

The impact of Norwegian Social and Cultural Determinants in Risk Regulating Agencies - Norwegian Aviation Security Regulation in a European Context

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Abstract

This paper addresses specific challenges for risk regulation in Norwegian civil aviation based on the notion that risk is socially determined. This involves, in addition to the dimension of human values, mapping the challenges that social structures, practices and interventions represent for regulation and management of security risks. We address among other the development of a European structure for governance of security risks and the consequences this has for national government regulations and the national aviation industry.

In order to discuss the latter it is necessary to address the motivation of a European structure for governance of aviation security risks in which Norway participates. We review characteristics of preparation and implementation of EU security regulations in the Norwegian aviation sector and discuss to what extent implementation procedures correspond with ideal principles of risk governance as well as some possible consequences of following Norwegian regulatory traditions involving more local participation in developing risk regulating regimes. Furthermore, arguing for an explanation of the theory/practice gap, we elucidate how different forms of risk governance affect the distribution of liabilities and legitimacy.

Introduction

Regimes for regulating risks have a tendency to expand through a principle of reactivity. This implies that whenever there is a serious incident (normally human imposed accident or close calls) the regulation of interest is developed or revised for avoiding unwanted events in the future. In the case of the current aviation security regime today's regulatory practises have been characterised by rapidity, secrecy, and reactivity following the events on September 11th 2001. It is reasonable to assume that the friction and tension we have experienced in public debates in Norway over current security regulations stem from such regulatory characteristics. However, related to these debates we have come to focus on an identified gap between theoretical guidelines for good risk governance and the realities of security regulation experienced by the Norwegian Aviation Sector.

The objective of this paper is to address specific characteristics of security regulation in Norwegian civil aviation in the aftermath of September 11th 2001 based on preliminary research conducted as part of the SORISK research project¹. In order to achieve the latter it is necessary to address the motivation of a European structure for governance of aviation security risks in which Norway participates. We review characteristics of preparation and implementation of EU security regulations in the Norwegian aviation sector and discuss to what extent implementation procedures correspond with ideal principles of risk governance as well as some possible consequences of following Norwegian regulatory traditions involving more local participation in developing risk regulating regimes. Furthermore, arguing for an explanation of the theory/practice gap, we elucidate how different forms of risk governance affect the distribution of liabilities and legitimacy.

The Risk Governance Framework (Renn 2005) is applied to investigate if the security regulations within EU aviation are risk governance. The framework emphasise the social determination of risk and the relevance of involving stakeholders and the public when decisions are made about different aspects of risk. According to the framework, the more complex or ambiguous risk problems are, the more involvement is needed. It is also important to get information about stakeholders' and public groups' concerns regarding the risks to be able to adjust the different measures. Ignorance to this information collection might lead to opposition or protest.

Theoretical framework

The concept of risk has traditionally been understood differently by, on one side, the technical and natural sciences that base their approaches on an argument for risk as ontologically real and social and cultural approaches on the other that see risk as a social construct. Despite of these fundamental differences in tradition, by saying that risk also contains social aspects, is not necessarily to dismiss statistical/technical approaches based on physical sizes, events and quantities, but to also acknowledge the social/cultural reality in which they are expressed and interpreted. By moulding a framework that employs the strengths of the different scientific disciplines, it is possible to arrive at a more integrated approach to risk. This mode of thought

¹ This working paper is based on research conducted by Trond Nikolaisen as part of his Masters degree in Societal Safety at the University of Stavanger (Nikolaisen 2008). The paper work is part of the Social Determination of Risk (SORISK) research project aimed at developing a socially based theory of risk and applying it to aviation security in the Norwegian setting.

has led to several definitions that include these aspects as well as bringing in the uncertainty factor which is shared between most risk definitions (Renn 2008). In this paper, we find that Rosa's definition serves our purpose as he defines risk as "...a situation or event where something of human value (including humans themselves) has been put at stake and where the outcome is uncertain" (Rosa 1998, p. 28). This way we can acknowledge the human values implied in risks, not only the "objective" risks based on calculations and formal assessments. Simultaneously it opens up for the recognition of the uncertainty of the future outcome that demands an altered approach to regulations. While deterministic and detailed rules are prepared due to experience in the past, the uncertainty implicit in the concept of risk (Renn 2005; 1998, Aven et al. 2004, Kirwan et al. 2002, Pidgeon et al. 2003 Aven 1997), demands more flexible rules to be able to handle unknown threats. Detailed regulations are often denoted as being reactive, because they are implemented as a result of previous accidents or attacks. Risk-based regulations are characterized by a more open-minded approach to meet the unknown.

Regulatory regimes for governing risk have developed in tandem with the increasing complexity of modern production of goods and services, and as underlined by Power (2004) the nature of risk itself give rise to variation of risk regulating regimes. Risk governance is of particular importance in, but not restricted to, situations where there is no single authority to take a binding risk management decision but where instead the nature of the risk requires the collaboration and co-ordination between a ranges of different stakeholders.

Despite varieties, all regulatory regimes have to satisfy certain basic characteristics to fulfil their roles. First they have to be perceived as legitimate. That means that administrative systems, formal procedures, means and ends are accepted both by the members of organisations and other relevant stakeholders. Stakeholders affected by regulations can be many and diverse, encompassing all "*socially organised groups that are or will be affected by the outcome of the event or the activity from which the risk originates and/or by the risk management options taken to counter the risk*" (Renn 2005, p. 81). These agencies, organisations, groups and actors have to recognise the qualities of regulation. Thus, risk governance not only includes a multifaceted, multi-actor risk process but also calls for the consideration of contextual factors such as institutional arrangements (Renn 2005). If regulatory regimes fail to fulfil their purpose, it will be necessary to renegotiate contents and areas of applications. In order to maintain legitimacy, routines organising processes of negotiation also have to be a part of regulatory regime. Second, regulation implies allocating liability between actors and stakeholders involved. Different regimes may thus have different distribution of liabilities. Hence, an important feature of risk governance is to decide who is responsible when certain incidents take place and how to evaluate what to do in hindsight.

Renn (2005) proposes fundamental principles for governing risk and of "good governance". In this paper his concepts are applied as a reference for evaluating how the implementation of security regulations has been accomplished in the Norwegian aviation industry. The Risk Governance Framework (Renn 2005) is, according to the International Risk Governance Council (IRGC), a tool for identifying, assessing, managing, monitoring and communicating risk. The framework has an ambition of being an "*integrated analytic framework for risk governance which provides guidance for the development of comprehensive assessment and management strategies to cope with risks, in particular at the global level*" (Renn 2005, p. 11). The framework consists of a combination of positivistic and relativistic tradition and looks at how risk-related decision-making unfold when a range of actors are involved, as is the case in the European aviation sector. Renn (2005) also states that it is important to include the

historical and legal background, guiding systems, value systems and perception when governing risk (Renn 2005). The framework proposes a new categorization of risk based on different states of knowledge of the various risks in society. The categories are: *simple*, *complex* and *ambiguous* risk problems and are dependent on (a) if it's possible to establish cause-effect relationship and (b) if there are differences in how the public are defining values and what kind of reaction is appropriate to handle the different types of risk (Renn 2005).

Figure 1 shows Renn's (2005) recommendations of stakeholder involvement in the different risk problem classes, where diverse types of risk problems demand different involvement from stakeholders and the public. Threats and fear of terrorist attacks, which is the danger category underlying aviations new security regulations, is an ambiguity induced risk problem, and demands according to the framework wide participation from agencies, experts, stakeholders and the public involved.

			<i>Risk Trade-off Analysis & Deliberation necessary</i> + Risk Balancing + Probabilistic Risk Modelling
		<i>Risk Balancing Necessary</i> + Probabilistic Risk Modelling	
	<i>Probabilistic Risk Modelling</i>		
<i>Statistical Risk Analysis</i>	Cognitive	• Cognitive • Evaluative	• Cognitive • Evaluative • Normative
Remedy	Type of Conflict	Type of Conflict	Type of Conflict
Agency Staff	• Agency Staff • External Experts	• Agency Staff • External Experts • Stakeholders • Industry • Directly affected groups	• Agency Staff • External Experts • Stakeholders • Industry • Directly affected groups • General public
Actors	Actors	Actors	Actors
Instrumental	Epistemological	Reflective	Participative
Type of Discourse	Type of Discourse	Type of Discourse	Type of Discourse
Simple	Complexity Induced	Uncertainty Induced	Ambiguity Induced
Risk Problem	Risk Problem	Risk Problem	Risk Problem
Function:	Allocation of risks to one or several of the four routes		
Type of Discourse:	Design discourse		
Participants:	A team of risk and concern assessors, risk managers, stakeholders and representatives of related agencies		

Figure 1: The risk management Escalator and Stakeholder Involvement (Renn 2005)

The decision process involved in how to address a particular risk problem includes what and whom to involve and what to do and how to make selections. In this framework Renn (2005) advocates the belief of inclusive governance when dealing with global and systematic risks. Political, business, scientific, and civil society players should contribute in the process of framing the problem, generating options, evaluating options and coming to a joint conclusion. As shown in figure 1 above the diverse risk problems require different amount of stakeholder

involvement. The more complex and controversial, the more involvement is required to manage risks. Ordinary and traditional risk problems (simple) are usually best handled using an instrumental discourse among agency staff, directly affected groups and enforcement personnel. On the other hand, when there is considerable uncertainty and disputes about values or consequences, it is convenient to arrange debates in a participative discourse. In this article we emphasise that it is especially the latter risk problem that is of interest.

In the aviation security context, the type of discourses concerning the risk problem are thus characterised as “ambiguity induced”. Accordingly, the remedies are of cognitive, evaluating and normative character. In order to apply these perspectives to aviation security regulations we introduce four organisational perspectives. The objective is to classify the implementation processes and investigate to what extent the social determinants operate and influence the character of security regulations. The analytical framework is organised along two axes. The y-axis defines the level of governance which refers to the locality of the decision making process i.e UN/EU level versus the Norwegian aviation industry. The x-axis refers to the character of the decision making processes i.e whether it is based on a rational/instrumental perspective or a more constructivist perspective which includes understanding the impact of social/cultural values. The framework analyse the consequences of mandatory legislative processes such as the regulative imperatives of EU and whether the principles of Risk Governance Perspectives is satisfactory (Statskonsult 2002, Sejersted et al. 1995; 2004). Accordingly, the framework can help us see how risk governance at one level changes character when adopted on another level in a multilevel society with several levels of authority.

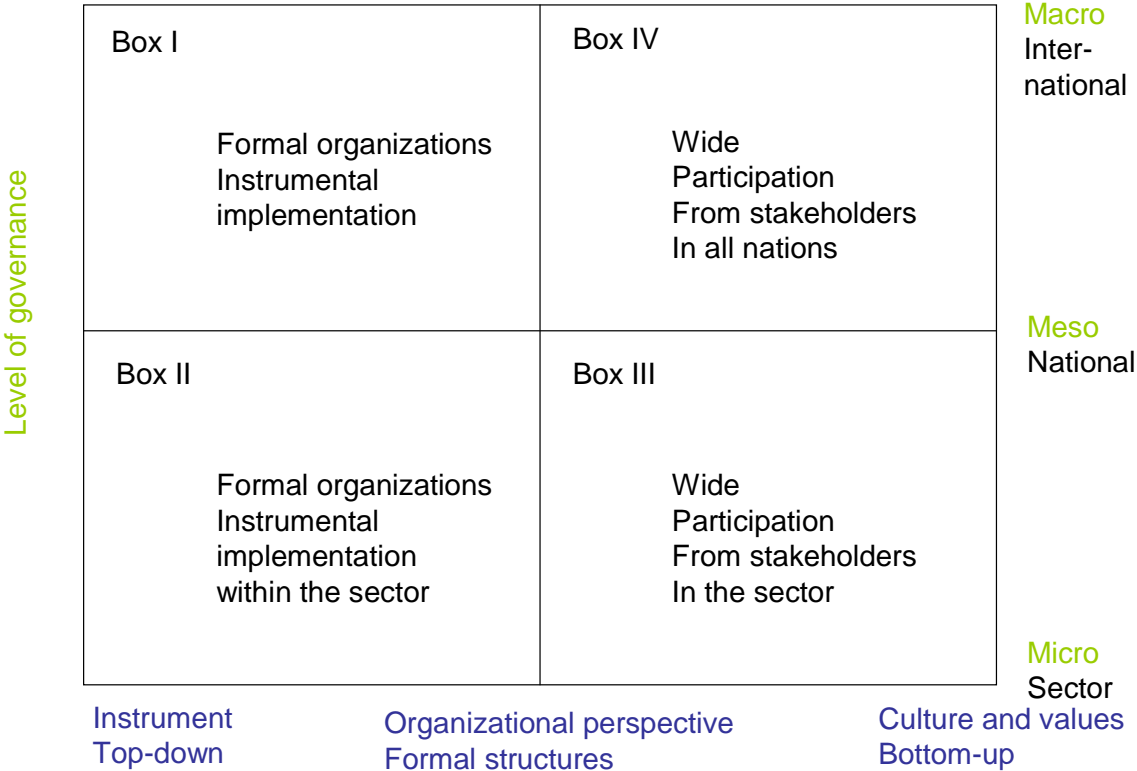


Figure 2: Analytical framework

f the boxes are seen in a regressive manner, with Box I forming the most instrumental and formal organizations, and Box IV set the opposite position with organizations seen as result of culture and values, the decline in the formalness of the different organizations in the model can be illustrated as in figure 3 below. The red line in the middle (between Box II and Box III) indicates the border between the top-down and bottom-up approaches.

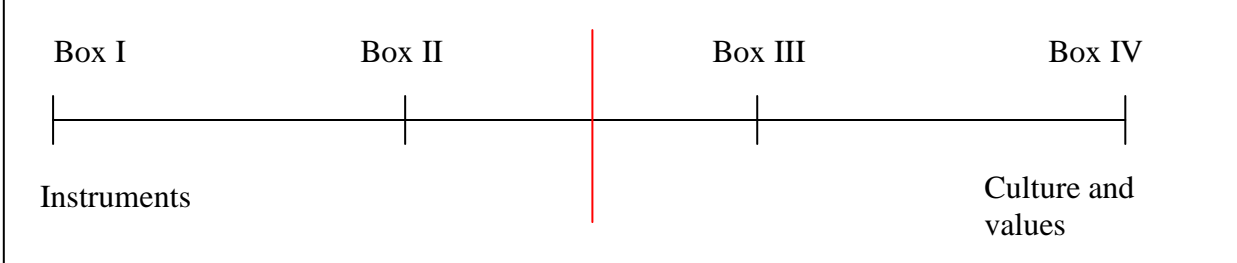


Figure 3: Decrease of instrumentality in the analytical framework.

The analytical framework will be applied to analyse the process of preparing and implementing security regulations in the aviation sector. By identifying the characteristics of the process on both international and national level, the model can contribute to develop knowledge about the character of the implementation process of EU security regulations. By referring to the Risk Governance Framework in the model it is possible to investigate to what extent the EU regulations of aviation security follow principles of risk governance. Furthermore, we may be capable discussing the consequences applying an instrumental decision making model versus a more participative approach.

Stakeholders characterised by responsibility aversion will favour a top down regulation practise (Power 2004). A regulative practise characterised by instrumentality and top down processes may further lead to a passive attitude by those who are regulated on the local levels. Such attitudes will reduce local involvement and innovative attitudes towards risk regulating procedures. According to Renn’s (2005) ideal principles of bottom up risk governance a broad range of stakeholder’s involvement and local participation are required. Such an institutional setting will confront sloppy and ignorant attitudes at local levels and challenge the actors’ attitude towards responsibility. However, this form of regulative practise, accounting for social and cultural values when designing and implementing new routines and procedures, require less responsibility aversion by the actors involved. Accordingly, rules and procedures with local involvement gain greater legitimacy among the participants but also demand a higher willingness to take responsibility for security.

Security regulation in Norwegian and European civil aviation – Combining Nordic traditions with a new direction post 11.09.2001

Historically, there is a tradition in Norway for following what has been labelled the *Nordic model* when developing regulations, implying a tri party cooperation between the government, the employer and the employee. This form of wide involvement is one of the characteristics that is special for development of regulations in the Nordic countries and is explained as related to the social democratic traditions in the Nordic region. Usually, this form of regulatory processes takes time to accomplish and there is seldom room for rapid implementation. In Norway in particular, the Public Administration Act regulates mandatory hearings in advance of implementing regulations and recommends that the consultative bodies

(stakeholders, employees and the industry) are given at least three months to reply to hearings. Altogether, such a process is comprehensive and emphasises the involvement of all participants within the regulated field with the intention to conduct a transparent and democratic process. However, in relation to governing civil aviation security, regulations have developed towards a mandatory supranational European framework based on other values and politics than those associated with the Nordic model.

Prior to September 11th 2001 the Convention on International Civil Aviation (Chicago-Convention) served as the supranational framework for regulating security within civil aviation. This convention is not legally binding, but includes a clause that each member country should report deviations from the recommendations given.

After 9/11, the EU developed a strict set of regulations based on the Chicago convention that became mandatory for all EU members (today recognised by 48 countries). From being internationally regulated by a not legally binding set of recommendations, aviation security became strictly and in detail regulated by an international body. Although Norway is not an EU member, membership in the European Free Trade Association (EFTA) makes Norway part of the European Single Market, comprising free movement of people, goods, services and capital. Because of this membership Norway has to implement and comply with the same regulations as any other EU country in order to be labelled as “pure”; meaning that it is a country that does not require additional security checks. Any country that operates by a different set of regulations is termed “impure” or “black” countries and all passengers travelling from these countries will have to be security checked in the arrival airport of the “pure” country.

In terms of explaining the actual form the security regulations have taken in Norway, a juridical technique labelled as the *reference technique* has been used for implementing EU security regulations (Sejersted et al. 2004). Applying this technique, the European security regulations that are open for the public are attached to an existing Norwegian regulation. Four open EU regulations are attached to the Norwegian Regulation on the Prevention of Unlawful Acts against the Security of Civil Aviation. However, twelve other EU regulations, applied through the same technique, are classified information and not available for others than authorities, enterprises, companies and persons that have special authorisation to handle this information.

When implementing EU security regulations in the Norwegian aviation sector, EU regulations have precedence over national regulations. The regulations are implemented word by word and research indicates that there are very limited opportunities for adjustments to the EU regulations at the Norwegian level². For example, it is according to industry informants no room for implementing risk based measures on an operational level of the aviation systems as judgements about risk and measures are taken on a supranational European level. In sum, the EU regulations are more detailed than the Norwegian regulations and there are important differences in the way the public administration can use official assessment when practicing the law.

In addition, many of the EU regulations (12 of 16) are only legally accessible for persons that are authorized for the information, and not open to the general public. Some of the regulations have also been implemented on a very short notice. On at least one occasion, the Norwegian

² Based on Nikolaisen (2008)

government has implemented interim regulations without or with a minimal hearing prior to the implementation. The reason for this rapid implementation has been to avoid being banned from the civil commercial aviation. If the government had followed the prescribed procedures for implementing the regulations, it would have taken several months. The interim regulations were dismissed when the proper treatment through the EEA Agreement into the Norwegian law was conducted.

Discussing discrepancies in risk theory and practice

The security functioning of European aviation security regulations identified in the study based on the Norwegian case is here analyzed using the risk governance models presented in the theory section of this paper. The analysis is conducted in order to identify characteristics and the level of governance applied in the European civil aviation risk governance regime. First, the mandatory practice of preparing and implementing EU security regulations in Norway according to the EEA Agreement is positioned within the analytical framework presented in the paper. Second, we discuss the positioning of other relevant perspective such as the traditional Norwegian regulatory model as well as the normative security risk governance framework based on Risk Governance theory (Renn 2005). Through this categorisation we are able to compare the actual legislative processes in EU and Norway to theoretical ideals. Also, Norwegian regulatory traditions coined by the phrase the 'Nordic regulatory Model', institutionalising specific social values and political ideologies, are compared and consequences of discrepancies are discussed. The discussion concludes with addressing what explains the gap between the theoretical model of Risk Governance and the regulatory realities of security currently experienced within civil aviation.

The EU regulatory regime

The process of regulatory development within the EU is mandatory and steered by a set of rules in a predefined structure. The different national, industry and stakeholder actors are thus participating in a fixed setting. Through participation in the Commission, the Parliament and the Council the member states are able to have influence on the outcome in all phases of the process, although our findings may indicate that some larger European countries have more influence than others during preparation of security regulations (Nikolaisen 2008). In Norway's case, being a third party country, it has to comply with other guidelines than EU member states. The EEA Agreement ensures participation to a certain extent, but does not give it the right to participate when the actual decisions are made.

The secrecy and rapidity that is widely imposed when implementing the European aviation security regulations diminish the involvement of others than those who are authorized. The general public, for example, are excluded from a discourse concerning these regulatory developments. Moreover, the general public is not aware of the details of the security regulations/rules implemented. Also, rapidity has lead to restricted hearing processes in advance of implementation. On one occasion regulations were implemented in a couple of days within the EU.

A particular issue of interest in this paper is the nature of the EU security regulation implementation. As describe in the previous section, there is a considerable degree of detail used in EU security regulations and law. In order to avoid different regulatory interpretations

and practices the regulatory text is the most important source of reference for practice in the EU states that are obliged to execute the regulations.

In order to position the EU regulatory process in the analytical framework, the following characteristics are essential;

- There is a very restricted involvement of stakeholders because the regulations are predominantly secret and not open for the public,
- The very strict and detailed rules makes it hard to uphold different cultures, values, and opinions in countries involved, such as Norway in this case
- Rapidity in regulatory development and implementation dampens the possibility to conduct hearings and involvement from the public.

Based upon these characteristics the EU regulatory process is placed in Box I (figure 4 below). The character of closure, detailed rules and efficiency during the implementation phase leave little room for negotiation and extended participation. Local stakeholders and the interest of the public are almost absent. Accordingly, the regulations will be implemented from above with little influence from lower levels of the decision hierarchy.

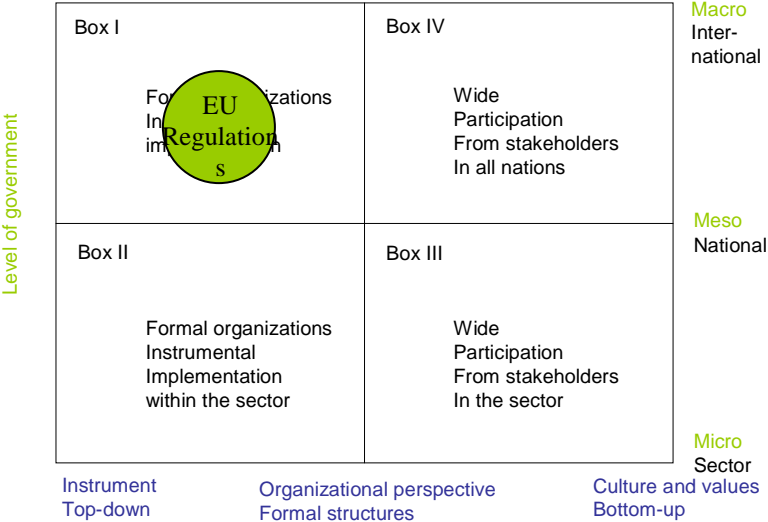


Figure 4: categorisation of EU aviation security regulations

The Nordic model in a risk governance perspective

As said above, the preparation and implementation of regulations in Norwegian law is regulated in the Public Administration Act. This act recommends wide participation as a foundation for regulatory development and implementation, advocating also the need for public discussions and political debates. A central principle is that actors who are subject to the regulation should be given the opportunity to give their opinion on the relevant case before new laws/regulations are passed. The overall purpose is to involve the affected party in the decision-making process and ensuring a transparent and democratic process. One may say that the regulatory system emphasising the workers right to participate in the shaping of the workplace. The characteristics of this regime, including the mandatory participation of employers, employees and the government, and the recommended time frame for securing feedback, are factors that support a bottom-up process weighting the importance of social and industrial diversity of culture and values. (figure 5 below).

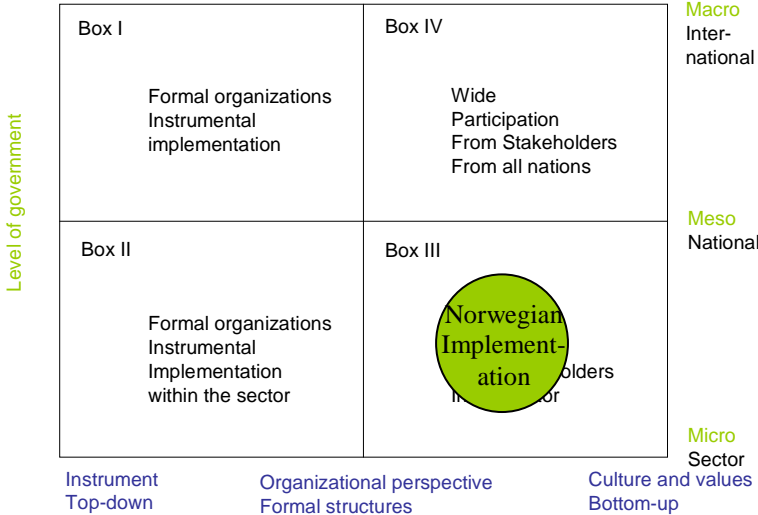


Figure 5: The normative Norwegian preparation and implementation of regulations

The Nordic model denotes a regulative practise where the negotiating processes involve representatives from the government, unions and business. This practise intends to guarantee a democratic trial during the development and implementation of regulations and to some extent has lead to a certain national style of the security regimes in Norway. To practice the Nordic model means to promote the influence of certain social and cultural determinants in Risk regulation in Norway. However, this is not directly comparable to the ideal regulatory approach presented in Renn (2005).

Is there an ideal regulatory approach to aviation security?

The risk governance framework presented in this paper serves as a theoretical guideline for how to systematically approach the future unknown, among other based on the risk problem that is being addressed. In this framework it is essential to identify the risk problem or problems inherent in aviation security in order to develop (eventually understand) regulatory measures and the degree stakeholder involvement that should be implemented in the regulatory scheme. Looking at the different characteristics of risk problems in Renn’s (2005)

model, the framework suggests an instrumental process driven by the agencies/industry responsible if the risk problem is simple. This corresponds to the left side of the analytical framework. On the opposite side of the scale, corresponding to the right side of the analytical framework, ambiguity induced risk problems should be prepared and implemented by a wide involvement of both stakeholders and the general public, joining agency/industry management and experts/scientists in the discourse in order to survey the different cultures, values and opinions in the society of interest. This, we would argue, is also coherent with the fundamental social determination of risk described in section 1.

The second dimension included in the analytical framework is the level of governance. Following theory, one level of governance will influence on the possibility to govern in other levels. Accordingly, we argued that risk governance enforced on one level (e.g. EU) will exclude the possibility to govern risk on lower levels of a regulatory regime (e.g. national agencies). Thus, when aviation security is governed on a supranational level, applying an instrumental approach such as we have identified in EU aviation security implementations, governance on this level will “lock” the involvement from stakeholders, interest groups and the general public at national and local industry levels.

As the risk problems of aviation security identified in this paper are primarily ambiguity induced we are faced with a discrepancy between risk governance theory and aviation security regulatory practice. Ideally, following the Risk Governance Framework (Renn 2005), knowledge and considerations concerning the social and political contexts cross EU nations should be an important factor when governing security risks in the aviation sector. However, as this is not the case it leads us to address contextual factors that may explain why an instrumental regulatory regime has been developed when the risk problem itself normatively implies a more participative alternative.

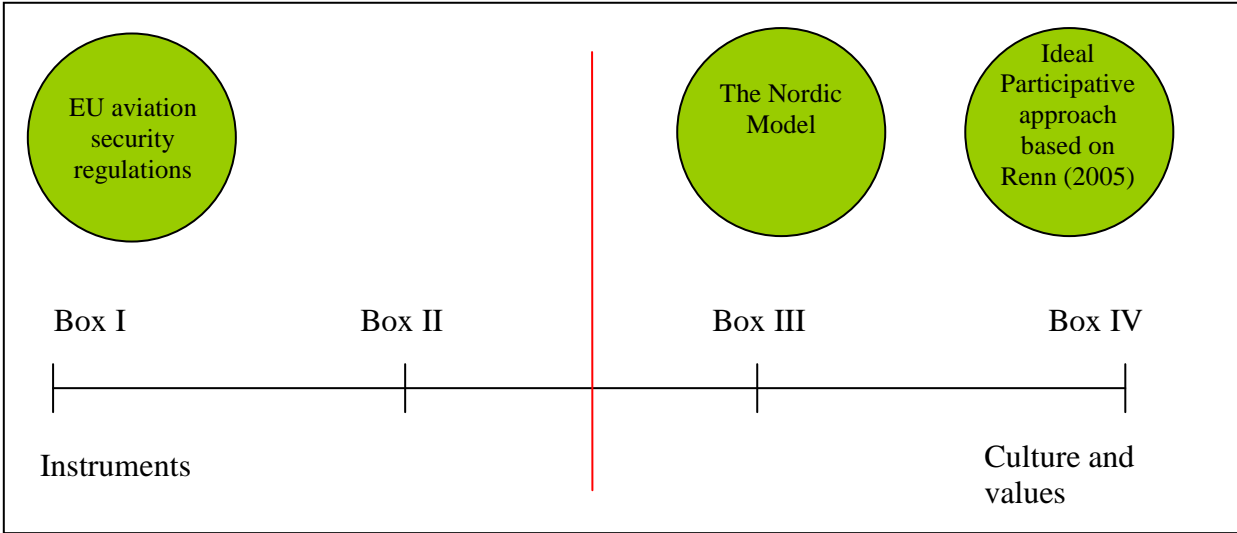


Figure 6 Decrease of instrumentality in the different approaches

Based on empirical data it is reasonable to argue that the European practise regulating the Aviation sector is more a result of the increased international standardisation of the regulatory framework post 9/11, than due to the Norwegian absence in the EU. The top down

perspectives is the same whether you work at an airport of average size in central Europe or in Norway.

The important contextual factor that explains the instrumental top down character of the implementation process is thus the increased demand of detailed and standardised regulations on an international level. From a rational point of view such regulations are effective, lucid and easy to improve if something unforeseen should happen. However, optimal regulatory regimes are theoretical constructions and practising such regulatory framework may as argued above, be difficult to adapt to locally technical conditions. Another explanatory contextual factor is that the responsible actors on lower level in the system actually favour a top down implementation process because it makes daily routines and decision making processes more a question of technical procedures than confidence in local judgement and competence. Such risk management system will be characterised by responsibility aversion because of the possibility to blame the routines or actors far away from “the sharp end” when incidence occur. Both these explanatory factors also illuminate why a top down implementation process may lead to greater risk potential and deviate from the principles of the risk governance framework.

Conclusion

In this paper we have argued that the implementation of the EU aviation security regulations fails to satisfy the Risk Governance Framework (Renn 2005) on several essential points. The restricted participation of the stakeholders in both the assessment sphere and the management sphere deviate from the frameworks’ strong emphasise on the involvement of stakeholders. The secrecy connected to the process and the regulations are amplifying the limitation for participation. In addition the rapid implementation excludes discussions about what options to select to manage the risk.

The paper shows that the preparation and implementation of the EU security regulations (seen from a Norwegian perspective) are deviating from both the Risk Governance Framework (Renn 2005) and the Norwegian way of preparing and implementing regulations. The Risk Government Framework states that governance of complex risk problems must involve the stakeholders and the general public at several levels of both the assessment sphere and management sphere (Renn 2005) to prevent opposition. EU fails to meet these demands, while the Norwegian aviation sector to a greater extent has a tradition for this involvement. The Norwegian approach is therefore meeting the demands concerning the involvement of stakeholders and the general public in the Risk Government Framework.

The quite different approaches in preparing and implementing regulations are also obvious. Norway has a mandatory participation of the stakeholders and the general public through written hearings regulated in the Public Administration Act, while EU has restricted preparations due to secret regulations and limitations for the Norwegian involvement. The preparation and implementation of regulations in the Norwegian aviation sector has traditionally been characterized by a belief in involvement and participation of the stakeholders in order to maintain the different cultures, values among the ones that are regulated. How to handle this in the future is dependent on whether the new demands meet the institutional identity.

References

- Aven, T. (1997). Pålitelighets- og risikoanalyse.
- Aven, T., Njå, O., Olsen, K. H., & Sandve, K. (2004). *Samfunnssikkerhet*: Universitetsforlaget.
- Brunsson, N., & Olsen, J. P. (1990). *Kan organisasjonsformer velges?* In *Makten att reformera*: Carlssons.
- Kirwan, B., Hale, A., & Hopkins, A. (2002). *Changing regulation: controlling risks in society*, Amsterdam.
- Nikolaisen, T. (2008). *Norwegian Aviation Security Regulation post 9/11. Why there are there still conflicts*. Master thesis University of Stavanger
- Pigeon, Kaspersson & Slovic (2003) *The Social Amplification of Risk*. Cambridge University Press. Cambridge
- Power, Michael (2004) *The Risk Management of Everything. Rethinking the Politics of Uncertainty*. Demos. London
- Renn, O. (1998). Three decades of risk research: accomplishments and new challenges. *Journal of Risk Research*, 1(1), 49-71.
- Renn, O. (2005). White Paper on Risk Governance. An integrative approach: IRGC
- Renn, O. (2008) *Risk Governance Coping with Uncertainty in a Complex World* Earthscan. London
- Rosa, E. A. (1998). Metatheoretical foundations for post-normal risk. *Journal of Risk Research*, 1(1), 15- 44.
- Sejersted, F. et al (1995). *EØS-rett*. Oslo: Universitetsforl.
- Sejersted, F. et al (2004). *EØS-rett*. Oslo: Universitetsforl.
- Statskonsult. (2002). *I komiteer og korridorer. Håndbok i EØS-arbeid*. Oslo: Statskonsult.

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Introduction

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Theoretical framework

The concept of risk has traditionally been understood differently by, on one side, the technical and natural sciences that base their approaches on an argument for risk as ontologically real and social and cultural approaches on the other that see risk as a social construct. Despite of these fundamental differences in tradition, by saying that risk also contains social aspects, is not necessarily to dismiss statistical/technical approaches based on physical sizes, events and quantities, but to also acknowledge the social/cultural reality in which they are expressed and interpreted. By moulding a framework that employs the strengths of the different scientific disciplines, it is possible to arrive at a more integrated approach to risk. This mode of thought

¹ This working paper is based on research conducted by Trond Nikolaisen as part of his Masters degree in Societal Safety at the University of Stavanger (Nikolaisen 2008). The paper work is part of the Social Determination of Risk (SORISK) research project aimed at developing a socially based theory of risk and applying it to aviation security in the Norwegian setting.

has led to several definitions that include these aspects as well as bringing in the uncertainty factor which is shared between most risk definitions (Renn 2008). In this paper, we find that Rosa's definition serves our purpose as he defines risk as "...a situation or event where something of human value (including humans themselves) has been put at stake and where the outcome is uncertain" (Rosa 1998, p. 28). This way we can acknowledge the human values implied in risks, not only the "objective" risks based on calculations and formal assessments. Simultaneously it opens up for the recognition of the uncertainty of the future outcome that demands an altered approach to regulations. While deterministic and detailed rules are prepared due to experience in the past, the uncertainty implicit in the concept of risk (Renn 2005; 1998, Aven et al. 2004, Kirwan et al. 2002, Pidgeon et al. 2003 Aven 1997), demands more flexible rules to be able to handle unknown threats. Detailed regulations are often denoted as being reactive, because they are implemented as a result of previous accidents or attacks. Risk-based regulations are characterized by a more open-minded approach to meet the unknown.

Regulatory regimes for governing risk have developed in tandem with the increasing complexity of modern production of goods and services, and as underlined by Power (2004) the nature of risk itself give rise to variation of risk regulating regimes. Risk governance is of particular importance in, but not restricted to, situations where there is no single authority to take a binding risk management decision but where instead the nature of the risk requires the collaboration and co-ordination between a ranges of different stakeholders.

Despite varieties, all regulatory regimes have to satisfy certain basic characteristics to fulfil their roles. First they have to be perceived as legitimate. That means that administrative systems, formal procedures, means and ends are accepted both by the members of organisations and other relevant stakeholders. Stakeholders affected by regulations can be many and diverse, encompassing all "*socially organised groups that are or will be affected by the outcome of the event or the activity from which the risk originates and/or by the risk management options taken to counter the risk*" (Renn 2005, p. 81). These agencies, organisations, groups and actors have to recognise the qualities of regulation. Thus, risk governance not only includes a multifaceted, multi-actor risk process but also calls for the consideration of contextual factors such as institutional arrangements (Renn 2005). If regulatory regimes fail to fulfil their purpose, it will be necessary to renegotiate contents and areas of applications. In order to maintain legitimacy, routines organising processes of negotiation also have to be a part of regulatory regime. Second, regulation implies allocating liability between actors and stakeholders involved. Different regimes may thus have different distribution of liabilities. Hence, an important feature of risk governance is to decide who is responsible when certain incidents take place and how to evaluate what to do in hindsight.

Renn (2005) proposes fundamental principles for governing risk and of "good governance". In this paper his concepts are applied as a reference for evaluating how the implementation of security regulations has been accomplished in the Norwegian aviation industry. The Risk Governance Framework (Renn 2005) is, according to the International Risk Governance Council (IRGC), a tool for identifying, assessing, managing, monitoring and communicating risk. The framework has an ambition of being an "*integrated analytic framework for risk governance which provides guidance for the development of comprehensive assessment and management strategies to cope with risks, in particular at the global level*" (Renn 2005, p. 11). The framework consists of a combination of positivistic and relativistic tradition and looks at how risk-related decision-making unfold when a range of actors are involved, as is the case in the European aviation sector. Renn (2005) also states that it is important to include the

historical and legal background, guiding systems, value systems and perception when governing risk (Renn 2005). The framework proposes a new categorization of risk based on different states of knowledge of the various risks in society. The categories are: *simple*, *complex* and *ambiguous* risk problems and are dependent on (a) if it's possible to establish cause-effect relationship and (b) if there are differences in how the public are defining values and what kind of reaction is appropriate to handle the different types of risk (Renn 2005).

Figure 1 shows Renn's (2005) recommendations of stakeholder involvement in the different risk problem classes, where diverse types of risk problems demand different involvement from stakeholders and the public. Threats and fear of terrorist attacks, which is the danger category underlying aviations new security regulations, is an ambiguity induced risk problem, and demands according to the framework wide participation from agencies, experts, stakeholders and the public involved.

			<i>Risk Trade-off Analysis & Deliberation necessary</i> + Risk Balancing + Probabilistic Risk Modelling
		<i>Risk Balancing Necessary</i> + Probabilistic Risk Modelling	
	<i>Probabilistic Risk Modelling</i>		
<i>Statistical Risk Analysis</i>	Cognitive	• Cognitive • Evaluative	• Cognitive • Evaluative • Normative
Remedy	Type of Conflict	Type of Conflict	Type of Conflict
Agency Staff	• Agency Staff • External Experts	• Agency Staff • External Experts • Stakeholders • Industry • Directly affected groups	• Agency Staff • External Experts • Stakeholders • Industry • Directly affected groups • General public
Actors	Actors	Actors	Actors
Instrumental	Epistemological	Reflective	Participative
Type of Discourse	Type of Discourse	Type of Discourse	Type of Discourse
Simple	Complexity Induced	Uncertainty Induced	Ambiguity Induced
Risk Problem	Risk Problem	Risk Problem	Risk Problem
Function:	Allocation of risks to one or several of the four routes		
Type of Discourse:	Design discourse		
Participants:	A team of risk and concern assessors, risk managers, stakeholders and representatives of related agencies		

Figure 1: The risk management Escalator and Stakeholder Involvement (Renn 2005)

The decision process involved in how to address a particular risk problem includes what and whom to involve and what to do and how to make selections. In this framework Renn (2005) advocates the belief of inclusive governance when dealing with global and systematic risks. Political, business, scientific, and civil society players should contribute in the process of framing the problem, generating options, evaluating options and coming to a joint conclusion. As shown in figure 1 above the diverse risk problems require different amount of stakeholder

involvement. The more complex and controversial, the more involvement is required to manage risks. Ordinary and traditional risk problems (simple) are usually best handled using an instrumental discourse among agency staff, directly affected groups and enforcement personnel. On the other hand, when there is considerable uncertainty and disputes about values or consequences, it is convenient to arrange debates in a participative discourse. In this article we emphasise that it is especially the latter risk problem that is of interest.

In the aviation security context, the type of discourses concerning the risk problem are thus characterised as “ambiguity induced”. Accordingly, the remedies are of cognitive, evaluating and normative character. In order to apply these perspectives to aviation security regulations we introduce four organisational perspectives. The objective is to classify the implementation processes and investigate to what extent the social determinants operate and influence the character of security regulations. The analytical framework is organised along two axes. The y-axis defines the level of governance which refers to the locality of the decision making process i.e UN/EU level versus the Norwegian aviation industry. The x-axis refers to the character of the decision making processes i.e whether it is based on a rational/instrumental perspective or a more constructivist perspective which includes understanding the impact of social/cultural values. The framework analyse the consequences of mandatory legislative processes such as the regulative imperatives of EU and whether the principles of Risk Governance Perspectives is satisfactory (Statskonsult 2002, Sejersted et al. 1995; 2004). Accordingly, the framework can help us see how risk governance at one level changes character when adopted on another level in a multilevel society with several levels of authority.

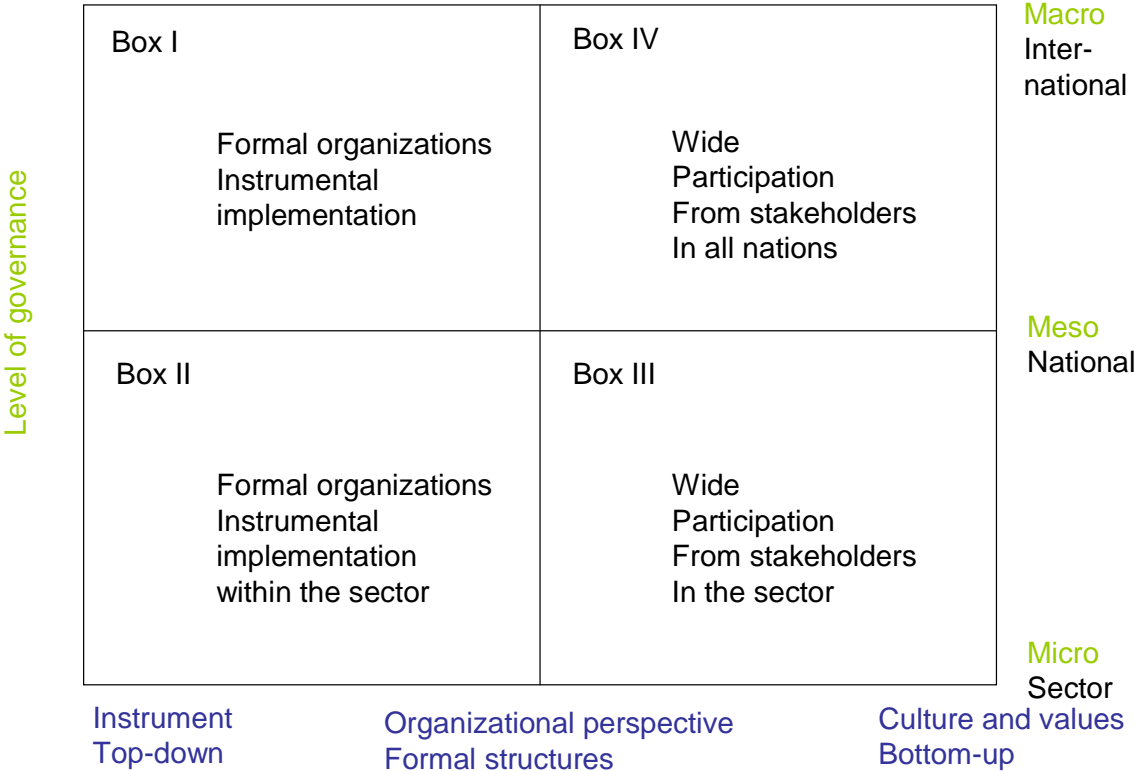


Figure 2: Analytical framework

f the boxes are seen in a regressive manner, with Box I forming the most instrumental and formal organizations, and Box IV set the opposite position with organizations seen as result of culture and values, the decline in the formalness of the different organizations in the model can be illustrated as in figure 3 below. The red line in the middle (between Box II and Box III) indicates the border between the top-down and bottom-up approaches.

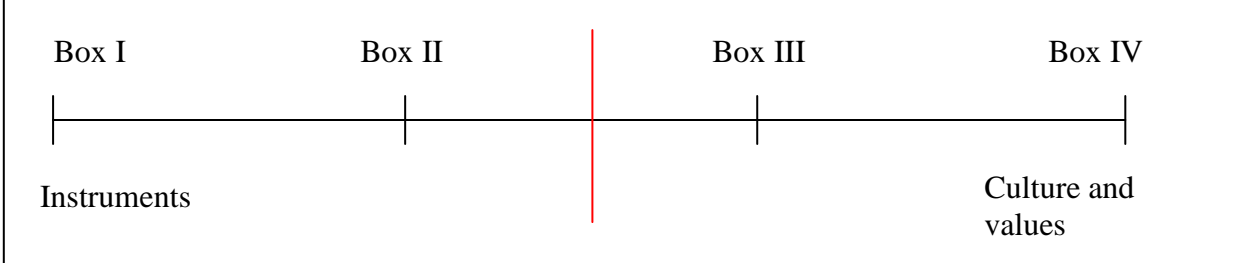


Figure 3: Decrease of instrumentality in the analytical framework.

The analytical framework will be applied to analyse the process of preparing and implementing security regulations in the aviation sector. By identifying the characteristics of the process on both international and national level, the model can contribute to develop knowledge about the character of the implementation process of EU security regulations. By referring to the Risk Governance Framework in the model it is possible to investigate to what extent the EU regulations of aviation security follow principles of risk governance. Furthermore, we may be capable discussing the consequences applying an instrumental decision making model versus a more participative approach.

Stakeholders characterised by responsibility aversion will favour a top down regulation practise (Power 2004). A regulative practise characterised by instrumentality and top down processes may further lead to a passive attitude by those who are regulated on the local levels. Such attitudes will reduce local involvement and innovative attitudes towards risk regulating procedures. According to Renn’s (2005) ideal principles of bottom up risk governance a broad range of stakeholder’s involvement and local participation are required. Such an institutional setting will confront sloppy and ignorant attitudes at local levels and challenge the actors’ attitude towards responsibility. However, this form of regulative practise, accounting for social and cultural values when designing and implementing new routines and procedures, require less responsibility aversion by the actors involved. Accordingly, rules and procedures with local involvement gain greater legitimacy among the participants but also demand a higher willingness to take responsibility for security.

Security regulation in Norwegian and European civil aviation – Combining Nordic traditions with a new direction post 11.09.2001

Historically, there is a tradition in Norway for following what has been labelled the *Nordic model* when developing regulations, implying a tri party cooperation between the government, the employer and the employee. This form of wide involvement is one of the characteristics that is special for development of regulations in the Nordic countries and is explained as related to the social democratic traditions in the Nordic region. Usually, this form of regulatory processes takes time to accomplish and there is seldom room for rapid implementation. In Norway in particular, the Public Administration Act regulates mandatory hearings in advance of implementing regulations and recommends that the consultative bodies

(stakeholders, employees and the industry) are given at least three months to reply to hearings. Altogether, such a process is comprehensive and emphasises the involvement of all participants within the regulated field with the intention to conduct a transparent and democratic process. However, in relation to governing civil aviation security, regulations have developed towards a mandatory supranational European framework based on other values and politics than those associated with the Nordic model.

Prior to September 11th 2001 the Convention on International Civil Aviation (Chicago-Convention) served as the supranational framework for regulating security within civil aviation. This convention is not legally binding, but includes a clause that each member country should report deviations from the recommendations given.

After 9/11, the EU developed a strict set of regulations based on the Chicago convention that became mandatory for all EU members (today recognised by 48 countries). From being internationally regulated by a not legally binding set of recommendations, aviation security became strictly and in detail regulated by an international body. Although Norway is not an EU member, membership in the European Free Trade Association (EFTA) makes Norway part of the European Single Market, comprising free movement of people, goods, services and capital. Because of this membership Norway has to implement and comply with the same regulations as any other EU country in order to be labelled as “pure”; meaning that it is a country that does not require additional security checks. Any country that operates by a different set of regulations is termed “impure” or “black” countries and all passengers travelling from these countries will have to be security checked in the arrival airport of the “pure” country.

In terms of explaining the actual form the security regulations have taken in Norway, a juridical technique labelled as the *reference technique* has been used for implementing EU security regulations (Sejersted et al. 2004). Applying this technique, the European security regulations that are open for the public are attached to an existing Norwegian regulation. Four open EU regulations are attached to the Norwegian Regulation on the Prevention of Unlawful Acts against the Security of Civil Aviation. However, twelve other EU regulations, applied through the same technique, are classified information and not available for others than authorities, enterprises, companies and persons that have special authorisation to handle this information.

When implementing EU security regulations in the Norwegian aviation sector, EU regulations have precedence over national regulations. The regulations are implemented word by word and research indicates that there are very limited opportunities for adjustments to the EU regulations at the Norwegian level². For example, it is according to industry informants no room for implementing risk based measures on an operational level of the aviation systems as judgements about risk and measures are taken on a supranational European level. In sum, the EU regulations are more detailed than the Norwegian regulations and there are important differences in the way the public administration can use official assessment when practicing the law.

In addition, many of the EU regulations (12 of 16) are only legally accessible for persons that are authorized for the information, and not open to the general public. Some of the regulations have also been implemented on a very short notice. On at least one occasion, the Norwegian

² Based on Nikolaisen (2008)

government has implemented interim regulations without or with a minimal hearing prior to the implementation. The reason for this rapid implementation has been to avoid being banned from the civil commercial aviation. If the government had followed the prescribed procedures for implementing the regulations, it would have taken several months. The interim regulations were dismissed when the proper treatment through the EEA Agreement into the Norwegian law was conducted.

Discussing discrepancies in risk theory and practice

The security functioning of European aviation security regulations identified in the study based on the Norwegian case is here analyzed using the risk governance models presented in the theory section of this paper. The analysis is conducted in order to identify characteristics and the level of governance applied in the European civil aviation risk governance regime. First, the mandatory practice of preparing and implementing EU security regulations in Norway according to the EEA Agreement is positioned within the analytical framework presented in the paper. Second, we discuss the positioning of other relevant perspective such as the traditional Norwegian regulatory model as well as the normative security risk governance framework based on Risk Governance theory (Renn 2005). Through this categorisation we are able to compare the actual legislative processes in EU and Norway to theoretical ideals. Also, Norwegian regulatory traditions coined by the phrase the 'Nordic regulatory Model', institutionalising specific social values and political ideologies, are compared and consequences of discrepancies are discussed. The discussion concludes with addressing what explains the gap between the theoretical model of Risk Governance and the regulatory realities of security currently experienced within civil aviation.

The EU regulatory regime

The process of regulatory development within the EU is mandatory and steered by a set of rules in a predefined structure. The different national, industry and stakeholder actors are thus participating in a fixed setting. Through participation in the Commission, the Parliament and the Council the member states are able to have influence on the outcome in all phases of the process, although our findings may indicate that some larger European countries have more influence than others during preparation of security regulations (Nikolaisen 2008). In Norway's case, being a third party country, it has to comply with other guidelines than EU member states. The EEA Agreement ensures participation to a certain extent, but does not give it the right to participate when the actual decisions are made.

The secrecy and rapidity that is widely imposed when implementing the European aviation security regulations diminish the involvement of others than those who are authorized. The general public, for example, are excluded from a discourse concerning these regulatory developments. Moreover, the general public is not aware of the details of the security regulations/rules implemented. Also, rapidity has lead to restricted hearing processes in advance of implementation. On one occasion regulations were implemented in a couple of days within the EU.

A particular issue of interest in this paper is the nature of the EU security regulation implementation. As describe in the previous section, there is a considerable degree of detail used in EU security regulations and law. In order to avoid different regulatory interpretations

and practices the regulatory text is the most important source of reference for practice in the EU states that are obliged to execute the regulations.

In order to position the EU regulatory process in the analytical framework, the following characteristics are essential;

- There is a very restricted involvement of stakeholders because the regulations are predominantly secret and not open for the public,
- The very strict and detailed rules makes it hard to uphold different cultures, values, and opinions in countries involved, such as Norway in this case
- Rapidity in regulatory development and implementation dampens the possibility to conduct hearings and involvement from the public.

Based upon these characteristics the EU regulatory process is placed in Box I (figure 4 below). The character of closure, detailed rules and efficiency during the implementation phase leave little room for negotiation and extended participation. Local stakeholders and the interest of the public are almost absent. Accordingly, the regulations will be implemented from above with little influence from lower levels of the decision hierarchy.

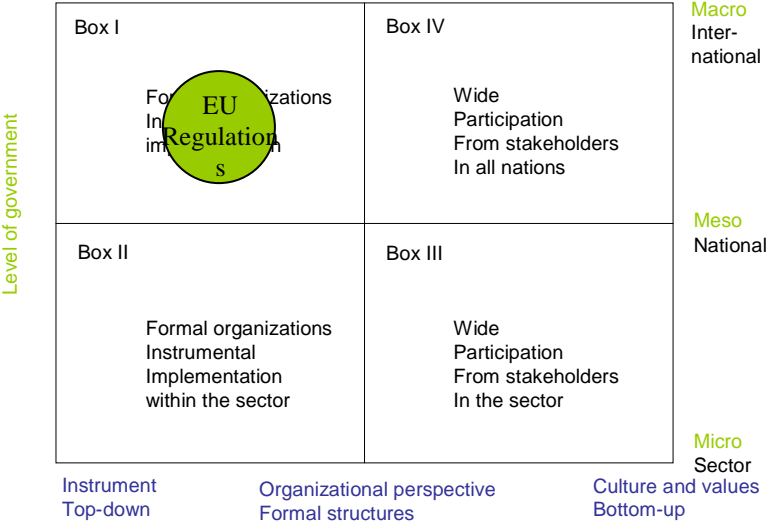


Figure 4: categorisation of EU aviation security regulations

The Nordic model in a risk governance perspective

As said above, the preparation and implementation of regulations in Norwegian law is regulated in the Public Administration Act. This act recommends wide participation as a foundation for regulatory development and implementation, advocating also the need for public discussions and political debates. A central principle is that actors who are subject to the regulation should be given the opportunity to give their opinion on the relevant case before new laws/regulations are passed. The overall purpose is to involve the affected party in the decision-making process and ensuring a transparent and democratic process. One may say that the regulatory system emphasising the workers right to participate in the shaping of the workplace. The characteristics of this regime, including the mandatory participation of employers, employees and the government, and the recommended time frame for securing feedback, are factors that support a bottom-up process weighting the importance of social and industrial diversity of culture and values. (figure 5 below).

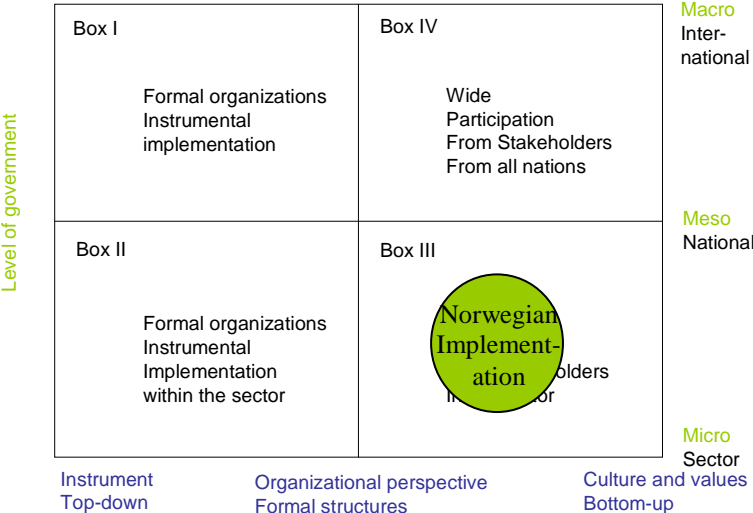


Figure 5: The normative Norwegian preparation and implementation of regulations

The Nordic model denotes a regulative practise where the negotiating processes involve representatives from the government, unions and business. This practise intends to guarantee a democratic trial during the development and implementation of regulations and to some extent has lead to a certain national style of the security regimes in Norway. To practice the Nordic model means to promote the influence of certain social and cultural determinants in Risk regulation in Norway. However, this is not directly comparable to the ideal regulatory approach presented in Renn (2005).

Is there an ideal regulatory approach to aviation security?

The risk governance framework presented in this paper serves as a theoretical guideline for how to systematically approach the future unknown, among other based on the risk problem that is being addressed. In this framework it is essential to identify the risk problem or problems inherent in aviation security in order to develop (eventually understand) regulatory measures and the degree stakeholder involvement that should be implemented in the regulatory scheme. Looking at the different characteristics of risk problems in Renn’s (2005)

model, the framework suggests an instrumental process driven by the agencies/industry responsible if the risk problem is simple. This corresponds to the left side of the analytical framework. On the opposite side of the scale, corresponding to the right side of the analytical framework, ambiguity induced risk problems should be prepared and implemented by a wide involvement of both stakeholders and the general public, joining agency/industry management and experts/scientists in the discourse in order to survey the different cultures, values and opinions in the society of interest. This, we would argue, is also coherent with the fundamental social determination of risk described in section 1.

The second dimension included in the analytical framework is the level of governance. Following theory, one level of governance will influence on the possibility to govern in other levels. Accordingly, we argued that risk governance enforced on one level (e.g. EU) will exclude the possibility to govern risk on lower levels of a regulatory regime (e.g. national agencies). Thus, when aviation security is governed on a supranational level, applying an instrumental approach such as we have identified in EU aviation security implementations, governance on this level will “lock” the involvement from stakeholders, interest groups and the general public at national and local industry levels.

As the risk problems of aviation security identified in this paper are primarily ambiguity induced we are faced with a discrepancy between risk governance theory and aviation security regulatory practice. Ideally, following the Risk Governance Framework (Renn 2005), knowledge and considerations concerning the social and political contexts cross EU nations should be an important factor when governing security risks in the aviation sector. However, as this is not the case it leads us to address contextual factors that may explain why an instrumental regulatory regime has been developed when the risk problem itself normatively implies a more participative alternative.

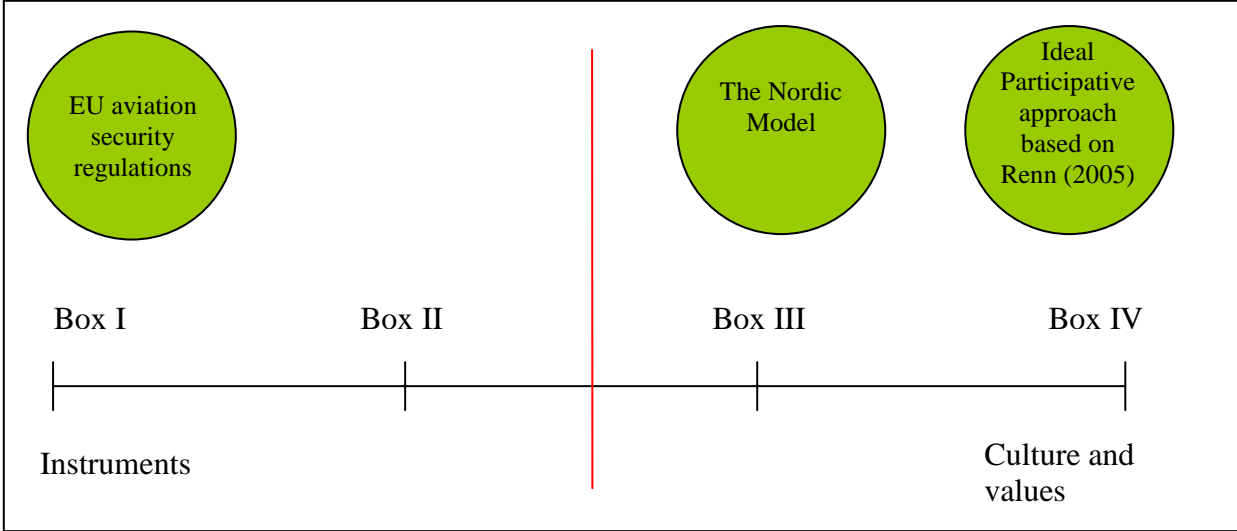


Figure 6 Decrease of instrumentality in the different approaches

Based on empirical data it is reasonable to argue that the European practise regulating the Aviation sector is more a result of the increased international standardisation of the regulatory framework post 9/11, than due to the Norwegian absence in the EU. The top down

perspectives is the same whether you work at an airport of average size in central Europe or in Norway.

The important contextual factor that explains the instrumental top down character of the implementation process is thus the increased demand of detailed and standardised regulations on an international level. From a rational point of view such regulations are effective, lucid and easy to improve if something unforeseen should happen. However, optimal regulatory regimes are theoretical constructions and practising such regulatory framework may as argued above, be difficult to adapt to locally technical conditions. Another explanatory contextual factor is that the responsible actors on lower level in the system actually favour a top down implementation process because it makes daily routines and decision making processes more a question of technical procedures than confidence in local judgement and competence. Such risk management system will be characterised by responsibility aversion because of the possibility to blame the routines or actors far away from “the sharp end” when incidence occur. Both these explanatory factors also illuminate why a top down implementation process may lead to greater risk potential and deviate from the principles of the risk governance framework.

Conclusion

In this paper we have argued that the implementation of the EU aviation security regulations fails to satisfy the Risk Governance Framework (Renn 2005) on several essential points. The restricted participation of the stakeholders in both the assessment sphere and the management sphere deviate from the frameworks’ strong emphasise on the involvement of stakeholders. The secrecy connected to the process and the regulations are amplifying the limitation for participation. In addition the rapid implementation excludes discussions about what options to select to manage the risk.

The paper shows that the preparation and implementation of the EU security regulations (seen from a Norwegian perspective) are deviating from both the Risk Governance Framework (Renn 2005) and the Norwegian way of preparing and implementing regulations. The Risk Government Framework states that governance of complex risk problems must involve the stakeholders and the general public at several levels of both the assessment sphere and management sphere (Renn 2005) to prevent opposition. EU fails to meet these demands, while the Norwegian aviation sector to a greater extent has a tradition for this involvement. The Norwegian approach is therefore meeting the demands concerning the involvement of stakeholders and the general public in the Risk Government Framework.

The quite different approaches in preparing and implementing regulations are also obvious. Norway has a mandatory participation of the stakeholders and the general public through written hearings regulated in the Public Administration Act, while EU has restricted preparations due to secret regulations and limitations for the Norwegian involvement. The preparation and implementation of regulations in the Norwegian aviation sector has traditionally been characterized by a belief in involvement and participation of the stakeholders in order to maintain the different cultures, values among the ones that are regulated. How to handle this in the future is dependent on whether the new demands meet the institutional identity.

References

- Aven, T. (1997). Pålitelighets- og risikoanalyse.
- Aven, T., Njå, O., Olsen, K. H., & Sandve, K. (2004). *Samfunnssikkerhet*: Universitetsforlaget.
- Brunsson, N., & Olsen, J. P. (1990). *Kan organisasjonsformer velges?* In *Makten att reformera*: Carlssons.
- Kirwan, B., Hale, A., & Hopkins, A. (2002). *Changing regulation: controlling risks in society*, Amsterdam.
- Nikolaisen, T. (2008). *Norwegian Aviation Security Regulation post 9/11. Why there are there still conflicts*. Master thesis University of Stavanger
- Pigeon, Kaspersson & Slovic (2003) *The Social Amplification of Risk*. Cambridge University Press. Cambridge
- Power, Michael (2004) *The Risk Management of Everything. Rethinking the Politics of Uncertainty*. Demos. London
- Renn, O. (1998). Three decades of risk research: accomplishments and new challenges. *Journal of Risk Research*, 1(1), 49-71.
- Renn, O. (2005). White Paper on Risk Governance. An integrative approach: IRGC
- Renn, O. (2008) *Risk Governance Coping with Uncertainty in a Complex World* Earthscan. London
- Rosa, E. A. (1998). Metatheoretical foundations for post-normal risk. *Journal of Risk Research*, 1(1), 15- 44.
- Sejersted, F. et al (1995). *EØS-rett*. Oslo: Universitetsforl.
- Sejersted, F. et al (2004). *EØS-rett*. Oslo: Universitetsforl.
- Statskonsult. (2002). *I komiteer og korridorer. Håndbok i EØS-arbeid*. Oslo: Statskonsult.