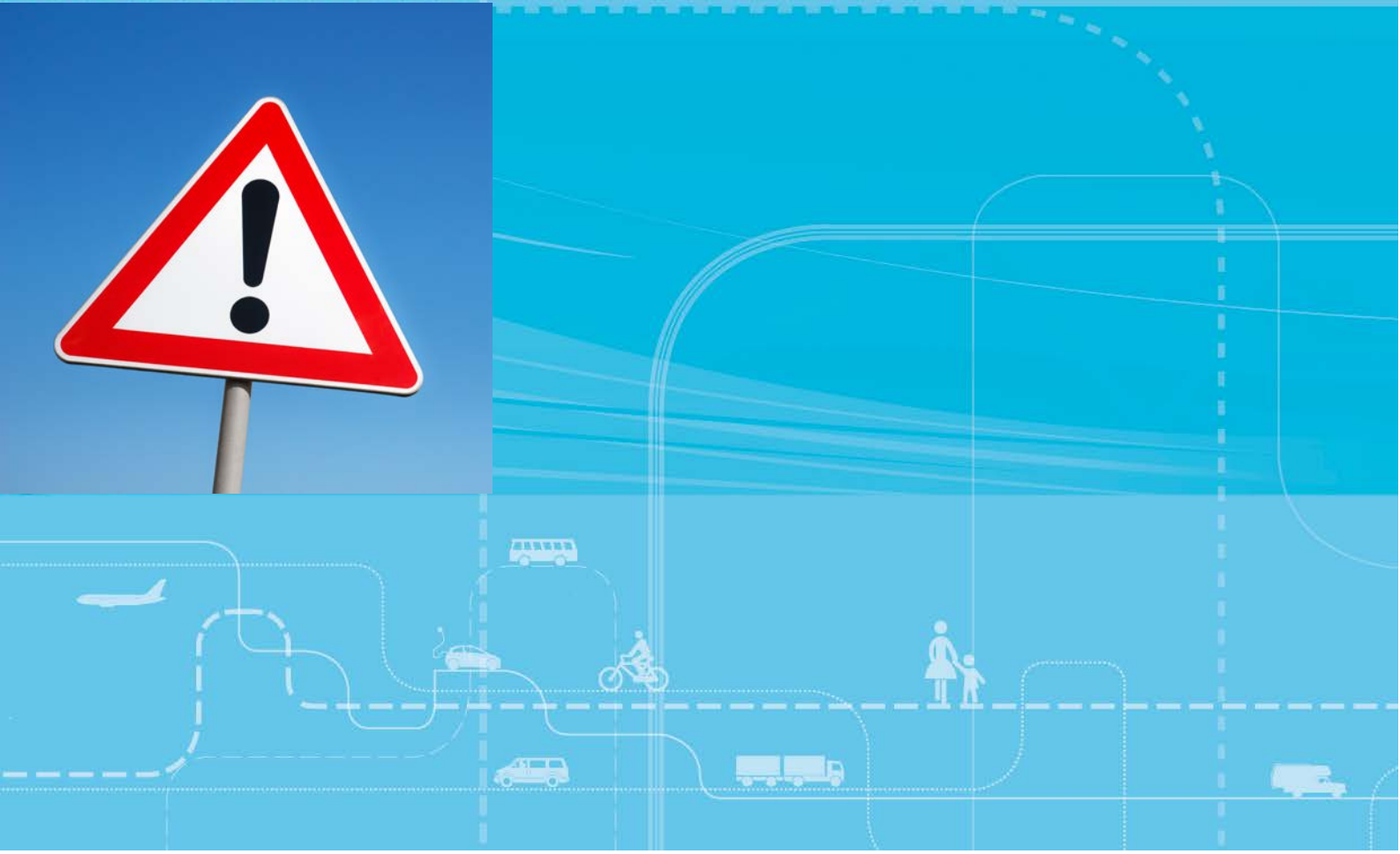


Between Control and Collaboration: Transport safety inspectorates in Norway



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Beate Elvebakk

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Summary:

Over the last couple of decades, the organisation of supervision and management models for safety work across the Norwegian transport sectors have become more homogeneous, partly as a response to changes in the transport markets, and partly as a reflection of shifting trends in public management and the need for public control of deregulated and diversified operating units. After the establishment of the Norwegian Road Supervisory Authority in 2012, all transport branches now have some form of inspectorate. There are very marked differences between the Norwegian transport safety inspectorates, both in terms of size, organisation and tasks. This report reviews and compares operators' experiences with the transport inspectorates, and discusses issues such as agencification, accountability and safety culture in relation to inspectorates.

Sammendrag:

I løpet av de siste tiårene har organisering av tilsyn og styringsmodeller for sikkerhetsarbeid på tvers av de norske transportsektorene blitt mer homogen, blant annet som en reaksjon på endringer i transportmarkedet, og som en refleksjon av skiftende trender i offentlig forvaltning og behovet for offentlig kontroll av deregulerte og diversifiserte driftsenheter. Etter etableringen av Vegtilsynet i 2012, har alle transportgrenene nå en form for sikkerhetstilsyn. Det er svært store forskjeller mellom de norske tilsynsmyndighetene innen transportsikkerhet, både når det gjelder størrelse, organisering og oppgaver. Denne rapporten vurderer og sammenligner operatørens erfaringer med transporttilsyn, og diskuterer spørsmål som agencification, ansvar og sikkerhetskultur knyttet til tilsynene.

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*Institute of Transport Economics
Gaustadalleen 21, 0349 Oslo, Norway
Telefon 22 57 38 00 - www.toi.no*

*Transportøkonomisk Institutt
Gaustadalleen 21, 0349 Oslo
Telefon 22 57 38 00 - www.toi.no*

Preface

This report is part of the project «Prospects for improving transport safety: analysis of safety potentials, efficiency of policy priorities and barriers to successful policy» (PROSPECTS). The project has been carried out within the TRANSIKK programme («Transportsikkerhet») of the Research Council of Norway, and been coordinated by chief research officer Rune Elvik. The main objective of PROSPECTS is to assess the potential for improving safety in all modes of transport, to evaluate the efficiency of current transport safety policies, and to assess the prospects of developing more efficient transport safety policies that may lead to a larger and more rapid reduction of accidents, fatalities and injuries.

The project consists of four parts: (1) A broad analysis of the maximum potential for improving safety in all modes of transport during the next 15-20 years, based on an extensive review of all potential effective safety measures. (2) An analysis of the efficiency of current policy priorities. (3) An analysis of barriers to efficient policy priorities. The present report belongs to part (4) of the project; An analysis of models of management in transport safety policy.

The author wishes to thank all the interviewees who have generously given of their time, and Trude Rømming who has been involved in editing the report and preparing it for publication. Marika Kolbenstvedt has quality assured the report.

Oslo, March 2015
Institute of Transport Economics (TØI)

Gunnar Lindberg
Managing director

Michael W J Sørensen
Research director

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Summary:

Between Control and Collaboration: Transport safety inspectorates in Norway

TØI Report 1404/2015

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Over the last couple of decades, the organisation of supervision and management models for safety work across the Norwegian transport sectors have become more homogeneous, partly as a response to changes in the transport markets, and partly as a reflection of shifting trends in public management and the need for public control of deregulated and diversified operating units. After the establishment of the Norwegian Road Supervisory Authority in 2012, all transport branches have some form of inspectorate. There are very marked differences between the Norwegian transport safety inspectorates, both in terms of size, organisation and tasks. This report reviews and compares operators' experiences with the transport inspectorates, and discusses issues such as agencification, accountability and safety culture in relation to inspectorates.

How do Norwegian transport inspectorates influence safety work?

Over the last couple of decades, the organisation of supervision and management models for safety work across the Norwegian transport sectors have become more homogeneous, partly as a response to changes in the transport markets, and partly as a reflection of shifting trends in public management and the need for public control of deregulated and diversified operating units. At the same time, the degree of coordination and integration across the transport sectors has increased, especially through the introduction of joint National Transport Plans and the expansion of the Norwegian Accident Investigation Board to cover all transport sectors.

After the establishment of the Norwegian Road Supervisory Authority in 2012, all transport branches now have some form of safety inspectorate. However, there is still an ongoing discussion with respect to models of inspection: Does the existence of a safety inspectorate influence the priority given to safety by governmental agencies? Will the responsibility system designers have for safety be more clearly defined and more effectively enforced if there is a safety inspectorate than if there is no such inspectorate? And in what ways do inspectorates frame and influence safety work? What barriers do limit their work and what improvements can be made of mandates, organisation and instruments?

The aim of the report is to enlighten how the existing Norwegian transport inspectorates influence safety work in their respective sectors, in what ways they are perceived as being productive or counterproductive, and to find whether the actors see a potential for increased cross-sectorial collaboration or synergy.

This report is based on interviews with representatives from the four safety inspectorates, and with a number of representatives from operator organisations (including infrastructure providers) in the different sectors in Norway, in all 26 interviews. However, in most of the sectors, only a subset of operators have been

interviewed, so the report cannot claim to be exhaustive. In addition, two representatives from the Swedish and Finnish transport inspectorates have been interviewed.

Most of the interviews were face-to-face, but in cases where this was not practically feasible, telephone interviews were conducted. In the case of the Civil Aviation Authority (on their request), the interview guide was used as the basis for an email interview, which does not reflect the opinions of any one individual, but of the organisation as a whole.

After each interview, a written version was distributed to the interviewee(s), for corrections or amendments. Excerpts from the interviews have been translated into English by the author. A draft report was distributed to all interviewees for comments and corrections.

In addition, the report is based on government documents (White papers, reports to the parliament, Norwegian Official Reports) pertaining to inspectorates in general and transport inspectorates specifically, as well as on National Transport Plans, and on annual reports and allotment letters for the individual inspectorates.

Marked differences between Norwegian inspectorates

There are very marked differences between the Norwegian transport safety inspectorates, both in terms of size, organisation, tasks and instruments, see table S1.

Table S1: Inspectorates' main tasks, subjects and instruments.

Sector	Risk level	No of employees	Main subjects	Main tasks	Instruments/
Aviation	Low	180	Airlines, helicopter companies, infrastructure, aircraft, instructors, schools	Developing regulations, inspection, certification, information, international work	Suspension, revoke licences or certificates
Railway	Low	65	Rail companies, metro and tram operators infrastructure providers, fairgrounds	Developing regulations inspection, certification, market surveillance, information, international work	Fines, revoke licences or certificates, shut-down of operations
Maritime	Low	330	Shipping companies, ferry providers, offshore firms, individual fishing boats, ports, recreational boating	Developing regulations, certification, inspections, international work, etc	Revoke certificates or licences, fines
Road	High	9	National public roads administration	Proposing regulations, inspections/supervisions, information, international work	None

The Maritime Authority is not uniquely geared towards safety, but manages a number of tasks relative to the maritime sector. Unlike the other sectors, this inspectorate is characterised by having outsourced much of the practical inspection work. It also works with (some) units that can choose to opt out of its jurisdiction, and the inspections are therefore to some degree subject to competition. The regulations

which the Authority enforces, are predominantly grounded in international agreements.

The tasks of the Civil Aviation Authority are similarly mostly defined by international standards and agreements. However, they carry out their own inspections, and their responsibility is confined to safety in the sector.

The Railway Safety Inspectorate has a slightly broader mandate, which also includes market surveillance. While its regulations were previously predominantly domestic, it is now increasingly implementing international legislation. Its number of potential subjects, which was previously quite limited, has increased with the insertion of cableways, fairgrounds and amusement parks in their portfolio.

The Road Supervisory Authority differs from the other inspectorates in many ways. For one thing, it is very small compared to the others, with only nine employees. Another marked difference is that it reports to the Director of National Public Roads Administration (NPRA), who is also the head of their only subject of inspection. Unlike what is the case in air and rail, it does not have an advisory role vis à vis the Ministry of Transport and Communications. All the other inspectorates manage critical functions in the system of their respective sectors; such as access control through licencing and certificates, and follow-up of the Accident Investigation Board's reports and recommendations.

In the road sector, however, no such tasks have been attributed to the Authority, and the Authority does not have access to any forms of sanctions if their recommendations and suggestions are not taken into account by the NPRA. This means that the Authority has been given a very wide licence to define their own mandate, but also that its degree of "automatic" integration with its sector is more limited, and there is a risk that they will not be conceived as being essential to the operation of a safe road system.

The inspectorates do, to differing degrees, operate within an international framework, which more or less determines their work. In aviation and the maritime sector, regulations are predominantly international, and this is increasingly also the case in the railway sector. In the road sector, however, internationalisation is very limited. International regulations govern aviation more than any of the other sectors, and are usually considered a boon here, although challenges persist in relation to specific Norwegian conditions. The conflict between the local context and the global requirements could also to some degree be found in other sectors.

The inspectorates make use of system-based perspectives

The establishment of the Norwegian transport inspectorates can be seen as an instance of agencification; a development that separates regulatory activities from operational ones, purchasers from providers, and policy-making role from operational role. The agency model is frequently claimed to be more flexible and efficient than alternative forms of organisation, and may also enhance credibility and predictability. However, as it increases the extent of formalisation, it can also lead to more bureaucracy, a fact mentioned by many of the operators interviewed.

Another discussed aspect of the agency model is if it lessens the political control of an area or if it makes the organisations more transparent and the division of roles and responsibility clearer. Generally, all the interviewees held that responsibility was very clearly defined in their respective sectors. In the railway sector, there had been

some initial confusion over the responsibility of the inspectorate after inspections, but this was now considered to be resolved. In the maritime sector, the introduction of the new Maritime Safety Act had clarified responsibilities, by making shipowners more accountable. In aviation, international arrangements are perceived to clearly define responsibilities, within and between organisations. In the road sector, one of the stated reasons for establishing an inspectorate, was that this would clarify roles and responsibilities. Although roles and responsibilities are considered clear in the current organisation, the relations are also negotiable, and the focus on safety is subject to limitations set by other social goals, budgets and habits. At the same time, agencification is associated with a lessening of political control of an arena.

Regulatory regimes can be divided into prescriptive regulation, system-based regulation, and performance-based regulation. The Norwegian transport inspectorates all subscribe to the system-based approach, which focuses on process and systems, but most of them also include elements from the other regimes, and do not purely belong to one of the ideal types. The system-based approach to safety links in with a changed conception of accountability, where the accountable entity is typically the organisation, rather than the individual.

Development from control to cooperation

Overall, the operators' experiences with inspections were positive, and cooperation was perceived to have improved over time, possibly as a result of improved understanding of the system-based approach. Operators also tended to point to increased professionalization on the part of the inspectorates, which have made their actions and recommendations more predictable.

The development may also partly be explained by an increased client-focus in the inspectorates, an approach that has been shown to instil a greater desire to comply than the previous, more controlling attitude. The distance between inspectorates and operators was also generally seen to have decreased, to the benefit of smoother interaction and communication. Complaints often referred to lack of understanding of the operators' work, the specific environment in which they function, and their framework conditions. It was mentioned, however, that external factors, such as attention from the media or politicians, rather than a concern for safety, could influence the inspectorates' priorities, and lead to inefficient use of resources. The inspectorates influence the *kinds* of safety work going on in operator organisations, and how they approach the question of safety in general, and their priorities sometimes differ from the ones that the operators would have chosen if left to their own devices.

The concept "safety culture" was used actively in all of the organisations. The inspectorates tended to consider influencing safety culture as under their remit. How they imagined this to be taking place, however, differed, from providing a focus on safety culture, to adapting regulations in such a way as to facilitate compliance, to influencing behaviours, which in its turn might change culture, to providing an integrated picture of the causal processes leading to accidents. In the operator organisations, it was usually assumed that safety culture was an in-house responsibility, and that culture, as something going beyond mere rules, needed to have a local anchoring. It was pointed out that a reference to safety culture could sometimes veil real conflicting interests, and that the accompanying accountability structure – where the organisation, rather than the individual is assigned blame – could also undermine safety work.

Limited influence on framework conditions

While the safety inspectorates are to secure an acceptable level of risk in transport, this level is mostly not defined by the inspectorate, but is the outcome of a social and political process, where several considerations and goals must be weighed against each other. Lack of available resources was cited as a main barrier to safety improvement in all sectors, but in many cases, the resources needed were beyond what society is prepared to pay. The inspectorates' influence on these prioritisations was generally deemed to be rather limited.

Important parts of the transport sector have been restructured so as to facilitate competition and financial transparency. In the railway sector, several interviewees held that the present organisation profits these goals rather than safety, and that a different structure would be optimal from the point of view of safety. Several interviewees also drew attention to the lack of an arbiter in cases of disagreement between the actors. In aviation, however, the flag-carrier company found that regulations were adapted to the past organisation of the sector. Although there is no conclusive evidence that deregulation and increased competition has endangered safety, this was a central concern in the aviation and railway sectors. Since both sectors have very good safety records, there is a certain push for decreasing redundancy. The lack of accidents is paradoxically sometimes experienced as a challenge for those working with safety in the organisations. In the maritime sector, the public actors agreed that the interests of business and safety coincided for the international fleet, as both perspectives lead to a drive for stricter international regulations. For smaller Norwegian vessels, however, the interest organisations perceived a conflict between finances and safety for the individual shipowners, and thus called for a more integrated understanding of safety and financial frameworks.

In the railway sector, the Railway Administration was considered an impediment to safety work by many of the operators, who found the organisation opaque, bureaucratic and reactive. In addition, the fragmented organisational structure was seen as less than optimal from the perspective of safety. In aviation, the sector's own safety record was seen as a challenge for those working with safety, and the deregulation and low-cost carriers were considered a potential threat in the future. In the maritime sector, the Authority struggled to document that measures were financially sound, and envisaged that lack of qualified personnel could become a challenge. Among operators, it was mentioned that there is no possibility for anonymous incident reporting. In the road sector, many effective measures cannot be introduced because they are considered threats to individual autonomy and privacy.

Limited support for merging inspectorates

In Sweden and Finland, organisations have been merged to create joint transport inspectorates. While this solution has previously been discussed and rejected in Norway, many expect this debate to re-emerge. Among inspectorates, the attitude to such a potential merger was uniformly negative, as they saw limited potential for improvement due to the differences between sectors, and considerable possible disadvantages related to such issues as loss of expertise. We should note, however, that according to the interviewees from the Swedish Transport Agency and the Finnish TraFi, this has not happened in Sweden and Finland, and, on the contrary, generic expertise is seen to have improved as a result of cross-sectorial learning. Several interviewees from the operator side were also negative, partly in response to

experience with or anecdotal evidence relating to the other Nordic countries. This negative impression might have to do with teething problems in the new organisations, however.

When it came to potentials for improvement for the inspectorates, the operators in the maritime and railway sectors were somewhat concerned about the sector-specific expertise in the inspectorates. The relocation process had, at least initially, created challenges for the maritime sector, as it is now located in a maritime cluster, where competition for competence is fierce.

A more troubling and general issue brought up by several interviewees, was the danger that relating to an inspectorate's expectations may lead to a focus on following rules and looking at details, rather than on an integrated perspective, and a more holistic approach to the safety of the sectors.

Shaping the form of safety work

The fundamental question of whether transport safety inspectorates are instrumental to improving transport safety is notoriously difficult to answer. However, looking at the accident trends for the periods that the inspectorates have been in existence, can at least provide some indications. We have compared accident numbers for rail and aviation in Norway before and after the establishment of inspectorates, and examined long-term trends in accident rates for aviation and rail transport.

Following the creation of a safety inspectorate for aviation in 2000, there have been no passenger fatalities in civil aviation in Norway. The number of accidents (all non-fatal) has varied between 0 and 5 per year, which is higher than predicted according to the long-term trend before the safety inspectorate was established.

The number of fatalities in rail traffic has been about 30% lower than predicted on the basis of prior trends. While no trend is discernible in aviation (where the number of accidents is extremely limited), the number of railway accidents has been about 40% lower than predicted from trends before the National Railway Authority was established.

We should note, however, that in both sectors, the number of accidents was already extremely low, and that accident numbers may be influenced by external factors, such as the deregulation of the aviation industry, or the response to the major railway accident in Åsta in 2000. We may therefore conclude that while transport inspectorates contribute to shaping the form of safety work in the transport sectors, it is not, within the scope of this project, possible to gauge their efficacy.

Sammendrag:

Mellom kontroll og samarbeid: Det norske transporttilsyn

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I løpet av de siste par tiårene har organisering av tilsyn og styringsmodeller for sikkerhetsarbeid i de norske transportsektorene blitt mer homogen, blant annet som følge av endringer i transportmarkedet, skiftende trender innen offentlig forvaltning og behovet for offentlig kontroll av deregulerte driftsenheter. Etter etableringen av Vegtilsynet i 2012, har alle transportgrener en form for tilsyn. Det er svært store forskjeller mellom de norske transportsikkerhetstilsynene, både når det gjelder størrelse, organisering og oppgaver. Denne rapporten gjennomgår og sammenligner operatorenes erfaringer med transporttilsyn, og diskuterer spørsmål som agencification, ansvar og sikkerhetskultur i forhold til tilsyn.

I løpet av de siste par tiårene har organisering av tilsyn og styringsmodeller for sikkerhetsarbeidet på tvers av de norske transportsektorene blitt mer homogen. Dette har skjedd blant annet som følge av endringer i transportmarkedet, og som resultat av skiftende trender innen offentlig forvaltning og behovet for offentlig kontroll av deregulerte driftsenheter. Samtidig har graden av koordinering og integrasjon på tvers av transportsektorene økt, særlig gjennom innføring av felles nasjonale transportplaner og utvidelsen av den norske Havarikommisjonen til å dekke alle transportsektorene.

Etter etableringen av det norske Vegtilsynet i 2012, har alle transportgrener nå en form for sikkerhetstilsyn. Det er imidlertid svært store forskjeller mellom de norske transportsikkerhetstilsynene, både når det gjelder størrelse, organisering og oppgaver.

Sjøfartsdirektoratet er ikke utelukkende innrettet mot sikkerhet, men forvalter en rekke oppgaver i forhold til den maritime sektoren. I motsetning til hva som er tilfelle i de andre sektorene, har dette tilsynet også outsourcet mye av det praktiske tilsynsarbeidet. Direktoratet arbeider også opp mot organisasjoner som kan velge å melde seg ut av dets jurisdiksjon, og tilsynet er derfor til en viss grad konkurranseutsatt. Regelverket som tilsynet håndhever, er hovedsakelig forankret i internasjonale avtaler.

Oppgavene til Luftfartstilsynet er tilsvarende stort sett definert av internasjonale standarder og avtaler. De utfører imidlertid sine egne tilsyn, og ansvaret deres er begrenset til sikkerhet innen sektoren.

Statens Jernbanetilsyn har et noe bredere mandat, som også omfatter markedsovervåking. Mens de tidligere hovedsakelig forvaltet nasjonale forskrifter, implementerer tilsynet nå i større grad også internasjonalt regelverk. Tilsynets antall tilsynsobjekter var tidligere relativt begrenset, men har økt etter at taubaner, tivolier og fornøyelsesparker ble lagt til porteføljen.

Vegtilsynet skiller seg fra de andre tilsynene i mange henseender. For det første er det en svært liten organisasjon i forhold til de øvrige, med bare ni ansatte. En annen markant forskjell er at tilsynet rapporterer til Vegdirektøren, som også er leder av deres eneste tilsynsobjekt. I motsetning til hva som er tilfelle innen luftfart og bane, fungerer tilsynet ikke som fagorgan for Samferdselsdepartementet. Alle de andre tilsynsmyndighetene administrerer også kritiske funksjoner i systemet i de respektive sektorene, som lisensiering og sertifisering, og oppfølging av Havarikommisjonens rapporter og anbefalinger. I vegsektoren har tilsynet ikke blitt tillagt noen slike oppgaver, og har ikke tilgang til noen former for sanksjoner dersom deres anbefalinger og forslag ikke blir fulgt opp. Dette betyr at tilsynet har fått et svært stort rom til å definere sitt eget mandat, men også at graden av «automatisk» integrasjon i sektoren er mer begrenset. Det er derfor en risiko for at de ikke vil bli oppfattet som avgjørende for driften av et sikkert vegsystem.

Tilsynene opererer, i ulik grad, innenfor et internasjonalt rammeverk, som mer eller mindre legger føringer for arbeidet. Innen luftfart og maritim sektor er regelverkene overveiende internasjonale, og dette er i økende grad også tilfelle i jernbanesektoren. I vegsektoren er imidlertid internasjonaliseringen svært begrenset. Internasjonale reguleringer regulerer luftfarten mer enn noen av de andre sektorene, og blir vanligvis betraktet som et gode, selv om det fins noen utfordringer knyttet til spesifikt norske forhold. Motsetningen mellom lokale forhold og globale krav kan i noen grad gjenfinnes i de andre sektorene.

Etableringen av de norske transporttilsynene kan sees som et uttrykk for agencification; en utvikling som skiller regulatører fra operatører, innkjøpere fra leverandører, og policy-making fra operativ aktivitet. «Agency»-modellen hevdes ofte å være mer fleksibel og effektiv enn alternativene, og kan øke troverdighet og forutsigbarhet. Men siden modellen øker graden av formalisering, kan den også medføre økt byråkrati. Samtidig er agencification forbundet med en lavere grad av politisk styring av et område.

Reguleringsregimer kan deles inn i normativ regulering, systembasert regulering og prestasjonsbasert regulering. De norske transporttilsynene benytter alle i noen grad en systembasert tilnærming, som fokuserer på prosesser og systemer, men de fleste av dem benytter også elementer fra de andre regimene, og tilhører ikke bare én av idealtypene. Den systembaserte tilnærmingen til sikkerhet henger også sammen med en endret oppfatning av ansvar, hvor den ansvarlige enheten typisk er organisasjonen, snarere enn enkeltindivider.

De norske tilsynsmyndighetene identifiserer seg alle til en viss grad med risikobasert systemtilsyn. Samlet sett var operatørorganisasjonenes erfaringer med tilsyn positive, og samarbeidet ble oppfattet å ha bedret seg over tid, muligens som et resultat av bedre forståelse av den systembaserte tilnærmingen. Operatørene viste også ofte til en økt profesjonalisering fra tilsynsmyndighetenes side, som har gjort dem mer forutsigbare. Det bedre samarbeidet kan også delvis forklares med økt kunde-fokusering i tilsynene, en tilnærming som har vist seg å være mer gunstig for å styrke etterlevelsen enn en mer kontrollerende holdning. Avstanden mellom tilsyn og operatører var også generelt ansett å ha blitt redusert, til fordel for bedre samhandling og kommunikasjon. I den grad det var misnøye, hang dette ofte sammen med det operatørene oppfattet som mangel på forståelse for deres arbeidsforhold og rammebetingelser. Det ble imidlertid nevnt at eksterne faktorer, som for eksempel oppmerksomhet fra media eller politikere, kan påvirke tilsynenes prioriteringer, og føre til lite effektiv bruk av ressurser. Sikkerhetstilsynene påvirker

hvilken type sikkerhetsarbeid som utføres i operatørorganisasjonene, og hvordan de nærmer seg spørsmålet om sikkerhet generelt. Tilsynenes prioriteringer avviker derfor noen ganger fra dem operatørene selv ville valgt for å bedre sikkerheten.

Generelt mente alle intervjupersonene at ansvarsforhold var svært klart definert i deres respektive sektorer. Innen jernbanesektoren hadde det i en innledende fase hersket noe forvirring rundt tilsynets ansvar etter inspeksjoner, men dette spørsmålet ble nå ansett å være løst. Innen maritim sektor har innføringen av den nye skipssikkerhetsloven tydeliggjort ansvarsfordelingen ved å gi mer ansvar til rederiene. I luftfarten oppfattes internasjonale regelverk å definere ansvar tydelig, både innenfor organisasjoner og mellom ulike organisasjoner. I vegsektoren var ønsket om å avklare roller og ansvar en av beveggrunnene for å etablere et tilsyn. Selv om roller og ansvar anses som tydelig definert i dagens system, er de også omskiftelige, og fokuset på sikkerhet er underlagt begrensninger som andre samfunnsmessige målsetninger, økonomi og tradisjoner.

Viktige deler av transportsektoren har blitt omstrukturert for å legge til rette for økt konkurranse og gjennomsiktighet. I jernbanesektoren mente flere informanter at dagens organisering fremmer slike mål i større grad enn sikkerhet, og at en annen struktur ville være mer egnet fra et sikkerhetssynspunkt. Flere informanter trakk også frem at dagens system mangler noen som tar avgjørelser i tilfeller der det er uenighet mellom aktørene. Innen luftfart ble det imidlertid hevdet at dagens regelverk er tilpasset den tidligere organiseringen av sektoren, og dermed ikke alltid er dekkende i dagens situasjon.

Selv om det ikke er påvist at deregulering og økt konkurranse reduserer sikkerheten, var dette et sentralt tema for intervjupersoner innen luftfart og jernbane. Siden begge sektorer har svært høy sikkerhet, er det et visst trykk for å redusere redundans i systemet. Mangelen på ulykker kan paradoksalt nok noen ganger oppleves som en utfordring for de som arbeider med sikkerhet i organisasjonene. Innen maritim sektor var de offentlige aktørene enige om at nasjonale økonomiske interesser og sikkerhetsinteresser falt sammen når det gjaldt den internasjonale flåten, siden begge perspektiver gjør at Norge er en pådriver for strengere internasjonale regler. Når det gjaldt mindre norske fartøy, oppfattet imidlertid interesseorganisasjonene at det eksisterte en konflikt mellom økonomi og sikkerhet, og ønsket derfor en mer helhetlig forståelse av samvirket mellom sikkerhet og økonomiske rammer.

Begrepet «sikkerhetskultur» ble brukt aktivt i alle organisasjoner. Tilsynene hadde en tendens til å mene at det å påvirke sikkerhetskultur var en del av deres oppdrag. De hadde imidlertid ulike forestillinger om hvordan en slik påvirkning foregår, f.eks. gjennom å skape et fokus på sikkerhetskultur, gjennom å tilpasse regelverket på en slik måte at det gjør etterlevelse enklere, gjennom å påvirke atferd, som i sin tur kan endre kultur, eller gjennom å gi et integrert bilde av årsakskjeder som fører til ulykker. I operatørorganisasjonene ble det vanligvis hevdet at sikkerhetskultur var et internt ansvar, og at kultur, siden det er noe som går utover regler, må ha en lokal forankring. Det ble påpekt at henvisning til sikkerhetskultur noen ganger kan tilsløre reelle interessekonflikter, og at den ansvarsstrukturen som forbindes med begrepet – der organisasjonen, snarere enn individet tildeles skyld – også kan undergrave sikkerhetsarbeid.

Sikkerhetstilsynene skal sikre at risikoen innen transport holdes på et akseptabelt nivå. Det akseptable nivået er imidlertid i hovedsak ikke definert av tilsynene, og varierer mellom sektorene. Akseptabelt risikonivå er resultatet av en samfunnsmessig og politisk prosess, der flere hensyn og mål må veies mot hverandre. Mangel på ressurser ble nevnt som en hovedbarriere for sikkerhetsforbedringer innen alle sektorer, men i mange tilfeller var det snakk om ressurser som går ut over det samfunnet er villig til å betale. Tilsynenes innflytelse på disse prioriteringene ble generelt ansett for å være relativt begrenset.

I jernbanesektoren anså mange av operatørene Jernbaneverket som et hinder for sikkerhetsarbeidet, siden de fant organisasjonen ugjennomsiktig, byråkratisk og reaktiv. I tillegg mente mange at en fragmentert organisasjonsstruktur var suboptimal ut fra et sikkerhetsperspektiv. I luftfart ble sektorens høye sikkerhet sett på som en utfordring for de som arbeidet med sikkerhet, og dereguleringen og lavprisselskaper ble ansett som en potensiell trussel i fremtiden. Innen maritim sektor slet tilsynet med å dokumentere at foreslåtte sikkerhetstiltak var solide, og mente at mangel på kvalifisert personell kunne bli en utfordring i fremtiden. Blant operatører ble det nevnt at det ikke fins noen mulighet for anonym hendelsesrapportering, slik det fins i luftfarten. I vegsektoren fins det mange effektive tiltak som ikke innføres fordi de anses som uakseptable med hensyn til selvbestemmelse og privatliv.

I Sverige og Finland er det blitt opprettet felles, transportovergripende transporttilsyn. Denne løsningen har tidligere blitt utredet og avvist i Norge, men mange forventet at debatten ville dukke opp på ny. Blant tilsynene var holdningen til en slik potensiell fusjon stort sett negativ. Tilsynene mente det var begrenset potensial for forbedring på grunn av forskjeller mellom sektorer, og mulige ulemper knyttet til spørsmål som tap av kompetanse. Imidlertid har ikke dette skjedd i Sverige og Finland, i følge informantene fra det svenske Trafikverket og finske TraFi. Tvert imot mente de at den generiske kompetansen har blitt bedre som følge av tverrsektoriell læring i organisasjonen. Flere informanter fra operatørsiden var også negative til en mulig sammenslåing, dels etter å selv ha erfart svenske og finske tilsyn, eller på bakgrunn av anekdotiske bevis. Dette negative inntrykket kan imidlertid være preget av innkjøringsproblemer i de nye organisasjonene i Sverige og Finland.

Når det gjaldt forbedringspotensialer for tilsynene, ga operatørene innen maritim og jernbanesektor uttrykk for en viss bekymring for den sektorspesifikke kompetansen innen tilsynene. Flytteprosessen hadde skapt visse utfordringer innen maritim sektor, der tilsynet er nå plassert i en maritim klynge, hvor konkurransen om kompetansen er hard. På et mer generelt nivå, mente flere informanter at det er fare for at om man styrer etter tilsynenes forventninger, så kan det føre til et fokus på å overholde regler, snarere enn på et helhetlig perspektiver, og en mer helhetlig tilnærming til sikkerhet i sektorene.

Det mest grunnleggende spørsmålet er om transportsikkerhetstilsyn bidrar til å forbedre transportsikkerheten. Dette spørsmålet er svært vanskelig å besvare, men ulykkestrender i periodene tilsynsmyndighetene har eksistert, kan muligens gi noen indikasjoner. Elvik og Elvebakk (2015), sammenligner ulykkestall for jernbane og luftfart i Norge før og etter etableringen av tilsyn, og langsiktige trender i ulykkestallene for luftfart og jernbane. Etter etableringen av Luftfartstilsynet i 2000, har ingen passasjerer omkommet i sivil luftfart (med kommersielle fly) i Norge. Antall ulykker har variert mellom 0 og 5 per år, noe som er høyere enn forutsatt i henhold til den langsiktige trenden før tilsynet ble etablert. Antall omkomne i togtrafikken har vært om lag 30 prosent lavere enn forutsagt på grunnlag av tidligere

trender. Mens det ikke er noen trend for luftfarten (der antall ulykker er svært begrenset), har antall jernbaneulykker vært om lag 40 prosent lavere enn forventet ut fra trenden før Jernbanetilsynet ble etablert. I begge sektorer var imidlertid ulykkestallene allerede svært lave før tilsynene ble opprettet. Ulykkestallene kan også være påvirket av eksterne faktorer, som for eksempel dereguleringen av luftfarten, eller ettervirkningene av Åsta-ulykken i 2000. Mens vi derfor kan konkludere med at transporttilsyn bidrar til å forme sikkerhetsarbeidet i transportsektorene, er det ikke mulig innenfor rammene av dette prosjektet, å anslå hvilken effekt de har på det samlede sikkerhetsnivået.

List of abbreviations

AIBN	The Accident Investigation Board Norway
ALARP	As Low As Reasonably Practicable
CAA	The Civil Aviation Authority
EASA	The European Aviation Safety Agency
EMSA	The European Maritime Safety Agency
ERA	The European Railway Agency
HES	Health, Environment and Safety
ICAO	International Civil Aviation Organization
ILO	International Labour Organization
IMO	International Maritime Organization
ISM	International Safety Management Code
ISPS	International Ship and Port Facility Security Code
KNA	Royal Norwegian Automobile Club
KTP	Kollektivtransportproduksjon
MLC	The Maritime Labour Convention
MoU	Memorandum of Understanding
NIS	Norwegian International Ships Register
NMA	The Norwegian Maritime Authority
NOU	Norges offentlige utredninger (Norwegian official reports)
NPRA	The Norwegian Public Roads Administration
NRA	Norwegian Railway Authority
NSB	Norwegian State Railways
NTP	National Transport Plan
OTIF	Intergovernmental Organisation for International Carriage by Rail
SARPs	Standards and Recommended Practices
SBB	Swiss Federal Railways
SOLAS	International Convention for the Safety of Life at Sea
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
TraFi	The Finnish Transport Safety Agency
UIC	International Union of Railways

1 Introduction

1.1 Background

Safety has improved in all modes of transport over the past 50 years, and the total number of persons killed in accidents has been significantly reduced. In order for this improvement to continue, however, new challenges must be faced.

In road traffic, the main challenge is to maintain and preferably enhance the decline in the number of fatalities and severe injuries. Between 2000 and 2013, the number of fatalities in Norway was reduced by 31%, as compared to 53% in EU 28, 51% in Sweden, 65% in Denmark, and 40 % in Finland. Countries that Norway has often compared itself with have thus achieved a greater decrease in the number of fatalities in road traffic accidents in this period (ETSC, 2014). Vision Zero, stating that the long term ideal for transport safety is that nobody should be killed or permanently injured as a result of transport accidents applies to all modes of transport in Norway.

There are differences between the modes of transport with respect to the model of public management applied. These differences are found both within and between countries. Aviation is basically managed as a business; fees collected from airlines and travellers fund the operation of airports. There is a safety inspectorate (Norwegian “tilsyn”) for aviation; this is a public body and monitors the safety management systems of the operators in the sector. A similar safety inspectorate exists for railways, but the rail tracks are publicly owned and not managed on a commercial basis. Train companies are run commercially. In maritime transport, there is an inspectorate, but this has a more mixed role than the safety inspectorates for aviation and rail. In the road sector, a new safety inspectorate was established only in 2012, but its purview is limited to state roads, and to infrastructure. Roads are managed as public assets. In some countries, notably Finland and Sweden, the public bodies managing roads and rail tracks have recently been merged. Thus, there are many models of public management and it is important to find out which model best promotes an effective safety policy.

1.2 Hypotheses and theoretical perspectives

The aim of the report is to find how the existing Norwegian transport inspectorates influence safety work in their respective sectors, in what ways they are perceived as being productive or counterproductive, what are the criteria for success, and to find whether the actors see a potential for increased cross-sectorial collaboration or synergy.

A number of questions are of interest with respect to models of management: Will the responsibility system designers have for safety be more clearly defined and more effectively enforced if there is a safety inspectorate than if there is no such inspectorate? In what ways do inspectorates frame and influence safety work? And what barriers to safety improvements remain when this model is adopted?

A reasonable hypothesis is that the existence and empowerment of a safety inspectorate can strengthen the incentives to improve safety. This was also the majority view of a committee, appointed by the Ministry of Transport, to consider whether Norway should have separate road safety inspectorate (NOU 2009:3). Effects of reorganisation and safety culture have been studied extensively by the Institute of Transport Economics (Lerstang et al. 1998, Olsen and Ravlum 2006, Grunnan, Olsen and Bjørnskau 2008). An interesting question is whether reorganisations, such as the recent merging of road and rail transport agencies in Finland and Sweden can lead to more efficient policy priorities. In principle, coordination between different sectors should be easier within the same organisation than across different organisations. It is also possible that reorganisation can foster the development of better safety culture, which may also lead to more effective safety policies.

The establishment of safety inspectorates can be seen as an instance of the more comprehensive phenomenon of *agencification* of the public sector. This development is frequently associated with new public management, and the purification of tasks involved may enhance credibility and predictability, but can also create increased organisational complexity, and potentially increase the need for coordination.

Agencification involves a new kind of distance between the different actors involved in safety work, which is supposed to serve the overall goal of improving safety. However, in order for the system to work as well as possible, it is important to strike the right balance between the need for professional distance and accessibility and recognition of expertise.

Linked to the question of organisational form, is also the issue of *accountability*. The inspectorates serve as external bodies to which operators are accountable. How this accountability is to be interpreted in practice, however, must be realised in concrete interactions between inspectorates and operators.

On the one hand, safety is increasingly a cross-sectorial discipline in its own right, on the other, it is also linked to specific technical competencies and local knowledge among those working in the sector. The existence of safety inspectorates – and the questions of whether they should be merged – could also be seen as part of a persistent debate around whether safety is best perceived as a separate discipline, or whether the sectorial knowledge is more fundamental, and how to achieve an optimal blend of the two.

1.3 Methodology

This report is based on interviews with representatives from the four safety inspectorates, and with a number of representatives from operator organisations (including infrastructure providers) in the different sectors (A list of interviewees is found in appendix 1). However, in most of the sectors, only a subset of operators have been interviewed, so the report cannot claim to be exhaustive. In addition, representatives from the Swedish and Finnish transport inspectorates have been interviewed. Unfortunately, the scope of the project did not allow for interviews with operators in Sweden and Finland, so the operator perspective are merely indirectly present in these cases.

Most of the interviews were face-to-face, but in cases where this was not practically feasible, telephone interviews were conducted. In the case of the Civil Aviation

Authority (on their bequest), the interview guide was used as the basis for an email interview, which does not reflect the opinions of any one individual, but of the organisation as a whole.

After each interview, a written version was distributed to the interviewee(s), for corrections or amendments. Excerpts from the interviews have been translated into English by the author. A draft report was distributed to all interviewees for comments and corrections.

In addition, the report is based on government documents (White papers, reports to the parliament, Norwegian Official Reports) pertaining to inspectorates in general and transport inspectorates specifically, as well as on National Transport Plans, and on annual reports and allotment letters for the individual inspectorates.

2 Historical Development

2.1 The introduction of transport sector inspectorates

The system of supervision and auditing in the Norwegian transport sector has been under continuous development for more than two decades. In *White Paper, Report to the Storting (Stortingsmelding) No. 32 (1995-1996)*, the Norwegian Government announced a review of the existing supervisory structure to assess whether increased coordination in the transport sector was desirable. At the time, there existed no separate transport inspectorates, and the organisation of auditing activities differed significantly across the different branches of the sector. The background and motivation for the review was the rapidly changing structure of several branches in the transport sector:

“Due to i.a. increased competition and new entrants in the transport markets, the Government will consider whether it is appropriate to have a greater degree of coordination of the supervision in the various sectors, including whether a common organization of parts of supervisory activities can contribute to safer, more efficient and cheaper supervision.”

In 1996, the Norwegian Railway Authority was established, and Parliamentary Proposition no. 1 (1998-99) (the state budget) announced that the Ministry worked with a view to establishing an aviation inspectorate as a separate administrative agency from 01.07.1999.

Parliamentary Proposition. No. 66 (1998-1999) *About supervision and authority in aviation and about the form of affiliation of the Civil Aviation Administration*, proposed that the Civil Aviation Authority should instead be established from January 2000. The proposition otherwise deals mainly with the question of the affiliation of the new authority. However, the bill also emphasizes the importance of improved competence in the Civil Aviation Authority, both in terms of case processing, sector-specific skills and system-based supervision.

In 2000, on commission from the Ministry of Labour and Government Administration, Statskonsult published Note 2000:8: *Organization of state supervision in Norway*. The report was a part of the government’s ongoing initiative for renewal of the public sector, “The Renewal Programme”.

Statskonsult found that government supervisory activities had (one or more of) the following four tasks:

1. Design of the formal requirements detailed in regulations or decisions. (EEA and other international obligations provide strict guidelines for the production of national regulations, and in many sectors, efforts to influence such regulatory requirements are prioritized.)
2. Control of the supervised entity’s status in relation to the requirements and possible follow-up reactions (supervision).
3. Preparation of information campaigns and other policy instruments that support the purpose of the regulation.
4. Area monitoring and implementation of other sectorial policies.

The report further assumed that the supervisory agencies' purpose could be perceived as:

1. One of several Ministry management-/quality assessment tools for implementing policy and ensuring compliance in a policy arena.
2. Citizen's protection against undesirable aspects of private enterprises' activities, or against the government's management and operation of such an arena.

The report concluded with a recommendation to establish a separate, cross-sectorial transport supervision authority, referring to how a similar solution had been proposed in NOU 2000:24 *Commission for the Protection of Civil Infrastructure (Sårbarhetsutvalget)*. The rationale included efficiency gains, learning, coordination and harmonization:

“Statskonsult recommends that responsibility for safety is not located with the same agency as the responsibility for business in the same sectors. Statskonsult sees a potential for developing safety as a profession common to all modes of transport, through mutual exchange in a larger disciplinary community. This grouping could highlight and reduce accidental and unfortunate differences within the area. Joint regulatory developments could provide more harmonized rules within the framework set by international obligations.”

2.2 Further evolution and cross-sectorial perspectives

At the same time, there was an ongoing process towards a more integrated transport policy across sectors. *The National Transport Plan (NTP)* for the period 2002 to 2011 was the first national, cross-sectorial transport plan and replaced previous sector-specific plans. One of the ambitions behind the joint plan was to coordinate planning and policy instruments across sectors. The transport plan was also the first to present Vision Zero as the basis for safety work in all modes of transport, across sectors. The plan therefore represented a significant step towards greater coordination between transport sectors:

“One of the objectives of the National Transport Plan 2002-2011 (NTP) is laying the groundwork for coordinated long-term planning and policy instruments across transport sectors. In addition, the basis for internal priorities within each transport sector will be improved.

Coordinated planning should contribute to achieving the overall goals more effectively. In the transport sector, the opportunities for increased efficiency depends, among other things, on two factors; the possibility for redistribution of resources between the transport sectors and the transport modes' characteristics when it comes to exploit investments through replacing or complementing each other.”

In keeping with the overall focus on cross-sectorial cooperation, this plan for instance announced that the government would consider establishing a joint accident investigation board for the entire transportation sector, and initially consider a transformation of the Accident Investigation Board for Civil Aviation into an accident investigation board for aviation and the railway sector. It was emphasised that:

“The Ministry of Transport and Communications considers it important to strengthen cooperation and enable exchange of experiences between the various transport agencies on how to approach safety and risk in the transport sector.”

In addition, it was pointed out that the two relatively recently established transport inspectorates in the same sectors, were in many respects similar when it came to structure and methods:

“There are significant resemblances between supervision activities in railway and aviation after the establishment of the State Railway Authority and the Civil Aviation Authority. Based on the recognition that individual events are frequently the consequence of the organization’s overall approach to safety, emphasis is placed on system supervision of infrastructure managers and operators. Infrastructure managers and operators have an independent responsibility to develop safety systems and procedures, and to adhere to the rules that the respective authorities determine. System supervision involves ensuring that internal control systems work as intended.”

A central topic in this NTP is safety work as a separate competency, which does not necessarily depend on sector-specific expertise. The plan also emphasized that “[i]n all parts of the transport sector, the Government considers it important to develop a safety culture and a management philosophy that prioritizes safety”, the significance of “safety expertise” and “safety management” are highlighted, and there is a greater emphasis on system supervision. This can probably be seen as part of the background for wanting to consider the possibility of a cross-sectorial utilization of supervisory resources:

“In the plan period, the government will encourage major business enterprises in the transport sector to develop their professional disciplines and design requirements for e.g. safety expertise. It will also be considered how the sector supervisions’ expertise can be better utilized across sectors.”

On the basis of NTP 2002-2011, the Ministry in 2001 appointed a working group to consider a merger/cooperation between the Norwegian Railway Authority and the Civil Aviation Authority. This group concluded that given the differences when it came to responsibilities and required skills, and the importance of sector-specific international networks, the gains from a merger of inspectorates would be relatively marginal, while it could potentially dilute expertise and weaken focus on safety within each industry (Lothe et al., 2001). The working group’s report differs significantly from NTP 2002-2011 by putting more emphasis on sector-specific, rather than generic professional competence, and the report also emphasizes that it is this type of expertise that has been difficult to recruit in the past.

In 2003, the Bondevik Government presented White Paper No. 17 (2002-2003) *On state supervision*, a review of the supervised entities, their frameworks, and the division of tasks and roles between supervision on the one hand, and the ministries and agencies on the other. In this white paper, it was pointed out that there was a potential for conflicting roles in the transport sector, where ministries were also involved as owners of the regulated objects:

“In the transport and transport safety field, all the inspectorates are currently located in ministries that are responsible for industrial policy instruments and also own, directly or indirectly, companies within the sector where they supervise safety. This gives these ministries a combination of roles in which the interests of safety must be weighed against financial costs and general transport and shipping policy objectives. Such necessary trade-offs must be made at the political level, but in keeping with the government’s modernization program, high

standards must be set for the clear and orderly organization of responsibilities and processes, so that citizens can have confidence that the state does not mix its various roles in an opaque manner. To achieve the desired development towards more professional and independent supervision in this area, measures will be implemented to minimize the ministries' opportunity to instruct inspectorates in individual cases."

As a result, there was introduced a legal reduction of the Ministry of Transport and Communications and The Ministry and Trade's ability to instruct their own supervisory authorities when it came to the individual decisions.

In the National Transport Plan 2006-2015, the government's commitment to Vision Zero was reconfirmed, and it was also emphasized that "the government will pursue an integrated transport policy where separate modes of transport are seen in relation to each other". In the Transport Committee's comments on the draft National Transport Plan, however, the majority had wanted a higher degree of utilization of cross-sectorial work, and remarked that a different organization of subordinate agencies should be considered, which could stimulate cooperation and cross-sectorial thinking. In addition, the representatives from the Progress Party (Fremskrittspartiet) stated that there should be established a unified transport inspectorate for all transport branches.

However, the NTP now pointed out that there may also be problems associated with transferring investments from safer to less safe forms of transport, although this would be in line with an integrated and sector-transgressing principle of spending resources where the risk is greatest:

"The government will emphasize a holistic and cross-sectorial safety thinking, so that strict and costly regulatory requirements in certain transport sectors should not inadvertently imply transferring transport to other parts of the system with higher risk, which may lead to overall loss of safety."

According to the Government, the cross-sectorial implementation of Vision Zero should consist in:

- building safety into new and existing infrastructure and enhance the mapping of risks
- designing a transport system that is safe as long as the user complies with the rules to use the system
- strengthening efforts aimed at professional practitioners and vehicles, especially for heavy traffic on roads
- creating a single accident investigation board for all transport modes.

It was pointed out that the level of safety built into the infrastructure varies greatly between sectors, and the road system in particular is marked by the fact that it "is to a greater degree left to the individuals to choose their own level of safety," and that this sector is also much less subject to international regulations. But it was also emphasized that "adherence to Vision Zero implies greater attention to the safety level of the road system and to governmental responsibility. The system should to a greater degree than today lead the road users to the desired behaviour, and protect them from the consequences of mistakes." In line with this, The Norwegian Public Roads Administration (NPRA) [should] "increase the use of risk analysis and systematic audits in the entire road traffic system."

The multisectorial approach and the aforementioned challenges associated with the possible transition from safer (rail) to less safe (road) modes of transport also gave rise to new problems, in that “diverse safety requirements and safety systems in the transport sector present challenges for the efforts to reduce overall risk.” This also had implications for how the overall safety work should be organized, and how the boundaries should be drawn between political decisions and safety professional decisions:

“It is, and should remain, a political task to strike trade-offs and make overall assessments of safety in transport. Requirements presented by one sector inspectorate to strengthen this mode of transport, can have unintended effects for the overall safety of the transport system. The supervisory regime should be organized so as to promote an appropriate division of labour between professional supervision and political control.”

2.3 The establishment of a road inspectorate

In 2007, the Government appointed a committee to study the need for the establishment of an independent agency responsible for the oversight of safety in the road sector. The committee’s report, *On safe roads. Assessment of an independent body for monitoring the road infrastructure*, was completed in 2009. The committee’s mandate specified that only the need for an independent inspectorate for road infrastructure should be assessed, a fact that the report highlighted as problematic, since the inspectorate would not have access to the full range of policy instruments in road safety work. In the National Transport Plan 2010-2019, this limitation in the committee’s mandate was explained with reference to the fact that “It is relative to the infrastructure that roles are currently unclear.” The committee’s majority concluded that there was a need for a road supervisory authority, while a minority believed that the distribution of tasks between the authority and other stakeholders in the sector needed to be clarified before a conclusion was reached. The majority argued, among other things, that an independent road supervisory authority would give the State more trust and credibility within the area of road safety, that such an authority would put road safety on the agenda, and that it was desirable to have a clear demarcation between the controlling and the controlled agency. The full committee agreed that such an authority should be risk- and system-based, and should not physically control technical details. The report thus proposed an organisation of the order of 50 to 100 man-years, and recommended that the possibility for sanctioning was further examined. The minority of the committee claimed that the safety effect of a supervisory authority was uncertain, and that resources should instead be used for safety measures with documented effect. In addition, it was the minority view that tasks related to road infrastructures, vehicles and road users should be performed together, and that the creation of an authority for infrastructure only could inadvertently lead to the marginalization of the other areas. The minority also warned that an inspectorate could potentially result in increased bureaucracy, complicate management, and lead to less efficient use of expertise.

If an inspectorate were created, the majority also believed one should be open to considering a joint transport supervision, which included the Railway Authority and the Civil Aviation Authority. The background for this was, among other things, the recent establishment of the cross-sectorial Transport Agency in Sweden.

The National Transport Plan 2010-2019 referred to this report and the further processing of the case:

“The Ministry of Transport and Communications will submit the report for a broad consultation and return the issue to Parliament in an appropriate manner.”

This transport plan also renewed the commitment to Vision Zero. In addition, it emphasized systems perspectives, knowledge, partnership and organization in safety work:

“The government assumes a systems perspective on transport safety work. This means that in addition to focussing on the direct causes of an accident, such as technical, infrastructural or human factors, underlying causes that can be located in the organizational, financial and social environments should be emphasized. Preventing and reducing risk and accident numbers requires a broad and concerted effort from a number of different actors. Integrated planning is therefore essential. For this work, good and appropriate organizational models, methods, plans and tools are needed. Knowledge sharing, dialogue and learning between transport sectors, between organizations working for road safety, as well as businesses, provide opportunities to develop and improve transport safety.”

The need for coordinated planning across sectors was emphasized in connection with safety measures and possible risk transfer, and the emphasis on a HSE perspective on road accidents can be seen as a manifestation of a more cross-sectorial approach. One can also observe a stronger emphasis on risk analysis and assessment for all sectors, and within the road sector, an emphasis on safety based on objective measures.

In October 2010, members of parliament Bård Hoksrud, Jan-Henrik Fredriksen, Ingebjørg Godskesen, Arne Sortevik and Åge Starheim from The Progress Party presented a proposal to Parliament: they proposed to introduce measurable road standards and to establish a joint cross-sectorial (including the maritime sector) independent transport inspectorate:

“Parliament requests that the Government establish a state transport inspectorate tasked with conducting supervision and control of all transport by road, rail, aviation and sea. The transport inspectorate shall submit an annual report to Parliament on whether targets have been met in Norwegian transport. Parliament holds that such reporting should be based on specific targets and minimum standards for all transport sectors, and that the inspectorate will have recourse to specific sanctions.”

In the national budget for 2011, however, the Ministry of Transport and Communications advised the establishment of a Road Supervision Authority as part of the Norwegian Public Roads Administration (NPRA) organization. This choice of organisational form was justified mainly with reference to cost savings and resource sharing.

On October 21st 2011, Members of Parliament Øyvind Halleraker, Lars Myraunet, Tage Pettersen Siri A. Meling and Trond Helleland filed the following proposal to Parliament:

“Parliament requests the Government to create a separate and independent roads and road traffic inspectorate with supervisory responsibility for roads, road users and vehicles.”

However, through the state budget, funds were allocated to the Public Roads Administration for the creation of a new Road Supervisory Authority, and the Authority has worked as part of the NPRA organization since its inception in June 2012. Its remit was further limited to national roads (which make up approximately

one tenth of the total length of Norwegian roads.). This form of organization has, however, been disputed, also after the establishment of the Authority. For example, the Royal Norwegian Automobile Club (KNA), in 2012 stated that the Road Supervisory Authority should be independent of the Directorate of Public Roads, as is the case with inspectorates in other sectors (*Teknologisk Ukeblad*, March 8th, 2012).

On 19.02.2013, Progress Party MP Arne Sortevik formally asked the Minister of Transport, Marit Arnstad, whether the Road Supervisory Authority would also prioritise physical inspection and control of roads with particularly high accident numbers. He commented to the press that the Road Supervisory Authority should also have the authority to close down unsafe roads, as a means to improve road standards. Sortevik indicated that the Progress Party wanted a more independent Road Supervisory Authority, completely unattached to the Directorate of Public Roads and the Ministry of Transport and Communications, as was the case in aviation and rail (*ABC News*, 01.03.2013) These views received support from the Transport Workers Union. Another organisational issue, the Authority's lack of available sanctions was also highlighted as an issue by the Progress Party transport spokesman in connection with the publication of a report by the Road Supervisory Authority in September 2013 (*VG*, 09.04, 2013).

The National Transport Plan 2014-2023 opens up the possibility that the Road Supervisory Authority's jurisdiction can be extended so that county and municipal roads will also be subject to supervision. In this plan, there is greater emphasis on evidence-based and specific measures, cooperation with stakeholders, targeted interventions, and technology. This version of NTP also includes a chapter on Civil Protection.

2.4 Summary

Summing up, we can observe that over the last couple of decades, the organisation of supervision and management models for safety work across transport sectors has become more homogeneous, partly as a response to changes in the transport markets, and partly reflecting shifting trends in management (see also Chapter 4). Significant differences between sectors remain, however, especially when the organisations are considered in more detail. (Cf. Chapter 3).

At the same time, the degree of coordination and integration across the transport sectors has increased, especially through the introduction of joint National Transport Plans.

The underlying principles of safety thinking, as expressed in the consecutive National Transport Plans, have to some extent been stable, although certain developments are discernible. For instance, there are fluctuations in the emphasis on safety as a separate competency, and recent plans seem to take a more positivistic approach, in recommending evidence-based and technical safety measures.

3 The Norwegian Transport Safety Inspectorates

3.1 Sectorial differences at a glance

After the establishment of the Road Supervisory Authority in 2012, there now exists some form of safety inspectorate for every transport sector in Norway, but their age, location, dimensions, administrative environments (see table 1) as well as their tasks, responsibilities and scope of action differ significantly (see table 2 and Paragraph 3.5). In the maritime sector, the Norwegian Maritime Authority is not defined as an independent inspectorate (see Paragraph 3.3), but all the inspectorates – with the exception of the newly established Road Supervisory Authority – are “impure”, as they are also charged with developing regulations in their respective sectors. Below follows a brief presentation of each inspectorate.

Table 1. Norwegian transport inspectorates, overview.

Sector	Established	App. no. of employees	Parent Body	Location
Maritime	1962	330	Ministry of Trade, Industry and Fisheries	Haugesund
Railway	1996	65	Ministry of Transport and Communications	Oslo
Aviation	2000	180	Ministry of Transport and Communications	Bodø
Road	2012	10	Road Directorate	Voss

As will be clear, there are marked differences between the inspectorates along a number of dimensions. This might reflect the history of each sector and inspectorate, but probably also to some degree real differences between the sectors, some of which are illustrated in table 2.

Table 2. Some safety-relevant characteristics of transport sectors. Adapted from TOI-report 954/2008.

Characteristics	Road	Rail	Aviation	Maritime
Infrastructure management	Public	Public	Private	Public
Traffic management	Public	Private	Private	Private
Drivers	Amateurs	Professionals	Professionals	Professionals
Predominant regulation	National	National	International	International
Number of accidents	High	Low	Low	Low
Potential number of fatalities in accidents	Low	High	High	High

3.2 The Norwegian Railway Authority

The Norwegian Railway Authority (NRA), established in 1996 and located in Oslo, is the oldest separate transport safety inspectorate in Norway. In addition to railways, its purview includes tramways and underground in Norway. From January 1st, 2012, the authority is also the practical control and supervisory authority for cableways, fairgrounds and amusement parks. The Authority is divided into five departments:

- Administration
- Legal
- Technology and Operations
- Safety Management and Supervision
- Cableways, Fairgrounds and Amusement parks

The Authority is responsible for ensuring that rail operators meet the conditions and requirements set out in rail legislation that governs traffic. The authority is also responsible for drawing up regulations, conferring licences for rail activity and approving rolling stock and infrastructure (Instructions from the Ministry of Transport and Communications to The Norwegian Railway Authority, 2011). Before the establishment of the Railway Authority, safety in rail traffic was the responsibility of the Norwegian State Railways (NSB). The background for the establishment of the inspectorate was the changing political context, especially privatization. The development was also a reflection of current thinking in the European Economic Area, which recommended the separation of ownership and control (NOU 2000:30), and its establishment was associated with the adoption of a EU directive. The express motivation for the Authority's establishment was a clarification of roles and responsibilities, and facilitation of competition in the railway sector (Hommen, 2003).

The Railway Authority's parent ministry is the Ministry of Transport and Communications, but the Authority is to have a high degree of autonomy, as discussed in Chapter 2.1. The Ministry mainly influences the Authority's work through the instructions and the annual allocation letters, which define the budget, lay down overall goals of the Authority, and detail requirements in terms of finances, reporting, and governmental practices in fields such as equality, environmental protection, streamlining of procedures and use of ICT.

The instructions lay down the organisation's administrative environment, its objectives, delimitations of responsibility, definition of main tasks and management structure. According to the latest instructions, dating from December 2011, the Authority has the main responsibility for railway inspections, shall be a driving force for safety in the railway sector, is the professional agency (*fagorgan*) for control and inspection within the railway sector, and is to promote safety and appropriateness in all operations subject to Norwegian railway legislation.

The NRA meets with the Ministry of Transport and Communications three times a year, following their submittal of the interim reports, and also submits an annual report, which, according to the latest allocation letters, is to go into greater detail than interim reports.

The letters of allocation are fairly similar in the period 2003-2014, but in 2008, they notably introduce a novel issue; that the Ministry presupposes that the Railway Authority will carry out a good and constructive dialogue with their clients, and that it is important that the NRA and the Norwegian National Rail Administration

develop a shared interpretation of the safety regulations in rail transport. Presumably, this has been added as a result of considerable problems of cooperation between the NRA and the National Rail Administration in the Authority's early years (Hommen, 2003).

The authority engages in various forms of inspections (NOU 2009:3):

- Systems revisions: systematic review of an organisation's internal control procedures and their results.
- Management meetings: formal meeting where the management of a railway organisation accounts for their safety work. These meetings normally take place annually (but see Chapter 5.1), and result in a report.
- Supervisory meetings: formal meetings to garner information about a specific issue. Results in a report.
- Inspections: review or control of limited activity, process or structure.
- Follow-up of reported incidents.

3.3 The Civil Aviation Authority

The Civil Aviation Authority (CAA) was established in 2000 and relocated from Oslo to Bodø in 2007. It is the administrative agency responsible for ensuring safe and efficient operation of civil aviation. The agency issues regulations, lays down standards for civil aviation activities in Norway, grants licences and operating permits to persons and companies intending to conduct aviation and related activities, and oversees compliance with regulations and conditions.

In aviation, the responsibility for inspections previously resided with the Norwegian Civil Aviation Administration, which was split into the Aviation Authority and the airport and air traffic management operator Avinor. As in the railway sector, the organisational separation of the two functions was motivated by a desire for increased competition in the sector, as well as a wish to separate ownership and control.

As in the railway sector, the Civil Aviation Authority reports to the Ministry of Transport and Communications, which manages through the general instructions, annual letters of allotment and three annual meetings preceded by interim reports. According to the instructions, the main objectives of the Authority are to be responsible for the supervision of Norwegian aviation and to be a driving force for safe and socially beneficial air traffic in accordance with the overarching goals of the government's transport policy. Among the more specific requirements, they are to oversee that actors in civil aviation abide by regulations; pay attention to safety-related challenges associated with changing framework conditions, ensure that the regulations are updated, clear and complete, and follow up safety recommendations from the Accident Investigation Board Norway. In addition, they are to partake in international forums relevant to Norwegian aviation, actively inform the actors in aviation and society in general, provide good service in their capacity as experts, cooperate with the Norwegian Defence to enable coordination between civil and military aviation, give advice to the Ministry of Transport and Communications, maintain the Norwegian Aircraft Register, and prepare complaints for the relevant ministries.

The annual allotment letters are slightly more detailed than the ones in the railway sector, and specify special priorities for the coming year.

While the number of international regulations is increasing in rail, they have been extremely dominant in aviation for a long period. International regulations and agreements also partly determine the frequency and methodology of inspections. An international body reviews the Aviation Authority's inspections on behalf of the EASA (The European Aviation Safety Agency – previously the Joint Aviation Authorities (NOU 2009:3)). The Authority's inspection work is based on systems-oriented reviews, complemented by physical inspections of aircrafts. Most inspections are planned, but there are occasional unscheduled inspections.

If requirements from the Authority are not properly addressed, the CAA have access to a number of sanctions, such as suspension or confiscation of licences, certificates or authorizations. However, these measures are rarely deemed necessary.

3.4 The Norwegian Maritime Authority

In the maritime sector, there is no separate inspection authority, and the Norwegian Maritime Authority (NMA) (established in 1962, and relocated to Haugesund in 2006) has a broader responsibility related to the maritime sector than the agencies presented above, which includes, for instance, monitoring environmental effects, administering the net pay arrangement, and overseeing the welfare of sailors (*Sjøfartsdirektoratet*). This broader mandate is also reflected in the fact that the Maritime Authority does not report to the Ministry of Transport and Communications, but to the Ministry of Trade, Industry and Fisheries and the Ministry of Climate and Environment. However, only the first of these is relevant to the inspection activities of the Authority. The Authority has two annual meetings with the Ministry of Trade, Industry and Fisheries, and is required to submit annual and interim reports to the Ministry.

Given its broader mandate and its administrative environment, the safety work of the Authority is therefore also located within a wider context: one of the primary objectives of the Ministry of Trade, Industry and Fisheries is to secure the competitiveness of the Norwegian industries, among them shipping. Unlike the other sectors, the Maritime Authority is therefore subject to international competition – many of their subjects can choose to opt out of their jurisdiction through sailing under a different flag. The supreme goal of the Authority is that Norway should be “an attractive flag state with safety for life, health, environment and material values” – which reflects the different considerations that must be weighed against each other in the sector. The allotment letters to the Authority are also characterised by a relatively strong focus on user-satisfaction and good service.

The Maritime Authority is responsible for, among other things, the quality of maritime education, various forms of inspections, following up recommendations from the Accident Investigating Board, developing regulations, and maintaining and developing the Norwegian International Ships Register (NIS). However, the NMA is also in charge of active safety work such as information and awareness campaigns – thus there is arguably not a complete separation of operations and control in the sector.

There exist many types of inspections in the sector, many of them regulated through international agreements such as International Convention for the Safety of Life at Sea (SOLAS) (which includes the International Safety Management Code (ISM) and International Ship and Port Facility Security Code (ISPS)), the Maritime Labour Convention (MLC), and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW). Most of the inspections, however, have been outsourced to approved classification societies or consultancies. The Maritime Authority, in its turn, is responsible for inspecting the approved sub-contractors.

Among the inspections for which the Authority are responsible are:

- Ship inspections
- ISM revisions
- Unscheduled vessel inspections
- Flag state inspections
- Port state controls
- Inspections of producers of recreational crafts
- Revisions of classification societies and approved consultancies
- Revisions of domestic and international institutions for maritime education

The allotment letters in the maritime sector are characterised by a higher level of detailing than in the other sectors; for instance, the target number of inspections of different kinds are defined (See <http://www.sjofartsdir.no/om-direktoratet/presentasjon-av-direktoratet/tildelingsbrev-fra-nhd-og-md/>). It is also very clearly stated that inspections and revisions are to be risk- and systems-based, and the letters explicitly focus on the improvement of safety culture as one of the defining tasks of the authority. Further, participation in international work is specified – in terms of forums to be attended – and emphasised, which might reflect the centrality of international agreements in the sector.

3.5 The Norwegian Road Supervisory Authority

Established in 2012, the Norwegian Road Supervisory Authority is the most recent addition to the Norwegian transport safety inspectorates, and its operations are still in the process of taking shape. Unlike the other inspectorates, it has no international counterparts, and its domain is only to a very limited degree structured by international regulations and agreements. While the Authority formally reports to the Director of Public Roads, its parent Ministry is the Ministry of Transport and Communications, with which it has three annual meetings, preceded by the submittal of interim and annual reports. The organisational placement of the Authority was justified partly with reference to cost savings, as they make use of the Road Administration's administrative resources (cf. Paragraph 1.1). It was initially envisaged that they could also take advantage of other forms of professional expertise in the organisation, but they have chosen to avoid this, in order to bolster their independent position.

The Road Supervisory Authority's instructions from the Ministry specify that their inspections are to be risk-based systems supervision, and give the Authority's main objectives as being: inspecting that safety requirements related to the national highways (riksveg) are maintained by the Norwegian Public Roads Administration (NPRA), to

work for NPRA activities to be executed safely and appropriately, and to be a driving force for a safe and appropriate road infrastructure in line with the goals of national transport policy. The instructions further define the Authority's tasks to be:

- verifying that the Norwegian Public Roads Administration has and employs adequate and effective management systems to ensure road traffic safety on the national road network. This includes systems for planning, constructing, operating and maintaining roads, emergency preparedness and other infrastructure management
- having access to all documents it requests from the Norwegian Public Roads Administration
- in supervision cases, recommending remedial measures to the relevant operating unit in the Norwegian Public Roads Administration. A deadline for implementation may be specified. The supervisory report is public when it is issued.
- disseminating information about the activities of the Road Supervisory Authority.
- in consultation with the Director of Roads, participating in international forums to promote Norway's interests within supervision of the activities of the road authorities, and taking part in international work of relevance to the operations of the Road Supervisory Authority.
- initiating research and development within its fields of operation.
- proposing changes in legislation and regulations as needed to improve traffic safety on the public road infrastructure.

The Authority has a limited staff, and thus their inspections will necessarily be selective. They have, however, developed a set of selection criteria for choosing their cases:

- a sufficient basis in legislation and regulations
- substantial potential for improving systems and practice in the Norwegian Public Roads Administration
- a positive impact on safety in the road infrastructure
- an effect on accident risk
- significance for society at large (<http://www.vegtilsynet.com/English>)

The Authority's supervision is carried out by analysing documents, conducting interviews and performing random checks. Emphasis is placed on the discovery of objective findings which prove to be either in accordance or at variance with the demands stipulated in legislation, regulations, manuals and other standards, such as the demands made by the internal quality control system.

The result of the supervision is presented in a supervisory report. The supervised unit is given the opportunity to respond and comment while the report is being drafted, and is to develop a plan within a given time frame for implementation of the supervisory findings. The Road Supervisory Authority also develops a plan for follow-up of the supervisory findings and determines how the case will be closed, and whether to conduct another supervision at a later date. The Authority does not, however, have access to any kinds of sanctions or other means of reaction.

The allotment letters from the Ministry of Transport and Communications have so far been very general, providing no guidance beyond what can be found in the instructions.

3.6 Summary

As will be clear from the brief presentations above, there are very marked differences between the Norwegian transport safety inspectorates, both in terms of size, organisation and tasks. The Maritime Authority is not uniquely geared towards safety, but manages a number of tasks relative to the maritime sector. Unlike the other sectors, this inspectorate is also characterised by having outsourced much of the practical inspection work. It also works with (some) units that can choose to opt out of its jurisdiction, and the inspections are therefore to some degree subject to competition. The regulations which the Authority enforces, are predominantly grounded in international agreements.

The tasks of the Civil Aviation Authority are similarly mostly defined by international standards and agreements. However, they carry out their own inspections, and their responsibility is confined to safety in the sector.

The Railway Safety Inspectorate has a slightly broader mandate, which also includes market surveillance. While its regulations were previously predominantly domestic, it is now increasingly implementing international legislation. Its number of potential subjects, which was previously quite limited, has increased with the introduction of cableways, fairgrounds and amusement parks in their portfolio.

The Road Supervisory Authority differs from the other inspectorates in many respects. For one thing, it is very small compared to the others, with only nine employees (it is, however, envisaged that its size will grow in the future). Another marked difference is that it is not completely autonomous, but reports to the Director of Public Roads, who is also the head of their only subject of inspection, another distinguishing factor. Unlike what is the case in air and rail, it does not have an advisory role vis à vis the Ministry of Transport and Communications. Another important difference is that all the other inspectorates manage critical functions in the system of their respective sectors; such as access control through licencing and certificates, and follow-up of the Accident Investigation Board's reports and recommendations. In the road sector, however, no such tasks have been attributed to the Authority, and the Authority does not have access to any forms of sanctions if their recommendations and suggestions are not taken into account by the NPRA. This means that the Authority has been given a very wide licence to define their own mandate, but also that its degree of "automatic" integration with its sector is more limited, and there is a risk that they will not be conceived as being essential to the operation of a safe road system. To some degree, relating to them is optional for the NPRA and other actors.

In aviation and rail, the inspectorates are also the Government's expert organ within their fields, and advise the Ministry.

Table 3. Inspectorates' main tasks, subjects and instruments.

Sector	Main tasks	Main subjects	Instruments/sanctions
Aviation	Developing regulations, inspections, certification, information, international work.	Airlines, helicopter companies, infrastructure, aircraft, instructors, schools.	Suspension, revoke licences or certificates.
Railway	Developing regulations inspection, certification, market surveillance, information, international work.	Rail companies, metro and tram operators infrastructure providers, fairground and heritage	Fines, revoke licences or certificates, shutdown of operations
Maritime	Developing regulations, certification, inspections, international work, etc.	Shipping companies, ferry providers, offshore firms, individual fishing boats, ports, recreational boating.	Revoke certificates or licences, fines.
Road	Proposing regulations, inspections/supervisions, information, international work.	NPRA	None

4 Political and Administrative Contexts

4.1 Various degrees of autonomy

As shown in Chapter 2, the form and political contexts of the inspectorates have been subject to considerable alterations over the span of their existence. Many of these changes were related to issues such as separation and distance from parent ministries or operators in their respective sectors. The inspectorates' current political contexts are still characterised by some differences when it comes to these aspects, however.

The inspectorates are to be autonomous entities, but their relationships with their parent organisations are in many cases somewhat complex. For instance, in the case of the aviation sector, the Ministry of Transport and Communications is not just the Authority's parent Ministry, but is also an important agent in its capacity as owner of the airport operator Avinor, as bulk buyers of air transport, as regulator, and as transport policy developers. And while the Civil Aviation Authority is responsible for developing technical and professional regulations, the Ministry is in charge of political regulation, a division of labour that requires continuous dialogue (although described as unproblematic). The situation is similar in the railway sector, where the Ministry of Transport and Communications is also parent to the Norwegian National Railway Administration, and owner of the Norwegian railway company NSB, which operates most of the passenger train services in the country, as well as of the NSB's subsidiary company CargoNet AS, which is the primary operator of freight trains in Norway.

In the maritime sector, most of the operators are private companies (with the exception of ferry-companies, which are frequently directly or indirectly owned by regional authorities). The Maritime Authority's independence could, however, be seen as being compromised by the fact that part of the Authority's mandate is to attract members to the Norwegian International Ships Register (NIS), a charge which could potentially conflict with their role as safety inspectorate, as very rigid safety standards could – at least in theory – deter shipping companies from entering the register.

As have been observed, the autonomy of the Road Supervisory Authority has repeatedly been questioned, due to their organisational location in the NPRA. The current director of the Authority and the Director of Public Roads have chosen to emphasise the Authority's independent position, however, through clarifying organisational separation and administrative procedures. After the hiring of the director, for instance, the Directorate of Public Roads have had no influence upon the hiring processes in the Authority. The Director of Public Roads and the Directorate have also relinquished inspecting the Authority's reports prior to publication.

4.2 Agencification

The functional separation of public organisations is frequently referred to as “agencification” (Egeberg & Trondal, 2009), and is associated with the broader administrative approach known as “New Public Management” or “the regulatory state” (Christensen et al, 2008). This form of government separates regulatory activities from operational ones, purchasers from providers, and policy-making role from operational role. Key characteristics of regulatory state are:

- Separation of policy from operation
- Creation of free-standing regulatory institutions
- Increased formality/shift from discretion to rules
(Scott, 2000)

All of these traits can be observed in the case of the Norwegian transport inspectorates. The regulatory state contrasts with the welfare-state model, which integrates regulatory, operating and policy-making functions (Christensen et al, *ibid.*). The introduction of transport inspectorates may be seen as an instance of such agencification. As we have seen, the development is not complete, however, as the Norwegian Maritime Authority retains some operational tasks, and the Road Safety Authority is not formally separate from the operational organisation in the sector, but subordinate to the Director of Public Roads, and in the aviation and railways sectors, the authorities are also tasked with developing regulations.

According to MacCarthaigh and Turpin (2011), reasons for establishing agencies include signalling priorities, involving stakeholders, managerial flexibility, specialised skills, performance focus, coordination at a local level, and responding to EU requirements. The latter has also been cited as an important reason behind the establishment of the Railway Authority, while signalling priorities (or “placing safety on the agenda”) seems to be part of the rationale for the Road Supervisory Authority.

The formal political contexts of the inspectorates vary somewhat. The air and rail sectors are very similar, representing a relatively “pure” agency model with clear distinctions between regulatory and operational tasks, and reporting to the Ministry of Transport and Communications through the official channels – exemplifying the kind of “loose coupling” to Government typical of agencies (Christensen et al. 2008). Note, however, that in their role as developers of legislation and regulations, the agencies are not completely “purified”. The two other inspectorates do not fully conform to the ideal type of agencies from the literature, for the reasons discussed above. There is also a pronounced difference between these two inspectorates when it comes to geographical location, however, as the Norwegian Railway Authority is still located in Oslo (as the only remaining transport inspectorate in the capital), whereas The Civil Aviation Authority was relocated to Bodø in Northern Norway in 2008. The physical distance between the Aviation Authority and its parent has therefore increased considerably. It has often been assumed by practitioners that agency location can have an influence on autonomy, and thus this could be considered a key difference in political context between these two agencies. However, Egeberg and Trondal (2011), in a study of Norwegian agencies, found no effects of agency location on autonomy (as measured by contact with parent organisation) or perceived influence.

In spite of their “impure” character, there is reason to suppose that this form of agencification influences the form that safety work takes in the transport sector. In general, the agency model is often seen as being “quicker, cheaper and more flexible” (MacCarthaigh and Turpin, *ibid.*) than alternatives. When it comes to the Norwegian transport inspectorates, it is difficult to assess whether this is the case, as they have usually in an initial phase added costs to an existing structure, even when they have been separated from a larger organisation. In many cases, their tasks have also grown considerably over time, rendering comparisons with previous institutions meaningless. Christensen et al (2008) observe that:

“One main argument for increased horizontal specialization is that it enhances efficiency and effectiveness, clarifying functions, avoiding overlap, and making authority and lines of command less ambiguous.”

These arguments can also be found in the policy documents reviewed in Chapter 1, especially relating to the rail and road sectors. As noted, the consequences for efficiency and effectiveness are difficult to assess, but the findings from interviews suggest that after an initial period of negotiations and discussions, roles, functions and responsibilities appear very clear and unambiguous to the various actors involved in safety work in the transport sectors.

Christensen et al (2008) also note that the agency model may enhance credibility and predictability, which seems to have been an important factor behind the establishment of an inspectorate at least in the road sector. They also point out, however, that this form of organisation creates increased organisational complexity, and potentially creates the need for more coordination. This concern was raised by the committee’s minority prior to the establishment of the Road Supervisory Authority. While some degree of organisational complexity is perhaps unavoidable, this was also described in the interviews as a continuous process of improvement for the inspectorates and operator organisations. For many of the operators interviewed, the optimal form of coordination was perceived as a balance between distance and proximity; the informal coordination frequently achieved through continuous feedback and informal contact was usually seen as less time-consuming and more efficient, but could also be considered to be compromising the independence of inspectorates, whose roles also presuppose a certain distance (cf. Chapter 6). In so far as can be determined on the basis of the annual allotment letters, however, it seems that a more collaborative and user-oriented approach is now also sanctioned by political authorities.

Christensen and Læg Reid (2004) conclude that agencification in Norway has lessened political control. A key feature of the regulatory state is that the execution of state functions are decoupled from a political context. In the earlier, integrated model, these functions were to a greater extent performed by large integrated state organisations such as The Norwegian State Railways (NSB), The Norwegian Public Roads Administration (NPRA) and the Norwegian Civil Aviation Administration.

In accordance with this, Egeberg and Trondal (2009) found that the effect of agencification is significant for the degree to which organisations report that they consider political signals and considerations important. Agencies, more than ministries, assign weight to signals from users, clients and affected parties. Attentiveness to political signals increase with ongoing public debate, with inherently political tasks and professional rank. This suggests that in general, the efforts to increase autonomy through agencification have been successful. In line with this, none of the interviewees suggested that political management of inspectorates was

perceived as a problem. However, as will be discussed in later chapters, it is to some degree a political question what parts of the framework conditions should be considered relevant to the inspectorates. This also ties in with the observation by Christensen et al (ibid.), that agencification in a Norwegian context has caused consensus-based decision-making to be replaced by evidence-based decisions. The interviews suggest that while this is certainly perceived to be the case, the framing of evidence as relevant or not is a political process, and operator organisations frequently work to expand or reduce the scope of this relevant evidence.

As noted above, the establishment of independent inspectorates can be assumed, among other things, to reduce the political influence of safety-related management in the sectors. In general, it did not seem to be the case, however, that the governance that has been replaced was necessarily political; the inspectorates' functions were previously primarily located in operator organisations. According to one interviewee from the Ministry of Transport and Communications, for instance, there had never been much political governance of these issues in the road sector. The authority to make decisions relevant to road safety had for the most part simply been relegated to the sector organisations:

“Political governance is more about priorities and where to spend money. It is therefore unlikely that the inspectorate will result in a new balance between professionalism and political control. Traditionally, parties have been more concerned with the size of the grants and how grants are used than they have been in regulating and making requirements for how the charges are executed”.

An interviewee from the Road Directorate, however, noted that they had sometimes experienced that the Ministry required solutions that the Directorate believed to be sub-optimal, and cited as an example that the Directorate had been required not to employ (the cheaper) wire median guard-rails, for fear of increased risk to motorcyclists, even though the Directorate could see no solid scientific evidence that this was not a good measure. It remains unclear, however, whether this kind of political interference becomes less likely with the establishment of independent inspectorates, as these agencies are merely to ensure that the safety work meets certain standards, not detail what measures or methods are in fact employed.

In the railway sector, however, an interviewee from the Ministry of Transport and Communications reported that the existence of the Railway Authority had an influence on the Ministry's involvement with safety issues:

“We are very aware that the Ministry of Transport and Communications should not make assessments when it comes to safety, that is somebody else's job. In that way, the Authority affects us to tread more carefully, and you could probably say that safety work is to a greater degree depoliticized.”

In this as well as other sectors, however, there is a division of labour between the inspectorate and the Ministry when it comes to development of regulations, the lawyers collaborate and divide regulations among them; whereas the inspectorates are responsible for technical requirements, the Ministry are responsible for the regulations that are seen as being political. However, there was no indications that this separation was contested or problematic.

4.3 International context

Safety work in transport is to a great extent internationalised. All sectors need to relate to an international context, and some degree of international regulation. The extent to which this international regulation determines Norwegian safety work, however, differs. In the maritime and aviation sectors, the legal and regulatory contexts are predominantly international. The reasons for this is that the transport regulated is frequently transnational, which has led to a requirement for joint frameworks. While the Norwegian railway has very limited transnational traffic, this situation is different in the rest of Europe. Thus, the EU is increasingly standardising railway legislation, and as a member of the European Economic Area, Norway largely adopts this legislation.

Safety work in aviation is predominantly determined by the UN's International Civil Aviation Organization (ICAO). ICAO works to develop international Standards and Recommended Practices (SARPs) which are then used by individual states when they develop their legally binding national civil aviation regulations. The ICAO Council adopts standards and recommended practices concerning air navigation, infrastructure, flight inspection, prevention of unlawful interference, and facilitation of border-crossing procedures for international civil aviation.

As a member of the European Economic Area, Norway is also member of the EU agency European Aviation Safety Agency (EASA), which has three main tasks; rule-making, certification and standardisation (Groenleer et al, 2010). The responsibilities of EASA include to conduct analysis and research of safety, authorising foreign operators, giving advice for the drafting of EU legislation, implementing and monitoring safety rules (including inspections in the member states), giving type-certification of aircraft and components as well as the approval of organisations involved in the design, manufacture and maintenance of aeronautical products. EU legislation is for the most part routinely adopted in Norway, which means that implementing international legislation is an important part of the task of the Civil Aviation Authority. They are also required by the Ministry of Transport and Communications to take part in the international forums related to the development of EU legislation and regulations. The Authority is also to work as executive supervisory authority on behalf of the EU regulatory agencies.

In the aviation sector, international standards were seen as essential for the very high level of safety, and Norwegian regulations and authorities appeared to be perceived as secondary to, and in some ways parasitical on the international systems. Some of the airlines were now inclined to find that the regulations were somewhat out of date, however, as they took for granted a framework that was no longer in place (cf. Chapter 6.3).

In the maritime sector, safety work is circumscribed by the International Maritime Organization (IMO). The IMO is a specialized agency of the United Nations whose primary purpose is to develop and maintain a comprehensive regulatory framework for shipping. Its responsibility includes safety, environmental concerns, legal matters, technical co-operation, maritime security and the efficiency of shipping.

The International Convention for the Safety of Life at Sea (SOLAS) is an international maritime safety treaty. It ensures that ships flagged by signatory states comply with minimum safety standards in construction, equipment and operation.

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) sets qualification standards for masters, officers and watch personnel on seagoing merchant ships. The Maritime Labour Convention (MLC) is an International Labour Organization (ILO) convention established in 2006, which also regulates safety relevant aspects of shipping, such as the safety training of personnel. The European Maritime Safety Agency (EMSA) monitors port state control regimes, assess classification societies and check on the work of notified bodies (Groenleer et al. 2010).

The Norwegian Maritime Authority is specifically required in the allotment letters from the Ministry of Trade, Industry and Fisheries to participate in international meetings, such as the IMO, ILO, EU and Paris MoU (Memorandum of Understanding). Promoting Norwegian interests in these forums is considered an essential task in the Ministry, as this touches on the delicate balance between safety and competition: it was broadly assumed that the correct way to improve safety was to tighten international requirements, as this would simultaneously increase the competitiveness of the Norwegian fleet, which tries to compete in terms of quality, rather than price. Thus rather than perceiving a potential conflict between safety and Norwegian economic interests, the Ministry of Trade, Industry and Fisheries as well as the Maritime Authority interpreted these as related concerns.

In the railway sector, legislation was previously predominantly national, though with some international standards developed by the International Union of Railways (UIC), an organisation created as early as 1922, with the aim of standardising industry practices. UIC has now been superseded by OTIF (Intergovernmental Organisation for International Carriage by Rail), whose regulations Norway are bound to follow by international law. The aim of OTIF is to promote, improve and facilitate international rail traffic, through such measures as:

- establishing and developing systems of uniform law in the contract of international carriage of passengers and goods in international rail traffic, in the contract of use of wagons as means of transport in international rail traffic, in the contract of use of infrastructure in international rail traffic, and the carriage of dangerous goods in international rail traffic;
- contributing to interoperability and technical harmonisation in the rail sector;
- establishing a uniform procedure for the technical admission of railway material intended for use in international traffic.

This international environment is now changing, however, as the European Union is rapidly developing new regulations. The European Railway Agency (ERA) sets standards for European railways in the form of ERA Technical Specifications for Interoperability.

Its mandate is the creation of a competitive European railway area, by increasing cross-border compatibility of national systems, and in parallel ensuring the required level of safety. The European regulations differ from the traditional – functional – Norwegian regulations in being more specific and concrete.

International regulations in the railway sector do not as a rule apply to metros and trams (which are, of course, almost entirely domestic traffic), although some regulations related to trains have been translated to public transport. Even in train traffic, transnational traffic is very limited in the Norwegian case.

In their capacity as responsible agencies for following up the recommendations from the Accident Investigation Board (AIBN, see box), all of the inspectorates (except the Road Safety Authority, which does not have this responsibility) also indirectly relate to an international context, as the methodology of accident investigation in air traffic, which is employed in all divisions of the AIBN, is developed by the ICAO.

The international framework is much weaker in the road sector, where there are no transnational organisations guiding the work, and the only pieces of international regulation are the EU's tunnel directive and infrastructure directive.

The Accident Investigation Board (AIBN) is a Norwegian government agency responsible for investigating accidents and incidents within the transport sector, specifically aviation, rail transport, road transport and from 2008 ship transport. The agency is government funded and subordinate of the Ministry of Transport and Communications.

4.4 Summary

The establishment of the Norwegian transport inspectorates can be seen as an instance of agencification; a development that separates regulatory activities from operational ones, purchasers from providers, and policy-making role from operational role. The agency model is frequently claimed to be more flexible and efficient than alternative forms of organisation, and may also enhance credibility and predictability. However, as it increases the extent of formalisation, it can also lead to more bureaucracy. At the same time, agencification is associated with a lessening of political control of an arena.

The inspectorates do, to differing degrees, operate within an international framework, which more or less determines their work. In aviation and the maritime sector, regulations are predominantly international, and this is increasingly also the case in the railway sector. In the road sector, however, there is a very limited extent of internationalisation.

5 Inspectorates as Mediators between Operators and Regulations

5.1 From technical to system- and risk based inspections

While inspections, audits, issuing of certificates or supervisions are an important part of the contact between inspectorates and operator organisations, these are not the only forms. For one thing, all of the established inspectorates also organise various types of meetings in their sectors, such as general industry meetings (aviation), breakfast meetings (rail), industry conferences (aviation, rail, maritime sector).

In addition, in rail, aviation and the maritime sector, operators are required by law to report certain incidents to the inspectorates. For the larger operator companies, this constitutes an almost continuous process. The Norwegian National Rail Administration, for instance, reports about 18 000 cases per year to the database *Synergi*.

In the inspectorates that have been functioning for a considerable period, it seemed to be a shared opinion among operator organisations across sectors that cooperation with the inspectorate had improved over time. This improvement was usually associated with a reduction of distance between operators and inspectorates, or what the operator organisations experienced as a more forthcoming attitude and increased professionalization on the part of the inspectorate:

“There has been a great improvement in recent years, and a big difference compared to how it used to be, in that the Directorate of Maritime Affairs increasingly concentrates on deviations from the system. More about the system, and less about details, and focus on that the company operates in accordance with the ISM Code. Previously, one might think that one received too many personal opinions from inspectors, now it is becoming a more homogenous system.”

When it comes to inspections, the inspectorates all to some degree identify with system-based risk supervision. The fact that it is system-based means that inspectorates are not primarily to check the details of technical systems or safety work in the organisations audited, but assess whether the organisations have a satisfactory system in place to supervise their own safety work, and whether this system seems to work according to intentions. This development is part of an international trend, and in the academic literature, the systems approach is justified with reference to efficiency, as the structures overseen are usually too complex for agencies to proscribe solutions in detail:

“One direction for reform is the use of a system-based regime that has also been labelled as a process-based or a management-based regulation. The overall logic of this approach is prescriptive regulation falls short because the production systems of firms are too complicated to be able to effectively prescribe regulatory fixes. Instead, adherents of the system-based approach argue that regulatory goals can be achieved by instituting the appropriate systems for monitoring production processes by firms.” (May, 2007)

Risk-based safety work, on the other hand, implies a pro-active approach which does not merely consider past accidents or incidents, but considers the potential future hazards in a systematic manner.

“A risk-informed approach enhances the traditional approach by: (a) explicitly considering a broader range of safety challenges; (b) prioritizing these challenges on the basis of risk significance, operating experience, and/or engineering judgment; (c) considering a broader range of counter measures against these challenges; (d) explicitly identifying and quantifying uncertainties in analyses; and (e) testing the sensitivity of the results to key assumptions (NRC 2001, part 1-1).” (Ibid)

Although the inspectorates subscribe to risk-based inspections, it is not necessarily the case that their inspections reflect all the points listed above. One point that they all seemed to include in their definitions, however, was point b). According to May (2007), the system- and risk-based approach leads to greater emphasis on professional accountability in operators (cf. Chapter 6.1).

5.1.1 Developments in the maritime sector

In the case of the Norwegian Maritime Authority, the transition to a system-based supervision was perceived as a relatively recent development, as illustrated in the following quotes:

“Traditionally, most of the auditing activities have been directed at inspections – dealing with specific technical inspection, measurements and functionality tests. There are some schemes for ongoing supervision, annual, two-year, five-year controls. It ensures that things work, and requests improvements if this is not the case. The last 13-14 years we have also focused on safety management, processes and organization rather than actual results. These things have been given much emphasis in recent years. This focus has made leaders responsible, and the requirements have meant that a safety organisation has now been established in the shipping companies that did not exist 20-30 years ago.”

“Up to the sixties, technical audits dominated, but now there is more focus on human factors, risk, just culture, etc. It is increasingly a focus on further improvements of safety through culture and people. There is still a certain degree of technical auditing, but it is now more system-based.”

Arguably, this development has made safety work in the maritime sector more similar to other, newer sectors. The fact that they are relative latecomers, can probably be explained by the fact that they were an old industry, with well-entrenched traditions and ways of thinking about safety, which were also reflected, for instance, in legislation (see Paragraph 6.1 on changes in maritime legislation relative to safety).

However, a considerable part of inspections in the maritime sector is not performed by the Authority, but by different types of external contractors.

“The specific inspection work is often outsourced to classification societies, such as the Norwegian Veritas [now merged into DNVGL], who are authorised by the Norwegian Government to conduct inspections, and are revised by the Authority and by ESA. The Authority carries out audits of smaller and unclassified ships. This applies to some ferries and passenger ships, for instance”.

This outsourcing of inspections was a choice that was criticized quite heavily by one of the interviewees, who felt that the inspectorate's role was too withdrawn and their presence in the field too limited, and that this could hamper safety work in the long run:

"I feel that they are not enough on their toes. For example, they are hardly on board the vessels. They sometimes conduct unscheduled inspections, but you risk that such inspections only happen very infrequently – sometimes there can be several years between inspections."

The amount of contact with the Authority differs between different types of shipping companies, however. For larger companies whose vessels are subject to revisions from the Authority (as in the examples listed above), inspections can be very frequent, and, in addition, there are annual reviews of the companies safety management system. These inspections are also comprehensive, and do not merely concern the safety systems:

"Recommendations from the Authority can concern everything, technical matters, maintenance, training, etc. Recommendations are addressed to the vessel, and within the company to the person responsible for the relevant area. The company's safety department also receives the list of recommendations addressed to the vessels."

In general, the international character of shipping, and the degree of internationalisation of maritime safety work, meant that vessels and organisations were frequently subject to a complex network of partly overlapping auditing and inspection:

"Another difference from other sectors is that most areas in the maritime sector already subject to outside auditing. The IMO auditing scheme was previously voluntary but is now mandatory. This is a revision on the administrative level, and focuses on how member states have fulfilled their international obligations. In addition, shipping is also subject to inspections by ESA, which specifically deals with security; controls of how security regulations are addressed in the maritime sector – this extends all the way to inspection of vessels. In addition, Norway participates in regional port state control cooperation, where ships are controlled, and in addition, one is controlled by port states outside this cooperation, so as to constantly receive correctives from the outside. Through this control, states are checked indirectly through the statistics compiled."

Although the Maritime Authority is an important player in the safety field, then, it is very far from being the only one. The requirements set by external actors can also be stricter than the ones enforced by the Authority. The classification societies' classification regulations, for instance, frequently go beyond the Authority's minimum requirements. For some of the supply companies, working closely with the oil industry, the safety requirements they encounter from their clients are considerably more demanding than those set by the inspectorate.

5.1.2 Clients' experiences with the Civil Aviation Authority

Similarly, in aviation and the rail sector, inspections are primarily system-based risk supervision, but with elements of more traditional technical inspection. The Civil Aviation Authority also expressed an explicit ambition to render their supervision more risk-based in the future.

The major operators in aviation are large companies, and they cooperate and communicate with the Civil Aviation Authority on many different levels, ranging from incident reports (which should be submitted within 72 hours), to smaller or

more comprehensive inspections, contact meetings, communication concerning the introduction of new regulations, and more informal forms of dialogue. Ad hoc meetings are organised about trends in aviation, for instance, or after a series of similar incidents, and there are routine meetings about reporting and follow-up of incidents. The communication between the Authority and its principal clients is therefore virtually continuous.

Generally, this state of affairs was seen to be very satisfactory, and the CAA was considered an indispensable part of the safety system:

“The safety work probably would not have functioned without an inspectorate; it would be ‘carte blanche’, and it is necessary to establish limits to have good practice. If there were no inspectorate, there would be a risk that safety was given lower priority to the benefit of greater short-term profit.”

However, this does not mean that the situation was considered beyond improvement by the operators. The main impression was that operators believed in and trusted the system and form of organisation in which the inspectorate plays an essential role, but were slightly more critical when it came to how this role was interpreted. There were occasional complaints, mainly to do with the Authority’s prioritising:

“When you have inspection, you go through your procedures, and maybe you get some things done that have been delayed because they were not urgent, so in that respect safety work is given a little more momentum. Sometimes revisions can be counter-productive. If you have identified discrepancies that it will require a long time to close, either because it requires new technology or other structural changes, there is little point in following this up in detail with short deadlines.”

In general, complaints, as in the other sectors, mainly centred on a lack of understanding of the operators’ work, the specific conditions under which they function, and their framework conditions. Many operators expressed the desire to make the Authority better understand their point of view:

“They complained that we have reported too little, and thought there was little reporting, which was not the case. We also informed the director directly about this. [We have] good reporting. [The interviewee] has therefore proposed that the company invites the Authority to a meeting, so that one can explain how they work. It would be good if we had some meetings outside inspections - and that the Authority came to meetings as a guest. They are aware of what [we] think of this, and are considering this. It’s about openness and trust, and understanding of what companies are doing.”

A few years ago, the Civil Aviation Authority was evaluated by the Agency for Public Management and eGovernment (DiFi, 2008). At this time, several flaws in the processing competence in the organisation were identified, including long processing time, inadequate feedback, and, in some cases, decisions that were not supported by reasons. However, after its inspections in 2008/2009, EASA found that the situation was significantly improved after the move to Bodø. Several of the interviewees still referred to this previous report, and claimed that although this situation had improved, some problems remained:

“For instance, we frequently do not receive good minutes from meetings, and invitations and audit notices can be delayed or inadequate. It seems that there has not been a good flow of information within the organization, but it has improved. But, for example, we recently received an audit notice after the deadline, and without any specified audit objectives beyond reference to comprehensive aviation legislation. It is much easier to prepare if the scopes are

precisely formulated. There were also procedural errors in the notice – these are incidental mistakes, but it happens too often. The Authority seems to be lacking good practices for quality assurance. When it comes to technical matters, however, they are competent and capable of identifying errors and discrepancies.”

5.1.3 Interactions between the Railway Authority and operators

As in the other sectors, in the railway sector, the overall picture was one of consensus that the Authority was a useful supplement to the operators’ own safety work. The exceptions to this rule was – as in other sectors – cases where the operators felt that the inspectorate had not sufficiently understood the specific situation “on the ground”. The inspectorate was occasionally described as being “bureaucratic”, for instance:

“In the 2012 revision, for example, the Authority believed that [we] lacked a plan for reaching our targets, while [we] believed we had a plan, just not a plan that was according to the Authority’s template. [We are] a small, transparent company, where the different levels work closely together, and decisions can be made quickly – our plan takes this as a starting point. The Authority did not find this detailed enough. For [us], a detailed plan that specifies activities to achieve the targets is not necessarily the best solution. But because of the Railway Authority’s orders, we must introduce more detailed control for 2013”

It was also suggested that external mechanisms, rather than a concern for safety, could have an influence on the Authority’s priorities. This meant that factors such as attention from the press or politicians, might in some cases lead to regulations that were sub-optimal:

“There is always a risk that one prioritises the things that make it to the press or into the political process, for example. A few years ago, a regulation was issued that all railway platforms should be at least as long as the trains that frequented them, after an incidence where an elderly woman had fallen off a platform. This cost hundreds of millions, and although everyone agreed that this was an important measure, there were measures that would have had much greater effect on risk. A short while ago, the position of a rail track signal at Dal station almost caused a collision, for example, and nobody had done anything about that. One should thus be better at analysing on one’s own where the greatest potentials reside and operate in a less responsive way. This also applies to the Authority. It is important to look at the cost benefit ratio before implementing or imposing measures.”

Although nobody subscribed to this perception themselves in the interviews, several interviewees also referred to unspecified other actors in the sector considering the Authority as a being bit of a nuisance, and their requirements as being deficient. In spite of this, however, the interviewees generally perceived the inspections to be useful, to provide clear and specific guidance, and to give shape to the operators’ work with safety. Their ambition was to avoid negative comments and noted deviations, not just because this could lead to negative publicity, and, in the last instance, to certificates being withdrawn, but also because they took pride in their work. The Authority was thus perceived to have a clear effect on the level of safety in the sector, and in the operators’ own work:

“There has been a change of pace, it is now becoming more management and control. As the Authority has focused on different areas during revisions, the bar has been raised. The Authority contributes to greater expertise in these areas.”

However, this situation where new areas were constantly being selected for improvement and scrutiny, could also be seen as potentially confusing:

“It could potentially be a problem when [we] improve our safety work, the Authority focuses on new areas, such as now competence management. Thus, there is much focus on this area within the company, and even if one tries to maintain attention to the ‘old’ areas, this might not be an optimal use of resources.”

It seems clear, then, that the Railway Authority has a pronounced effect on operators’ work with safety in the sector. This effect on safety work is not, however, restricted to how *much* the operators focus on safety issues, but also influences the *kinds* of safety work they are doing, and how they approach the question of safety in general:

“The Rail Authority affects safety in that they force the companies into the safety management system, a system based on standards, of acting ‘according to’.”

It is notable that while this was seen as an advantage by interviewees, it is also the case that safety resources are typically not unlimited, so the focus on the safety management systems does not only improve, but also changes the emphasis of the safety work in the operator organisations:

“The fact that they focus on the system hopefully also improves safety measures in general. During the safety revision that was completed this autumn, they found irregularities in the follow-up of old internal audits in [our company], which means that we will work a lot with this in the future. But this implies, of course, that there will be less focus on something else.”

While the inspectorate was seen as giving added momentum to safety work within the organisations, through the possibility of bad press or loss of certificates, their priorities were in some cases markedly different from the ones that the operators would have chosen themselves. This is perhaps more pronounced in sectors that consist of very diverse actors, than would be the case in commercial aviation, for instance.

“If we did not have an inspectorate and the safety department nevertheless had the same impact [within the organisation], one would probably have prioritized somewhat differently in safety work. Internal processes would not have been documented and described to the same degree, and we would work more with the safety problems that are perceived as more relevant for the metro – not for the railway sector as such. The Rail Authority can be said to be given shape from the perspective of railways, and the authority is consequently concerned with issues like hitting persons and collisions. For metros, we focus more on fire and smoke, which dominate our risk scenarios.”

In spite of such differences of opinion, cooperation was generally considered successful. As in other sectors, cooperation between the Railway Authority and the operators was perceived to have improved with time:

“Cooperation with the Authority has changed somewhat over time, as the inspectorate has become more professionalised in terms of dealing with regulations. In the early stages there was too much emphasis on the individual [Authority] employee’s subjective understanding of the regulations. There is some room for interpretation – as illustrated by the fact that the Authority publishes guides to them – and it is still the Authority that acts as an interpreter, but the interpretations are no longer as dependent on the perceptions of the individual; interpretations are linked more directly to the regulations.”

Another interviewee provided a possible explanation why there had been initial problems of communication. According to him which was related to the fact that different groups represented different paradigm for safety work, and different traditions for thinking about safety.

“The sector is relatively small, and part of the staff of the Authority has a history with the NSB, while part of it comes from off-shore. With the latter group, there was initially a bit of a culture clash. Over time, this has been levelled, and we understand each other better.”

Historically, the oil industry has been at the forefront of systems oriented safety thinking, which takes the focus away from individual mistakes, and is more concerned with creating a safer system.

5.1.4 Inspections in the road sector

In the road sector, the question of what kinds of inspections or revisions should be carried out has been a contested issue. Some politicians and other groups have argued that the inspectorate should conduct technical inspections of roads, and have the authority to close them down if they do not meet specified safety standards. Their present remit, however, clearly defines them as a system-based risk supervisory structure, which means they should be focusing on organisations rather than on physical infrastructure, as explained by the Director of the Road Supervisory Authority:

“By ‘system supervision’ I understand checking if there is a good system for addressing safety requirements, and whether the system is followed in practice. To determine this, the Authority makes use of document review processes, but also interviews and sampling, in order to study practice. The Authority follows the process from the procedural requirements for the practice to the performance on the roads – ensuring that there is a common thread that runs all the way, and where there might possibly be a break in the chain.”

Their risk-based approach also implies that their choice of cases for inspection is defined by topics, rather than by specific geographical locations:

“When assigning cases, it is often because others, such as the AIBN, have touched upon topics, but they take up the issues from a slightly different perspective. Then we look at how the Road Administration works, thinks, assesses risk and safety within the area.”

Since the Authority had functioned for a very brief period by the time the interviews were conducted, it is difficult to make any conclusions about results and consequences of their activities¹. The following example, however, can indicate what kind of effects they have had so far, and what kind of results they envisage for the future:

“Procedures for safety work in the Road Administration were changed after our inspection on ‘learning after accidents’, in connection with following up reports from the AIBN. Previously, the Road Administration finished with the recommendations very early and it was not checked whether the measures discussed were implemented, or had an effect. They now have procedures to follow up on the recommendations and ensure that the measures were appropriate. In Handbook 151, relating to management – requirements for small and large projects, we also made suggestions for simplification, that they have embraced. Many of the changes relate to clearer roles, responsibilities and training. There is no point in just changing the procedures.»

¹ The Road Supervisory Authority has, however, commissioned the research institute SINTEF to evaluate their specific results, tracing the causal chain from the Authority’s recommendations to improved safety on roads. This work is not yet completed.

In order to ensure that the revisions have the intended effect, the Authority distributes an assessment form after each inspection, where they ask the supervised entity to rate the Authority's work relative to technical quality, relevance, competence, work methods, usefulness and communication. Based on this, and on the reported actions taken after inspections, they felt that, at the very least, their recommendations were taken seriously by the NPRA. The NPRA is, however, organised in five different regions, and the Authority had observed that weaknesses pointed out and subsequently dealt with in one region, had not been addressed in the other regions, which means that the effect was more limited than it could have been. Another challenge was that the safety approach inherent in the Authority's form of inspections was more readily understood by those working on a higher level in the organisation, who are probably more used to thinking in terms of organisation and management tools:

"However, one can observe that there is less understanding of the importance of a management system farther out in the organisation. Centrally, people see the importance of systems, but on the local level, people often want to work as before, and rely on professional competence."

Given that the Road Supervisory Authority is a recent addition to Norwegian safety work, and there exists no exact foreign counterpart, the organisation is obliged to invent its own ways of working and functioning more and less from scratch. As noted in Chapter 3.1, there are significant differences between the Road Supervisory Authority and the inspectorates in other sectors, but their function is still in many respects to be similar to the others'. This situation had led the Authority's director to consider whether there was a need for structural changes that could serve to ground and facilitate their work:

"It is something we miss in the road sector; that you do not have a more regulation-based system, but instead mainly handbooks. The handbooks are difficult to assess, and very detailed. A different set of regulations could be more target- and function-based. The Authority has therefore initiated a study on the need for safety regulation for roads, as is the case in the railway sector. This would provide a more general framework for safety management."

When asked about the overall, hoped-for effect, the interviewees from the Authority emphasised that they envisaged a stronger focus on the road infrastructure. In other words, they perceived their practice to have a strategic relevance that went beyond quality improvement in the single cases:

"I hope the Authority contributes to preventing that you so quickly point your finger at driver mistakes. If you accept Vision Zero, you should not be able to use this as an excuse. We also hope to provide a better understanding of how the Road Administration really works. The Authority tries to produce a larger picture and look at the culture and main challenges."

Thus, and partly in contrast to the other inspectorates, the Road Supervisory Authority was very aware that their role was in a sense a political one, which went beyond merely improving safety.

5.2 National and international regulations

In many of the sectors, international regulations and international organisations play a significant role in safety work. This, of course, has for a very long time been the case in aviation, as discussed in Chapter 3. The international framework can serve as important assistance for and reinforcement of the national inspectorate, but the double structure may also create potentials for conflict, and international requirements, which are to work on a global scale, can in some cases be less suitable in a Norwegian context. In aviation, there was generally a high level of acceptance and appreciation of international regulations, but even here, they sometimes appeared to be less than ideal:

“The new international regulations may seem a little counter-productive for Norway, because it basically is aimed at countries with a very low level of safety, to lift them to a common minimum standard. Consequently, one must make many changes in Norway that might not cause greater safety, but which contribute to the common standard. But this is rational at the level of the system.”

This problem was also acknowledged by the Aviation Authority, although from a different perspective. For the Authority, the problem was associated with international airlines operating in Norway, for whom their own countries had supervisory responsibility:

“They (often) do not have the necessary knowledge of the particular operational challenges that exist here, while they must rely on common European regulations that do not adequately take these challenges into account.[...] We have no authority to impose special training, beyond what we can gain support for in the joint European regulatory development. For us, it might be desirable that all who want to fly to and from Norway, in the winter months especially, must undergo training in winter operations and other factors particular to Norway.”

Similar problems were brought up by a representative from one of the airlines, who claimed that international regulations did not sufficiently take into account the challenges associated with operating in harsher climates and small airports. The quote below demonstrates how the requirements of safety and fair competition may sometimes conflict quite sharply:

“One thing that is very controversial is working time regulations: in principle regulations allow staff to work up to 15 hours – that’s already pretty heavy. The problem is that the regulations do not make concessions for winter and darkness in Norway. It is not allowed to work this long shifts during the night, because of the darkness, but the regulations do not differentiate between summer and winter, or take account of snowstorms and difficult weather conditions. The limits are the same in southern Europe as in northern Norway, but the conditions are not comparable. Here the government should introduce restrictions, because it is a safety issue. The companies cannot really afford to impose restrictions on themselves. The Authority could address this – they have someone working on it, but nothing has come of it yet. [The Norwegian airlines] Norwegian and SAS have imposed restrictions on themselves during the winter in northern Norway. However, it is best if the rules are common to all, but it does of course make it more expensive to fly in Scandinavia, thus giving the companies on the continent advantages.”

The challenging conditions encountered in Norway has led the Norwegian Aviation Authority to introduce stricter regulations in some cases than can be found in the rest of Europe. This goes for such matters as offshore helicopter operations,

commercial STOL operations, winter operations, the Arctic environment, polar darkness, fast-changing weather conditions and challenging topography.

The unique character of the Norwegian aviation scene could also be a more practical problem, as when the upcoming EU regulation on scanning for fluids demands that alarms should lead to evacuation of the terminal and police presence. The latter can pose a major challenge in cases of false alarms for small Norwegian airports, which may be very far away from the nearest police station. Norway already has a number of compensatory solutions, but getting them in place was described as taking much time and resources.

Another area where international requirements were described as being counterproductive, was security. Measures and regulations were considered reactive, and less than rational or risk-based. In spite of the general approach to international regulations, the Norwegian Authority does in some cases go beyond them. This mainly concerns issues such as working condition, safety representatives, and the like. While these instances of regulations can be seen as being responsive to the local conditions and environment, the Authority was also criticised for idiosyncratic interpretations of general regulations:

“The Authority's interpretation of the regulations in some cases differ quite a lot from interpretations in both Sweden and Denmark. The Norwegian Authority is more characterised by national thinking than the others, and they want to do things their own way – this is dangerous and threatens aviation safety. It is important that supervision is predictable and recognizable. The ambition is really that the EASA should take over more and more, and that the result should preferably be a cross-border supervision and orderly conditions. The joint Scandinavian inspectorate for SAS was only closed down a few years ago. Supervision is good, but it's important to get the right interface, it is difficult to be inspected in many countries where you get different results, and Norway is the worst offender here, and stand out. The Authority wants to do things the Norwegian way, and it is very down into the details.”

International regulation in the railway sector has been scarce in the past, but is now rapidly increasing. Since the operators did not, as a rule, have much experience with transnational traffic, these regulations were mostly seen as irrelevant to their activities:

“They are more fruitful for those engaged in cross-border traffic. The more specific and concrete European legislation may in some areas be very good, the functional Norwegian regulations mean that you must specify the rules your self within certain limits. Part of the European changes are positive, and removes some red tape for those operating in several countries who can now relate to a more homogenous set of rules.”

Minor problems had emerged in the process, and not all requirements were seen as productive, and in one case, it was even seen as a potential risk to safety:

“Technical specifications lock in solutions, and can in some cases be less appropriate. This is the case for the EU requirement that brake pads must be of composite materials, which is important for noise reduction. But some of the composite brake pads do not work on snow and ice. Here Norway tried to achieve an exemption based on our own tests.”

In the maritime sector, there is a strong preference for international regulations rather than stricter national requirements, as this could lead to shipping companies opting out of the Norwegian flag. This means that the Maritime Authority needs to

strike a fine balance. The international regulations were described by the Authority as being descriptive, and this potentially hampering innovation and development.

“We are now working for a shift towards target-based regulation - where aims are specified but several standards are equivalent. This kind of legislation will make it easier to create alternative solutions, which is possible today, but the way is long and bureaucratic. However, there are also problems associated with having only target-based requirements - it can make it difficult to verify compliance. You need some standards – the thickness of bulls, etc.”

One of the operators felt that Norway did not work hard enough to achieve local adaptations of international requirements. Also the EU’s directive on water ballast was described as being “hopeless”.

In the road sector, the only international regulations are extremely limited, and does not really give much direction to national safety work. This, of course, means that the sector largely avoids the problem of global regulations that are not adapted to local requirements and environments, but the other side of this can also be a certain lack of momentum:

“There is no large international organisation that leads the work, here national requirements reign.”

5.3 Summary

The Norwegian inspectorates all to some degree identify with risk-based system supervision, although many also conduct some technical inspections.

Overall, the operators’ experiences with inspections were positive, and cooperation was perceived to have improved over time, possibly as a result of improved understanding of the system-based approach. Operators also tended to point to increased professionalization on the part of the inspectorates, which have made their actions and recommendations more predictable. The distance between inspectorates and operators was also generally seen to have decreased, to the benefit of smoother interaction and communication. Complaints often referred to lack of understanding of the operators’ work, the specific conditions under which they function, and their framework conditions.

It was mentioned, however, that external factors, such as attention from the media or politicians, rather than a concern for safety, could influence the inspectorates’ priorities, and lead to inefficient use of resources.

The inspectorates also influence the *kinds* of safety work going on in operator organisations, and how they approach the question of safety in general, and their priorities sometimes differ from the ones that the operators would have chosen if left to their own devices.

International regulations govern aviation more than any of the other sectors, and are usually considered a boon here, although challenges persist in relation to specific Norwegian conditions. The conflict between the local context and the global requirements could also to some degree be found in the other sectors. Only the road sector does not relate to a well-established international regulative environment.

6 Roles, Responsibilities and Accountability

6.1 Changing structures of accountability

Accountability can be defined as the duty to give account for one's actions (Scott, 2000) or answerability to someone for expected performance (Romzek & Ingraham, 2000). Accountability is a central issue for any inspectorates, because tasked with the responsibility of securing the quality of a given services, they are accountable to the government and public, and the regulated entities are accountable to the inspectorates. With the changing institutional framework in the transport sector, discussed in the Paragraph 4.1 on "agencification", new structures of responsibility and accountability are required. According to Aucoin, & Heintzman (2000), various pressures have led to changes in the structures of accountability:

- A desire for debureaucratization
- Greater degree of shared management
- Demands for results and demonstrated performance

The last point is especially relevant in the case of inspectorates, who demand documented performance relative to safety work. The operator organisations are thus now constantly accountable to an external entity (the inspectorate) when it comes to their safety management, and not only for their safety outcomes.

The part-privatisation of the transport sector, along with the establishment of independent safety inspectorates, can be considered a new "regulatory regime" (May, 2007).

"One can think of a regulatory regime as a means for achieving regulatory goals[...]. A regime comprises an institutional structure and assignment of responsibilities for carrying out regulatory actions. The institutional structure is made up of rules that prescribe expected behaviors or outcomes, standards that are benchmarks against which compliance can be measured, a mechanism for determining the degree of regulatory compliance, and sanctions for failure to comply with the rules." (ibid).

May (2007) distinguishes between three ideal types of regulatory regimes: prescriptive regulation, system-based regulation, and performance-based regulation. Prescriptive regulation focuses on prescribed actions, and adherence to these, and regulations are detailed and particularistic specification. System-based regulation focuses on process or system, and assesses whether systems are acceptable. The standards used are process oriented, and the goal is to achieve appropriate system controls. Performance-based regulation focuses on results of outcomes, and its standards are goal-oriented, see table 3 below.

Table 4. Comparison of regulatory regimes (adapted from May, 2007).

	Regulatory regime		
	Prescriptive regulation	System-based regulation	Performance-based regulation
Regulatory foci	Prescribed actions	Process or system	Results or outcomes
Compliance determination	Adherence to prescribed actions	Acceptable production system	Achievement of desired results
Nature of rules and standards	Particularistic and detailed specifications	Process-oriented specifications	Goal-oriented outcome specifications
Basis for achieving regulatory goals	Adherence to prescriptions presumed to meet goals	Appropriate system controls are designed to meet goals	Regulatory goals are embedded in the results orientation

All the Norwegian transport inspectorates to some degree embrace the system-based approach, which focuses on processes and systems, but most of them (possibly with the exception of the Norwegian Road Supervisory Authority) also include elements from the other regimes, and do not purely belong to one of the ideal types. This also means that operator organisations are held accountable for more than just one of the types of outcomes.

Accountability is meant to secure control, assurance and continuous improvement (Aucoin, & Heintzman, 2000). A main dilemma associated with accountability is how to give actors with delegated authority sufficient autonomy while ensuring adequate degree of control. Operators occasionally believed that better results would ensue if they were given more autonomy. Control and accountability are thus linked concepts; there is managerial control *ex ante*, accountability-based control *ex post* (Scott, 2000). From the viewpoint of accountability as control, the most critical perspective is risk-planning and –management without micro-managing, while from perspective of assurance, auditing becomes important. From the perspective of improvement, however, learning (as opposed to blaming) is central (Aucoin, & Heintzman, 2000) – confer also Paragraphs 6.2 and 6.3. below.

A discussion of “accountability” is complicated by the fact that the term has many different meanings, however. There is legal accountability, bureaucratic accountability, professional accountability, and political accountability. This means that for any given action, many different actors can be held accountable, on different levels, and in different ways. While an employee in an operator organisation may be professionally accountable, usually only the organisation (unless there is gross misconduct on the part of the employee) will be legally responsible. On the highest level, in case of huge disasters, the Minister, who shoulders the political accountability, might have to resign. Romzek (2000) further describes legal accountability as concerning compliance with established performance mandates, and being typically reactive, concerning relatively autonomous actors. Instead of bureaucratic accountability, she labels the second type hierarchical, as it involves close supervision, low work autonomy, obedience, rules and regulations. In larger professional organisations, there will of course always exist some degree of this kind of accountability, which guides and specifies the work of employees. Professional accountability, on the other hand, implies that the source of accountability is the

actors' own standards, involves a high degree of autonomy, and concerns internalized norms and appropriate practice. Finally, political accountability concerns responsiveness to key stakeholders.

Christensen and Læg Reid (2004) observe that power relations seem to be changing faster than accountability relations, which might imply that although governments have limited control of agencies such as inspectorates, they will nevertheless have to bear responsibility and take blame when things go wrong. Conversely, they find that although agency leaders have increased their power, this is not necessarily accompanied by increased accountability. Accountability relations do not, for the time being, therefore necessarily map relations of power and influence.

Table 5. *Accountability structures (Adapted from May, 2000).*

Accountability levels	Regulatory regime		
	Prescriptive regulation	System-based regulation	Performance-based regulation
Legal	Transparency in setting rules and standards	Transparency in establishing features of desired systems	Transparency in establishing performance goals
Bureaucratic	Monitoring for adherence to prescribed rules	Monitoring for adequacy of management system	Monitoring for adherence to performance goals
Professional	Enforcement decisions by regulatory inspectors	System design decisions by regulated entities	Adherence to performance goals by regulated entities
Political	Triggered by complaints about regulatory process	Triggered by multiple system breakdowns	

One of the stated reasons for establishing an inspectorate in the road sector, was that this would clarify roles and responsibilities. This is an ambition that finds some support in the literature, as according to Scott (2000), the fragmentation of the public sector associated with new public management has made more visible existing dense networks of accountability, and transparency and need for specification may sharpen accountability. In the other sectors, where inspectorates had been operating for some time, the prevailing view was that responsibilities were very clearly defined, although it was sometimes remarked that this had not always been the case in the past.

In the maritime sector, responsibilities were seen to be much more clearly defined after the introduction of the relatively new Maritime Safety Act:

“The Maritime Safety Act of 2007 made the shipowner’s liability much clearer. Previously, vessels and captains were the primary subject, now the owner has the main responsibility. This is a shift that can be observed in multiple areas; safety systems have been a requirement from the late 90s, and this now goes for almost the entire fleet. In this way, one began to regulate work processes in the shipping companies, not just the end result. It has to do with managing safety – required functions, etc.”

This development is, again, probably a reflection of the trend where safety is seen as a characteristic of organisations, rather than individuals, and accident as the outcome of (flawed) processes, rather than incidents caused by persons acting erroneously or irresponsibly. Thus the system-based approach to safety links with a changed

conception of accountability, where the accountable entity is typically the organisation, rather than the individual.

In the maritime sector (as in the railway sector) several actors mentioned that there had been some initial confusion concerning the responsibility of the inspectorate; some of the actors had assumed that after a successful audit, the inspectorate had given a stamp of approval, which meant they were now responsible for safety outcomes. This notion, however, was mainly seen to have vanished over time, and this clarification was associated with the Maritime Safety Act:

“As an inspectorate we have a form of moral responsibility, but usually not legal responsibility. Inspections are just random sampling, not an exhaustive control - this is the shipowner’s responsibility. Legal responsibility is thus placed with the shipping company, and a little down the organization. However, as an agency that provides a framework for the industry the Directorate also bears a responsibility.”

The question of responsibility might be considered more pressing in the maritime sector than in the others, as the Directorate of Maritime Affairs plays several roles in the system. This was not perceived as a problem by any of the interviewees, however (although the interviewee from the Directorate was aware of the potential problem). The interviewees from the Ministry of Trade and Industry found that there were many reasons to maintain the present organisation, and that there were important differences between the sectors that could justify the fact that the organisation was also different:

“The division of responsibilities within the sector is sufficiently clear, even though the inspectorate has not been separated from the other functions, since the state is not a player in the field. The separation and clarification was particularly important in aviation, where the state was commercial actor. Everyone in the industry is aware of the responsibility.”

This attitude was also reflected among operators in the sectors, who similarly referred to the Maritime act as having clarified existing confusions. None of the operators interviewed expressed an expectation that the inspectorate should be responsible after inspections.

In aviation, there was general agreement among all interviewees that the responsibility for safety was very clearly defined, within and between organisations. This sector, of course, relies heavily on international arrangements, which might also contribute to clarifying relations in Norway, as the inspectorate will not need to develop a unique structure:

“Responsibility for operational safety is defined by the organisation, with airport managers and unit managers. [Avinor’s director for safety and quality] has a strategic responsibility for safety in overseeing that laws and regulations are followed by Avinor. The Aviation Authority should ensure that this is taken care of, while the Ministry provides the framework for all stakeholders, and also manages Avinor through the ownership of the company. This seems like a good division of responsibilities.»

This division of responsibilities contrasted with the old system, where the airport manager Avinor and the responsibility for supervision both resided in *Luftfartsverket*, a division of labour that was not seen as optimal, and, as one interviewee pointed out, was not favourable to the perceived independence of the inspectorate. All the interviewees were hence very clear about what their responsibilities were today, and how these were to be undertaken:

“Widerøe is responsible for developing adequate procedures and creating good working conditions in the company. Errors will always occur, but it is important that you identify the cause, and create new procedures for continuous improvement. Legislation should ensure that the necessary equipment, training, etc. is in place. Manufacturers are responsible for producing systems with good "redundancy" - which lowers the probability that the system as a whole fails.”

The only exception to this rule, was a relatively minor disagreement pointed out by SAS. This did not concern the division of labours between the different organisations, but how responsibilities are divided internally in SAS. Nevertheless, this was perceived to be a problem for the process of communication:

“There is only one thing we have disagreed about, but it is quite important. The Authority believes the Quality Manager has and should have more of an executive and controlling role than is the case. SAS's view is that the QM will find and propose improvements to management, who then makes the decisions. This is also what EASA is based on, but the Aviation Authority almost assumes that the QM is the boss.”

In general, however, there were few quibbles with the present division of responsibilities, but the division was generally not seen to be a consequence of the work of the Civil Aviation Authority.

In the railway sector, responsibilities were similarly considered to be very clear, and beyond debate, as illustrated by this quote from an interviewee in the Ministry of Transport and Communications:

“Responsibilities within the sector have become very clear; the responsibility resides with the individual companies, not with the Ministry of Transport and Communications, while the Ministry is responsible for regulations. Responsibility for safety lies elsewhere - this is quite crystal clear, it follows from regulations, and the Authority ensures that the actors are aware of it. It was not, however, a conscious thought behind the creation of a Railway Authority to clarify responsibilities.”

While the interviewee from the Railway Authority assumed that its existence influenced relations of responsibility, most of the operators supposed that this division was independent of the inspectorate. However, as in the maritime sector, there had been some initial confusions as to how an inspection influences responsibility for safety work, and it was suggested that this confusion still lingered in some quarters:

“The division of responsibilities in the sector is quite clear, but there is perhaps a danger that some actors think of the Railway Authority as a sort of Veritas, which vouches for the safety of the object after inspections. But the Authority has been very clear that this is not their role.”

The Authority itself similarly acknowledged that this had been a problem in the past, but considered this problem to be solved:

“The creation of the Railway Authority over time created accountability in the sector. There were several years of controversy and conflicts when it came to authority, for example, whether the Authority had the authority to revise the Railway Administration over certification of rolling stock. Another discussion has centred on whether the Authority is responsible for the safety situation after inspection, but it is now well established that the actors themselves have this responsibility. If they detect errors that the inspections failed to see, they are responsible rectify them. Responsibility and roles are now clear. Expectations and responsibilities are communicated to stakeholders.”

However, in spite of the clarity of the structures, a certain level of frustration was apparent among some of the actors, related to the organisation of the sector as a whole. According to Romzek (2000) reforms can result in administrations that are more complex and render accountability more obscure. One reason for this is that employees typically face multiple sources of legitimate authority and competing expectations for performance, and it is occasionally unclear which is most legitimate in given situation. In the public transport companies, the multitude of independent companies was seen to create complication, confusion, and occasionally less than optimal ways of organising work (cf. also Chapter 7):

“The division of responsibilities is in a sense optimal today, since responsibilities are not fragmented. But it would be better if public transport was organized the way the railway law proposes. Now it is not organized on the basis of safety, but out of a need for financial transparency.”

In the railway sector, there was generally an understanding that it was impossible – given current infrastructure and political climate – to completely safeguard against the actions of third parties:

“It is also the case that neither the Authority nor the AIBN follows up volume events, which are caused by a third party; it seems as if they define them as outside their remit, that they are only police matters. If the operator is not to blame, enquiries frequently end, so it appears that they are investigating operators, not accidents. There is much we try to do here that the Authority could have been pushing for.”

This illustrates that although relations of responsibility are seen to be clear, they are at the same time blurry and negotiable, and subject to limitations set by other social goals, budgets or simply habits.

The interviewee from the dominant Norwegian train company NSB was also extremely aware of the limitations of the present divisions of labour and responsibilities, in the sense that regulations and procedures may be seen to be based on an idealised version of their work and framework conditions:

“Operators are responsible for obtaining an overview of the risk situation, but this is not always possible. Sometimes one has to make decisions about operations based on trust in the operators. There are, however, no regulations of this, it is an ongoing assessment. Operation, should, however, be carried out responsibly. One should obtain as much of an overview of the situation as possible.”

This way to manage this inherent ambiguity and need for the use of discretion is possibly one reason why cooperation with the Authority had improved over time, as both sides learned to understand the other’s perspective (and the limitations set by framework conditions), and probably also developed shared standards of acceptability:

“Both sides have become better at considering the consequences of changes, and whether they make sense. If the Authority insists that everything should be waterproof, one steps away from reality, or the whole system will come to a halt. For instance, a regulation issued in 1999, said that railroad operations shall plan with a view to that single failures should not lead to major accidents. The phrase “with a view to” is essential here, since a literal reading would make any operation impossible.”

A related potential source of ambiguity in the sector was related to unavoidable risk, which again demonstrates the difficulty of constructing water-tight systems, given that society has a number of potentially conflicting goals:

“Some people may suffer injuries because they are not able to hold onto something [while travelling as passengers], and there is a dilemma, because society demands that the metro is accessible for these groups, so it must be seen as a deliberate risk that society takes.”

Thus, the overall picture in the railway sector was one of reasonably clear relations of accountability and responsibility, but one that was not necessarily considered optimal, or quite black and white when it comes to prioritising safety.

In the road sector, the inspectorate is still so new that one could not expect to identify any consequences of its existence when it comes to divisions of responsibility, although clarifying such relations was an express motivation for its establishment. The question of responsibility, did, as presented in Chapter 2, loom large in the report preceding its establishment. While the majority behind the report assumed that an inspectorate would clarify responsibilities, the minority feared that an outside agency with a focus on infrastructure could lead to a fragmentation of accountability in this field. The interviewees from the Directorate of Public Roads did not consider this a likely outcome, however, but emphasised that a focus on responsibility was an engrained part of the organisation. The corollary of this view, however, was that they found it unlikely that relations of responsibility in the organisation would be affected at all. The interviewees from the Road Supervisory Authority also did not believe that their activities would lead to the corresponding areas being given less priority in the Directorate, partly because their function was an addition to the existing structure, rather than a depletion of the Directorate’s resources. Interviewees from both organisations agreed that a more likely outcome was a stronger focus and a reinforcement of existing efforts:

“It is to be hoped that the Authority functions to sharpen the organization, creating a sharper focus. Those responsible for the various elements will be highlighted, so there is no reason to expect a change of responsibilities, but a clarification, greater awareness and more momentum.”

Given that the Authority only relates to one operator, there was little scope for ambiguity when it came to the responsibility for the shortcomings they identified:

“The responsibility for safety on the roads lies with the Road Administration. The Authority is to support and assist the Ministry of Transport, but safety is NPRAs responsibility. Drivers have a legally defined responsibility, and there are also requirements for vehicles, approvals, etc.[...] It is necessarily the case that those who are operator are in charge of safety.”

Unlike the other sectors, there seemed to be no initial confusion when it came to the inspectorate’s possible responsibility for inspected items:

“It is quite clear that the Authority is not responsible for items that have been audited. This vagueness may easily arise in cases where an audit is linked to sanction, or where the inspectorate is authorized to shut down a train line, eg.”

In general, none of the actors appeared to expect that the existence of an inspectorate would change relations of responsibility or accountability. If anything, they predicted a highlighting of existing, and unchanged structures.

As noted, inspectorates tend to influence safety work in more ways than one. In addition to making sure that safety issues are addressed, they do in various ways influence the approach to safety used in the operator organisation. The most important way that they have this influence, is through making the operators focus more on systems for safety management, rather than on individual measures or

people, and, as seen above, this leads to reducing the emphasis on individual blame. However, one interviewee from the railway sector did not believe this to be a function of inspectorates, but a reflection of changing beliefs in society as a whole:

“The company now has total responsibility, unlike earlier when it was more common to distribute individual blame for accidents. Thus, it is more as if the creation of an inspectorate reflects society’s changing perceptions of responsibility than vice versa.”

From this kind of perspective, the very establishment of inspectorates, and the definition of their roles, could be seen as a consequence of, rather than a cause for, changing ideas about responsibility and accountability.

6.2 Collaboration or control?

In all the sectors where the inspectorate has been operational for some time, there was an agreement that collaboration and cooperation had improved over time (cf. Chapter 5.1). Apparently, the initial periods had often been characterized by a certain level of conflict, or perceived conflicting interests between the inspectorate and the inspected. While there may be many reasons why this had been the case, one factor stood out in many of the interviews; that they found that the inspectorates’ focus had changed from one on distance and control, to a more forthcoming, collaborative attitude. This change probably reflects an international development, where the concept of “client focus” is increasingly important in regulatory agencies (Alford & Speed 2006), and the notion of “responsive regulation” (Nielsen & Parker, 2009) has become widespread. Pollitt (2003) likewise observes (in the case of European supreme audit institutions) that the auditors now consult closely with auditees, which contrasts sharply with the traditional image of the relationship between auditor and auditee as distanced. He hypothesizes that this development is also related to general political-managerial reforms, and changes in the public sector.

An indication that this is a desired development, is the Ministry of Transport and Communication’s allotment letter to the Railway Authority in 2008, where the Ministry presupposes that the Authority will have a good and constructive dialogue with their clients, and that it is important that the Authority and the Norwegian National Rail Administration develop a shared interpretation of the safety regulations in rail transport. Presumably, this has been added as a result of considerable problems of cooperation in the Authority’s early years (Hommen, 2003). In 2009, this paragraph was further expanded, to emphasise that the Authority has a duty to guide their clients, and that the Authority should be very clear about the requirements for the different assessment processes. It is also emphasised that it is important that the Authority’s information and proceedings are predictable, which again suggests a more “customer-oriented” role for the Authority.

This changing balance – which was still perceived as a challenge, however – can be demonstrated by the following quote about the Railway Authority:

“Now there is a good atmosphere and good cooperation. But some of those who work [for us] find the wording of the reports a bit sharp and brutal. This is not an issue in meetings, when it is easy to relate to each other. Previously, one might also have been slightly more afraid of them. They may have also changed their approach, and assumed a more friendly and collegial style, where you can also talk about other things than those that concern safety.”

A similar experience and a similar attitude was expressed by another operator in the sector:

“Things are getting better - a few years ago, the auditing was seen more as a thorn in our side and one felt one had to do things just to satisfy the Authority, and that notion has largely changed, although it lingers in certain situations, where one may wonder about the appropriateness of what they do. One must be aware of why we do things - it should be appropriate for your business. [We] were assessed in 2012, and tried to emphasize how certain ways of doing things may be appropriate for our operations, and that must be the guiding principle – sometimes the Rail Authority’s schemes can be too bureaucratic. The Rail Authority’s has become more open to that kind of dialogue, and all benefit if they supervise and assist to a greater extent than before.”

This quote also echoes the findings presented in Paragraph 5.1; that one of the most frequent criticisms of the inspectorates was their failure to understand the specific situation in which operators find themselves. This is partly remedied, it seems, through a more open dialogue. The research literature seems to confirm that this is a more fruitful approach. The new “responsive” or “client oriented” styles of managing are claimed to “more effectively elicit compliance” (Alford & Speed, *Ibid.*). Part of the improvement is associated with a better understanding of the regulatees’ motivations, and seeking to take them into account as far as possible. Alford and Speed distinguish between two dimensions of regulator service quality: technical quality (the outcome of the process) and functional quality (the process). They argue that a client focus will mainly pertain to the functional quality, through such things as speed of service, information, simplicity, respect and fairness. Improved functional quality can increase regulatees’ willingness to obey not only the letter, but the spirit of regulations. Better functional quality can also improve regulatee’s ability to comply, if regulations are more accessible and understandable.

As illustrated in figure 1, inspectorates occupy a position between Government and regulated companies, with the aim of creating improved safety. A necessary condition for this to function, is that companies comply with the inspectorate’s instructions. This willingness can be secured through the use of sanctions, but efficiency, as well as probably quality, will improve if companies comply on the basis of an identification with the inspectorates goals and objectives. Alford and Speed (*ibid.*) describe the interaction between the inspectorates and regulatees as a social exchange, where the inspectorates desire compliance, but the regulatees can withhold their cooperation. While the inspectorates have (usually) access to various sanctions, this can foster a minimal level of compliance, but not their willingness to do so. The currency that inspectorates can use in this exchange often relate to functional quality, through such things as advice, fairness and trust. Through rendering the process more convenient, they may for instance save the regulatees time, whereas showing respect for the regulatees’ competence may appeal to their motivations of self-esteem and autonomy.

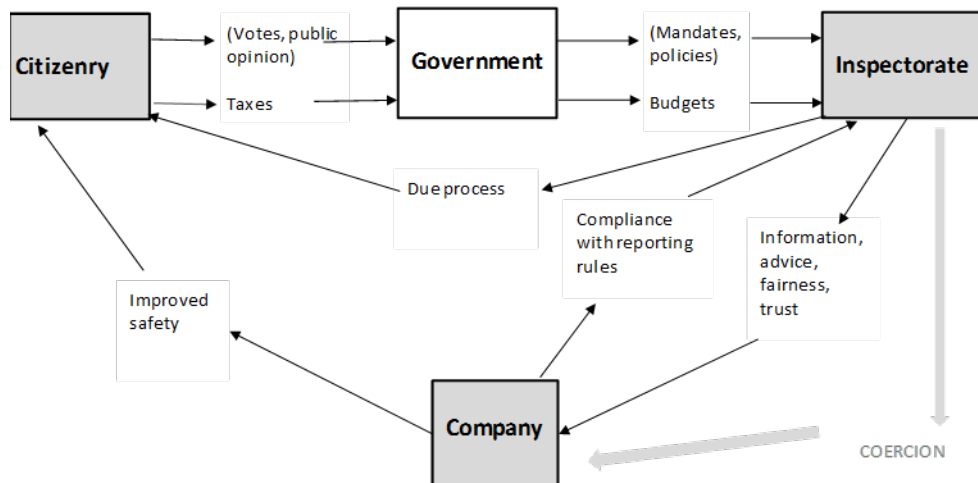


Figure 1. Inspectorates and social exchange, adapted from Alford and Speed, 2006.

We should note, however, that the positive development relative to cooperation in the railway sector may not be entirely due to a changed approach from the Authority. Several interviewees referred to the significance of mutual adjustment, changed competence profiles in the organisations, and improved understanding of their respective roles and relationships.

“There has been a development of expertise on both sides that makes talking together easier and a common understanding has been formed of what an internal control system is, for example. Previously, some thought that revision meant to take apart a buggy and put it back together, and some thought it was a quality audit. The Authority was quick to espouse ideas about internal controls and safety thinking from offshore operations, but it could be unclear whether this was adapted to the nature and risk of our operations.”

Part of the positive development could also simply be related to the operator organisations acceptance of the new organisational development, which was initially contested, at least by some:

“When the Rail Administration received its safety approval in 2009, the process took three years, and was characterised by power struggle between the organizations. The approval was granted doubtfully, and only for three years. This attitude has changed, the new director agrees that the Authority makes the decisions.”

Generally, the operators frequently emphasised their desire to experience the Authority as guiding, rather than controlling. The control, or “rebuke” aspect of the Authority was resented, and often also presented as unfair. This also has a very practical side to the companies, as they worried about how the general public, through the mediation of the press, might interpret the inspectorate’s critical remarks:

“Now, the Rail Authority lists any instances of non-compliance in the reports, and uses each evidence several times. This gives slightly wrong impression, since a single measure can close several instances. It would be better if each evidence was related to the different sections it deviates from. The documentation presented today becomes cumbersome, and creates many instances of non-compliance. An alternative structure would make it easier to read the report, and would make it much more specific. In addition, the summary/ conclusion should

be contextualised so that the relative safety was made clear. Since only the non-compliances are mentioned, it can give the impression that the safety is poor, when it is actually very good. It's not entirely fair. To outsiders, it therefore appears that it lacks control, and you are aware that the media can address this."

The alternative presented, was one of regarding inspections as a collaborative effort to improve safety. This wish was not only motivated by the desire to avoid bad press, but was also seen as a better way of exploiting inspections for promoting learning in the organisations:

"It should be regarded more as an improvement opportunity than as a control. Earlier we sometimes felt stigmatized in connection with inspections, and that's unfortunate. [We] have worked extensively with a positive perspective on internal audits and this the Authority could have done even more, although they have done part of the job. Earlier, revisions was a completely different experience, negative, rigid, etc. The last one was more relaxed and had a looser atmosphere, so one could discuss things if one disagreed. They were also open to suggestions when it came to formulating the cases of non-compliance."

This seems to support the case for the client-oriented approach to inspections. A similar development could be observed in parts of the maritime sector:

"Earlier, when the distance was greater, the industry could feel overrun, the Maritime Authority presented proposals for regulations which were unreasonably expensive or did not have the intended effect and thus some lost trust in and respect of the inspectorate. As a practitioner, you need to feel that the authorities understand the financial situation. This creates respect for the system and each other. This was part of the story a few years ago and is not the picture now. The Authority has now improved the climate of cooperation considerably. There is a good dialogue, which means regulations get developed and we can inform and prepare our membership. It introduces good measures, and has legitimacy.[...]"

Trust and respect, as referred to in this quote, are emphasised as key outcomes of a more client-oriented role for agencies, and thus this strategy has probably been successful, although the operators still considered there to be potential for improvement:

However [we] still want for greater levels of informing and counselling, not just instruction. We wish to be informed about what changes are going on early, and keep track, like industry actors need to do."

As we have noted, some parts of the maritime sector has very limited contact with the Authority, and for this group, naturally, there was no similar development. The same basic intuition as in the railway sector about the proper attitude and approach from the inspectorate could also be found among these actors, however:

"We want more dialogue with the Authority, not a pointed finger. If you need help and guidance, you should get this. The classification societies are often more helpful."

As in the other sectors, in aviation, there was seemingly consensus that cooperation had improved, and, as elsewhere, this was partly attributed to a less control-oriented approach from the inspectorate:

"There is more cooperation with the Aviation than before. There is a good dialogue and joint efforts for safer aviation. The cooperation has improved and there has been more sharing of experiences in recent years."

The Authority also referred to their own user surveys in support of this impression. The climate for cooperation was also described as more "relaxed", although some

also remarked that the Authority could still be rather rigid, especially when discussing new measures. Criticism of the Authority tended to centre on lack of flexibility, and exaggerated emphasis on formal requirements. There were indications that also in this sector, the more collaborative attitude was a consequence of an explicit new policy:

“The Aviation Authority has stated that in the future they will be more attentive and customer oriented, and put more emphasis on proactive safety guidance. They have relatively recently hired a new director, and have changed the profile somewhat and put more emphasis on the supply side, and less emphasis on their role as controllers.”

This cross-sectorial development in the inspectorates can be taken to support Pollitt’s hypothesis that inspectorates are influenced by changing trends in public management. There may also be other explanations why relations change, however. Individual differences of approach and style between officers in the Authority could make a difference (this was presented as a weakness by operators, who prefer a predictable system). In addition, personal acquaintance with employees in the inspectorate contributed to facilitating informal communication:

“You know people in the Authority bit [from earlier working relationships] and you can talk with them on the phone – that can be an advantage. It is something peculiar for Norway that there is such a close relationship [between operators and inspectorate], it is much more formal in Ireland, where [we] are also in contact with the Authority. The close contact can be both an advantage and a disadvantage – the relationship improves, but it should be a bit formal, so it should not be too chummy. But I think it works well in Norway now. Transparency is a key to a safe system.”

In the road sector, the inspectorate had not operated for more than a couple of years, and naturally, one could not discern any developments over time. We should also note that in many ways, the contact with the inspectorate is much more limited in the case of the road sector, as inspections are in fact the only point of contact with the inspectorate for most parts of the NPRA organisation, and this will be limited to only a few instances per year, in different parts of the country. The general impression was that cooperation had not been a problem, but the Supervision Authority drew attention to one exception:

“Mostly, cooperation with the supervised entity is good. However, there has been one case in particular where we did not communicate well, but it was improved eventually at the concluding meeting. Communication problems were deeply professional. The case concerned [...], an issue which had been raised by the Auditor General. The supervised entity might have thought there was too much nitpicking, and too much emphasis on formalities. There were some discussions about what a quality plan should imply, etc. We could perhaps have been more humble, and should possibly have facilitated more informal communication, rather than relying on written correspondence.”

As we can see in this case, this complaint echoes misgivings from other sections, where an overly formal and rigid approach is considered counterproductive, and inferior to one that focuses squarely on how to improve the situation in the best possible way.

The question of collaboration or control also reflects a more fundamental matter of principle; the independence of the inspectorates. This, of course, was the rationale for forming separate inspectorates in the first place. The inspectorates’ independence is to secure their autonomy, and that safety concerns are not overridden by other (legitimate) interests held by the operators or society. The risk when control turns

into collaboration, which was also the reason for the earlier emphasis on distance, is that close ties to industry leads to danger of “regulatory capture”, which occurs “when officials inappropriately identify with the interests of a client or industry” (Adams et al, 2007).

Conceivably, such a risk could also ensue from the fact that employees in inspectorates frequently have their professional background from operator organisations. Norway is a small country, and the pool of competence is therefore limited. It is therefore hardly surprising that the inspectorates select employees from the same pool as the operator organisations. In a number of the interviews, it was notable that the interviewees had experience from several sides of the tables, and the degree of vertical and horizontal mobility between the different organisations in the sectors appeared to be extremely high. This may also be an advantage, however, since Harms-Ringdahl (2004) reports that safety problems have been found to be counterbalanced through informal contact between people who used to be in the same company.

6.3 Integration and separation

As noted, the new organisational structures in the transport sector have led to a proliferation of organisational entities. Inspectorates have been separated from operators, and in aviation and rail, the large state players are – at least to some degree – losing their privileged positions.

Separation and independence between actors is not only an issue relevant to competition and economy, however. In the railway sector, for instance, the degree of separation between actors was sometimes presented as a challenge for safety work:

“Since there is no common management for operators and infrastructure owners, the parties find themselves in a situation where they can only introduce measures they can agree on. A kind of lowest common denominator. NSB is powerless in relation to physical infrastructure and has to make compensations. What infrastructural measures are implemented, depends on the Rail Administration’s priorities. There is nevertheless a built-in conflict that everyone wants both improved safety and better mobility, ie more trains. Today there are no common agreed-upon objectives, and thus no agreed-upon list of measures for the actors. We lack a solution to this. For NSB, it appears as though decisions are often made on the basis of other priorities, that we do not have knowledge about.”

This problem was perceived as a consequence of the present organisation of the sector, which did not, according to NSB, fit the actual situation in Norwegian railway operations:

“The structure presupposed that you should have one infrastructure owner, one traffic controller, which we do not have today, and many small operators who only oversee their own business. But with NSB as the dominant player, this image is not in accordance with reality. NSB feel that they are responsible for much of the whole, but the structure is about to be adapted to a different reality. “By definition”, NSB is one of many players. The organization is based on a European competition concept but a more industrial model requires an integrated concept, an SBB (Swiss Federal Railways) concept. The way things are today, an integrated concept would be ideal. This is a real problem, which is discussed in a number of European countries.”

The Ministry of Transport and Communications was aware of this issue, but did, unlike operator organisations, also consider the current organisation as an advantage from a government perspective, as the division into separate entities increases transparency. Thus division increases governmental insight into processes, and conceivably also decreases the organisations' autonomy:

“The organization of the sector is also an issue in Europe, but the EU will keep it as it is. France would like to merge infrastructure and operators again. Obviously, the function would be performed regardless of organisation, but it could also make the politicians get less information because decisions are made a level below. It is clear that the current organisation makes visible what the different actors mean.”

Scott (2000) observes that traditional informal arrangements of government have been characterised by a marked lack of transparency. However, he also points out that the same can be the case in many new mechanisms such as contracting out, which also leads to a lack of broad participation in decision-making. In addition, these new arrangements may make it difficult to get overview over policy domain, and that may threaten general transparency. It is a system that tends to produce *more* information, for better and for worse. Another issue is that although transparency from above might have increased, the current system may appear opaque from within, as indicated in the following quote from an interviewee in public transport:

[We] have permission to operate infrastructure and traffic, and are therefore fully responsible for everything that goes on. But as part of a group (KTP) where we buy services internally, we can sometimes encounter problems. [...] Rules could be more flexible, if for example the owner of the rolling stock, was responsible for maintenance, rather than the operator. Elsewhere in Europe, it is also possible to certify the workshops so that they are responsible for their own contributions. In Norway, the operator is responsible for controlling the workshop.”

However, another interviewee in the same sector considered the fragmented organisational system, in combination with clear regulations, distinct roles and an inspectorate, as well adapted to a new reality with high staff turnover and frequent loss of competence, which made it less feasible to organise practice around professional competence and tacit knowledge. This also illustrates that what we are witnessing is partly a transition from professional accountability to bureaucratic accountability in the sector.

In the aviation sector, too, there has been a development from a situation with one wholly dominant flag-carrier company, to a more equal playing field with many actors. As in the railway sector, the previously dominant actor considered regulations to be ill-suited to present circumstances, but here, the complaint was the opposite: rather than regulations reflecting a non-existent future ownership structure, they were claimed to be adapted to a past, no longer existent state of affairs:

“The basic problem is an international phenomenon, commercialisation is also a challenge for the Authority. All inspectorates are originally built on in-house perspective and regulations are based on assumptions that no longer exist.”

Another problem associated with distance in this sector, was what one actor defined as the excessive distance between the Authority and its previous host-organisation Avinor:

“Avinor now awaits the common European regulations and will avoid having to implement new measures in Tromsø airport, if Norway interprets the EASA as they do in all other

countries. It now turns out that the Authority has its own interpretation and insist on more comprehensive measures in Tromsø airport during winter, which involve costs of 10-12 billion. The case will be reconsidered in the Ministry of Transport and Communications. These are the authority's own interpretations and the measures required in Tromsø could be required everywhere, improved runways, for example. The EASA regulations dictate that airports are categorized according to how demanding they are and Tromsø is categorized as being category C, which is no problem, but it means you have to adapt. The airlines were never consulted about these things, even though the decision has serious consequences for them."

In the road sector, the only organisational restructuring that has taken place, is the establishment of the Supervisor Authority. However, this establishment also raised question about the proper degree of distance between the actors. Although formally sorting under the Director of Public Roads, the Authority has, as we have seen, in practice been given room to define their own role. While this has obvious advantages, it could also, given the fairly loose coupling between the Authority and its objects, be perceived as a challenge:

"We have been made very independent. This is something the Authority has taken up, since closer collaboration might be beneficial. In the petroleum sector, there is a collaboration between industry and the authorities, where they agree on common challenges. We must, however, find them ourselves. We have therefore taken up that a common basis could be fruitful in the long term."

In the maritime sector, where there has been no major restructuring, as it has always been dominated by a large number of commercial actors, and the inspectorate has not been made completely independent, such issues were less pressing. However, as noted in Chapter 5, some of the actors had the impression that the inspectorate withdrew from the arena, and became more distant:

"Revision is partially outsourced, as part of the job of NMD is delegated away to other companies, with which we have no dialogue. For larger vessels these are classification societies, for smaller vessels that are not classified there are other approved firms, consultants scattered along the coast. It creates a certain distance. It is now proposed that these companies also will revise the smaller vessels - NMD withdraws more and define terms, while they establish cooperation with others at the operational level, this creates a certain distance."

6.4 Borders

In most of the sectors, the number of actors has proliferated during the last decades. This is due both to pressures for improved conditions for competition, and to trends in public administration policy. The inspectorates could in some cases contribute to creating clear roles and divisions of labour and responsibility in this system, but a multitude of actors also creates a risk that there are unclear borders of responsibility, or that partly overlapping responsibilities cause confusion, or, at the very least, increase bureaucratic workload. A problem that was repeatedly raised by transport and infrastructure providers, for example, was that they had to relate to a multitude of different inspectorates, (sometimes with competing demands), which constituted a significant administrative burden:

"In addition to the Railway Authority, the Fire and Rescue Services shape part of safety work. They are concerned with facilitating the handling of fire, while the Authority is mostly concerned with prevention – there may therefore be some discrepancy when it comes to

what actions they recommend should be taken. However, the cooperation between the Authority and the Fire Department is mostly acceptable. In addition, we relate to the Planning and Building Services in relation to some of the construction, but it is decided on a case by case basis whether a construction falls within the remit of them or the Railway Authority. It is a bit unclear where the Railways Act applies, and there is no authority that can reach a final decision on this.”

“As it is today, one is subject to a plethora of supervision, The Norwegian Labour Inspection Authority, Electricity inspections, etc. [...] After major accidents, we are therefore exposed to a variety of inspectorates, it had been a great relief if you just needed to relate to one inspectorate for the operational part of the business.”

This was especially pronounced in the railway sector. However, the issues was also raised by one of the interviewees from aviation:

“In the future, human factors will have more significance for the improvement of supervision, but today we have a patchwork of revisions, which does not cover all aspects of safety. The CAA has to do with vessels, training, maintenance, certificates, safety and security. But they say nothing about wages, taxes, duties, work environment law, etc. This is a grey area, which some players take advantage of.”

We should note, however, that the CAA collaborates with The Norwegian Labour Inspection Authority when it comes to flying personnel.

In the maritime sector, such problems of demarcation mainly concerned the intersections between the Authority and The Norwegian Coastal Administration, which also carry out some supervision. Among other things, they are responsible for certification and inspection of the offshore shipping companies' bases. The maritime sectors also has to relate to several government ministries, and one interviewee believed this was an unnecessarily complicated structure:

“In Norway we have separate systems with both the Ministry of Defence, the Department of Maritime Affairs, the Norwegian Coastal Administration, and the Coast Guard - four units that more or less monitor the same things. The industry should have been governed by one department and one directorate, in a system that looks more like the MCA or the U.S. Coast Guard. NCA falls under the Ministry of Fisheries and Coastal Affairs, but the whole area should probably have been under either the Ministry or the Defence or the Ministry of Transport. This is related to learning and focus in the industry.”

Another potential challenge related to overlapping or unclear responsibilities, had to do with the intersection between different transport modes, as in the case of car ferries:

“It is the Road Administration that commission ferries, and we are a bit worried the Road Administration will impose its safety regimes as well – this would worsen safety, since it would mean a lot of unnecessary duplicate work and conflicting demands. There is a tendency that there are demands for HES reports and the like in NPRA work, and that will be extra work, at the expense of other things. Consequently, we do not want that to be the solution. This should be decided between the agencies, but there should be only one controlling agency for safety.”

However, the collaboration between the Authority and the NPRA was perceived to be good, and improving. For the Authority, the main challenge had been that the NPRA wanted to consider all accidents the same, whereas the Authority emphasised that this should be weighed against the potential for disaster in shipping, which is not the same for road accidents.

6.5 Summary

Accountability is meant to secure control, assurance and continuous improvement (Aucoin, & Heintzman, 2000). Generally, all the interviewees agreed that responsibility was very clearly defined in their respective sectors. In the railway sector, there had been some initial confusion as to the responsibility of the inspectorate after inspections, but this was now considered to be resolved. In the maritime sector, the introduction of the new Maritime Safety Act had clarified responsibilities, by making shipowners more accountable. In aviation, international arrangements are perceived to clearly define responsibilities, within and between organisations. In the road sector, one of the stated reasons for establishing an inspectorate, was that this would clarify roles and responsibilities.

Although roles and responsibilities are considered clear in the current organisations, the relations are also negotiable, and the focus on safety is subject to limitations set by other social goals, budgets and habits.

Regulatory regimes can be divided into prescriptive regulation, system-based regulation, and performance-based regulation. The Norwegian transport inspectorates all subscribe to the system-based approach, which focuses on process and systems, but most of them also include elements from the other regimes, and do not purely belong to one of the ideal types. The system-based approach to safety links in with a changed conception of accountability, where the accountable entity is typically the organisation, rather than the individual.

In all of the sectors that had had inspectorates for a prolonged period, cooperation between inspectorate and operators was perceived to have improved. This may partly be explained by an increased client-focus in the inspectorates, an approach that has been shown to instil a greater desire to comply than the previous, more controlling attitude.

Important parts of the transport sector have been restructured so as to facilitate competition and financial transparency. In the railway sector, several interviewees held that the present organisation profits these goals rather than safety, and that a different structure would be optimal from the point of view of safety. Several interviewees also drew attention to the lack of an arbiter in cases of disagreement between the actors. The NSB claimed the current organisation was adapted to a non-existent market with a multitude of rails services. In aviation, however, the flag-carrier company found that regulations were adapted to the past organisations.

In railway and aviation, the multitude of co-existing inspectorates was seen to produce unnecessary amounts of work for operators. In the maritime sector, some interviewees also felt the need for a more integrated governance structure.

7 Finances, Competition and Safety

7.1 Finances and Safety

Since improving safety is in principle a task with no natural end-point, it is always possible to spend more resources on safety (cf also Chapter 8). A recurrent topic in interviews was that inspectorates – whatever their possible disadvantages – contribute to strengthening the position of safety work in the organisations, and hence to securing an acceptable level of funding. Lack of financial resources was typically identified as the key impediment for improved safety. The trade-off between profit and safety was usually explicitly acknowledged, as exemplified in this quote from the railway sector:

“The level of safety within the industry is high, and a significant factor explaining why it does not improve, is the political decision that the goal is better economy, not improved safety.”

As we have seen, changing economic realities was an important part of the background for establishing inspectorates in many transport sectors. As part of a strategy enabling competition in the transport market, major state players were divided, and framework conditions changed. This strategy of deregulation has perhaps been most pronounced in the railway sector, since this was the least privatised sector in the first place. It has been suggested that the deregulation of the railway sector has endangered safety, but Egan et al (2007) finds the evidence for this (in the UK) to be indecisive, and Evans (2007) finds that the trends towards fewer railway accidents was continued, and for most types of accidents, strengthened, after privatisation. In Norway, in spite of the new policy, however, the industry is still characterised by dominant state players, especially the NSB. In spite of this, some of the operators voiced concern over how competition might influence future safety work:

“[We] work under severe financial pressure, and are challenged almost daily. We must of course meet the minimum safety requirements, but additional barriers beyond regulatory requirements are being challenged. Today, for instance, it is required that customers should have checked their container and it should be properly labelled and documented. Today we perform a separate control at the terminal, and the container is also checked on the train. This is because we do not accept customers’ own control as a barrier. This will perhaps change, so that the customer’s control is considered as the first barrier, and we only perform one control ourselves.”

Aviation has been characterised by intensified competition for the last couple of decades, and the situation for the traditional “flag-carrier” companies, such as SAS, has been dramatically transformed with the spread of low-cost carriers, as exemplified especially by the Irish airline Ryanair. The flag-carriers are often characterised by strong unions, in marked contrast to Ryanair’s refusal to negotiate with any labour unions. This changing scenario was seen to potentially have detrimental effects on safety, and the Ministry of Transport and Communications also emphasised the importance of the Aviation Authority to counterbalance the

drive for cutting costs, as “the buffer between the actual level of safety and the minimum requirement in the legislation is about to disappear”. This worry was even more pronounced among the interviewees from the airlines, who also feared that the new financial situation in combination with a certain complacency resulting from good safety records, might have consequences for safety:

“International competition is the biggest challenge for safety. If SAS were to go bankrupt, and you instead get the discount airlines such as Ryanair and have to compete against them, you have to cut costs even more, and then there is a danger that you compromise safety. There are almost no accidents in aviation, one per five million flights. This means that little is happening on the safety front – this is a paradox. One can measure the near-accidents and incidents, but they do not have quite the same effect on investment.”

The airlines worried that certain elements of their organisations, that had earlier been taken for granted, and hence not been classified as safety-relevant requirements, were now about to disappear, thus jeopardizing safety without breaching safety regulations:

“Since the Aviation Authority and regulations were developed when framework conditions for the industry were completely different, they took certain things for granted, and were not prepared for the deregulation. The rules have not tracked the development, and this creates a vacuum. For instance, Ryanair does not hire pilots, but they have their own companies. This means that management does not know the crew, and there is a long distance from management to employees. Decisions on sick leave, that you are not “fit for flight”, now have consequences for individual employees, not for the company. This could potentially be a risk.”

The airlines, however, were lobbying for introducing these requirements into international regulations, and believed they would succeed, but feared that in the meantime, the traditional airlines might go bankrupt.

In the maritime sector, competition between operators has been the rule. There exists a potential conflict between competition and safety, which was, however, seen to be resolved through the Norwegian policy of being a “high quality flag”:

“We seek to avoid special requirements, but still stand out as a high quality flag. There is little point in strict supervision if you have no one to supervise. The Ministry and the Directorate are very much in agreement with the NSA when it comes to high environmental and safety requirements, since high-cost countries like Norway have an interest in high international standards.[...]. The shipowners push for strict international requirements and control, in order not to be run out of the market. This also applies to Norwegian producers of maritime technology, who sell expensive quality products – high standards create the market. All the Norwegian players thus have a common interest in high standards of safety and the environment worldwide.”

This is the situation for the international fleet. For smaller Norwegian vessels, however (which also have significantly higher risk), the situation was somewhat different, and safety requirements were more associated with economic challenges. Fiskarlaget, for instance, argued in favour of extending the scope when it came to safety, and allow economic framework conditions to be considered vital to safety work:

“Among other things, we see safety in a larger context – fishermen must adhere to a complex everyday reality. Finances are very central in terms of fleet renewal, this can only be realized when there is a sufficient financial basis. Fiskarlaget links safety with financial

frameworks set by the government. We have been clear about this for years, without always getting our point across. One needs a good [fishing] quota to renew boats. Despite the fact that we have the highest accident rate of all professions, we have not gained acceptance for this view. The government emphasizes regional policy rather than seeing safety on the background of finances. The framework is essential. Safety is not just the result of a technical device, but also of how your workday is – other frameworks are therefore very important. Better financial frameworks could for instance lead to two people instead of one person on the smallest boats – this is much safer.”

For many of the actors, safety is also an important factor for their financial well-being – the media has become interested in the question of safety, and potential media coverage of safety flaws was frequently mentioned as a possible result of reports – and also as a reason why reports should be worded differently, so as to not misleadingly suggest that the general level of safety was low (cf. Chapter 6.2).

7.2 Summary

Although there is no conclusive evidence that deregulation and increased competition has endangered safety, this was a central concern in the aviation and railway sectors. Since both sectors have very good safety records, there is a certain push for decreasing redundancy. The lack of accidents is paradoxically sometimes experienced as a challenge for those working with safety in the organisations. In the maritime sector, the public actors agreed that the interests of business and safety coincided for the international fleet, as both perspectives lead to a push for stricter international regulations. For smaller Norwegian vessels, however, the interest organisations perceived a conflict between finances and safety for the individual shipowners, and thus called for a more integrated understanding of safety and financial frameworks.

8 Safety culture and safety challenges

8.1 Safety Culture

The concept of safety culture has become very prominent in the field of safety research in recent years (Antonsen 2009). The origin of the concept is usually traced to the 1986 Chernobyl disaster, which led to a shift of focus in investigations and studies of safety in organizations. In the years following the disaster, several major accident investigations identified safety culture as a major contributing factor, for instance the Piper Alpha disaster (Lord Cullen 1990), the loss of space shuttle Columbia (NASA 2003) and the BP Texas City refinery disaster (The report of the BP US refineries independent safety review panel 2007).

Influential scholars like Hale (2000) and Guldenmund (2000, 2007) suggest that we should understand safety culture as aspects of culture in organizations that are relevant to safety (cf. Antonsen 2009; Nævestad 2010a). Safety culture is, however, not merely understood as traits of organizational culture, it is, for instance, also studied among occupational groups, industries and so forth (e.g. Antonsen 2009, Haukelid 2008). Most studies of safety culture focus on shared and safety relevant ways of thinking or acting that are (re)created through the joint negotiation of different actors in social settings (Nævestad 2010a, 2010b).

Safety culture scholars give different answers as to whether, to what extent and how safety culture can be influenced. Building on previous research, Nævestad (2010b) presents six lessons for influencing the safety cultures of different work groups in organizations. He concludes that safety culture is created and recreated through group-wise negotiation processes in which hazards are framed and reframed, and that those wanting to influence safety culture should participate in these processes.

While The Norwegian Maritime Authority is explicitly tasked with improving the safety culture among operators, this is not the case for the other inspectorates. However, all the operators emphasised their commitment to improving safety culture:

“NSB measures safety culture through whether people are taken seriously if they report errors, how the organisations responds when people tell about their own mistakes, that management responds adequately to relevant information on safety conditions. It is relatively easy. This has gradually become accepted as a measure of safety culture.”

Thus the concept of safety culture has become well-ingrained in safety thinking in the Norwegian transport sector, and is usually not considered a contested issue.

Still, in practice the concept could be a less tangible one. Whether or not improving operators' safety culture was to be part of the inspectorates' mission, divided opinions. Safety culture is not merely about following rules, but is, we might say, about creating rules for interpreting rules (Collins, 1985, Dreyfus, 1991). Any given rule can be interpreted in a number of ways, and in the last instance, this interpretation is beyond articulation – that is, it cannot be explained with reference to yet another rule. Safety culture is thus a species of tacit knowledge (Polanyi, 1958), which is what complicates the issue, and the tacit character of the process, makes it

less obvious what form such a process of influencing culture would take. All the interviewees from the inspectorates held influencing safety culture to be part of their assignment, although they differed slightly when it came to how this happens in practice. The Aviation Authority, for instance, expected their continuous high focus on safety culture to automatically have this effect among the operators. Others, however, conceived of more complex causal mechanisms:

“This has been a major challenge, for example for the safety certification of the Rail Administration. Previously, the regulations was not well adapted to their task, and there was a tacit acceptance for violation of rules. This means that you lose control of safety because it is unclear who should interpret safety regulations, over time creating a total lack of safety culture in the organization. The Rail Authority laid down requirements that everyone had to follow, ensuring that the requirements were customized. It is important for safety culture that participants understand why something should be done and do it correctly. It is thus part of the Authority job to change the actual safety culture of the regulatory object.”

This quote presents safety culture as ensuing from, or at least being facilitated by, regulations that are well adapted, and requirements that are known and understood by those who are to follow them. Safety culture in the operator organisations will thus partly depend on the quality of the work of the inspectorates. In the maritime sector, however, the influence was seen as being more subtle, and necessarily a long-term ambition:

“At some level affecting the safety culture is part of the task. [...] How we do this in practice is more of a challenge. [...] We may only impose changes in behaviour, but over time this can create culture. We also focus on risk assessment related to operations. If there's poor work in a report, for example, we follow this up, and demand improvement, over time creating a culture in the industry. But it takes time.”

Here, safety culture is seen as something arising on the ground, over time, as a result of the actions and attitudes of the individuals. Through influencing behaviour, an inspectorate may thus be part of a process towards changing safety culture.

In the newly established Road Supervision Authority, there was a strong consensus that improving the safety culture in the NPRA was an important part of their task. As in the other sectors, this was seen as a complex process, and mainly one of making the operators more aware of the big picture:

“The culture can be changed through pointing out the causes and consequences of not complying with requirements and procedures, through highlighting causes. When you find the same causes in many cases, this can be brought to the management's attention, you can provide a picture of it, which means that you may know that it is more appropriate to do it in a different way, but this must be developed and explained.”

Among the operators, however, the view was typically that safety culture cannot be dictated from the outside, but has to be developed inside the company, although some had a more nuanced view of the process:

“The fact that you have a safety culture and do what you have to do might be put higher on the agenda because of the Authority. Companies must prove that they are qualified for getting certificates and approvals, and this process will affect the organisation and mind-set. And that the inspectorate is present, and puts safety on the agenda, and that management are made aware that the responsibility lies at the top, that it is not hidden in the organisation.”

This amounts to saying that the existence of an inspectorate influences safety culture primarily through the processes they instigate, and through raising awareness.

But generally, the operator companies saw safety culture as something that had to be developed strictly within the organisation, rather than as something that could be imposed from above. This view was perhaps most pronounced in aviation, where safety culture has been an important focus area for a long time. However, one interviewee from this sector also thought the Aviation Authority should work to develop methods for improving safety culture, and start out with trying to develop methods for measuring safety culture, referring to an existing EU “blacklist” for international airlines, which indicates that some parameters already do exist. This suggestion was perhaps linked to a suspicion that the low-cost airlines would perform worse on safety culture than the established ones, hence such a measurement might render visible differences between companies that remain hidden as long as no serious accidents take place.

In the maritime sector, there was a more positive attitude to having safety culture influenced by the Authority:

“NMD affects the company’s safety culture through regulations and audits, creating greater awareness of safety issues. But you should take care of culture and safety yourself. You probably have to go through the shipping companies to influence the culture. The employer must account for the attitudes in the workplace.”

In the Directorate for Public Roads, safety culture was also seen as an essential aspect of the organisation:

“Safety culture is an important concept in the Road Administration because there is hardly any employees who do not perform safety-related work, and it is important to be aware of this; all are part of a larger whole. Safety is really something that everyone is working on.”

In this sector, the interviewees were also open for the possibility that The Road Supervisory Authority might, indirectly, contribute to improving or cultivating safety culture, although fundamentally, here as elsewhere, the view was that inspectorates deal with rules, whereas “culture is all the rest”.

We should note, however, that in spite of the overall importance given to the concept of safety culture, there were also some indications that it can sometimes be used uncritically. An example was an interviewee from aviation, who pointed out that an increase in the number of incident reports would be read as a negative development in safety culture by the Authority, while the airline considered this an improvement. A different potential complication was raised by the interviewee at the Maritime Authority, who pointed out that a reference to safety culture may be an “easy” way of accounting for accidents, and one that could potentially hide other flaws in the system:

“Safety culture is often used as an explanation for events, often in terms of failure to follow procedures etc. There is a risk that events are too frequently explained with reference to culture – and that one disregards real conflicting goals.”

Similarly, one of the interviewees from the railway sector pointed out the limitations inherent in referring merely to safety culture when assessing the safety level of an organisation:

“[Measuring safety culture means] you can follow the development of the experience of the organisation. However, the management’s prioritisation of safety, for example, we know

nothing about. It cannot be measured. One can consider whether priorities are consistent, if the safety policy is meaningful, etc., but there is no absolute measure.”

Perhaps more fundamentally, an interviewee from the same sector questioned the system-based logic which is inherent in much safety thinking, as something that may also jeopardize safety culture:

“Both the Authority and the AIBN have been reluctant to identify individuals in the organisation behind errors, and this also affects the culture. The company is held accountable rather than individuals – this affects the culture, but is not always correct. There is also a personal responsibility involved. You want a culture where people take responsibility even if the system is not optimal.”

This echoes an issue raised by May (2007), who observes that some claim that lack of established professional standards associated with system-based approaches undermine the ability to install a good safety culture.

8.2 Barriers to safety improvement

The inspectorates, whose roles are professional rather than political, could be considered “objective” safeguards for safety in transport, who are charged with determining the level of acceptable risk in the sectors, and see to that these levels are not exceeded. In practice, however, they operate within a fairly narrowly defined “field of opportunities” – where such things as societal expectations, habits, acceptability and available resources make up a framework within which they manoeuvre. There are tacit structural limitations, on which the inspectorates have very limited influence. As several of the other inspectorates pointed out, acceptable risk on roads is not comparable to other sectors, and the inspectorates cannot change this overnight (though they may perceivably contribute to a development towards a lower threshold over time). But the fact that one has to accept certain level of risk as unavoidable was not unique to the road sector. In the railway sector, for instance, it was acknowledged that risk levels varied considerably between different routes, as the age of the infrastructure affects risk levels:

“We know about a lot of risk that is embedded in current infrastructure, which can only be remedied by being changed physically, and this is costly. The whole system should have a higher level of safety, but now all we do is patching up and compensations. This is the fundamental challenge. [...] The Railway Authority is also powerless when it comes to these fundamental challenges. They can impose things on the Rail Administration, but if there are no resources, the only alternative option is to shut down the system. Pointing out deficiencies, and requiring improvements will only open a chasm between requirements and current practices. It is not easy for an inspectorate to do something about this, but they push in the right direction. [...] It is the fundamental societal access to resources that determines this.”

An interviewee who wanted more separate pathways for urban trams, as this would clearly benefit safety, did not think that the Railway Authority could be of assistance here, as “it’s hard to state that something is unacceptable – society defines acceptable risk, and thus no more separate pathways are being built.”

Thus, many of the most important barriers to improved safety brought up in interviews, cannot easily be addressed by the safety inspectorates in the current system. Among the most frequently mentioned barriers were:

Access to resources

Across sectors, lack of resources was considered a main impediment for improved safety. One interviewee from the railway sector said that for financial reasons, “extra barriers, beyond those proscribed in regulations are challenged”. Access to more resources could, for instance, have improved infrastructure in the road and railway sectors, through such measures as the construction of roads with median guard-rails, and a new system of tunnels under central Oslo. In aviation, the financial situation has changed markedly over the last decades, and safety departments have to fight for resources:

“Safety work costs and takes time, and must take time – it cannot be sloppy. It has always been relatively few people working with safety [in the airline], but the number has never been reduced. However, the resources available for safety work have not increased in proportion to the expansion of the company.”

Conflicts with other social goals

Safety measures may also conflict with other legitimate social goals, or with established habits and expectations, as is the case when it comes to security, where requirements are much stricter in aviation than in other sectors, as acknowledged by this interviewee from a train company:

“There is an obvious need for more work on security, but at the same time, you do not want to have as strict requirements as in aviation, it is not feasible, and we also want to retain an open society.”

Changing security regimes in the rail sector may, of course, also have financial implications, if measures make travelling by train more costly, less comfortable, and more time-consuming. Thus there is a real conflicts of goals, and safety is not the paramount value.

In the road sector, the fundamental structural limitations were frequently linked to public acceptability, and the problems associated with introducing measures that are perceived to limit individual freedom or privacy:

“There are some safety measures I would like to see implemented. For example, progress is slow when it comes to safety constraints for transport purchased or operated by the state, measures such as alcohol interlocks, ISA, five stars in EuroNCAP. Requirements such as these can be detailed in the tenders. But these are choices made – infringement of personal freedom quickly creates a lot of resistance, and one must understand that traffic behaviour does not take place in a vacuum. The same applies to the use of speed cameras; It would for example be possible to apprehend anyone who drove above a certain speed, say 110 km/h, every day of the year. This measure would have eliminated a large percentage of a substantial risk group. But it does not happen, because control is unpopular.”

In the maritime sector, as we have already noted, Norwegian authorities are reluctant to push safety measures that go beyond international standards, as this would reduce the competitiveness of the Norwegian flag. For smaller vessels and businesses especially, financial considerations could also hamper safety work.

Existing infrastructure

In the railway sector, infrastructural problems were perceived as the dominant barrier for improved safety, and also as defining for the companies' own safety work. Train companies reported introducing compensatory measures, such as training, in order to make up for infrastructural weaknesses. The weaknesses mentioned included issues such as lack of consistent use of signs, which might not require a total overhaul of the infrastructure.

These problems were frequently – in the case of train companies – coupled with criticism of The National Railway Administration: one interviewee went as far as to calling the Administration the “single main barrier for safety work”. The Administration was described as being slow and bureaucratic:

“We often perceive them to be reactive, and [we] are sceptical of their proactive work; maintenance, inspection procedures, frequency, etc. [...] There is no doubt that they are the biggest safety challenge; there is a long list of ongoing follow-up cases. It is also a problem that they are not consistent, as there is often little correlation between the response you get from different individuals in the organization.”

Organisational structure

Several of the interviewees from the railway sector also mentioned the fragmented organisational structure as a challenge for safety work – through increased bureaucracy, miscommunication, conflicting goals, and lack of an integrated interpretation of situations (cf. Chapter 6.3):

“Ideally, from this perspective, one had had an integrated solution with infrastructure and operations, but this is a problem throughout Europe, and we are looking for compensatory measures for the split. Everyone experiences the same thing. Some places, businesses are merged physically, although it cannot be done organisationally. This is to compensate for regulatory divisions which left a gap. The solution to this problem depends on the success criteria employed. If your goal is competition, the current solution is better, but if the goal is safety, it would be ideal to have a more integrated model.”

It was also mentioned that it was easier to get resources for new investments than for maintenance, and that maintenance was problematic, as it required shutting down the system.

On the whole, the main challenges for safety work in the railway sector were not perceived as being under the control of the Railway Authority. However, it was also mentioned that the Authority could influence certain aspects of safety more than they did today, for instance through more focus and collaboration within security work, focus on the need for maintenance of existing infrastructure, interplay with third parties, speed up standardisation of work processes, and detailed rules for interplay in the safety regulations.

“Invisible” risk

In the aviation sector, the extremely good safety record was perceived as a challenge for the actors: given that no accidents take place, it is difficult to demonstrate or measure the effects of measures – and the organisations wanted “sufficient safety – nothing more”. This also held for changes that were perceived to possibly undermine safety: as long as no accidents had taken place, one could not be sure that there was an increased risk involved. The organisational changes associated with the low-fare

airlines, was one of these potential risk-factors mentioned (Cf. Chapter 7). Another challenge that was mentioned was the bureaucracy that might ensue as a result of EU taking over as main regulator – since getting regulation through parliament may take several years.

Other

The maritime sector encompasses many very different types of vessels, actors and organisations, which means that the methods and approaches for improving safety are also highly diverse. From the Authority's perspective, a problem is to develop regulations that are perceived as reasonable, and to document that measures are financially sound. They also envisaged that lack of qualified personnel could be a challenge in the future. A problem that was mentioned on the operator side, was the lack of possibility for anonymously reporting incidents, which exists in aviation. For companies working with oil companies, a potential problem is that they have to relate to several sets of safety standards.

In the road sector, the lack of integrated thinking was perceived as a barrier to improving safety, and an area where the inspectorate might be of assistance:

“It would be desirable that The Road Supervisory Authority could make others beside those who work with safety better at seeing the big picture, when constructing roads, for example. That one does not always choose what is easiest and cheapest - the solutions chosen have consequences later. When I worked in the Western Region, there was an incident where a cable fell down in a tunnel, so that the tunnel had to be closed. The operator was the same who had previously been the construction manager for the tunnel, and he said that if he had known then what he now knew, would have made other choices. They had chosen a slightly lower standard, which was cheaper. As construction manager one was rewarded for saving money, but good operation requires that you choose a durable solution.”

Another, more intractable, problem, was attitudes, which, of course are for the most part beyond the purview of road authorities and inspectorate alike.

8.3 Summary

The concept “safety culture” was used actively in all of the organisations. The inspectorates tended to consider influencing safety culture as under their remit. How they imagined this to be taking place, however, differed, from providing a focus on safety culture, to adapting regulations in such a way as to facilitate compliance, to influencing behaviours, which in its turn might change culture, to providing an integrated picture of the causal processes leading to accidents.

In the operator organisations, it was usually assumed that safety culture was an in-house responsibility, and that culture, as something going beyond mere rules, needed to have a local anchoring.

However, some critical points were also raised. It was pointed out that a reference to safety culture could sometimes veil real conflicting interests, and that the accompanying accountability structure – where the organisation, rather than the individual is assigned blame – could also undermine safety work. The fact that safety culture is something that is measured, was also mentioned as something that could obscure, rather than clarify, important aspects of an organisation's safety work.

While the safety inspectorates are to secure an acceptable level of risk in transport, this level is mostly not defined by the inspectorate, but is the outcome of a social and political process, where several considerations and goals must be weighed against each other. Lack of available resources was cited as a main barrier to safety improvement in all sectors, but in many cases, the resources needed were beyond what society is prepared to pay. The inspectorates' influence on these prioritisations was generally deemed rather limited.

In the railway sector, the Railway Administration was considered an impediment to safety work by many of the operators, who found the organisation opaque, bureaucratic and reactive. In addition, the fragmented organisational structure was seen as less than optimal from the perspective of safety.

In aviation, the sector's own safety record was seen as a challenge for those working with safety, and the deregulation and low-cost carriers were considered a potential threat in the future.

In the maritime sector, the Authority struggled to document that measures were financially sound, and envisaged that lack of qualified personnel could become a challenge. Among operators, it was mentioned that there is no possibility for anonymous incident reporting.

In the road sector, many effective measures cannot be introduced because they are considered threats to individual autonomy and privacy.

9 Future potentials

9.1 Reorganisations and experiences in Sweden and Finland

9.1.1 The Swedish Transport Agency

In Sweden, the Swedish Transport Agency was established on January 1st 2009 through a merger of several government agencies, including the Civil Aviation Administration, the Swedish Rail Agency, and parts of the Swedish Road Administration and the Swedish Maritime Administration. Similarly, in Finland, the different transport inspectorates were merged in 2010, to form Trafi – the Finnish Transport Safety Agency.

In Sweden, there existed no independent inspectorates in the road and maritime sectors prior to the Transport Agency's establishment. The stated motivation behind the merger was the potential for synergy and cross-sectorial learning (Sveriges Riksdag 2004/05), and access to in-house psychological expertise. The integrated model would also enable cross-sectorial assessment of the cost-effectiveness of measures. Among other advantages listed was the ability to deal with trans-sector issues (such as railway crossings), the autonomous position of such an agency, and its symbolic function in demonstrating that safety is a priority. Finally, the report mentions the potential for administrative savings.

In the report *Trafikinspektionen – en myndighet för säkerhet och skydd inom transportområdet* (SOU 2007), it was announced that such a new joint agency would be established, and the various existing agencies co-located. According to this proposal, the existing structural differences between sectors should mainly be preserved. This meant, for instance, that the Road Directorate would retain its responsibilities, and that the different financing models (fee-based in aviation and the maritime sector, tax-funded in railway and for most inspections in the road sector) would be upheld and co-exist within the new organisation.

When the format of the new agency was described in the report *Transportinspektionen. En myndighet för all trafik* (The transport inspectorate – an agency for all transport) (SOU 2008), however, these questions were reconsidered. It was decided that a uniform, fee-based financing model would be employed across sectors, to avoid distortion of competition between sectors. As in prior documents, it was stated that the new agency would enable uniform practices and treatment across sectors, and cross-sectorial learning. The report also emphasised that the reorganisation would clarify relations of responsibility, through the separation of different roles and remits.

The Swedish Transport Agency has now been operational for five years. Its core activities are now – after reorganisations – split between three departments; one for aviation and the maritime sector; one for roads and railways, and one for drivers' licences. Among the advantages of the new organisation, the interviewee from the Agency emphasised the more integrated approach, where the sectors can learn from each other how different transport-related goals can be balanced and weighed against

each other. Whereas the previously existing independent inspectorates were only tasked with safety, this weighing is also part of the Transport Agency's responsibility. In addition to this, the process for developing new regulations had been improved, for instance when it comes to impact assessments. In general, efficiency had increased, especially through improving administrative and IT services. The organisation had not experienced loss of competence or expertise as a result of the merger.

The stated rationale behind the merger was the potential for cross-sectorial learning, and this was also considered a major advantage of the new organisation. According to the interviewee, this did not imply, however, that sector-specific skills had been watered down, as core activities had not been much influenced; the inspectors still only worked within their own area of expertise. The learning that had taken place was related to more generic issues, such as how to choose samples, methodological approaches and the administration and organisation of inspections.

A possible drawback mentioned by the interviewee was that in the new organisation, which dealt with safety only, possible objections based on alternative perspectives were no longer raised as a matter of course, so that the Agency has had to learn to find such objections itself.

The reorganisations was also seen to have created a clearer delimitation of responsibilities, partly just as a consequence of the process of reorganisation itself, which meant that such questions needed to be addressed, and that earlier confusions were brought to light. Some of the ambiguities had been known from the beginning, while others were identified and rectified later. For instance, the Transport Agency has now taken over responsibility for regulations concerning driving and resting times, driving licences, etc. Also, it has been decided that the Agency is responsible for all questions pertaining to infrastructure in aviation, while this was previously under the remit of *Luffartsstyrelsen*.

On a political level, the interviewee believed the effect of the merger to be limited, but also that the fact that the new agency has a dialogue with the Ministry which exclusively concerns the agency's sphere of operations, means that this area is consequently given a somewhat stronger focus than what used to be the case.

Among operators, the interviewee did not believe the merger to have made much of a difference in practice, as their interest is in the services provided, rather than the form or organisation. There had, however, been some initial complaints having to do with accessibility, and so on, but these had mostly gone away as the new organisation had found its footing.

The merger of the Swedish transport inspectorates into one Swedish Transport Agency is currently being evaluated. The final report is due during the summer of 2015, but a preparatory document was published in December, 2014. This report is based on document studies and interviews with key stakeholders. Though the report does not conclude, it raises certain questions about the new organisation to be further investigated in the evaluation.

Although a very central question for the evaluation is whether the new organisation leads to increased synergy and learning between sectors, this question is, unfortunately, not addressed in much detail in the preparatory report. It is, however, stated that interviewees from the Agency believe that a better framework for synergy and learning is now in place. Another ambition behind the merger, to improve

homogeneity between sectors in matters of inspection and regulating, is similarly deferred until the final report.

One of the stated goals behind the merger was to have clearer roles and responsibilities. This is deemed to be mainly successful, as interviewees agreed that the current structure was in most cases clear.

However, evaluators also found that some of the interviewees perceived there to still be a need for an agency with an overarching responsibility for each sector, which would stand responsible in cases that are not allocated to any one actor in the current organisation; someone that can take responsibility for the totality of a sector.

Among the issues that are discussed in the report, is how The Swedish Transport Agency is perceived to function as regulator and inspectorate. The report finds that clients frequently complain that regulations are too detailed, or that regulations are too rigidly enforced, and that the result is that Swedish operators face stricter requirements than their foreign competitors. This criticism has also been raised publicly, through a letter to the Swedish Ministry of Enterprise and Innovation, signed by five major operator organisations. The letter called for the Agency's task to be clarified so as to include the protection of Swedish businesses' competitiveness (Sveriges redareförening, 2014). In the letter, they also point to the Finnish maritime strategy which lists "winner's attitude and a forthcoming bureaucracy" as important parameters, and the Danish Transport Agency which is tasked with "creating attractive frameworks" for transports.

Similarly, a PM to the Agency from the Swedish Association of Road Transport Companies argues that the Agency's enforcement practices are disproportionately strict. In this PM, the Association calls for the framework and its application to be "imbued with legal certainty and predictability for businesses", and further complain that "the Transport Agency's interpretations of the law's intentions lead to unreasonable consequences and thereby undermine confidence in both regulations and the authorities appointed to enforce them" (Sveriges Åkeriföretag, 2014).

In the preliminary report, it is suggested that these problems might reflect a lack of understanding of the frameworks within which operators work, and the everyday functioning of the operator organisations. This reflects the concern voiced by the interviewee from the Agency, rendered above, that the streamlining of a safety agency may make other legitimate concerns less accessible to the organisation.

Generally, the report emphasises that it is important to strike the right balance when it comes to the level of detailing. The PM from the Swedish Association of Transport Companies also links the shortcomings to the form of operations chosen, and to the lack of dialogue between inspectorate and operators:

"Now that Sweden has chosen having only the type of inspections which imply that documents and information are being requested, as opposed to a physical inspection with the carrier, The Swedish Transport Agency never get to see how the company and its operations really 'look'. This means that a dialogue between inspection officials and the carrier on how the latter has fulfilled its obligations to organize, inform and control is not implemented. Under the system currently used in Sweden to request documents and information, it is a great risk that the carrier is unable to identify and communicate the Transport Agency precisely this information when the board only has to request documents and information." (Sveriges Åkeriföretag, 2014).

Since the evaluation has not been concluded, it is difficult to assess whether the Swedish merger has been successful. The Agency itself seems to find that potentials for learning and synergy have been improved, but there is as yet no evidence to suggest how this improvement influences the actual inspections, regulations and general safety work in Sweden. The misgivings reported in the preliminary evaluation report might be a result of the separation of inspectorates from their previous organisational contexts, as well as from their merging. We should also note that many of the complaints found in this report to some degree echo those presented by Norwegian operator organisations (see 5.1). Such complaints may also reflect the fact that the Agency is still a new organisation which is still in the process of finding its footing and defining its role. However, there is also a possibility that the reported lack of understanding of local conditions and frameworks could partly be a consequence of a larger organisation which relates more to its own inner workings, and cultivates less contact with operators and other actors in the sectors.

9.1.2 The Finnish Transport Agency

The Finnish Transport Safety Agency (TraFi) was established on January 1st 2010, as part of a comprehensive reorganisation of the transport sector, which also included the establishment of a new Transport infrastructure agency covering all transport modes. TraFi was made responsible for transport system regulation and supervision tasks, developing transport safety and security, and preventing and mitigating adverse environmental impacts of transport. The Agency was the result of a merger between the Civil Aviation Authority, and relevant parts of the Rail Agency, Road Administration and Maritime Administration. (Previously, in the road and maritime sectors, inspectorates had not been separated from infrastructure providers). We should note that although Finland now has a cross-sectorial and separate transport inspectorate, its role differs slightly from that of the Norwegian inspectorates, as TraFi it is not just a safety agency, but has to take safety, environment, markets, social impacts and sustainability into account.

The stated aims of the transport sector reform in 2010 were a holistic and efficient approach to drafting and implementation of transport policy; synergy benefits; and increased productivity and efficiency through best practices, efficient resource use, and increased competence, cooperation and innovation (TraFi, 2013). According to the TraFi interviewee, another main motivation behind its establishment was probably that the Ministry of Transport and Communications had too many agencies to relate to, and wanted to reduce complexity.

The initial organisation of TraFi in 2010 contained three sector-specific departments, maritime, aviation and road and rail, sorting directly under the Director General. In addition, there were departments for strategy and common services, and for communication. The second organisation, dating from November 2010, retained only aviation as a sector-specific department, and had departments for Regulation and oversight and Register services respectively, in addition to the administrative departments. The third organisation, introduced in 2012, was a line organisation derived from core processes, with departments for Transport System, Regulation, Compliance and Data resources under the Director General, along with departments for Communication and Administration. Outside of this system, however, this reform introduced directors for each transport mode, working across departments. According to the interviewee from TraFi, the introduction of these directors were partly a measure to make visible the continued significance of sector-specific expertise in TraFi, and to reassure operator organisations who were concerned about

loss of competence. As of May 1st, 2013, TraFi's departments are: Regulation and development, Licences and approvals, Oversight, and Data resources, along with departments for Strategy, Communication and Administration. The sector-specific directors have been retained in this latest model (TraFi, 2013).

The last organisational reform was justified with reference to, among other things, a need for clarifying responsibilities, improving information sharing, learning and best practices, and unifying the organisation (TraFi, 2013). However, according to the interviewee from TraFi, the actual present organisation differed somewhat from the formal organisation, in that one tries to keep the tasks associated with each traffic mode within the mode, whereas tasks that are not associated with any specific mode, takes place elsewhere. In practice, then, the organisation works more according to transport modes than the official organisation would suggest.

Part of the background for the reorganisations was that TraFi's starting point was a challenging one. The four agencies to be merged were very different, in terms of sizes, cultures, practices and processes. In addition, the merger came with a decentralization clause, which meant that of a total of about 500 employees, 95 had to transfer to Rovaniemi and 20 to Lappeenranta.

The interviewee from TraFi deemed the merger to have been successful, in that challenges had been gradually overcome, and the effects were positive for clients, employees and society as a whole:

“With the new organisation, customers receive better services, and an improved system of supervision. TraFi can now better manage mobility and transport change, and provide more efficient services. For society, the merger has led to higher productivity, especially in the administrative sector. Because TraFi is now one agency – they are in a stronger position to meet the targets the Ministry defines. From the perspective of the personnel, TraFi is now a more attractive employer, which can offer better careers. Both customer satisfaction and employee satisfaction are improving. During the second year of TraFi, customer satisfaction fell slightly, but this is now improving.”

In addition, he experienced that the sectors now learn from another, and that working with different transport modes gives a wider perspective which helps you in your own mode.

According to the interviewee, the agencies had initially had mixed responses to the merger– some supported the merger, others opposed it. The operator organisations had also been concerned about the change, as they were familiar with the old practices, agencies, and civil servants. They also opposed the decentralising involved, for instance of the ships register to Rovaniemi – as they were worried about effects on customer service. There was also a worry that a merger may result in loss of sector-specific knowledge, and about increased bureaucratization. The interviewee believed, however, that these concerns had now been put to rest, because the experts are still mainly transport mode specific, and he finds TraFi to be less bureaucratic than the previous agencies.

9.2 The possibility of a merger between Norwegian transport inspectorates

A joint transport inspectorate organisation has been proposed in Norway in the past, but the report from the Lothe-committee (Lothe et al , 2001) concluded that such a merger was not desirable. Hammer and Hansen (2013) find that the transport inspectorates could still benefit from a “virtual merger” of their work with quality, HES, methodology training, and register keeping.

However, the Progress Party, one of the parties presently in government, states in their programme that “the transport and communications sector must undergo an extensive reorganisation to form one transport ministry responsible for the entire transport sector and one transport inspectorate, responsible for supervision of all transport on infrastructure (road, rail, air, sea, ICT and energy) to ensure that all rules, and in particular the safety regulations are followed.” (Fremskrittspartiets handlingsprogram 2013-2017). Generally, many interviewees expected this discussion to be rekindled, as Norway frequently follows suit when reforms are introduced in Sweden.

Among the Norwegian interviewees, the attitudes towards such a potential merger differed, although not systematically between sectors. The inspectorate directors were generally somewhat skeptical of the idea, mainly with reference to the different kinds of technical competence required in the different sectors:

“Because the different parts of the transport sectors are so different, we have not seen the need for other cross-sectorial collaboration. [...] But in general one can assume that there will be synergies within administrative support. We find it hard to imagine that inspectors with backgrounds in aviation may conduct inspections of road, rail or the maritime sectors.”

They conceded, however, that there were also some shared competence between inspectorates, such as risk-based supervisions, organisational psychology, human factors or ergonomics. However, as one of the directors pointed out, “synergy effects would presuppose that there was an unused potential, and that is usually not the case”. On a practical level, the different sizes of the inspectorates was perceived to be a potential problem, and two of them also mentioned the very different levels of acceptable risk between sectors, but drew very different conclusions: while one believed this would hamper collaboration, the other saw the potential for equalizing the levels. The Road Supervisory Authority, more than the other inspectorates, emphasised a need for closer collaboration, which was perhaps partly motivated by their relative inexperience in the field, and more acute need for benchmarking. They pointed out that there were many similarities between the work of the inspectorates on a practical level, such as “how to select cases for supervision, how information and knowledge is obtained, preparation, communication, interviewing, use of evidence, sample tests, follow-up - and when a case is actually concluded”.

In the Ministries, a cautious attitude similarly prevailed. As in the inspectorates, it was mentioned that skills and competence requirements differed between sectors, and it was important not to risk losing or undermining sector-specific expertise. Other potential challenges brought up were varying degrees of internationalisation and the different organisational structures in the sectors. Some of the interviewees from Ministries did, however, see the potential for increased collaboration, such as exchange of “best practice”, and in general a shared understanding of fundamental issues:

“Intersectorial cooperation in the transport sector is important because it can facilitate exchange of experience, especially when it comes to systems thinking and risk management in various sectors. One can also learn from each other when it comes to questions such as the trade-off between profit and safety. The Accident Investigation Board is a focal point for intersectorial collaboration.”

Among operators, views were more mixed, although the sceptical attitude was more widespread. Those who were familiar with the Swedish process, were generally more negative, as, among other things, the Swedish (and to some degree Finnish) merger had – according to them – not been motivated by safety considerations. More importantly, those who had heard reports from Sweden had the impression that the merger was not experienced as a success by operators, and also that essential expertise had been lost in the process. SAS, who have had actual experience with the Swedish system, did not find that the merger had led to improvement in safety work, but considered it a watering-down of the inspection authority in aviation:

“We have no indication that the merger has worsened safety, but it has made communication more difficult. This means that airlines must spend more resources on unimportant things, which take the focus from safety.”

We should note that some of these objections may be explained by the fact that the reorganisation processes in Sweden and Finland temporarily caused the inspectorates to become less accessible and efficient, as a result of the practical adjustment required, and that these may well be issues that are now resolved, as indicated in chapter 9.1.

However, others in the aviation sector were more positive, and believed the challenges to have significant similarities across sectors, although the need for sector-specific expertise was stressed.

Opinions were also divided in the railway and maritime sectors. While some believed it could be useful, others were quite adamant that there was little to gain for the sector. Several interviewees, however, highlighted the need for improved collaboration between different organisations *within* the sectors. As in aviation, worries usually centred on the loss of sector-specific competence, but also the sheer size of such an organisation.

In the road sector, the Directorate for Public Roads acknowledged the advantages of considering all the transport sectors as a whole, but also that the Norwegian National Transport Plan made the need for a merger less pressing in Norway. As in other sectors, the large discrepancies between sectors was also seen as hampering a very close collaboration:

“In some areas there are obvious opportunities for synergy with the Rail Administration, for example (in matters such as electricity, frost, or landslides), but all the other sectors relate to professional players and a closed system. Safety thinking is obviously different between sectors. We can learn from each other in terms of theory and system. [...] There are also varying degrees of internationalization across sectors, in the road sector, we only relate to the tunnel directive and the infrastructure directive. At the system level, and in terms of organization, one could certainly learn from other sectors, but the specificities are fundamentally different.”

The Director of Public Roads hence concluded that this was not a pressing matter at the present time, and that it could be useful to await the experiences in Sweden and Finland.

In conclusion, it seems that many of the objections to a merger found in the Norwegian transport sector echo those that were present in Sweden and Finland prior to the merger. According to Swedish and Finnish interviewees, these challenges are now mostly overcome, but since there does yet not exist any conclusive assessments from either country, it is difficult to conclude decisively. We should note that the situations prior to the mergers in Sweden and Finland also differed somewhat from the present situation in Norway, as the Norwegian inspectorates are all separated from the operator organisations. The effects of cross-sectorial learning, which was seen as a major advantage of the reorganisations in Sweden and Finland, may also be more limited in Norway, as the inspectorates have operated autonomously for a longer period.

9.3 Potentials for improvement

9.3.1 Expertise

An important precondition for effectiveness and acceptance of inspectorates' authority, is that they are perceived to have the right competence and expertise. What this is, however, may be changing, as system-based regulatory regime has been argued to require a different expertise, and a different relation with operators, than traditional inspection:

“Inspectors no longer look for particular items to check off boxes that indicate compliance with prescriptions. Instead, they are charged with certifying the adequacy of systems or the adherence to regulatory goals. This requires a different type of expertise and different interactions with regulated entities and as such necessitates a cultural transformation of enforcement.” (May, 2000)

Some concerns were raised about the sector-specific competence, however, in several sectors. In the railway sector, this was specifically associated with high turnover in the Authority:

“[We] have been concerned about the Authority's ability to perform its role, since they have lost much of their resources, so one wonders whether they have the necessary sectorial expertise. They have received many new resources, but many of them are not from the railway sector. This is very worrying, you worry that it may affect railway safety, that the changes are not considered competently. For instance, they are the ones approving signalling systems, rolling stock, etc. [...] All changes are supposed to be considered in relation to safety - but are they capable of it?”

As has been discussed, the Aviation Authority was given a quite critical evaluation a few years ago. This mainly concerned their administrative skills, but their relocation to Bodø also meant they lost importance competence in other fields, and their sectorial Ministry still believed this could be a challenge.

“In In 2008 the Ministry asked DIFI evaluate the agency's administrative expertise, and the evaluation showed that this could still be improved. The aeronautics expertise also has some potential for improvement.”

In the maritime sector, a similar concern was raised by an operator who generally found the Authority to be too passive in safety matters, and too withdrawn from the sector. He linked this shortcoming with the lack of the appropriate, sector-specific expertise:

“[I] do not think Authority has the necessary expertise. I think what they should have competence on is how to operate a vessel – this includes safety, operating, technology. And an understanding of the situation. A understanding of what is like to operate a vessel, this is what they are most lacking.”

9.3.2 Integrated approach

When it comes to the general approach chosen by the inspectorates or the institution of inspectorates itself, operators were, as already discussed, overall content.

However, several interviewees mentioned the risk that relating to an inspectorate may create a focus on doing things the right way, rather than on doing the right things. This was associated with a fear of making mistakes, and a reactive, rather than proactive approach to safety:

“There is a general tendency in Western societies with increased requirements for supervision, and it quickly turns into a vast bureaucracy. You end up in a culture and a way of working where someone is always monitoring you, instead of focusing on what you are actually doing, and that quality controls could have been better. There is a danger that you are more concerned about not making mistakes, than about doing things right, and that is destructive in terms of improving. So the system is very conservative, you are anxious not to expose yourself to criticism from the inspectorate and the media and politicians.”

Many thus stressed the importance of a wider outlook, and attention to the whole, rather than to details. May (2000) emphasises that regulators need to strike a balance between these two competing concerns:

“Any regulatory regime must confront a fundamental issue of how tight controls should be in seeking consistency versus how much discretion should be granted in promoting flexibility and innovation.”

This is illustrated also in the following quote from an interviewee in an airline:

“We experience the Authority as being not sufficiently system-based and very focused on events – it need not be either/or. The Authority goes very deep into details and rules – but they ask less why things are as they are. They do not lift their gaze, and do not see the whole sufficiently, but are characterized by too little confidence in their own role, and they do not make their own assessments. People have been a little too inexperienced, there has been a high turnover, and a fear of making mistakes.”

If this is the case, this could perhaps be traced to the local “accountability dynamics”, which Romzec and Ingraham (2000) claim can reinforce risk-averse rules and process orientations.

Another interviewee in the same sector similarly called for less focus on details, and more “the contexts and processes, because that is where we need the most help”. This view was also echoed in a desire by an interviewee in a shipping company that the Maritime Authority should be more “innovative”, and claimed that they showed little interest in what the shipping companies were thinking and how they could help to develop them further.

“The Authority is present at the maritime safety conference in Haugesund, but almost none of the companies have been present in recent years, so it's almost become a conference for the public sector. Last year, two pretty important changes were introduced; MLC 2006 and the new ship worker law. None of them were topics at the conference, although it would have been a very good opportunity to talk about what the industry is focusing on. There is

little innovation. The industry does not see this as a place where you can pick up and learn something, it is something for ferries, Coast Guard, the Maritime Authority.”

A lack of a wider perspective was also mentioned in the railway sector, were one interviewee would have wanted them to point out how different infrastructural solutions impacted on safety:

“They could have been better at pointing out to the authorities when things are bad, such things as the lack of separate pathways. In Oslo we have very many collisions, although they are generally not serious. The Rail Authority could have been more active in relation to the authorities, and pointed out how many fewer accidents you have in Bergen (ten times more in Oslo, but the difference is less when it comes to injuries), the individual companies do not have this overview.”

In the road sector, however, the Road Supervisory Authority and the Directorate of Public Roads both envisaged that the existence of an inspectorate might actually lead to a more integrated and holistic approach to safety. The assumption was that the Authority could create a link between the NPRA’s routines and practices, and questions related to safety.

“You have probably – though a lot is in development, and has not been completed – started to approach the point where casualties are very unusual. Then, relatively speaking, accidents will to a greater extent be due to carelessness or not complying with routines. The focus will increasingly be on how to comply with routines. There is, of course, constant development and research, but relatively speaking, more will be about how we handle our own systems. Here the Authority has a useful role. It is a system-based inspectorate to make sure that you do the job in the way it should be done, and this becomes relatively more important.”

On a more practical level, it was claimed that this perceived lack of a wider perspective could have detrimental effects on operators, as when communication between inspectorates and one operator was bilateral, even though there would be consequences for other operators.

9.3.3 Practicalities and bureaucracy

In most sectors, there were also some complaints about practical issues, typically related to the amount of administrative work for operators that follow from the inspectorates’ requirements.

“We have, for example, had a long discussion about reporting procedures. In many European countries incidents in aviation should be reported to the Authority within 72 hours. The information the report should contain is usually very limited. Norwegian regulations require, however, very large amounts of information about such things as temperature, surface conditions and visibility, which is often impossible to state with any great degree of certainty so quickly. [We] hence believe that this information should only be delivered after the investigation has been completed, instead of being flawed, and we want a European format for the reports. The Authority wants a good real-time image for use in statistics, but the image is not correct. We forward corrections, but they are not recorded in the statistics. The requirements also place a very large burden on the person reporting, which may heighten the threshold for reporting.”

An airline found the Authority’s insistence on treating the regulations as three separate regulations – rather than as one, as the company did – a weakness which could cause communication problems. The same interviewee suggested that the Authority should improve its economic performance, as its staff had been more than

doubled since its establishment, and their operations are part-funded through fees from the airlines, which had sometimes been raised quite dramatically. We should note, however, that the Authority has been assigned a number of new tasks in the period the expansion of staff has taken place.

In the maritime sector, it was pointed out that the ISM Code created a lot of paperwork, and that the extensive requirements for documentation for Norwegian vessels sailing to and from oil platforms involved additional work that might affect safety. Others would have liked to have access the company's own vessels in the Authority's database, rather than relating to two separate systems. Yet another interviewee would have liked to see more accessible guidance on the internet, for people who found understanding regulations difficult.

When it came to more minor complaints, interviewees from several sector raised the issues of reporting, which was seen as unnecessarily cumbersome, because reports either concerned very similar events, which nevertheless needed to be reported and processed separately, or because one had to relate to several computer systems.

9.4 Summary

In Sweden and Finland, inspectorates have been merged to create joint transport inspectorates. While this solution has previously been discussed and rejected in Norway, many expected this debate to re-emerge. Among inspectorates, the attitude to such a potential merger was uniformly negative, as they saw limited potential for improvement due to the differences between sectors, and considerable possible disadvantages related to such issues as loss of expertise. We should note, however, that according to the interviewees from the Swedish Transport Agency and the Finnish TraFi, this has not happened in Sweden and Finland, and, on the contrary, generic expertise is seen to have improved as a result of cross-sectorial learning. Several interviewees from the operator side were also negative, partly in response to experience with or anecdotal evidence relating to the other Nordic countries. This negative impression might have to do with teething problems in the new organisations, however.

When it came to potentials for improvement for the inspectorates, the operators in the maritime and railway sectors were somewhat concerned about the sector-specific expertise in the inspectorates. The relocation process had, at least initially, created challenges for the maritime sector, as it is now located in a maritime cluster, where competition for competence is fierce. Similarly, the Aviation Authority lost some of their expertise after relocating, and the after-effects of this was reported to be noticeable still.

A more fundamental issue that was brought up was the danger that relating to an inspectorate's expectations may lead to a focus on following rules, rather than on an integrated perspective, and a more overarching approach to the safety of the sectors. This focus might, as one interviewee put it, lead to concentrating on "doing things the right way, rather than on doing the right things".

10 Concluding Discussion

10.1 Changes in the regulatory regime

Over the last couple of decades, the organisation of supervision and management models for safety work across the Norwegian transport sectors have become more homogeneous, partly as a response to changes in the transport markets, and partly as a reflection of shifting trends in public management and the need for public control of deregulated and diversified operating units. At the same time, the degree of coordination and integration across the transport sectors has increased, especially through the introduction of joint National Transport Plans and the expansion of the Norwegian Accident Investigation Board to cover all transport sectors.

In the introduction, we listed several questions that are raised by these changes in the Norwegian system of safety management: Will the responsibility system designers have for safety be more clearly defined and more effectively enforced if there is a safety inspectorate than if there is no such inspectorate? What barriers to safety improvement persist in such a system? And in what ways do inspectorates frame and influence safety work?

10.2 How do inspectorates frame safety work?

If we start with the last question, regulatory regimes can be divided into prescriptive regulation, system-based regulation, and performance-based regulation. The Norwegian transport inspectorates all subscribe to the *system-based approach*, which focuses on process and systems, but most of them also include elements from the other regimes, and do not purely belong to one of the ideal types. The system-based approach to safety links in with a changed conception of accountability, where the accountable entity is typically the organisation, rather than the individual. This approach implies that inspectorates also influence the kinds of safety work going on in operator organisations, and how they approach the question of safety in general. The inspectorates' priorities sometimes differ from the ones that the operators would have considered optimal, as they focus on systems, rather than on individuals or individual improvements. The operators frequently tend to give more weight to technical or infrastructural improvements than to transparent systems of documentation.

In all of the sectors that had had inspectorates for a prolonged period, *cooperation* between inspectorate and operators was perceived to have improved. This may partly be explained by an increased client-focus in the inspectorates, an approach that has been shown to instil a greater desire to comply than the previous, more controlling attitude. Another possible explanation is that the improvement is a result of improved understanding of the system-based approach on both sides. Operators also tended to point to increased professionalization on the part of the inspectorates, that have made their actions and recommendations more predictable.

The *distance* between inspectorates and operators was generally seen to have decreased, to the benefit of smoother interaction and communication. Complaints often referred to lack of understanding of the operators' work, the specific conditions under which they function, and their framework conditions. Some of the standards and procedures were also seen to be unnecessarily bureaucratic or cumbersome. It was also mentioned that external factors, such as attention from media or politicians, rather than a concern for safety, could influence the inspectorates' priorities, and lead to inefficient use of resources.

10.3 Do inspectorates clarify the responsibility of system designers?

If we turn to the question of *responsibility*, the establishment of transport inspectorates has changed structures of accountability within the sectors. Accountability is meant to secure control, assurance and continuous improvement (Aucoin, & Heintzman, 2000). Generally, all the interviewees agreed that responsibility was very clearly defined in their respective sectors. In the railway sector, there had been some initial confusion as to the responsibility of the inspectorate after inspections, but this was now considered to be resolved. In the maritime sector, the introduction of the new Maritime Safety Act had clarified responsibilities, by making shipowners more accountable. In aviation, international arrangements are perceived to clearly define responsibilities, within and between organisations. In the road sector, one of the stated reasons for establishing an inspectorate, was that this would clarify roles and responsibilities.

The system-based approach implies that in all sectors, accountability has – at least to some degree – shifted from individuals to organisations. This shift might be associated with the practices of inspectorates. However, one interviewee from the railway sector believed this to be a reflection of changing attitudes in society as a whole, and that the creation of inspectorates reflected society's changing perceptions of responsibility. From this kind of perspective, the very establishment of inspectorates, and the definition of their roles, could be seen as a consequence of, rather than a cause for, changing ideas about responsibility and accountability in the transport sector.

Although roles and responsibilities are considered clear in the current organisation, these relations are also *negotiable*, and the focus on safety is subject to limitations set by other social goals, budgets and habits. These framework conditions are mostly defined outside of the inspectorates, however. For instance, the levels of acceptable risk differ between sectors, and these levels seem to be accepted by inspectorates, who have to accept a certain trade-off between safety and political realities. In many cases, operators would also like to see infrastructural improvements that they believe would considerably benefit safety, but these mostly seem to be considered to be beyond the remit of the inspectorates. It does not seem that inspectorates equalize risk levels; they maintain safety standards within a financial, political and cultural framework that they do for the most part not seek to change.

While the safety inspectorates are to secure an acceptable level of risk in transport, this level is mostly not defined by the inspectorate, but is the outcome of a social and political process, where several considerations and goals must be weighed against each other. A complete depolitization of the field would require that standards of

safety were absolute, so that certain standards would require “automatic” increases in funding and finances, for instance. However, experiences from other sectors, especially rail (see Chapter 5) indicate that inspectorates are pragmatic, when a choice has to be made between increased funding and shutting down transport. In practice, the inspectorates seem to adopt that risk should be “as low as reasonably practicable” as a standard (ALARP), and the definition of reasonableness is for the most part a political, rather than technical question.

Gilbert et al. (2007) hold that the dominant safety paradigm, which presents safety as an absolute priority, and risks as controllable is misleading, and should be replaced. For the organisations, they argue, safety is only one priority among others, and is necessarily limited by resources, and limited knowledge of risks, which means they usually use old framing and, rules are often given priority. What organisations do is seek to obtain sufficient capacities and standards at low cost. The normal situation is therefore sub-optimal. They instead recommend the concept of “ecological safety”, which recognizes various compromises, normal failures and the normally sufficient, non-optimal nature of practices. This approach demands high investments, constant attention and high level of latent reactivity, and, importantly, a collective definition of acceptable risk. This collective definition is presently not explicit, and for the most part probably emerges as a reflection of political willingness to invest in safety in the various sectors.

Inspectorates, then, seem to change structures of accountability, in such a way as to make them more transparent. This happens because operators are forced to document their safety work, and thus this approach also locates the responsibility more clearly with organisations, rather than with individuals.

10.4 What are the main barriers and potentials?

Important parts of the transport sector have been restructured so as to facilitate competition and financial transparency. In the railway sector, several interviewees held that the present organisation promote these goals rather than safety, and that a different structure would be optimal from the point of view of safety. Several interviewees drew attention to the lack of an arbiter in cases of disagreement between the actors. The NSB claimed the current organisation was adapted to a non-existent market with a multitude of rail services. In aviation, however, the flag-carrier company claimed that regulations were adapted to an earlier form of organisation in the sector, and did reflect current realities. Thus, in both these sectors, some actors perceived the current organisation to be less than optimal from the perspective of safety. This did not relate to the existence of inspectorates, however, but to the organisation of the sector in the field – but this organisation, was perceived as being beyond the reach of inspectorates.

In railway and aviation, the multitude of co-existing inspectorates was seen to produce unnecessary amounts of work for operators. In the maritime sector, some interviewees also felt the need for a more integrated governance structure.

Although there is no conclusive evidence that deregulation and increased competition have endangered safety, this was a central concern in the aviation and railway sectors. Since both sectors have very good safety records, there is a certain push for decreasing redundancy. The lack of accidents was paradoxically sometimes experienced as a challenge for those working with safety in the organisations. In the

maritime sector, the public actors agreed that the interests of business and safety coincided for the international fleet, as both perspectives lead to a push for stricter international regulations. For smaller Norwegian vessels, however, the operator organisations perceived a conflict between finances and safety for individual shipowners, and thus called for a more integrated understanding of safety and financial frameworks. This illustrates how the field of “safety”, which the inspectorates are set to manage, is not given once and for all, but has blurry and negotiable borders.

In tune with this, lack of available resources was cited as a main barrier to safety improvement in all sectors, but in many cases, the resources needed were beyond what society is prepared to pay. The inspectorates’ influence on these prioritisations was generally deemed rather limited. These factors which appear to be external to the system of safety work, could also be described as “environmental conditions”, among which Rosness et al (2012), list conflicting demands and variability of input, decision settings (with constraints), ideology/discourse, and contexts.

In the railway sector, the Railway Administration was also considered an impediment to safety work by many of the operators, who found the organisation opaque, bureaucratic and reactive. In addition, the fragmented organisational structure was seen as less than optimal from the perspective of safety. In aviation, the sector’s own safety record was seen as a challenge for those working with safety, and deregulation and the practices of low-cost carriers were considered a potential threat in the future. In the maritime sector, the Authority struggled to document that measures were financially sound, and envisaged that lack of qualified personnel could become a future challenge. Among operators, it was mentioned that there is currently no anonymous incident reporting. In the road sector, many effective measures cannot be introduced because they are considered threats to individual autonomy and privacy.

In Sweden and Finland, inspectorates have been *merged* to create joint transport inspectorates. While this solution has previously been discussed and rejected in Norway, many expected this debate to re-emerge. Among inspectorates, the attitude to such a potential merger was almost uniformly negative, as they saw limited potential for improvement due to the differences between sectors, and considerable possible disadvantages related to such issues as loss of expertise. We should note, however, that according to the interviewee from the Swedish Transport Agency, this has not happened in Sweden, and, on the contrary, generic expertise is seen to have improved as a result of cross-sectorial learning. Several interviewees from the operator side were also negative, partly in response to experience with or anecdotal evidence relating to the other Nordic countries. This negative impression might have to do with teething problems in the new organisations, however.

When it came to potentials for improvement for the inspectorates, the operators in the maritime and railway sectors were concerned about the sector-specific expertise in the inspectorates. The relocation process had, at least initially, created challenges for the maritime sector, as it is now located in a maritime cluster, where competition for competence is fierce. Similarly, the Aviation Authority lost some of their expertise after relocating, and the after-effects of this was reported to be noticeable still. A more fundamental issue that was brought up was the danger that relating to an inspectorate’s expectations may lead to a focus on following rules, rather than on an integrated perspective, and a more overarching approach to the safety of the sectors. This concern finds support in Hale et al. (2013) who maintain that detailed prescriptive regulations may lead to reactive compliance culture, where additional

costs are incurred from record keeping and documentation, whereas there is no competitive advantage related to innovations for implementing more efficient rules. The authors also warn there is a danger that rules imposed from above can be complied with in letter rather than in spirit, and detailed rules from outside can discourage companies from studying their own risks.

Several operators complained that the safety bureaucracy took time from other forms of safety work, which they believed to be more fruitful, and held that inspectorates should strive to reduce the bureaucratic burden to a minimum.

Generally, then, although inspectorates are considered to give safety work momentum, the main barriers to safety to improvement are not seen to be addressed by the inspectorates – simply because there are outside the inspectorates' remit.

10.5 Do safety inspectorates improve safety?

On the whole, very few of the interviewees believed that the existence of an inspectorate changed political priorities when it came to transport safety. As mentioned, the framework conditions for safety were perceived to be determined on a different, political, level, but these were not generally seen to be influenced by the practices of the inspectorates. The Road Supervisory Authority had a more nuanced view of this, however, as they were very aware that their role was in a sense a political one. When asked about the overall, hoped-for effect of the inspectorate, the interviewees from the Authority emphasised that they envisaged a stronger focus on road infrastructure. In other words, they perceived their practice to have a strategic relevance that went beyond quality improvement in the single cases. Since it has so far only been in operation for a few years, it is difficult to determine whether this effect will come about.

Transport safety inspectorates thus do seem to have the intended effect, in shaping how operators work with safety, foster internal safety systems, and a focus on system-based safety work. The operators generally see the need for external inspectorates in the present organisation of the transport system, but occasionally question their focus, experience them as bureaucratic, and find their inspections and requirements overly time-consuming. Although the inspectorates have an overall focus on responsibility, they are sometimes seen to focus too narrowly on operator-controlled conditions, rather than the frameworks within which operators work.

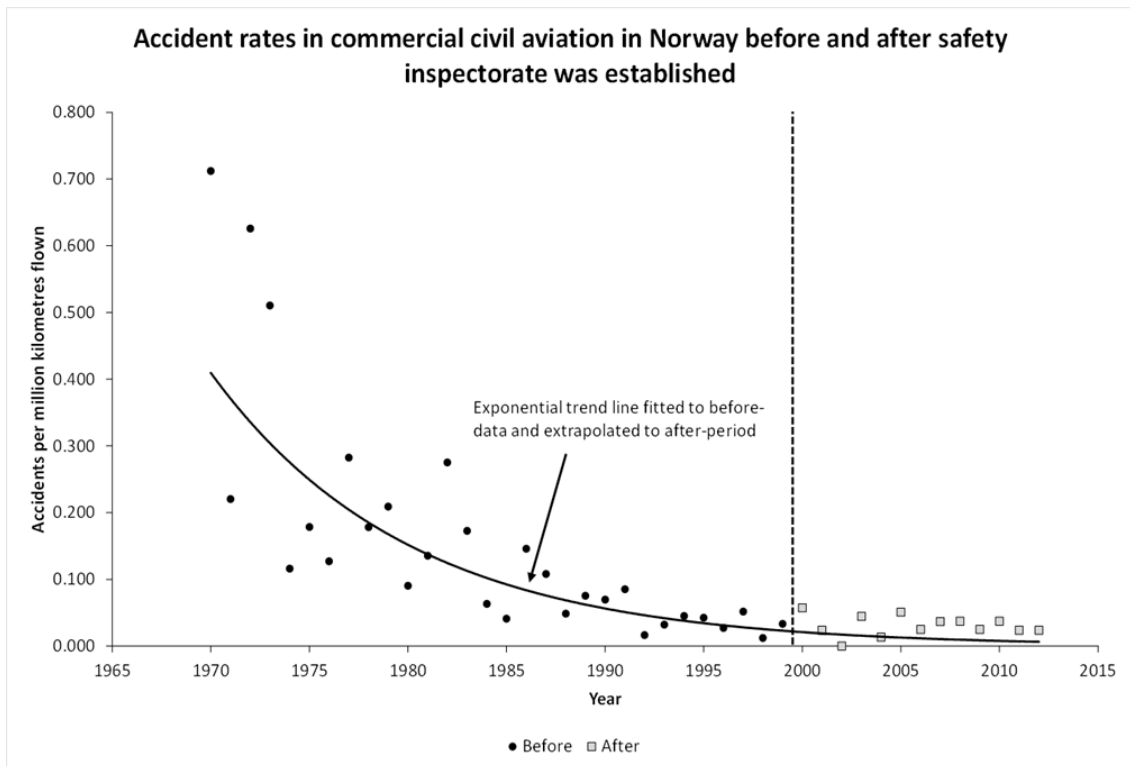


Figure 2. Accident rates in commercial civil aviation in Norway before and after safety inspectorate was established. From Elvik & Elvebakk, 2015

The more fundamental question is whether transport safety inspectorates are instrumental to improving transport safety. This question is notoriously difficult to answer, but looking at the accident trends for the periods that the inspectorates have been in existence, can at least provide some indications. Elvik and Elvebakk (2015), compare accident numbers for rail and aviation in Norway before and after the establishment of inspectorates, and examine long-term trends in accident rates for aviation and rail transport. Following the creation of a safety inspectorate for aviation in 2000, there have been no passenger fatalities in civil aviation in Norway. The number of accidents (all non-fatal) has varied between 0 and 5 per year, which is higher than predicted according to the long-term trend before the safety inspectorate was established. The number of fatalities in rail traffic has been about 30 percent lower than predicted on the basis of prior trends, and find that while no trend is discernible in aviation (where the number of accidents are extremely limited), the number of railway accidents has been about 40 percent lower than predicted from trends before the National Railway Authority was established (cf. figs. 2 & 3). We should note, however, that in both sectors, the number of accidents was already extremely low, and that accident numbers may be influenced by external factors, such as the deregulation of the aviation industry, or the response to the major railway accident in Åsta in 2000. While we may therefore conclude that transport inspectorates contribute to shaping the form of safety work in the transport sectors, it is not as yet possible to gauge their efficacy.

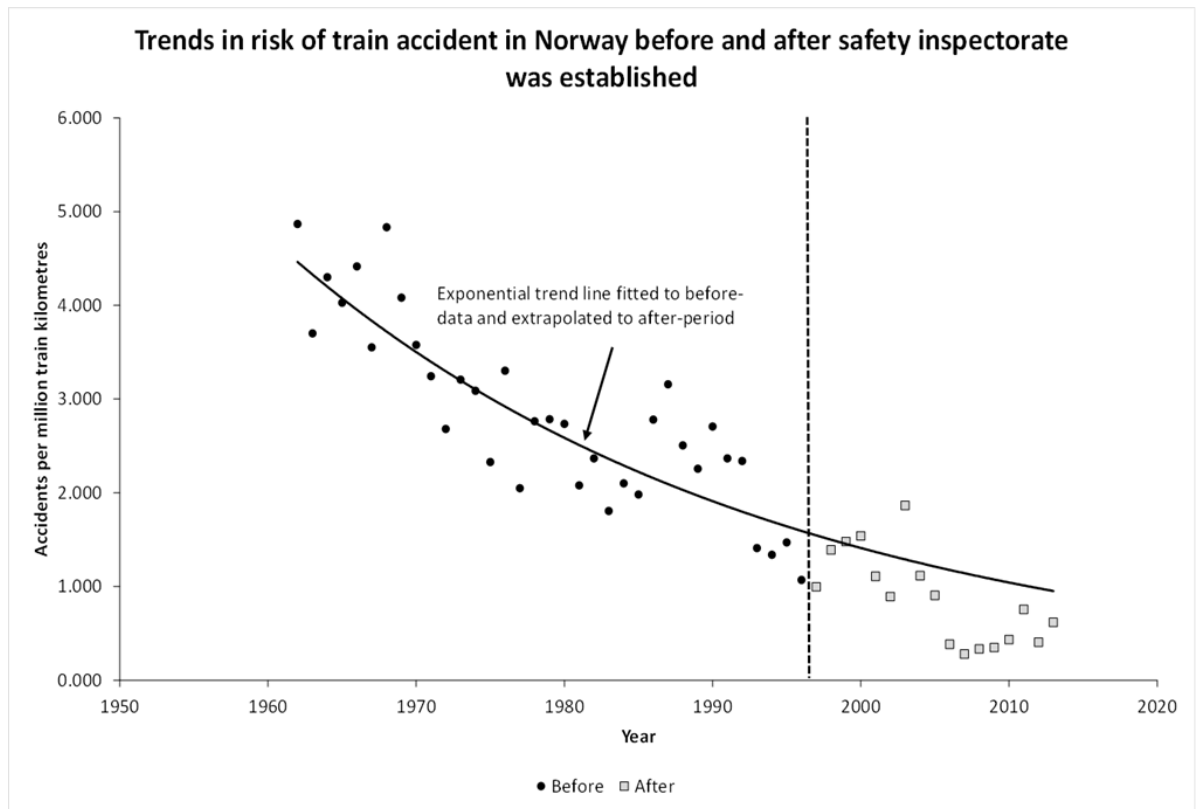


Figure 3. Trends in risk of train accident in Norway before and after safety inspectorate was established. From Elvik and Elvebakke, 2015.

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Appendix 1

List of interviews

Interviewees	Type of interview	Organisation/role
Road Sector		
Terje Moe Gustavsen	Face to face	Director of Public Roads
Guro Ranæs	Face to face	Road Directorate
Bente Mari Nilssen	Telephone	Ministry of Transport and Communications
Trude Andersen	Telephone	Road Authority
Bård Gjerde	Telephone	Road Authority
Bente Molland	Telephone	Road Authority
Aviation sector		
Signe Astrup Arnesen	Face to face	Avinor
Civil Aviation Authority	E-mail interview	The Civil Aviation Authority
Stig Kristiansen	Telephone	Widerøe
Øyvind Ek	Face to face	Ministry of Transport and Communications
Stein Arne Lien	Telephone	Norwegian
Over Myrøld	Face to face	SAS
Maritime sector		
Håvard Gåseidnes	Telephone	The Norwegian Maritime Authority
Gaute Sivertsen	Face to face	Ministry of Trade, Industry and Fisheries
Erling Klovning	Telephone	Fjord1
Terje Sagebakken	Telephone	Eidesvik
Joakim Martinsen	Telephone	Fiskarlaget
Railway sector		
Cecilie Fjordbakk	Face to face	Ministry of Transport and Communications
Erik Reierstøl-Johnsen	Face to face	The Norwegian Railway Authority
Cathrine Elgin Engström	Face to face	Airport Express Train
Liv Bjørnå	Face to face	Norwegian National Rail Administration
Tom Ingulstad	Face to face	Norwegian State Railways
Helge Holtebekk	Face to face	Oslo subway
Vidar Almsten	Face to face	Oslo tram
Abroad		
Jacob Gramenius	Telephone	Swedish Transport Agency
Markko Sillanpää	Telephone	TraFi

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Visiting and postal address:
Institute of Transport Economics
Gaustadalléen 21
NO-0349 Oslo

+ 47 22 57 38 00
toi@toi.no
www.toi.no